

Revised: 6/5/15 (310 form 270). Form may be downloaded from: www.dnrc.mt.gov/licenses-and-permits/stream-permitting

AGENCY USE ONLY: Application # _____ Date Received _____
Date Accepted _____ / Initials _____ Date Forwarded to DFWP _____

This space is for all Department of Transportation and SPA 124 permits (government projects).

Project Name _____

Control Number _____ Contract letting date _____

MEPA/NEPA Compliance ☐ Yes ☐ No If yes, #14 of this application does not apply.

JOINT APPLICATION FOR PROPOSED WORK IN MONTANA'S STREAMS, WETLANDS, FLOODPLAINS, AND OTHER WATER BODIES

Use this form to apply for one or all local, state, or federal permits listed below. The applicant is the responsible party for the project and the point of contact unless otherwise designated. "Information for Applicant" includes agency contacts and instructions for completing this application. To avoid delays, submit all required information, including a project site map and drawings. Incomplete applications will result in the delay of the application process. Other laws may apply.

The applicant is responsible for obtaining all necessary permits and landowner permission before beginning work.

✓	PERMIT	AGENCY	FEE
	310 Permit	Local Conservation District	No fee
✓	SPA 124 Permit	Department of Fish, Wildlife and Parks	No fee
	Floodplain Permit	Local Floodplain Administrator	Varies by city/county (\$25 - \$500+)
✓	Section 404 Permit, Section 10 Permit	U. S. Army Corps of Engineers	Varies (\$0 - \$100)
	318 Authorization 401 Certification	Department of Environmental Quality	\$250 (318); \$400 - \$20,000 (401)
	Navigable Rivers Land Use License, Lease, or Easement	Department of Natural Resources and Conservation, Trust Lands Management Division	\$50, plus additional fee

A. APPLICANT INFORMATION

NAME OF APPLICANT (person responsible for project): Bureau of Land Management

Has the landowner consented to this project? ☒ Yes ☐ No

Mailing Address: 111 Garryowen Rd, Miles City, MT 59301

Physical Address: 111 Garryowen Rd, Miles City, MT 59301

Day Phone: 406-233-2815 Evening Phone: Click here to enter. E-Mail: cstuart@blm.gov

NAME OF LANDOWNER (if different from applicant): Bureau of Land Management

Mailing Address: see above APPLICANT

Physical Address: Click here to enter physical address or N/A.

Day Phone: Click here to enter or N/A. Evening Phone: Click here to enter or N/A. E-Mail: Click here to enter or N/A.

NAME OF CONTRACTOR/AGENT): N/A

Mailing Address: Click here to enter name or N/A.

Physical Address: Click here to enter name or N/A.

Day Phone: Click here to enter name or N/A. Evening Phone: Click here to enter name or N/A. E-Mail: Click here to enter name or N/A.

B. PROJECT SITE INFORMATION

NAME OF STREAM or WATER BODY at project location Pumpkin Creek Nearest Town Miles City, MT

Address/Location: BLM administered public land in Custer County Geocode (if available): 14-1452-07-1-01-01-0000

Choose. 1/4 Choose. 1/4 Choose. 1/4, Section 7, Township 5N, Range 49E County Custer

Choose. 1/4 Choose. 1/4 Choose. 1/4, Section 17, Township 5N, Range 49E County Custer

Upstream Longitude -105.612824° Latitude 46.183776°

Downstream Longitude -105.675058° Latitude 46.216083°

The state owns the beds of certain state navigable waterways. Is this a state navigable waterway? No.

ATTACH A PROJECT SITE MAP OR A SKETCH that includes: 1) the water body where the project will take place, roads, tributaries, landmarks; 2) a circled "X" representing the exact project location. IF NOT CLEARLY STATED ON THE MAP OR SKETCH, **PROVIDE WRITTEN DIRECTIONS TO THE SITE.**

Directions to site: From Billings take I-94E 144 mi to Miles City, MT. From Miles City take MT-59 south 15 miles. Project site is NE of MT-59 and accessible from dirt roads on BLM land.

See maps in Appendix **XX**

C. PROJECT INFORMATION

1. **TYPE OF PROJECT** (check all that apply)

- | | | |
|---|--|---|
| <input type="checkbox"/> Bridge/Culvert/Ford Construction | <input checked="" type="checkbox"/> Fish Habitat | <input type="checkbox"/> Mining |
| <input type="checkbox"/> Bridge/Culvert/Ford Removal | <input type="checkbox"/> Recreation (docks, marinas, etc.) | <input type="checkbox"/> Dredging |
| <input type="checkbox"/> Road Construction/Maintenance | <input type="checkbox"/> New Residential Structure | <input type="checkbox"/> Core Drill |
| <input type="checkbox"/> Bank Stabilization/Alteration | <input type="checkbox"/> Manufactured Home | <input checked="" type="checkbox"/> Placement of Fill |
| <input type="checkbox"/> Flood Protection | <input type="checkbox"/> Improvement to Existing Structure | <input type="checkbox"/> Diversion Dam |
| <input type="checkbox"/> Channel Alteration | <input type="checkbox"/> Commercial Structure | <input type="checkbox"/> Utilities |
| <input type="checkbox"/> Irrigation Structure | <input checked="" type="checkbox"/> Wetland Alteration | <input type="checkbox"/> Pond |
| <input type="checkbox"/> Water Well/Cistern | <input type="checkbox"/> Temporary Construction Access | <input type="checkbox"/> Debris Removal |
| <input type="checkbox"/> Excavation/Pit | <input checked="" type="checkbox"/> Other <u>Placement of natural materials in channel for restoration</u> | |

2. **PLAN OR DRAWING** of the proposed project **MUST** be attached. **This plan or drawing must include:**

- a plan view (looking at the project from above)
- dimensions of the project (height, width, depth in feet)
- location of storage or stockpile materials
- drainage facilities
- an arrow indicating north
- a cross section or profile view
- an elevation view
- dimensions and location of fill or excavation sites
- location of existing or proposed structures, such as buildings, utilities, roads, or bridges

See Attached restoration plan for restoration maps and structure specific specifications:

- Beaver Dam Analogue Structures
- Post-Assisted Log Structures

3. **IS THIS APPLICATION FOR** an annual maintenance permit? ☐ Yes ☒ No

4. **PROPOSED CONSTRUCTION DATE.** Include a project timeline. Start date 8/9/2022
Finish date 11/15/2024 Is any portion of the work already completed? ☐ Yes ☒ No

5. **WHAT IS THE PURPOSE** of the proposed project?

The overall goal of restoration on Pumpkin Creek is to promote natural, self-sustaining fluvial processes that create and maintain a healthy, resilient riverscape. Doing so will increase habitat quality for the native fish species as well as terrestrial species that depend on riparian habitats. Some specific goals associated with this pilot project that are necessary to achieve the broader goal here are:

- Increase the proportion of active valley bottom
- Increase lateral connectivity
- Expand riparian cover along the channel and within active floodplain
- Increase channel/habitat complexity

Later in the planning process here these objectives are revisited within the context of indicators that can be used to evaluate restoration effectiveness at addressing these goals.

Indicators of restoration success are described in the attached restoration design report.

6. PROVIDE A BRIEF DESCRIPTION of the proposed project.

Low-tech process-based restoration (LTPBR) techniques are essential to achieving the scale of impacts needed to restore watershed-level processes, on which wildlife and aquatic resources in the region depend. Primary restoration techniques discussed throughout this application are the Beaver Dam Analog (BDA) and the Post-assisted log structure (PALS). BDAs are channel-spanning structures that mimic natural beaver dams. They are temporary features on the landscape with functions that change in response to the effect of flowing water, sediment, and beaver activity. BDAs are constructed with wood posts and with material similar to what beaver use to build their dams, including branches and stems of deciduous trees and shrubs. PALS are built with woody materials of various sizes held together with untreated wooden posts to mimic natural wood accumulations. Bank-attached PALS are used to increase flows against the opposite bank to encourage channel widening and sinuosity in incised systems. Channel-spanning PALS are porous alternatives to BDAs requiring less labor time and fill than a traditional BDA. Channel-spanning PALS slow water to encourage sediment trapping and floodplain subirrigation, and generally encourage incised channels to gain more meander length as a first step in restoration.

The attached restoration plan (**Appendix** xx) identifies the site-specific approaches that restoration practitioners will employ to improve degraded aquatic and riparian habitat. A backhoe or excavator will assist with soil movement when building BDAs where needed and where soil is suitable for use. Portions of this site do not support emergent sod suitable for use in BDAs; upland sod or facultative grasses will also be sourced for BDAs as feasible to minimize excavation of wetland sod.

7. WHAT IS THE CURRENT CONDITION of the proposed project site? Describe the existing bank condition, bank slope, height, nearby structures, and wetlands. Throughout the project area, Pumpkin Creek is deeply incised, though the areas in moderate condition have begun widening and have developed some inset floodplains. The banks are generally steep and erodible, with little vegetation cover. Overall, there is very little riparian shrub cover. The channel substrate consists mostly of fine material derived from the highly erodible shales, siltstones and sandstones of the basin. Occasional pockets of gravel are primarily deposited on bar surfaces. The lack of woody riparian vegetation leaves the channel structurally starved; within the project area there are no large wood accumulations in the channel. Wetlands are limited to narrow bands, sometimes less than one foot wide, along low banks of the stream. No structures are present near the project extent.

8. PROJECT DIMENSIONS. How many linear feet of bank will be impacted? How far will the proposed project encroach into and extend away from the water body?

Maximum bank impact (materials touching bank; no excavation, potential scour on one bank) is 426 linear feet, equivalent to 213 structures averaging 2 ft in length upstream-downstream. In reality, many structures will have no bank impact and will stabilize banks upstream and downstream, while some structures will encourage lateral channel migration to restore scour and deposition processes in incised channels and may create more than two feet of scour at some site. The project, once complete, is expected to result in a gain in bank stability and improved bank stabilization from riparian vegetation and lower height of exposed bank.

All construction is within the natural (pre-incision) bankfull level of the stream. Each phase is constructed primarily within the current bankfull level. Minor pooling will occur outside bankfull where the channel is less than two feet incised, but the pooling is shallow and generally does not persist after the first year, except where side channel reactivation has been achieved.

9. **VEGETATION.** Describe the vegetation present on site. How much vegetation will be disturbed or covered with fill material during project installation? (Agencies require that only vegetation necessary to do the work be removed.) Describe the revegetation plan for all disturbed areas of the project site in detail.

Wetland vegetation is dominated by spikerush (*Eleocharis palustris*), three-square bulrush (*Schoenoplectus pungens*), prairie cordgrass (*Spartina pectinata*), Baltic rush (*Juncus baltica*), foxtail barley (*Hordeum jubatum*) and limited patches of sandbar willow (*Salix exigua*) and Plains cottonwood (*Populus deltoides*) seedlings. The upper terrace of the inset floodplain transitions into western wheatgrass (*Pascopyrum smithii*), smooth brome (*Bromus inermis*), wild rose (*Rosa sp.*), western snowberry (*Symphoricarpos occidentalis*), goldenrod (*Solidago missouriensis*), and sunflowers (*Helianthus maximiliani* and *H. nuttali*). Mature and decadent Plains cottonwood are present on the abandoned high terrace, outside the current inset floodplain, along part of the project reach.

Riparian vegetation along the channel and on inset floodplains is predominantly herbaceous. Sparse remnant cottonwoods are found in some areas on the inactive floodplain surface. As flooding of these inactive surfaces is very rare, these trees are rarely watered by overbank flows, and fresh sediment deposits for recruitment of new trees are essentially nonexistent. Additionally, the distance to groundwater has increased due to channel incision. Because of this, the existing trees/stands are senescent. For the processes that LTPBR seeks to jump start to become self-sustaining, natural sources of wood are necessary. Therefore, one of the primary objectives of the first phases of restoration is to increase the area of inset floodplains and to expand the extent of woody riparian vegetation within these floodplains. The inactive floodplain is covered in grasses and sage brush typically characteristic of uplands.

The intent of the in-stream efforts is restoration of the physical processes that lead to riparian health. In order to address the scope of degradation within the Pumpkin Creek drainage, the BLM's ultimate goal is to let the system do positive and beneficial work. Beaver dams are structural elements that influence physical, chemical, and biological processes essential for ecological function along and adjacent to the flowpath. The physical heterogeneity and hydraulic and geomorphic diversity will increase by connecting water flow within segments of the stream to its historic floodplain, which is now dominated by upland vegetation.

Heavy equipment will not be operated during periods when the soil is too wet to adequately support equipment/vehicles. If equipment/vehicles create ruts in excess of 3 inches deep, heavy equipment utilization will cease, as the soil will be deemed too wet to adequately support equipment/vehicles.

Off-road travel will be kept to a minimum to avoid creating new trails that may increase off-road vehicle travel by the public.

All disturbed upland areas will be reseeded with the native seed mix of adapted plant species listed below, in the amounts specified in pounds of pure live seed (PLS)/acre. Only certified weed free seed would be used. The seeding will be repeated until a satisfactory stand is established. Erosion of the disturbance area shall be equal to or less than similar adjacent undisturbed areas. Within 1 growing seasons of the initial construction, vegetative cover shall be at least 30% or more of desirable species. Desirable species are those species specified in the seed mix. Within 3 to 5 years vegetative cover shall be at least 70% of that on similar adjacent undisturbed areas. If these standards are not met, additional reclamation measure such as re-seeding, applying soil amendments and/or additional erosion/sediment control BMPs, etc. shall be implemented.

<u>Seed Mixture</u>	<u>Species of Seed Variety</u>	<u>Pounds/acre PLS</u>	<u>% Species Composition</u>
Western wheatgrass	<i>Pascopyrum smithii</i>	8 PLS lbs/acre	53
Green Needlegrass	<i>Stipa viridula</i>	4 PLS lbs/acre	27
Purple Prairie Clover	<i>Dalea purpurea</i>	3 PLS lbs/acre	20

Erosion control and sediment containment practices will aid in stabilization and capture of sediment until vegetation reestablishes to effectively control erosion and sediment. Waterbars or erosion control blankets may be installed on the slopes adjacent to streams, and straw wattles will be available for installation at the bottom of the erosion control blankets so that sediment can be captured before it goes into the stream. Certified weed-free straw wattles are also available for erosion control and access-discouragement along temporary construction access footpaths and equipment routes.

10. MATERIALS. Describe the materials proposed to be used. Note: This may be modified during the permitting process. It is recommended you do not purchase material until all permits are issued.

Cubic yards/Linear feet	Size and Type	Source
66 yd ³	natural wooden posts (3-6 inches diameter)	[[?]]
358 yd ³	mixed branches (ponderosa pine, western juniper, sandbar willow)	[[?]]
87 yd ³	soil and/or sod	excavated on-site

Quantities are for Phase 1 of construction, as reported in the attached restoration plan. An additional 15% of the listed volumes are anticipated to be placed in Phases 2 and 3. Length of all structures will total approximately 5410 linear feet. See attached restoration plan for additional details.

11. EQUIPMENT. List all equipment that will be used for construction of the project. How will the equipment be used on the bank and/or in the water? Note: Make sure equipment is clean and free of weeds, weed seeds, and excess grease before using it in the water waterway. To prevent the spread of aquatic invasive species, to the extent practical, remove mud and aquatic plants from heavy machinery and other equipment before moving between waters and work sites, especially in waters known to be infested with aquatic invasive species. Drain water from machinery and let dry before moving to another location.

Hydraulic Post Pounder with Ecofriendly Hydraulic Fluid operated from the floodplain. This will be used for installing the BDA posts.

Excavator operating within the floodplain and from the dry portion of the riparian zone. This will assist with moving brush materials and soil when building the structures.

12. DESCRIBE PLANNED EFFORTS TO MINIMIZE PROJECT IMPACTS. Consider the impacts of the proposed project, even if temporary. What efforts will be taken to:

- **Minimize erosion, sedimentation, or turbidity?**

Turbidity will be minimized by conducting instream work within Rose Creek when instream flows are absent (ie this portion of Rose Creek is intermittent)

- **Minimize stream channel alterations?**

The intent of the project is to induce stream channel alterations by improving natural processes. Much of the channel is currently incised with a limited floodplain. This project will reduce the overall flush of sediment downstream, over time, by inducing sediment retention through aggradation. It is anticipated that there will be increased pool formation behind the BDA structures, but this will be mostly a rise in pool levels and duration with minimal increase in actual new pool acres. The loss of wetland vegetation to the ponding is expected to be minimal and will be offset by increased floodplain creation and sub-irrigated areas that will slowly convert to wetland conditions again. It is anticipated that approximately 0.08 acres could be impacted by increased ponding, based on an assumption of an average of 1 ft on each bank for a length of 8 ft at 223 structures could be inundated enough to impact wetland vegetation, but over [] acres of wetland habitat would be created, based on expansion of the low floodplain as the channel widens and regains elevation, and based on eventual subirrigation of the abandoned terrace and floodplain after all phases of restoration are complete.

- **Minimize effects to stream flow or water quality caused by materials used or removal of ground cover?**

Proposed techniques include the installation of simple structures; constructed of natural materials like logs and live vegetation; strategically designed to slow and disperse water, dissipate energy, capture sediment, and increase soil moisture; thereby restoring a dynamic equilibrium to the natural processes which support improved water quality.

Ground cover around the project area will be restored according to the reclamation, erosion control and sediment containment plans presented within our response to **Item 9, Vegetation** (above).

- **Minimize effects on fish and aquatic habitat?**

There are no fish populations within the project reach.

In general, BDAs and PALs are leakier than beaver dams. Beavers are far more effective at plugging and maintaining dams than humans who install low-tech, low-cost structures. In general, amphibians and other aquatic vertebrae have coevolved with beavers and can migrate upstream and downstream of beaver dams during certain times of the year or during certain flow conditions.

Aquatic habitat is expected to drastically improve with reduction of stream channel scour and bed material displacement. The duration and extent of saturation is also expected to increase in response to this proposed habitat restoration effort.

To mitigate potential spread of Aquatic Nuisance Species all project construction participants will use a combination of proper sanitation and chemical decontamination to prevent survival and subsequent transfer of invasive species on tools, equipment, boots, and wading gear.

- **Minimize risks of flooding or erosion problems upstream and downstream?**

The project is intended to decrease erosion. The process-based restoration approach should serve to aid in the attenuation of flood flows by creating channel roughness and promoting the development of floodplains.

- **Minimize vegetation disturbance, protect existing vegetation, and control weeds?**

All equipment and vehicles used in the construction process should be washed prior to entering public lands to help prevent the introduction of invasive species seed.

Only certified weed free seed would be used.

See Additional mitigation listed under **Item 9, Vegetation** (above).

13. **WHAT ARE THE NATURAL RESOURCE BENEFITS** of the proposed project?

The intent of the project is to improve the conditions of riparian-wetland and aquatic ecosystems on BLM managed lands in Custer County, Montana. In addition, this project will be used as a training opportunity for restoration personnel at other BLM field offices. Improving floodplain connectivity and natural water storage is likely to make Pumpkin Creek more resilient to drought, also benefiting waterbodies downstream of Pumpkin Creek.

The project is within general sage-grouse habitat. When in close proximity to sagebrush communities, riparian, wetland, and other forb-rich communities are commonly considered suitable summer and/or late brood-rearing habitat for Greater sage-grouse. The functional condition and health of riparian-wetland and mesic areas can impact the likelihood that cover and food resources are provided annually to Greater sage-grouse. Suitable cover and food may be available from July through September in riparian and wet meadow areas when the majority of areas are functioning properly. Currently, the riparian corridors within the project do not exhibit properly functioning riparian conditions. Greater sage-grouse brood rearing habitat will be preserved when the

recovery of historically negatively impacted riparian-wetland systems is accelerated through process-based restoration.

[[Fish? Other resources of note?]]

14. **LIST ALTERNATIVES** to the proposed project. Why was the proposed alternative selected?

A no-action alternative was proposed and analyzed under the National Environmental Policy Act (NEPA) process. It was determined that this alternative would not meet the intent of improving aquatic and riparian habitat in a timely manner and the site would continue to not meet the Riparian Standard for Rangeland Health (Standards for Rangeland Health and Guidelines for Livestock Grazing Management, 1997).

There were no other viable alternatives that met the need to improve the aquatic and riparian habitat while meeting the multiple-use mandate for public lands managed by the BLM using cost-effective methods.

The proposed project was selected due to ongoing demonstrations where low-tech stream restoration techniques have benefitted cattle, downstream water users, and stream and riparian condition on actively managed grazing lands. Over the last decade, a renewed recognition of the role of the once widespread beaver has revealed insights about how this ecosystem engineer greatly impacts riparian function and accelerates recovery of degraded systems. BDAs and PALs are becoming increasingly popular bioengineering techniques to employ where there is a high potential for active beaver to serve as stream conservation and restoration agents; early results from numerous projects show promise for rapid achievement of a variety of riparian goals. Protection and restoration of mesic habitats, such as riparian and wet meadow areas, can benefit sage-grouse. While a variety of mesic conservation strategies exist, relatively simple and low-cost alternatives could enable restoration at scales relevant to sage-grouse.

D. ADDITIONAL INFORMATION FOR SECTION 404, SECTION 10, AND FLOODPLAIN PERMITS ONLY.

If applying for a Section 404 or Section 10 permit, fill out questions 1-3. If applying for a floodplain permit, fill out questions 3-6. (Additional information is required for floodplain permits – See “Information for Applicant.”)

1. Will the project involve placement of dredged (excavated) and/or fill material below the ordinary high water mark, in a wetland, or other waters of the US? If yes, what is the surface area to be filled? How many cubic yards of fill material will be used? Note: Wetland delineations are required if wetlands are affected.

Structure type and quantity	Impact surface area/length	Estimated fill/dredge volume (total)	Material
BDAs (how many)	xx ac/xx LF	xx yd ³	
PALs (how many)	xx ac /xx LF	xx yd ³	

Values represent maximum impact. Non-wetland sod will be used where feasible.

See wetland delineation information in Appendix xx.

2. Description of avoidance, mitigation, and compensation (see Information for Applicant). Attach additional sheets if necessary.

See Appendix D for project Design Features.

3. List the names and address of landowners adjacent to the project site. This includes properties adjacent to and across from the project site. (Some floodplain communities require certified adjoining landowner lists).

Upstream of the project site:

MCNAMEE LAND LLC,
344 ROAD 53

MILES CITY, MT 59301-8826;

State of Montana (immediately upstream);

Philip Leidholdt, Inc.,
4587 HIGHWAY 59 S
MILES CITY, MT 59301-8834

Downstream of the project site:
JCM ENTERPRISES INC
34671 PUERTO PL
DANA POINT, CA 92629-5900

4. List all applicable local, state, and federal permits and indicate whether they were issued, waived, denied, or pending. Note: All required local, state, and federal permits, or proof of waiver must be issued prior to the issuance of a floodplain permit.

404 – NWP 27:

The Army Corps of Engineers was notified of the project on [REDACTED], 2022. A field site review of the site was held [REDACTED]. | Project Number: [REDACTED]

Stream Protection Act (SPA 124 Permit):

The SPA 124 Permit Application will be delivered to Montana Fish, Wildlife and Parks (MTFWP) on June xx, 2022.

5. Floodplain Map Number N/A

Please see:

Appendix B – Montana Natural Heritage Program Wetland Information, and USDA Natural Resources Conservation Service Web Soil Survey

Appendix E – Methods and results of the aquatic resources delineation, Wetland Delineation

6. Does this project comply with local planning or zoning regulations? ☒ Yes ☐ No

E. SIGNATURES/AUTHORIZATIONS -- Each agency must have original signatures signed in blue ink.

After completing the form, make the required number of copies and **then sign each copy**. Send the copies with original signatures and additional information required directly to each applicable agency.

The statements contained in this application are true and correct. The applicant possess' the authority to undertake the work described herein or is acting as the duly authorized agent of the landowner. The applicant understands that the granting of a permit does not include landowner permission to access land or construct a project. Inspections of the project site after notice by inspection authorities are hereby authorized.

APPLICANT (Person responsible for project):

Print Name: [Click here to enter name.](#)

LANDOWNER:

Print Name: Bureau of Land Management

Signature of Applicant

Date

Signature of Landowner

Date

*CONTRACTOR/AGENT:

Print Name: [Click here to enter name.](#)

Signature of Contractor/Agent

Date

*Contact agency to determine if contractor signature is required.

Draft Copy (Not Final)
For Education Example Only

Aquatic Resources Delineation for Pumpkin Creek Restoration Project, Bureau of Land Management, Miles City

Prepared for: U.S. Army Corps of Engineers
100 Neill Avenue
Helena, MT 59601

Prepared by: Chadwick Consulting
Livingston, Montana

Date: May 12, 2022

INTRODUCTION

Chadwick Consulting conducted an aquatic resources (AR) delineation on July 6 through July 10, 2021, and [\[\[\[date TBD\]\]\]](#) to support a Bureau of Land Management (BLM) stream restoration project on Pumpkin Creek. This memo identifies the aquatic resources occurring at the project site and has been completed in support of environmental permitting. The project is located approximately 15 mi southeast of Miles City, Custer County, Montana, in Section 1, Range 48 East, Township 5 North, Sections 6, 7, and 17, Range 49 East, Township 5 North. The project site is mapped in **Figure 1** and on the aquatic resource delineation maps in **Appendix A**. Additional information about the project site is described in the project design report included with the joint permit application.

The project area lies within grass- and sage-dominated rangeland along Pumpkin Creek in undeveloped land. Plains cottonwood (*Populus deltoides*) is present close to the stream but with patchy cover, mostly as large decadent trees on the upper terrace and small groups of seedlings of multiple ages along the low terraces and new deposits. The delineation assessment area extends along both banks of approximately 8.4 miles of Pumpkin Creek (see AR delineation maps, **Appendix A**). The soil composition within the wetlands is primarily sandy clay loam and sandy clay.

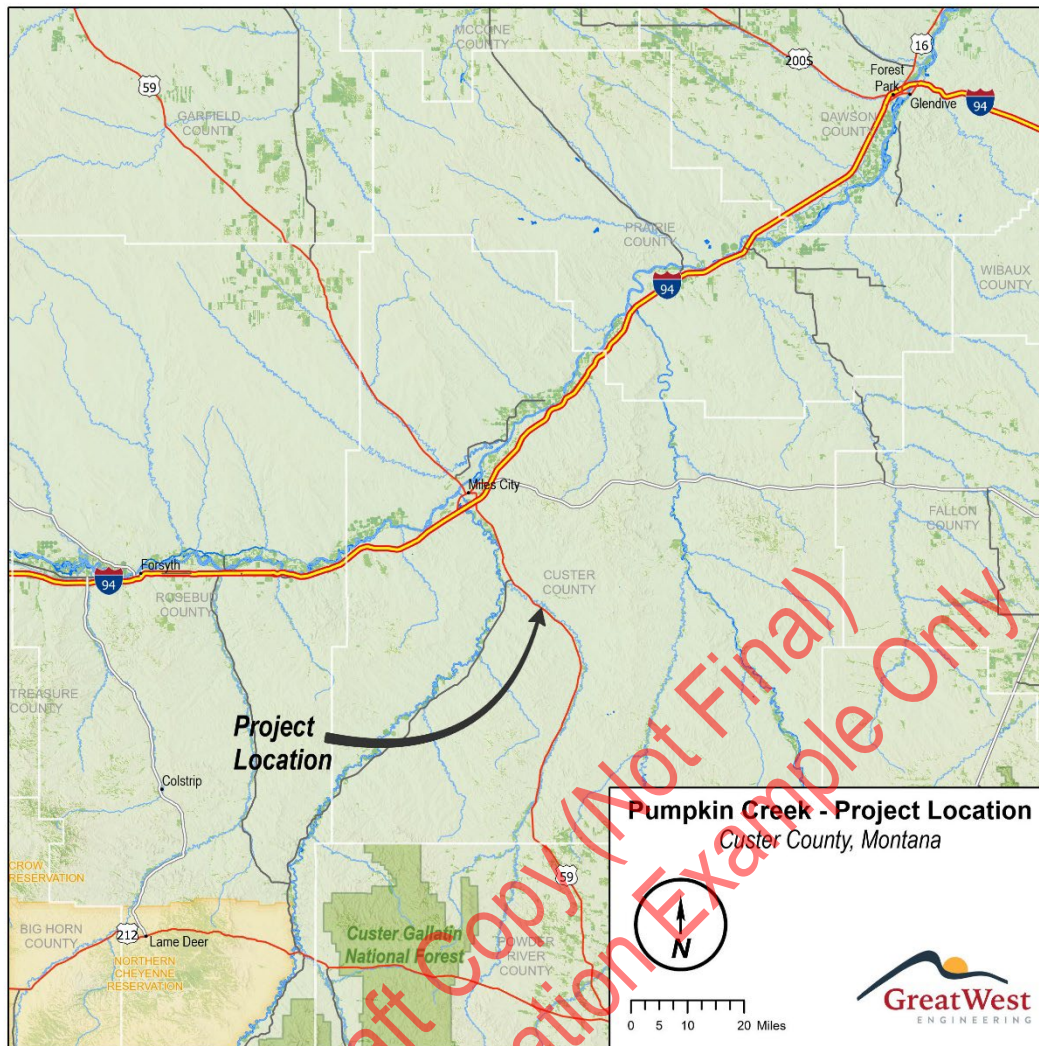


Figure 1. Project Location

METHODS

Off-Site Review

A preliminary off-site review was completed to identify potential wetland areas and waterways from a variety of source documents. Investigators reviewed aerial photos, USGS topographical maps, MTNHP updated wetland inventory mapping data (MTNHP 2022; **Appendix D**) and NRCS soils maps (NRCS 2021; **Appendix D**) prior to conducting the on-site wetland delineation.

On-Site Review

This review focused on determining the presence of wetlands or waterways present within Project area. Amy Chadwick of Chadwick Consulting delineated aquatic resources at the project site, using the 2010 Regional Supplement to the Corps of Engineers (COE) Wetland Delineation Manual: Great Plains Region (Version 2.0; COE 2010). The Great Plains Regional Plant List of the 2020 National Wetland Plant List was used to determine vegetation indicator status rating (COE 2020). Vegetation species were identified using Lesica (2012). Plant nomenclature generally follows the Great Plains Regional Plant List to maintain continuity with wetland determination forms.

Paired data points (DP) were established within the wetland (WL) and adjacent upland/nonwetland area (UPL) for each wetland. At each data point wetland indicator data were collected and analyzed using COE wetland determination data forms for the Great Plains Regional Supplement (COE 2010; **Appendix C**). In general, an area qualifies as a wetland if a site exhibits positive wetland indicators for three parameters: vegetation, soils, and hydrology. If all three parameters at a sample point exhibited positive wetland indicators, a positive wetland determination was made for the area represented by the sample point. If any one of the three parameters at a sample point failed to exhibit positive wetland indicators, the area was determined to be non-wetland unless difficult wetland situations exist, as specified in the Great Plains Regional Supplement (COE 2010).

Areas determined to be wetlands were documented, surveyed, and mapped. Wetlands were labeled with a number and the prefix "WL" (e.g., "WL1"). Wetlands associated with the same source of hydrology were given the same wetland number designation; however, wetlands separated by non-wetland waterway were given a different alphanumeric identifier (e.g., "WL-1a, WL-1b"). Sample points where wetland criteria and associated upland criteria at the wetland/upland boundary were evaluated and labeled with a number and a prefix that corresponded with location of each point in relation to the sampled wetland or upland area (e.g., "WL-1a/UPL-1a"). Wetland determination data were collected at multiple paired plots in each subarea of WL-1 (i.e., WL-1a and WL-1b) due to the length of the assessment area. DPs were only established in areas where wetland width was greater than one meter to make sure boundaries were outside the upper limit of the precision of the submeter GPS. These DPs are labeled alphanumerically for each subarea (i.e., WL-1a.1, WL-1a.2). Much of the wetland is a band narrower than one meter along the low bank. Wetland average width was estimated for these narrow areas. The Aquatic resource delineation maps (**Appendix A**) only show the wider mapped wetland areas, but the area calculation takes into account the average width of narrower stretches of wetland. The primary wetland at the project site (WL-1), with subareas -1a and -1b, totals over five acres, but the wetland is narrow and linear. The delineator walked this entire wetland on two sides, effectively walking two long transects and covering the entire wetland, rather than collecting data on multiple perpendicular transects.

Non-wetland waterways (NWW) were determined following the COE Regulatory Guidance Letter, No. 05-05: Ordinary High Water Mark Identification (OHW; COE 2005). Investigators surveyed wetland boundaries using a Trimble R1 Global Navigation Satellite System (GNSS) receiver and ESRI Collector software on cell phone to collect sub-meter GPS data. Great West Engineering post-processed and mapped aquatic resources survey data over recent aerials to verify accuracy of wetland boundary locations and to calculate acreage of aquatic resources on-site. All aquatic resources and data plots were documented with digital photos, included in the photo pages in **Appendix B**. The Natural Resources Conservation Service soil map (NRCS 2021) and a map of the MTNHP updated National Wetland Inventory wetlands data for the project site (MTNHP 2022) are included in **Appendix D**.

RESULTS

The aquatic resources delineation was performed on July 6 through July 10, 2021 and [\[\[\[date\]\]\]](#). Aquatic resources delineated at the project site consist of two wetlands (WL) and two streams, delineated as NWW. All wetland areas directly adjacent to Pumpkin Creek are considered part of the same wetland (WL-1) because all have the same source of hydrology and similar vegetation and landform settings.

The streams include Pumpkin Creek, the primary waterbody in the project area, and Johnson Creek, a small tributary to Pumpkin Creek. Only the confluence of Johnson Creek, within the high water influence of Pumpkin Creek, is within the project area. Aquatic resources are described below and summarized in Tables 1 and 2.

Description of Delineated Aquatic Resources

Wetland WL-1

Wetland WL-1, including WL-1a and WL-1b, is a palustrine emergent (PEM) wetland confined to the lower banks of Pumpkin Creek, mostly within 1.5 ft elevation of the OHW scour of the incised active channel. Much of the wetland is only one to two feet wide, or narrower, forming a narrow strip between OWH and bankfull but WL-1 also contains multiple wider areas on new inset terraces and vegetated bars on both sides of Pumpkin Creek. Vegetation is dominated by native emergent species such as *Juncus balticus*, *Schoenoplectus pungens*, *Hordeum jubatum*, and *Spartina pectinata*, with *Helianthus maximiliani* at upper margins and some patches of seedling to small sapling *Populus deltoides* (Plains cottonwood), primarily on large depositional bars toward the downstream end of the assessment area. Some mature to decadent Plains cottonwood are present on the high terrace, which is now upland, and well outside the active channel and wetland extent. Soils in WL-1 were classified as hydric primarily based on the Loamy Gleyed Matrix (F2), Depleted Matrix (F3) and Redox Dark Surface (F6) hydric soil indicators. Additional hydric soil indicator information is included in Table 1 and on the COE wetland determination forms in Appendix C. Pumpkin Creek is the primary source of hydrology for WL-1, although some groundwater inputs from the base of high banks and the abandoned terrace is also possible. Water availability to WL-1 fluctuates with stream flow of Pumpkin Creek, which is an intermittent Prairie stream.

Wetland WL-2

Wetland WL-2 is an emergent wetland perched on a high abandoned terrace of Pumpkin Creek but within the project limits is a narrow vegetated path draining from the upper wetland area down to the active channel of Pumpkin Creek. WL-2 is dominated by native emergent wetland species, including *Eleocharis palustris*, *Schoenoplectus pungens*, and *Hordeum jubatum*. Soil at WL-2 was classified as hydric based on the Depleted Matrix (F3) and Redox Dark Surface (F6) hydric soil indicators. The source of hydrology for WL-2 is likely groundwater from down-valley flow from historic channels of Pumpkin Creek and/or an ephemeral tributary, but also may receive groundwater upwelling at the base of hillslopes north of the wetland.

NWW-1 (Pumpkin Creek)

Pumpkin Creek (NWW-1) is an intermittent prairie stream that drains approximately 702 square miles in total, and 640.7 square miles upstream of the project area (USGS 2022). Pumpkin Creek drains to the Tongue River, entering just downstream of the Twelve Mile dam south of Miles City. The active channel width generally ranges between 15 and 25 feet within the project area but gets as narrow as seven feet and as wide as 65 feet. The stream bed and banks are composed primarily of clay soil. The channel consists of a series of pools and glides, many of which go dry during summer months, with small rises, sometimes with gravel substrate, between pools. Streamflow on Pumpkin Creek is partly (approximately 18%) controlled by small impoundments on tributaries and a small check dam near the headwaters of Pumpkin Creek.

Flows in Pumpkin Creek are highly variable and can change dramatically after a rainstorm. Streamflow was variable during the delineation site visit, with the channel mostly dry at the beginning of the visit, but water rising rapidly in response to a rainstorm in the headwaters, and filling to the low terrace level by the next day. Figures B-25 through B-30 (Appendix B) illustrate the variable flow conditions during the delineation site visit.

NWW-2 (Johnson Creek)

Johnson Creek (NWW-2) is a small intermittent tributary to Pumpkin Creek, draining from the north. The base of Johnson Creek, within 20 feet of the confluence, and within the high water influence of Pumpkin Creek was delineated. Wetlands occurring outside OHW of Johnson Creek were included in WL-1 because Pumpkin Creek appeared to be the primary source of hydrology for wetlands at the confluence.

SUMMARY

A total of **6.52** acres of wetland was identified within the project area boundary (see delineation maps, **Appendix A**). **Table 1** lists wetland feature name, acreage, Cowardin type, hydric soil indicators, source of hydrology, and dominant vegetation for the delineated wetlands. Photos of aquatic resources and data points are included in **Appendix B**. Wetland determination data forms are attached in **Appendix C**.

Table 1. Wetlands Summary

Wetland (WL)	Acreage	Wetland Data Point(s)	Cowardin Type ¹	Likely JD Status ²	Hydric Soil Indicators ³	Hydrology Source	Dominant Vegetation Species ⁴
WL-1a	3.01	WL-01a.1 through WL-01a.5	PEM (PSS <5%)	Y	F3, F6, F2	Pumpkin Creek	<i>Spartina pectinata</i> , <i>Helianthus maximiliani</i> , <i>Juncus balticus</i> , <i>Schoenoplectus pungens</i> , <i>Hordeum jubatum</i> , and limited, patchy cover <i>Populus deltoides</i> saplings
WL-1b	3.49	WL-01b.1 through WL-01b.5	PEM (PSS <5%)	Y	F3; Other-combination F3 and F6; Other-problematic riparian soils	Pumpkin Creek	<i>Spartina pectinata</i> , <i>Schoenoplectus pungens</i> , <i>Hordeum jubatum</i> and limited, patchy cover of <i>Populus deltoides</i> saplings, and <i>Salix amygdaloides</i>
WL-2	0.02	WL-02	PEM	Y	F3, F6	Wetland on high terrace-return flow seep	<i>Eleocharis palustris</i> , <i>Schoenoplectus pungens</i> , <i>Hordeum jubatum</i>

¹ PSS-Palustrine Scrub-Shrub; PEM- Palustrine Emergent (Cowardin et al. 1979)

² USACE makes the final jurisdictional (JD) determination.

³ F2- Loamy gleyed matrix; F3- Depleted matrix; F6- Redox below dark surface

⁴ See COE data forms for additional species (**Appendix C**)

Table 2 lists characteristics of streams at the project area. Total delineated length of Johnson Creek is 950 feet but only a 20-foot stretch at the confluence, which also is affected by backwater from Pumpkin Creek at high flow, is within the project boundary.

Table 2. Other Waterbodies Summary

Non-wetland waterway (NWW) ID	Length (ft) within project area	Description	Hydrologic connectivity
NWW-1	34,584 (6.55 mi)	Pumpkin Creek, an intermittent tributary to the Tongue River (Yellowstone River system)	Surface and groundwater connectivity to WL-1; drains to Tongue River
NWW-2	20	Johnson Creek, an intermittent tributary to Pumpkin Creek	Drains to Pumpkin Creek; not in project boundary, other than at confluence

REFERENCES

- Cowardin, L., V. Carter, F. Golet, and E. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. USDI Fish and Wildlife Service. Washington, D.C.
- Montana Natural Heritage Program (MTNHP). 2022. MTNHP wetland data, downloaded from https://gisservicemt.gov/arcgis/rest/services/MSDI_Framework/WetlandsRiparian/MapServer
- Natural Resource Conservation Service (NRCS). 2021. Soil Survey web mapper, <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>. Site accessed July 2021.
- U.S. Army Corps of Engineers (COE). 2005. Regulatory Guidance Letter, No. 05-05: Ordinary High Water Mark Identification. <http://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf>
- U.S. Army Corps of Engineers (COE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0), ed. J.S. Wakely, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-1. Vicksburg, MS: U.S. Army Corps Engineer Research and Development Center.
- U.S. Army Corps of Engineers (COE) 2020. National Wetland Plant List, version 3.5 and Great Plains Regional Plant List: <http://wetland-plants.usace.army.mil/>
- U.S. Geological Survey (USGS). 2022. StreamStats web-based GIS application. Accessed in April 2022 at: <https://streamstats.usgs.gov/ss/>.

APPENDIX A

AQUATIC RESOURCES DELINEATION MAP

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Aquatic Resource Map
Pumpkin Creek
Custer County, MT

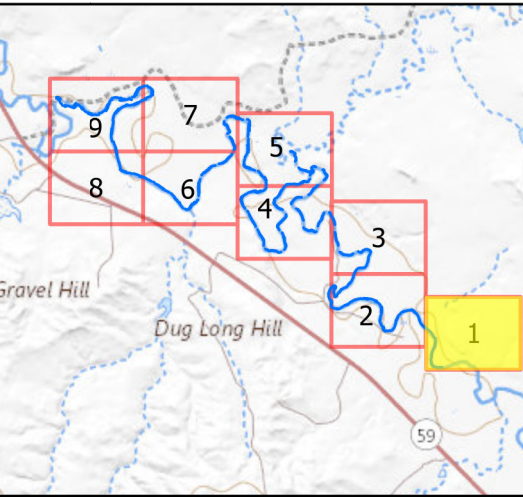
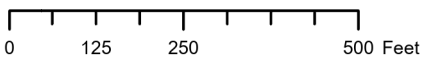
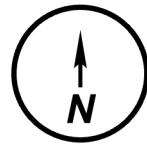
**Note - WL-1a runs along the south bank of Pumpkin Creek starting on page 1.
- WL-1b runs along the north bank of Pumpkin Creek starting on page 1.*

- OHWM
- NWW
- ▨ Wetlands
- Data Points

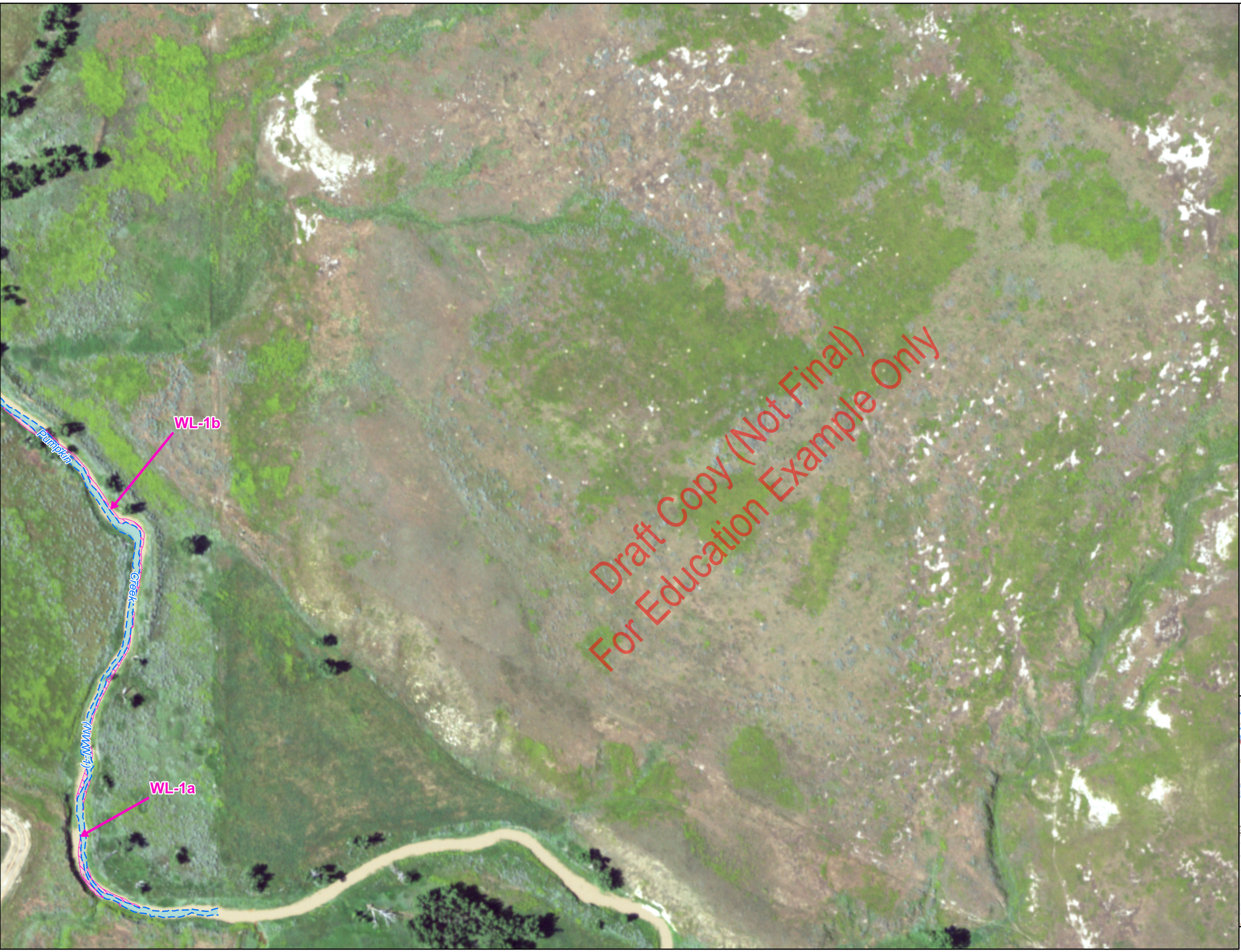
**Note - Wetlands persist along bank of NWW but in some cases were too thin to be mapped. The thin wetland dimensions are included in the below table of calculations.*

Total Delineated Extent

ID	Length (miles)	Acres
WL-1a		3.01
WL-1b		3.49
WL-2		0.02
NWW-1	6.55	13.49
NWW-2	0.18	0.27



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Aquatic Resource Map
Pumpkin Creek
Custer County, MT

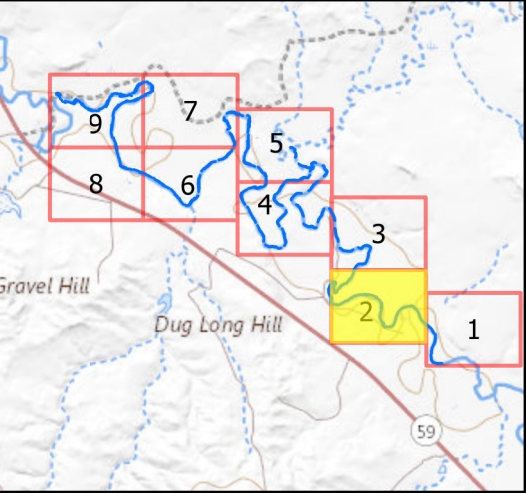
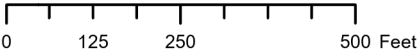
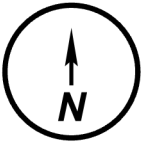
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Custer County, MT

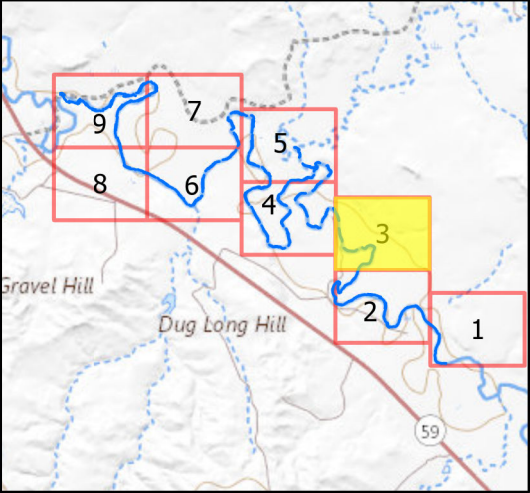
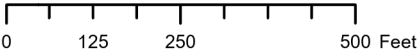
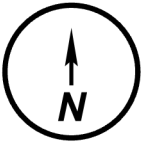
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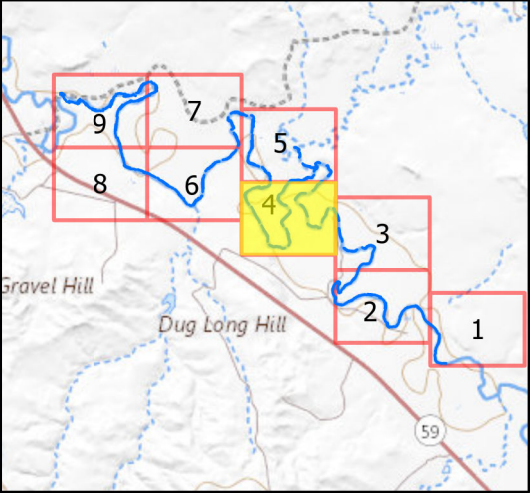
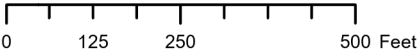
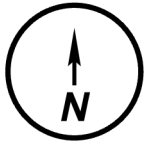
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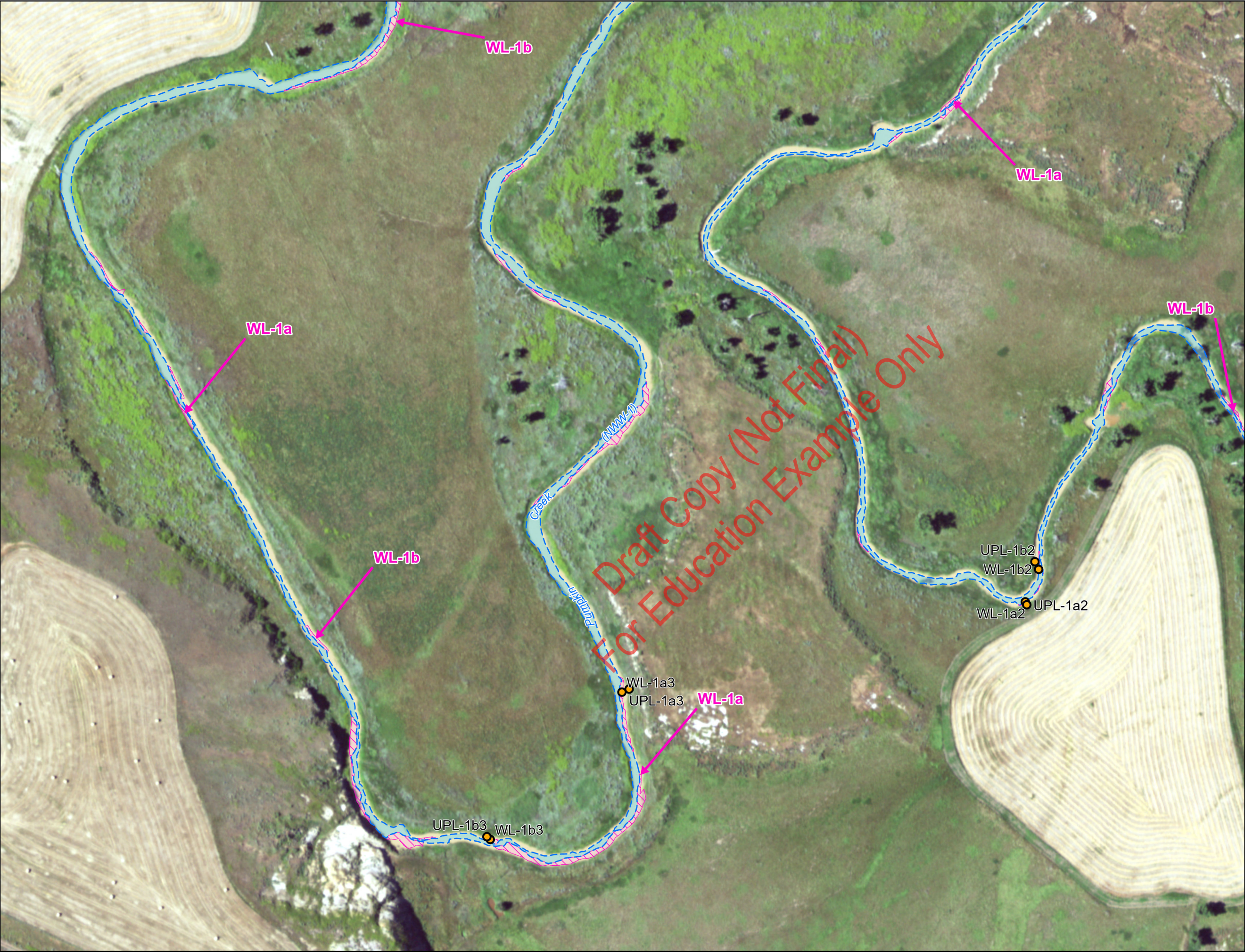
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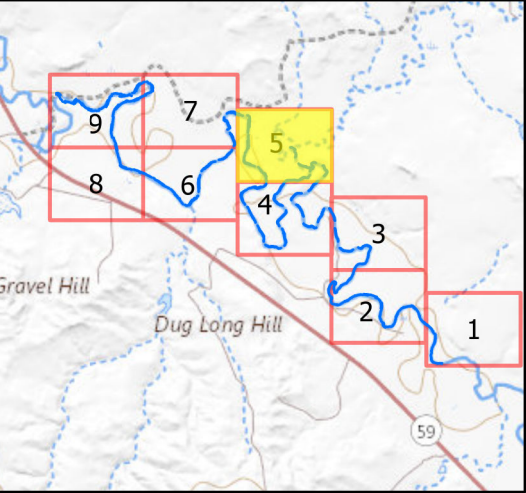
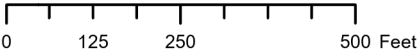
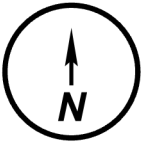
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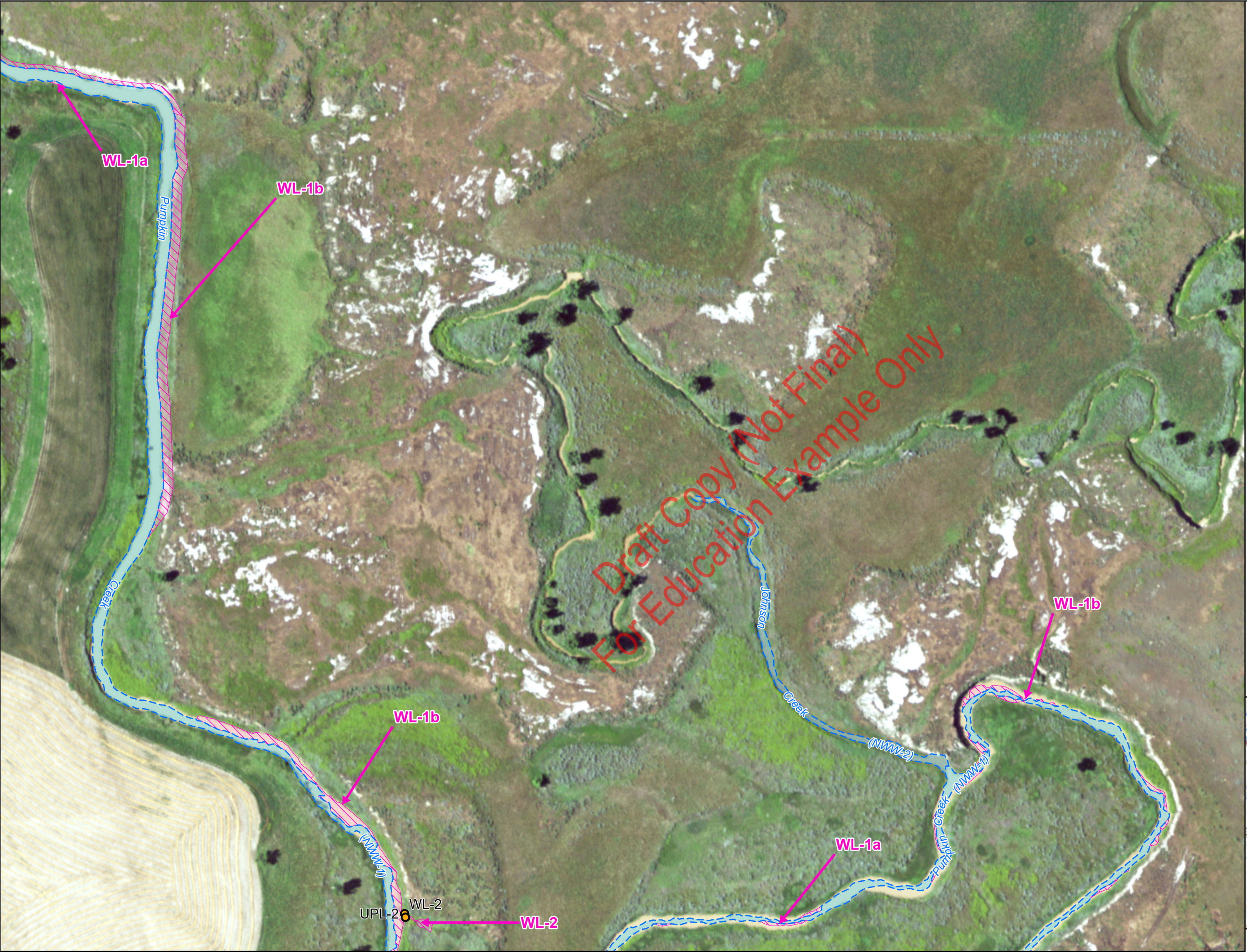
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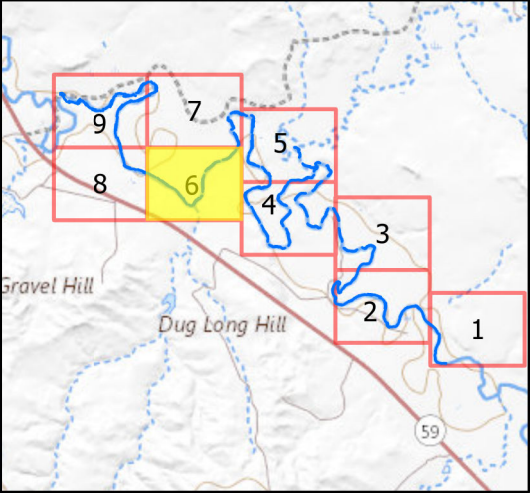
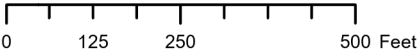
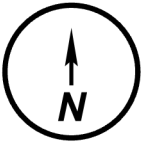
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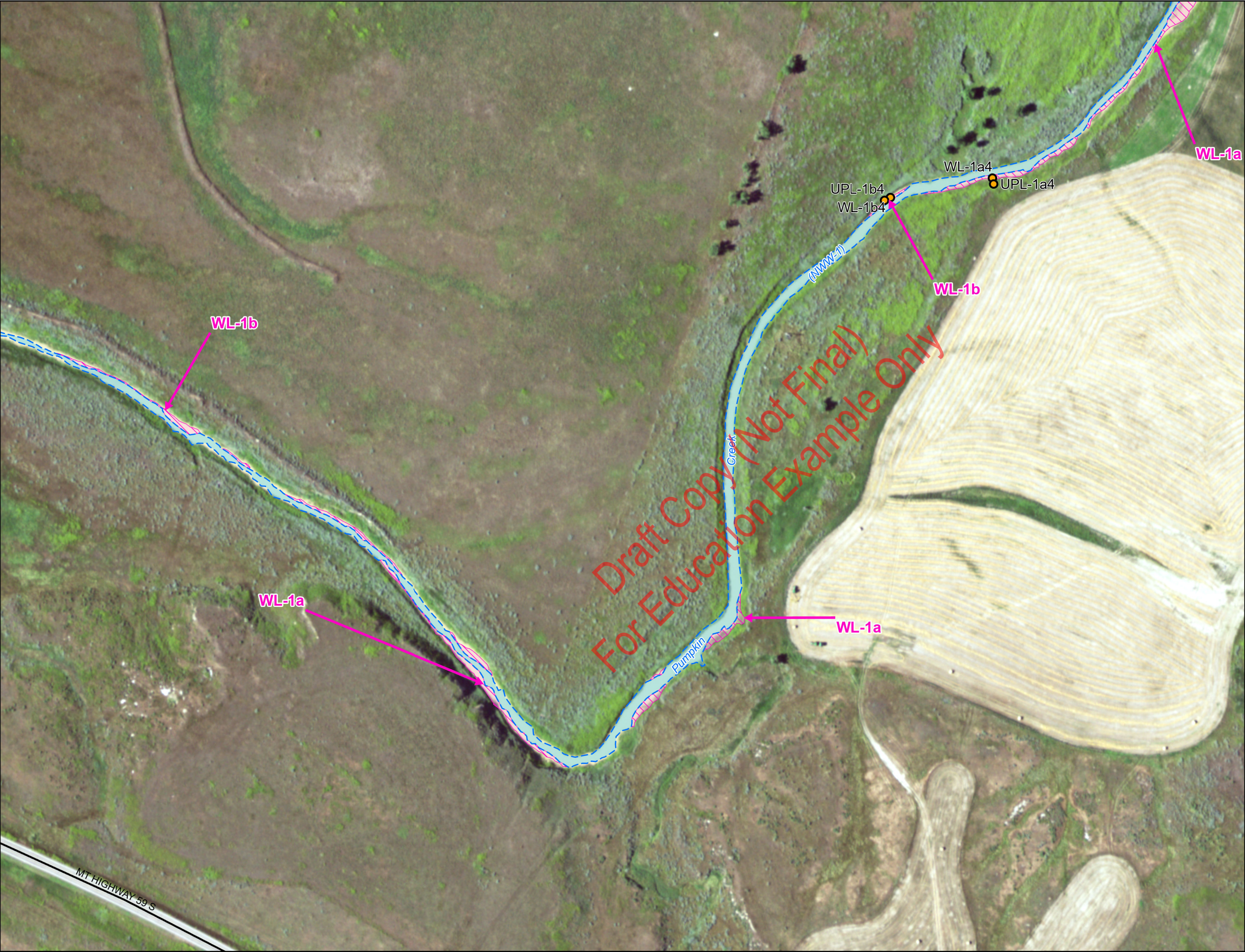
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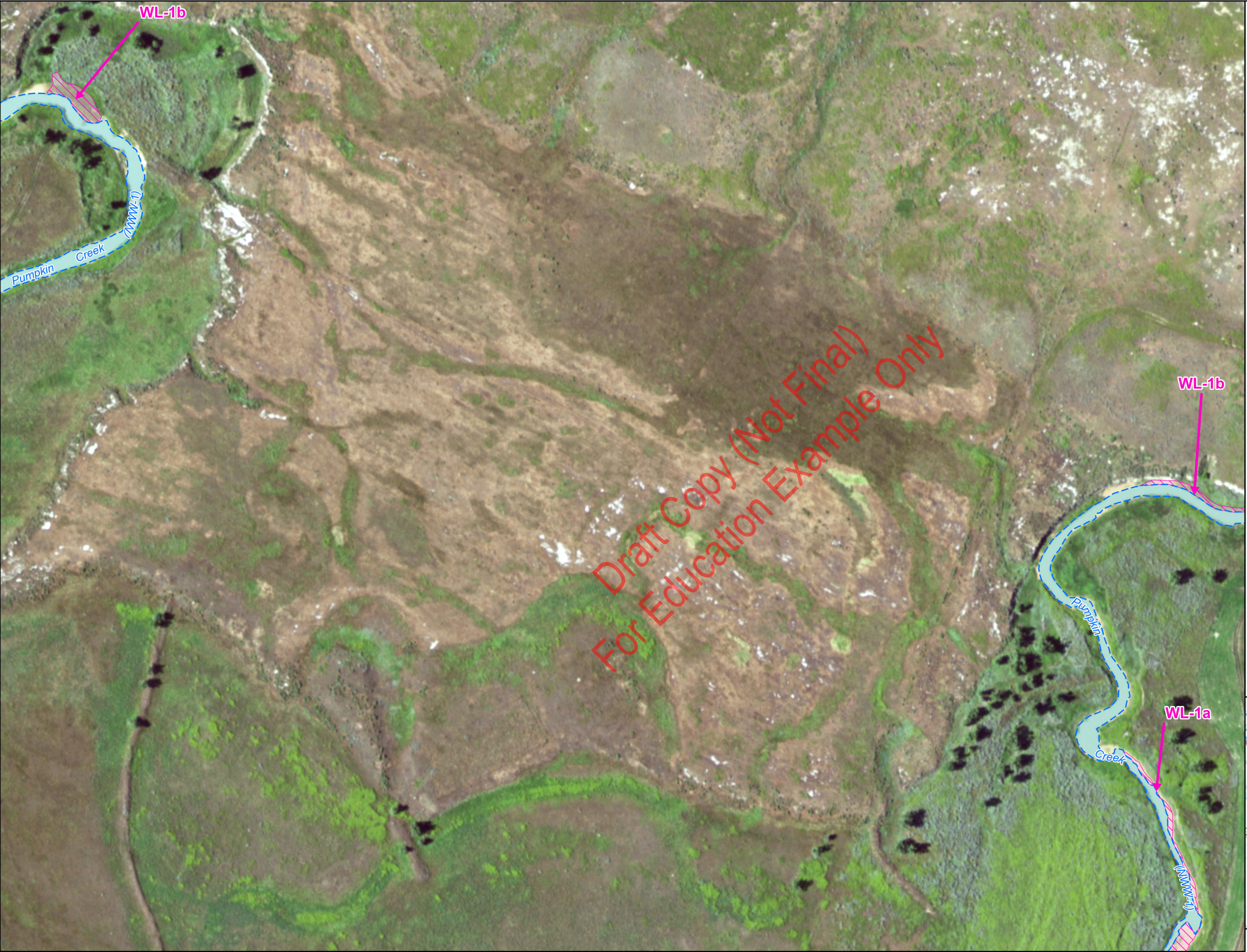
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Aquatic Resource Map

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Custer County, MT

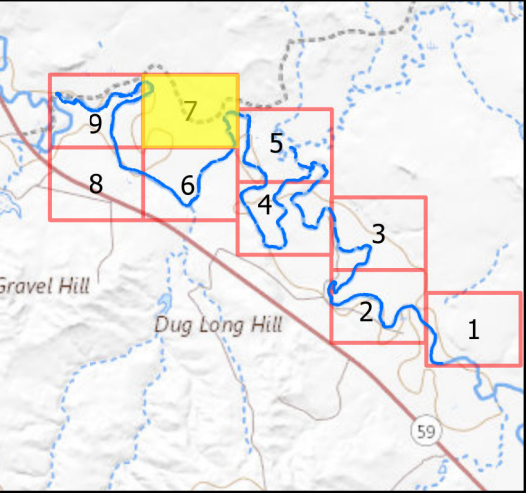
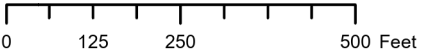
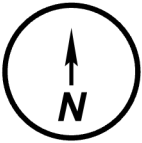
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- Wetlands
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**Note - Wetlands persist along bank of NWW but in some cases were too thin to be mapped. The thin wetland dimensions are included in the below table of calculations.*

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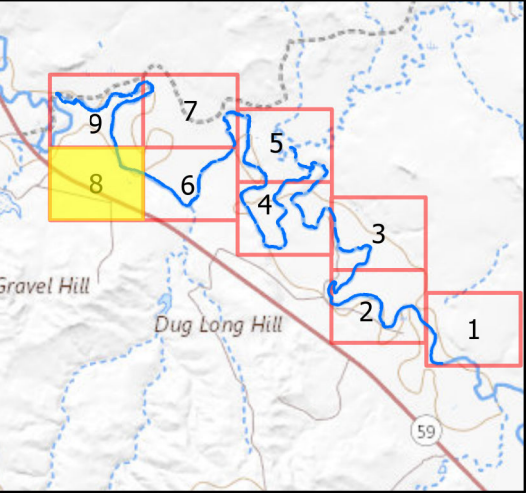
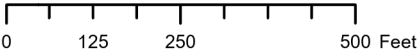
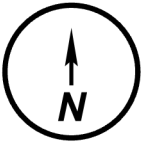
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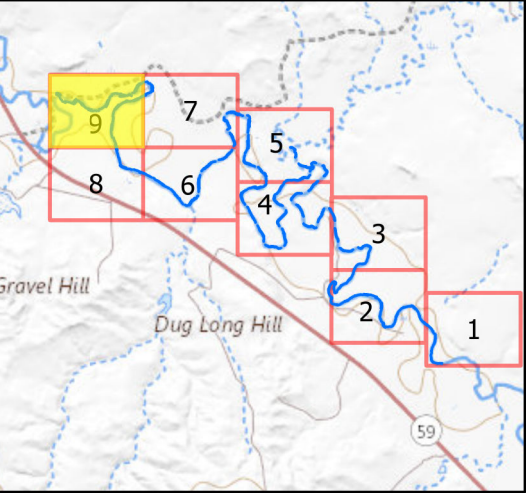
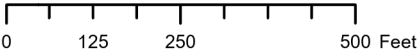
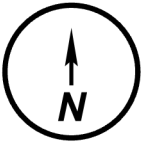
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WL-2		0.02
NWW-1	6.55	13.49
NWW-2	0.18	0.27



APPENDIX B

DELINEATION PHOTOGRAPHS

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Delineation Photos: BLM Pumpkin Creek Restoration



Fig. B-1. DP WL-1a.1. View S.



Fig. B-2. DP UPL-1a.1. View S.



Fig. B-3. DP WL-1b.1. View E. Pumpkin Creek (NWW-1) at right in photo.



Fig. B-4. DP UPL-1b.1. View E.



Fig. B-5. DP WL-1a.2. View E.



Fig. B-6. DP UPL-1a.2. View E.



Fig. B-7. DP WL-1b.2. View N.



Fig. B-8. DP UPL-1b.2. View S.



Fig. B-9. DP WL-1a.3. View N. Pumpkin Creek (NW-1) left of plot in photo.



Fig. B-10. DP UPL-1a.3. View N.



Fig. B-11. DP WL-1b.3. View E.



Fig. B-12. DP UPL-1b.3. View E.



Fig. B-13. DP WL-1a.4. View SW.



Fig. B-14. DP UPL-1a.4. View SW.



Fig. B-15. DP WL-1b.4. View S.



Fig. B-16. DP UPL-1b.4. View S.



Fig. B-17. DP WL-1a.5, PSS portion of WL-1a. View E.



Fig. B-18. DP UPL-1a.5. View E.



Fig. B-19. DP WL-1b.5, PSS portion of WL-1b. View SW.



Fig. B-20. DP UPL-1b.5. View SW.



Fig. B-21. DP WL-2. View E toward WL-1 and NWW-1 (Pumpkin Creek).



Fig. B-22. DP UPL-2 View NE.



Fig. B-23. Large WL on high terrace draining to area delineated as WL-2 (same wetland, but outside project extent). Headcut at transition from high bank to terrace pictured in foreground.



Fig. B-24. Outlet of Johnson Creek (NWW-2). Only the confluence (within Pumpkin Ck flooding zone) is within project boundary

Additional Photos of Pumpkin Creek (NWW-1), Showing Varied Flow Conditions



Fig. B-25. Wider channel segment in dry conditions



Fig. B-26. Narrow channel with wider low terrace, in dry conditions



Fig. B-27. Relict beaver dam has maintained higher channel elevation; similar to projected outcome of Phase 1 of low-tech restoration



Fig. B-28. Long pool in low water conditions



Fig. B-29. Pumpkin Creek after large storm surge, with water filling up lowest scour channel. Wetlands generally occur within 1 to 1.5 ft elevation above storm surge level.



Fig. B-30. Pumpkin Creek after large storm surge, in section with very little wetland at low bank and low terrace now supporting upland vegetation.

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APPENDIX C

USACE WETLAND DETERMINATION DATA FORMS

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WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/6/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1a.1
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): streambank Local relief (concave, convex, none): convex Slope (%): 5
 Subregion (LRR): LRR G Lat: 46.204894 Long: -105.644240 Datum: NAD 83
 Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: Mid-bank upslope of WL-1a. UPL DP for WL-1a.1.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>1</u> x 1 = <u>1</u> FACW species <u>55</u> x 2 = <u>110</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>39</u> x 5 = <u>195</u> Column Totals: <u>100</u> (A) <u>326</u> (B) Prevalence Index = B/A = <u>3.26</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Spartina pectinata</u>	<u>55</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Solidago missouriensis</u>	<u>15</u>	<u>No</u>	<u>UPL</u>	
3.	<u>Agropyron cristatum</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>	
4.	<u>Helianthus maximiliani</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
5.	<u>Asclepias viridiflora</u>	<u>3</u>	<u>No</u>	<u>UPL</u>	
6.	<u>Ratibida columnifera</u>	<u>1</u>	<u>No</u>	<u>UPL</u>	
7.	<u>Schoenoplectus pungens</u>	<u>1</u>	<u>No</u>	<u>OBL</u>	
8.					
9.					
10.					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Herbaceous vegetation on sloping bank

SOIL

Sampling Point: UPL-1a.1

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:				Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations:					
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):		
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):		
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):		
(includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					

Remarks:
No hydrologic indicators

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/6/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1a.1
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR G Lat: 46.204876 Long: -105.644232 Datum: NAD 83
 Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

linear wetland along low bank of Pumpkin Creek, river left side. Wetland sometimes narrows to less than two feet, and outside precision of GPS for mapping. Multiple plots established along wider areas of low bank to document wetland conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>15</u> x 5 = <u>75</u> Column Totals: <u>100</u> (A) <u>290</u> (B) Prevalence Index = B/A = <u>2.90</u>
1.					
2.					
3.					
4.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Spartina pectinata</u>	<u>60</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Helianthus maximiliani</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	
3.	<u>Asclepias viridiflora</u>	<u>15</u>	<u>No</u>	<u>UPL</u>	
4.	<u>Lactuca serriola</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
5.					
6.					
7.					
8.					
9.					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:

SOIL

Sampling Point: WL-1a.1

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	2.5Y 4/2	70					Loamy/Clayey	
	2.5Y 5/2	30						
7-15	2.5Y 6/2	70	10YR 4/6	3	C	M	Loamy/Clayey	Prominent redox concentrations
	2.5Y 4/2	27						ox rhiz

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: on new low terrace of incised channel; source of hydrology is intermittent stream (Pumpkin Ck)				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1a.2
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): streambank Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR G Lat: 46.208979 Long: -105.647160 Datum: NAD 83
 Soil Map Unit Name: Glendive loam, 0 to 2 percent slopes, rarely flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL plot for WL-1a.2, on steep higher bank of Pumpkin Creek	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>33.3%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u>3</u> = Total Cover			Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>23</u> x 4 = <u>92</u> UPL species <u>50</u> x 5 = <u>250</u> Column Totals: <u>103</u> (A) <u>402</u> (B) Prevalence Index = B/A = <u>3.90</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)	% Cover	Species?	Status	
1. <u>Artemisia cana</u>		<u>3</u>	No	FACU	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
		<u>3</u> = Total Cover			Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 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</u>)	% Cover	Species?	Status	
1. <u>Spartina pectinata</u>		<u>30</u>	Yes	FACW	
2. <u>Solidago missouriensis</u>		<u>15</u>	No	UPL	
3. <u>Bromus inermis</u>		<u>25</u>	Yes	UPL	
4. <u>Pascopyrum smithii</u>		<u>20</u>	Yes	FACU	
5. <u>Agropyron cristatum</u>		<u>10</u>	No	UPL	
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		<u>100</u> = Total Cover			Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
Woody Vine Stratum	(Plot size: <u> </u>)	% Cover	Species?	Status	
1. <u> </u>					
2. <u> </u>					
		<u> </u> = Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Primarily upland community at upper edge of Spartina, on steep upper bank.

SOIL

Sampling Point: UPL-1a.2

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	2.5Y 4/2	80	10YR 3/6	5	C	M	Loamy/Clayey	cla lo
	2.5Y 5/2	15						
7-14	2.5Y 4/2	70					Loamy/Clayey	sa cla lo
	2.5Y 5/2	30						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: No hydrology indicators				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1a.2
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR G Lat: 46.208995 Long: -105.647172 Datum: NAD 83
 Soil Map Unit Name: Glendive loam, 0 to 2 percent slopes, rarely flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Linear PEM wetland along new inset low terrace on incised channel of Pumpkin Creek, river left side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u>0</u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>99</u> x 2 = <u>198</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>100</u> (A) <u>203</u> (B) Prevalence Index = B/A = <u>2.03</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 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</u>)				
1.	<u>Spartina pectinata</u>	<u>99</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Solidago missouriensis</u>	<u>1</u>	<u>No</u>	<u>UPL</u>	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
		<u>100</u>	=Total Cover		Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Spartina community on low terrace of Pumpkin Creek.

SOIL

Sampling Point: WL-1a.2

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	2.5Y 3/2	70					Loamy/Clayey	cla lo
	2.5Y 4/2	30						
6-14	2.5Y 3/2	80	10YR 3/6	10	C	PL/M	Loamy/Clayey	sa clay
	2.5Y 5/3	10						sand- incorporated, not sep layer

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: on low terrace of Pumpkin Creek, occasionally flooding at this level	

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1a.3
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): high bank Local relief (concave, convex, none): convex Slope (%): 5
 Subregion (LRR): LRR G Lat: 46.208493 Long: -105.650468 Datum: NAD 83
 Soil Map Unit Name: Sonnett loam, 2 to 8 percent slopes NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL plot for WL-1a.3, on steep upper bank at newly-formed higher terrace level (due to channel incision).	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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			
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>69</u> x 2 = <u>138</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>11</u> x 4 = <u>44</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>100</u> (A) <u>282</u> (B) Prevalence Index = B/A = <u>2.82</u>
1.					
2.					
3.					
4.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Distichlis spicata</u>	<u>45</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Spartina pectinata</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
3.	<u>Agropyron cristatum</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>	
4.	<u>Pascopyrum smithii</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	
5.	<u>Helianthus nuttallii</u>	<u>4</u>	<u>No</u>	<u>FACW</u>	
6.	<u>Chenopodium album</u>	<u>1</u>	<u>No</u>	<u>FACU</u>	
7.					
8.					
9.					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Mixed mesic and upland grass on high terraced bank within incised channel of Pumpkin Creek

SOIL

Sampling Point: UPL-1a.3

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	2.5Y 4/2	100					Loamy/Clayey	cla lo
4-7	2.5Y 4/3	70	10YR 4/6	5	C	PL/M	Loamy/Clayey	sa cla lo
	2.5Y 4/2	25						
7-15	2.5Y 4/2	80					Loamy/Clayey	clay
	2.5Y 5/2	20						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:
Does not quite meet hydric indicators but displays redox concentrations for three inches of profile and depleted matrix color at depth

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1a.3
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): LRR G Lat: 46.208476 Long: -105.650528 Datum: NAD 83
 Soil Map Unit Name: Sonnett loam, 2 to 8 percent slopes NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Linear PEM wetland along new inset low terrace on incised channel of Pumpkin Creek, river left side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>5</u> x 1 = <u>5</u> FACW species <u>95</u> x 2 = <u>190</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>195</u> (B) Prevalence Index = B/A = <u>1.95</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
					Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 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 ft</u>)				
1. <i>Spartina pectinata</i>		50	Yes	FACW	
2. <i>Juncus balticus</i>		25	Yes	FACW	
3. <i>Hordeum jubatum</i>		20	Yes	FACW	
4. <i>Schoenoplectus pungens</i>		5	No	OBL	
5.					
6.					
7.					
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
100 =Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Spartina community on low terrace of Pumpkin Creek.

SOIL

Sampling Point: WL-1a.3

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	2.5Y 3/2	80					Loamy/Clayey	cla lo
	2.5Y 4/2	20						
3-15	2.5Y 3/2	60	10YR 4/6	20	C	PL/M	Loamy/Clayey	jumbled clay and sand
	2.5Y 4/2	20						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
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Remarks:
riparian deposits, now well-vegetated, with redox

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
on low terrace of Pumpkin Creek, occasionally flooding at this level; inundation visible on recent past aerial photo

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1a.4
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): LRR G Lat: 46.213953 Long: -105.657468 Datum: NAD 83
 Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL DP for WL-1a.4 mid-high terrace of Pumpkin Creek, river left side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u>15</u> Multiply by: <u>15</u> OBL species <u>15</u> x 1 = <u>15</u> FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>90</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>2.94</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
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) 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 ft</u>)				
1. <i>Helianthus nuttallii</i>		15	Yes	FACW	
2. <i>Pascopyrum smithii</i>		20	Yes	FACU	
3. <i>Symphyotrichum falcatum</i>		20	Yes	FACU	
4. <i>Schoenoplectus pungens</i>		15	Yes	OBL	
5. <i>Spartina pectinata</i>		10	No	FACW	
6. <i>Asclepias speciosa</i>		5	No	FAC	
7. <i>Ratibida columnifera</i>		5	No	UPL	
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
90 =Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>10</u>					

Remarks:
Transition zone between wetland and upland vegetation

SOIL

Sampling Point: UPL-1a.4

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	2.5Y 5/3	80	10YR 4/6	10	C	PL/M	Loamy/Clayey	sandy clay
	2.5Y 3/2	10						
10-15	10YR 4/3	90	7.5YR 3/4	10	C	M	Sandy	

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:
Some redox present but too light for wetland soil. Redox common in clay soils not in wetlands in this setting.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No Hydrology. Scour line downslope is likely new storm runoff level (channel is incised). May get occasional runoff flow from Pumpkin Creek.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1a.4
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): low bank Local relief (concave, convex, none): convex Slope (%): 3
 Subregion (LRR): LRR G Lat: 46.213987 Long: -105.657478 Datum: NAD 83
 Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Linear PEM wetland along low bank of incised channel of Pumpkin Creek, river left side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u>65</u> Multiply by: OBL species <u>65</u> x 1 = <u>65</u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>135</u> (B) Prevalence Index = B/A = <u>1.35</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Schoenoplectus pungens</u>	<u>65</u>	<u>Yes</u>	<u>OBL</u>	
2.	<u>Spartina pectinata</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>	
3.	<u>Hordeum jubatum</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
4.					
5.					
6.					
7.					
8.					
9.					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Bulrush and prairie cordgrass community on low terrace of Pumpkin Creek.

SOIL

Sampling Point: WL-1a.4

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	2.5Y 4/2	60	2.5Y 2.5/1	10	C	M	Loamy/Clayey	
	2.5Y 4/1	15	7.5YR 3/4	15	C	M		
10-14	N 2.5/	80	7.5YR 3/4	10	C	M	Loamy/Clayey	
	2.5Y 4/1	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.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Redox indicators throughout profile	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 5 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	

Remarks:

Low terrace with saturation present; may be partly due to groundwater drainage from higher terrace, but the bank likely sees frequent inundation to this elevation or nearly so from Pumpkin Creek.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1a.5
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): Streambank Local relief (concave, convex, none): convex Slope (%): 5
 Subregion (LRR): LRR G Lat: 46.217608 Long: -105.670932 Datum: NAD 83
 Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL DP for WL-1a.5. On terrace of Pumpkin Creek, river left side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		<u>15</u>	=Total Cover		Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>95</u> (A) <u>335</u> (B) Prevalence Index = B/A = <u>3.53</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1. <u>Populus deltoides</u>		<u>15</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
		<u>15</u>	=Total Cover		
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) <u> </u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Spartina pectinata</u>		<u>30</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>Agropyron cristatum</u>		<u>20</u>	<u>Yes</u>	<u>UPL</u>	
3. <u>Symphyotrichum falcatum</u>		<u>20</u>	<u>Yes</u>	<u>FACU</u>	
4. <u>Solidago missouriensis</u>		<u>10</u>	<u>No</u>	<u>UPL</u>	
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		<u>80</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				
1. <u> </u>					
2. <u> </u>					
			=Total Cover		
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:
At base of upper bank; mix of wetland and upland species

SOIL

Sampling Point: UPL-1a.5

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	2.5Y 4/2	100					Loamy/Clayey	sa cla lo
10-15	10YR 4/3	70					Loamy/Clayey	sa cla lo
	10YR 5/3	30						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
Remarks: No Hydric indicators	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: No Hydrology.				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/10/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1a.5
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): low bank Local relief (concave, convex, none): convex Slope (%): 3
 Subregion (LRR): LRR G Lat: 46.217635 Long: -105.670925 Datum: NAD 83
 Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

PSS wetland patch within larger linear WL along left bank of Pumpkin Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				Prevalence Index worksheet: Total % Cover of: <u>30</u> Multiply by: OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>62</u> x 2 = <u>124</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>127</u> (A) <u>269</u> (B) Prevalence Index = B/A = <u>2.12</u>
1. <u>Populus deltoides</u>		<u>25</u>	Yes	FAC	
2. <u>Salix amygdaloides</u>		<u>2</u>	No	FACW	
3. <u> </u>					
4. <u> </u>					
=Total Cover					
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Schoenoplectus pungens</u>		<u>30</u>	Yes	OBL	
2. <u>Spartina pectinata</u>		<u>60</u>	Yes	FACW	
3. <u>Glycyrrhiza lepidota</u>		<u>7</u>	No	FACU	
4. <u>Symphytotrichum falcatum</u>		<u>3</u>	No	FACU	
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
=Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
=Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:

Dominated by seedling/sapling cottonwood over emergent wetland community. All cottonwood and willow <3" DBH.

SOIL

Sampling Point: WL-1a.5

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	2.5Y 4/2	100					Sandy	fine sand
3-10	2.5Y 4/2	15	10YR 4/6	5	C	M	Loamy/Clayey	sandy clay
	2.5Y 4/1	80						
10-15	2.5Y 4/2	60	10YR 3/6	20	C	PL/M	Loamy/Clayey	ox rhiz
	2.5Y 4/1	20						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Redox in depleted matrix	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Likely sees frequent inundation from Pumpkin Creek	

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/7/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1b.1
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): LRR G Lat: 46.203699 Long: -105.643872 Datum: NAD 83
 Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent slopes, occasionally flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL plot upslope of WL-1b.1, on low terrace at higher level. Clow to upper wetland boundary. Receives occasional flooding ut shorter duration/less frequent than at wetlands.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>69</u> x 4 = <u>276</u> UPL species <u>11</u> x 5 = <u>55</u> Column Totals: <u>100</u> (A) <u>371</u> (B) Prevalence Index = B/A = <u>3.71</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
					Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 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 ft</u>)				
1. <i>Pascopyrum smithii</i>		50	Yes	FACU	
2. <i>Spartina pectinata</i>		20	Yes	FACW	
3. <i>Bromus inermis</i>		10	No	UPL	
4. <i>Poa pratensis</i>		10	No	FACU	
5. <i>Helianthus maximiliani</i>		9	No	FACU	
6. <i>Asclepias viridiflora</i>		1	No	UPL	
7.					
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
100 =Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:
Herbaceous community, primarily upland (UPL and FACU) grasses

SOIL

Sampling Point: UPL-1b.1

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	2.5Y 4/2	90					Loamy/Clayey	
	2.5Y 5/2	10						
11-14	2.5Y 6/2	100					Loamy/Clayey	

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 Gleyed Matrix (S4)
- ☐ Histic Epipedon (A2) ☐ Sandy Redox (S5)
- ☐ Black Histic (A3) ☐ Stripped Matrix (S6)
- ☐ Hydrogen Sulfide (A4) ☐ Loamy Mucky Mineral (F1)
- ☐ Stratified Layers (A5) (**LRR F**) ☐ Loamy Gleyed Matrix (F2)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**) ☐ Depleted Matrix (F3)
- ☐ Depleted Below Dark Surface (A11) ☐ Redox Dark Surface (F6)
- ☐ Thick Dark Surface (A12) ☐ Depleted Dark Surface (F7)
- ☐ Sandy Mucky Mineral (S1) ☐ Redox Depressions (F8)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**) ☐ High Plains Depressions (F16)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16)
(LRR H outside of MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (F22)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:
 Not hydric

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	Depth (inches):	<input type="text"/>
(includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> X	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			
No hydro			

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/7/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1b.1
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): convex Slope (%): 1
 Subregion (LRR): LRR G Lat: 46.203682 Long: -105.643872 Datum: NAD 83
 Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

Linear wetland along low bank of Pumpkin Creek, river right side. DP is on low vegetated bar, also functioning as low terrace. Outside active channel scour but within inundation zone in stormwater or seasonal runoff. Bare ground due to sediment deposits during large runoff events. Wetland sometimes narrows to less than two feet, and is outside precision of GPS for mapping. Multiple plots established along wider areas of low bank to document wetland conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u>0</u> Multiply by: <u>1</u> = <u>0</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>80</u> (A) <u>160</u> (B) Prevalence Index = B/A = <u>2.00</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
					Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 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 ft</u>)				
1.	<u>Spartina pectinata</u>	<u>75</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Hordeum jubatum</u>	<u>3</u>	<u>No</u>	<u>FACW</u>	
3.	<u>Helianthus nuttallii</u>	<u>2</u>	<u>No</u>	<u>FACW</u>	
4.					
5.					
6.					
7.					
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
=Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:

Spartina community on low bank of Pumpkin Creek, growing through recent riparian deposits

SOIL

Sampling Point: WL-1b.1

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	2.5Y 4/2	80					Loamy/Clayey	
	2.5Y 5/2	20						
9-15	2.5Y 4/2	80	10YR 3/6	3	C	PL/M	Loamy/Clayey	clay with small gravel
	2.5Y 5/2	17						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks:
Recent riparian deposits present from regular overflow but area is well-established wetland and redox features are present

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
on low terrace of incised intermittent channel

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1b.2
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): streambank Local relief (concave, convex, none): convex Slope (%): 10
 Subregion (LRR): LRR G Lat: 46.209226 Long: -105.647092 Datum: NAD 83
 Soil Map Unit Name: Glendive loam, 0 to 2 percent slopes, rarely flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL plot for WL-1b.2. On high bank of incised channel.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>58</u> x 2 = <u>116</u> FAC species <u>2</u> x 3 = <u>6</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>100</u> (A) <u>312</u> (B) Prevalence Index = B/A = <u>3.12</u>
1.					
2.					
3.					
4.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Spartina pectinata</u>	<u>48</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Solidago missouriensis</u>	<u>20</u>	<u>Yes</u>	<u>UPL</u>	
3.	<u>Bromus inermis</u>	<u>10</u>	<u>No</u>	<u>UPL</u>	
4.	<u>Poa palustris</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	
5.	<u>Pascopyrum smithii</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	
6.	<u>Equisetum laevigatum</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
7.					
8.					
9.					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Mixed UPL and WL vegetation on streambank mid-level terrace

SOIL

Sampling Point: UPL-1b.2

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	2.5Y 4/2	80					Loamy/Clayey	cla lo
	2.5Y 5/2	20						
6-12	10YR 4/2	50	10YR 4/6	10	C	PL/M	Loamy/Clayey	cla lo
	2.5Y 4/2	30						
	10YR 3/3	20						
12-15	2.5Y 5/1	80	2.5Y 6/1	25	D	M	Loamy/Clayey	clay
			2.5Y 5/6	5	C	M		Prominent redox concentrations

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Redox at depth; not hydric	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: No hydrology indicators	

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1b.2
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): convex Slope (%): 10
 Subregion (LRR): LRR G Lat: 46.209182 Long: -105.647061 Datum: NAD 83
 Soil Map Unit Name: Glendive loam, 0 to 2 percent slopes, rarely flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Linear PEM wetland along new inset low terrace on incised channel of Pumpkin Creek, river right side. DP is near upslope boundary of WL.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u>12</u> Multiply by: OBL species <u>12</u> x 1 = <u>12</u> FACW species <u>65</u> x 2 = <u>130</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>80</u> (A) <u>154</u> (B) Prevalence Index = B/A = <u>1.93</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Spartina pectinata</u>	<u>65</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Schoenoplectus pungens</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
3.	<u>Symphytotrichum falcatum</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
4.	<u>Schoenoplectus pungens</u>	<u>2</u>	<u>No</u>	<u>OBL</u>	
5.					
6.					
7.					
8.					
9.					
10.					
		<u>80</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:
Spartina community on low bank of Pumpkin Creek.

SOIL

Sampling Point: WL-1b.2

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	2.5Y 3/2	100						cla lo
3-12	2.5Y 4/2	50	10YR 4/6	15	C	M	Loamy/Clayey	Prominent redox concentrations
	2.5Y 3/2	35						
12-15	2.5Y 3/2	70	2.5Y 4/1	25	D	M	Loamy/Clayey	clay
	2.5Y 3/3	5						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed):	Hydric Soil Present?
Type: _____	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Depth (inches): _____	

Remarks:
Close to qualifying for both redox dark surface and depleted matrix but not really typical of either. Has prominent redox through most of upper 12" - combination of F3 and F6, fitting neither exactly.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
(includes capillary fringe)			

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

Remarks:
On low terrace of incised intermittent channel.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1b.3
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): <1
 Subregion (LRR): LRR G Lat: 46.207643 Long: -105.651650 Datum: NAD 83
 Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent slopes, nonflooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: UPL DP for WL-1b.3. On steep bank in incised stream channel of Pumpkin Creek. Wetland hydrology indicator present but duration of inundation unknown.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>50</u> x 5 = <u>250</u> Column Totals: <u>90</u> (A) <u>330</u> (B) Prevalence Index = B/A = <u>3.67</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
					Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) <u> </u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
=Total Cover					
Herb Stratum	(Plot size: <u>5 ft</u>)				
1. <i>Spartina pectinata</i>		40	Yes	FACW	
2. <i>Bromus inermis</i>		40	Yes	UPL	
3. <i>Solidago missouriensis</i>		5	No	UPL	
4. <i>Secale cereale</i>		5	No	UPL	
5.					
6.					
7.					
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
90 =Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>10</u>					

Remarks:
Mixed mesic and upland vegetation on upper bank of Pumpkin Creek.

SOIL

Sampling Point: WL-1b.3

[illegible]

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)		<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> (where tilled)		<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> (where not tilled)		<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Thin Muck Surface (C7)		<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Algal Mat or Crust (B4)				<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
<input type="checkbox"/> Iron Deposits (B5)							
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)							
<input type="checkbox"/> Water-Stained Leaves (B9)							
Field Observations:				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>				
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>				
Saturation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>				
(includes capillary fringe)							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:							
Remarks:							
Inundation visible on one aerial; duration of inundation unknown							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1b.3
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 7, T5 N, R49 E
 Landform (hillside, terrace, etc.): low terrace Local relief (concave, convex, none): none Slope (%): <1
 Subregion (LRR): LRR G Lat: 46.207628 Long: -105.651622 Datum: NAD 83
 Soil Map Unit Name: Glendive-Havre complex, 0 to 2 percent slopes, nonflooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Linear PEM wetland along new inset low terrace on incised channel of Pumpkin Creek, river right side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u>100</u> Multiply by: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>190</u> (B) Prevalence Index = B/A = <u>1.90</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Spartina pectinata</u>	<u>90</u>	<u>Yes</u>	<u>FACW</u>	
2.	<u>Juncus balticus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Spartina-dominated community on low terrace of Pumpkin Creek.

SOIL

Sampling Point: WL-1b.3

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	2.5Y 4/2	60	10YR 3/6	20	C	PL/M	Loamy/Clayey	sa cla lo
	2.5Y 4/1	10	2.5Y 5/1	10	D	M		
5-15	2.5Y 4/2	70	10YR 3/6	20	C	M	Loamy/Clayey	sa cla
	2.5Y 4/1	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.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: depleted matrix with redox	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: on low terrace of Pumpkin Creek, occasionally flooding at this level; inundation visible on recent past aerial photo				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1b.4
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): streambank Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR G Lat: 46.213859 Long: -105.658375 Datum: NAD 83
 Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL DP for WL-1b.4 on high bank of Pumpkin Creek, river right side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>50.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>45</u> x 4 = <u>180</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>80</u> (A) <u>270</u> (B) Prevalence Index = B/A = <u>3.38</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
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) 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 ft</u>)				
1. <i>Helianthus nuttallii</i>		5	No	FACW	
2. <i>Pascopyrum smithii</i>		35	Yes	FACU	
3. <i>Symphyotrichum falcatum</i>		10	No	FACU	
4. <i>Solidago missouriensis</i>		5	No	UPL	
5. <i>Spartina pectinata</i>		20	Yes	FACW	
6. <i>Asclepias speciosa</i>		5	No	FAC	
7.					
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
80 =Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:
One cottonwood sapling, not in plot. Emergent wetland with occasional trees at historic high terrace level in UPL.

SOIL

Sampling Point: UPL-1b.4

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	2.5Y 5/3	100	10YR 4/6	10	C	PL/M	Sandy	silty fine sand
6-15	2.5Y 6/3	90					Loamy/Clayey	si cla lo
	2.5Y 5/2	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.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
Remarks: Not hydric	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: No Hydrology. Base of scour downslope is likely new high runoff level (channel is incised).				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1b.4
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): <1
 Subregion (LRR): LRR G Lat: 46.213875 Long: -105.658326 Datum: NAD 83
 Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil X, 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Linear PEM wetland along low bank of incised channel of Pumpkin Creek, river right side. Sand deposits common and sand lenses in soil; narturally problematic riparian soil.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
					Prevalence Index worksheet: Total % Cover of: <u>20</u> x 1 = <u>20</u> FACW species <u>80</u> x 2 = <u>160</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>180</u> (B) Prevalence Index = B/A = <u>1.80</u>
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
					Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> 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 ft</u>)				
1. <i>Schoenoplectus pungens</i>		<u>20</u>	<u>Yes</u>	<u>OBL</u>	
2. <i>Spartina pectinata</i>		<u>60</u>	<u>Yes</u>	<u>FACW</u>	
3. <i>Hordeum jubatum</i>		<u>20</u>	<u>Yes</u>	<u>FACW</u>	
4.					
5.					
6.					
7.					
8.					
9.					
10.					
					Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
100 =Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
=Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
Bulrush and prairie cordgrass community on low terrace of Pumpkin Creek.

SOIL

Sampling Point: WL-1b.4

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	2.5Y 3/2	100					Loamy/Clayey	sandy clay with sand deposits
5-15	2.5Y 5/3	70	10YR 4/6	10	C	M	Loamy/Clayey	sa cla lo
	2.5Y 5/1	20						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
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Remarks:
Obviously hydric but with higher chroma, partly due to recent sand deposits incorporated in soil; in riparian soil with sand deposits common

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Pumpkin Creek is source of hydrology

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/9/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-1b.5
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): Streambank Local relief (concave, convex, none): convex Slope (%): 5
 Subregion (LRR): LRR G Lat: 46.217807 Long: -105.670509 Datum: NAD 83
 Soil Map Unit Name: Havre loam, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL DP for WL-1b.5. On lbank of Pumpkin Creek, river right side.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>75.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
=Total Cover					Prevalence Index worksheet: Total % Cover of: <u>15</u> Multiply by: OBL species <u>5</u> x 1 = <u>5</u> FACW species <u>45</u> x 2 = <u>90</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>115</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>3.04</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)	% Cover	Species?	Status	
1. <u>Populus deltoides</u>		<u>15</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
=Total Cover					
Herb Stratum	(Plot size: <u>5 ft</u>)	% Cover	Species?	Status	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Glycyrrhiza lepidota</u>		<u>30</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Distichlis spicata</u>		<u>20</u>	<u>Yes</u>	<u>FACW</u>	
3. <u>Spartina pectinata</u>		<u>20</u>	<u>Yes</u>	<u>FACW</u>	
4. <u>Artemisia ludoviciana</u>		<u>10</u>	<u>No</u>	<u>UPL</u>	
5. <u>Ambrosia psilostachya</u>		<u>10</u>	<u>No</u>	<u>FACU</u>	
6. <u>Schoenoplectus pungens</u>		<u>5</u>	<u>No</u>	<u>OBL</u>	
7. <u>Helianthus nuttallii</u>		<u>5</u>	<u>No</u>	<u>FACW</u>	
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
=Total Cover					
Woody Vine Stratum	(Plot size: <u> </u>)	% Cover	Species?	Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
=Total Cover					
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:
At base of bank; mix of wetland and upland species

SOIL

Sampling Point: UPL-1b.5

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	2.5Y 4/2	100					Loamy/Clayey	cla lo
6-14	2.5Y 5/3	80					Loamy/Clayey	sa cla lo
	2.5Y 5/2	20						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
Remarks: No Hydric indicators	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)				Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: No Hydrology.				

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/10/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-1b.5
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 1, T5 N, R48 E
 Landform (hillside, terrace, etc.): low bank Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): LRR G Lat: 46.217783 Long: -105.670536 Datum: NAD 83
 Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slopes, occasionally flooded NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil X, 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

PSS wetland patch (some large trees, but not predom forested system) within larger linear WL along right bank of Pumpkin Creek. Only measurable SS WL in area. WL is in lower overflow area of a tall, partially-vegetated gravel bar nearly at lower terrace level. Problematic riparian soil (multiple layers sand deposits with minimal soil). This site is likely within bankfull but is outside OHW scour.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1. <u>Populus deltoides</u>		<u>10</u>	<u>Yes</u>	<u>FAC</u>	
2. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
		<u>10</u>	<u>=Total Cover</u>		
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)	% Cover	Species?	Status	Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>50</u> x 1 = <u>50</u> FACW species <u>12</u> x 2 = <u>24</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>8</u> x 4 = <u>32</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>91</u> (A) <u>171</u> (B) Prevalence Index = B/A = <u>1.88</u>
1. <u>Populus deltoides</u>		<u>10</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Salix amygdaloides</u>		<u>10</u>	<u>Yes</u>	<u>FACW</u>	
3. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
		<u>20</u>	<u>=Total Cover</u>		
Herb Stratum	(Plot size: <u>5 ft</u>)	% Cover	Species?	Status	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Schoenoplectus pungens</u>		<u>50</u>	<u>Yes</u>	<u>OBL</u>	
2. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
3. <u>Glycyrrhiza lepidota</u>		<u>8</u>	<u>No</u>	<u>FACU</u>	
4. <u>Helianthus nuttallii</u>		<u>2</u>	<u>No</u>	<u>FACW</u>	
5. <u>Calamovilfa longifolia</u>		<u>1</u>	<u>No</u>	<u>UPL</u>	
6. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
		<u>61</u>	<u>=Total Cover</u>		
Woody Vine Stratum	(Plot size: <u> </u>)	% Cover	Species?	Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>		<u> </u>	<u> </u>	<u> </u>	
		<u> </u>	<u>=Total Cover</u>		
% Bare Ground in Herb Stratum <u>39</u>					

Remarks:

Cottonwood and willow over emergent wetland community in overflow scour channel. Lots of willow and cottonwood seedlings- primarily within OHW scour below WL or in UPL on higher portions of gravel bar.

SOIL

Sampling Point: WL-1b.5

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	2.5Y 3/2	50					Loamy/Clayey	very sandy clay
	2.5Y 4/2	50						
5-9	2.5Y 3/2	10					Sandy	90% multi-colored fine sand
9-12	10YR 3/2	10					Sandy	80% multi-colored fine sand dep.
	2.5Y 3/2	10						
12-15	2.5Y 4/1	70	10YR 4/6	10	C	M	Sandy	Prominent redox concentrations
	2.5Y 4/2	20						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
Top foot is multiple layers of sand and soil deposits within overflow channel scour on large gravel bar. Problematic riparian soil.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Likely sees frequent inundation from Pumpkin Creek (inundated in one set of aerials but not most recent).

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/10/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: UPL-2
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 6, T5 N, R49 E
 Landform (hillside, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 4
 Subregion (LRR): LRR G Lat: 46.212548 Long: -105.652332 Datum: NAD 83
 Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>0</u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UPL plot for WL-2. On slope up to high terrace.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>100</u> (A) <u>280</u> (B) Prevalence Index = B/A = <u>2.80</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
		=Total Cover			Hydrophytic Vegetation Indicators: X 1 - Rapid Test for Hydrophytic Vegetation X 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) 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</u>)				
1. <i>Hordeum jubatum</i>		20	Yes	FACW	
2. <i>Distichlis spicata</i>		50	Yes	FACW	
3. <i>Agropyron cristatum</i>		10	No	UPL	
4. <i>Pascopyrum smithii</i>		10	No	FACU	
5. <i>Ratibida columnifera</i>		5	No	UPL	
6. <i>Solidago missouriensis</i>		5	No	UPL	
7.					
8.					
9.					
10.					
		100	=Total Cover		Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
Woody Vine Stratum	(Plot size: <u> </u>)				
1.					
2.					
		=Total Cover			
% Bare Ground in Herb Stratum		<u>0</u>			

Remarks:

SOIL

Sampling Point: UPL-2

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>
Saturation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches):	<input type="text" value="0"/>
(includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BLM LTPBR workshop/Pumpkin Creek City/County: Miles City/Custer Sampling Date: 7/10/21
 Applicant/Owner: Bureau of Land Management State: MT Sampling Point: WL-2
 Investigator(s): A. Chadwick Section, Township, Range: Sec. 6, T5 N, R49 E
 Landform (hillside, terrace, etc.): small vegetated drainway Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR G Lat: 46.212570 Long: -105.652340 Datum: NAD 83
 Soil Map Unit Name: Harlake silty clay, 0 to 2 percent slopes, occasionally flooded NWI classification: none

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

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	

Remarks:

Small linear PEM wetland in drainage return at base of wetland perched on high terrace. Drains to WL-1 and Pumpkin Creek.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	% Cover	Species?	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>100.0%</u> (A/B)
1.					
2.					
3.					
4.					
				=Total Cover	Prevalence Index worksheet: Total % Cover of: <u>80</u> x 1 = <u>80</u> OBL species <u>80</u> x 2 = <u>40</u> FACW species <u>20</u> x 3 = <u>0</u> FAC species <u>0</u> x 4 = <u>0</u> FACU species <u>0</u> x 5 = <u>0</u> UPL species <u>0</u> x 6 = <u>0</u> Column Totals: <u>100</u> (A) <u>120</u> (B) Prevalence Index = B/A = <u>1.20</u>
Sapling/Shrub Stratum	(Plot size: <u>15 ft</u>)				
1.					
2.					
3.					
4.					
5.					
				=Total Cover	
Herb Stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: X 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.	<u>Eleocharis palustris</u>	<u>60</u>	<u>Yes</u>	<u>OBL</u>	
2.	<u>Schoenoplectus pungens</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	
3.	<u>Hordeum jubatum</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
4.					
5.					
6.					
7.					
8.					
9.					
10.					
				<u>100</u> =Total Cover	
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1.					
2.					
				=Total Cover	
% Bare Ground in Herb Stratum		<u>0</u>			

Remarks:

Native wetland emergent vegetation in small return from perched wetland

SOIL

Sampling Point: WL-2

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		
0-1	N 2.5/	90					Loamy/Clayey	sa clay
	2.5Y 3/1	10						
1-9	2.5Y 3/1	70	10YR 4/6	5	C	M	Loamy/Clayey	Prominent redox concentrations
	2.5Y 3/2	20	2.5Y 2.5/1	5	C	M		
9-15	2.5Y 4/2	60	10YR 4/4	5	C	M	Loamy/Clayey	Distinct redox concentrations
	2.5Y 4/3	35						

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 :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	wetland hydrology must be present,
		unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Redox common throughout profile	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 0 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Large PEM wetland perched on high terrace, seeps through wetland vegetation down to WL-1 and Pumpkin Ck.	

APPENDIX D

NRCS SOIL REPORT AND MTNHP/NWI MAP

Draft Copy (Not Final)
For Education Example Only

Updated National Wetland Inventory wetlands data from Montana Natural Heritage Program



A horizontal scale bar with markings at 0, 450, 900, 1800, and 2700 meters.

Soil Map—Custer County Area, Montana
(Pumpkin Creek- BLM)

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.

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: Custer County Area, Montana

Survey Area Data: Version 20, Jun 4, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 4, 2011—Feb 2, 2017

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
3F	Cabbart-Rock outcrop-Yawdim complex, warm, 15 to 70 percent slopes	41.6	1.0%
27C	Busby fine sandy loam, warm, 2 to 8 percent slopes	15.1	0.4%
30C	Yamacall-Havre, occasionally flooded, loams, 0 to 8 percent slopes	130.4	3.1%
46A	Hanly loamy fine sand, 0 to 2 percent slopes, rarely flooded	4.4	0.1%
47A	Harlake silty clay, 0 to 2 percent slopes, rarely flooded	45.0	1.1%
53A	Kobase silty clay loam, 0 to 2 percent slopes	21.7	0.5%
53C	Kobase silty clay loam, warm, 2 to 8 percent slopes	88.7	2.1%
53D	Kobase silty clay loam, 8 to 15 percent slopes	25.0	0.6%
62C	Marvan silty clay, warm, 2 to 8 percent slopes	150.9	3.6%
64C	Pinehill loam, 2 to 8 percent slopes	311.3	7.5%
79C	Yamacall loam, warm, 2 to 8 percent slopes	176.9	4.3%
90C	Sonnett loam, 2 to 8 percent slopes	289.3	7.0%
297E	Cambeth-Cabbart-Yawdim complex, 15 to 25 percent slopes	262.7	6.3%
353C	Chinook-Kremlin complex, 2 to 6 percent slopes	100.2	2.4%
383F	Delpoint-Cabbart-Yawdim complex, 25 to 70 percent slopes	92.1	2.2%
385E	Delpoint-Yamacall-Cabbart loams, 8 to 25 percent slopes	446.3	10.8%
386F	Cabbart-Rock outcrop-Delpoint complex, 15 to 50 percent slopes	390.3	9.4%
452A	Glendive loam, 0 to 2 percent slopes, rarely flooded	62.9	1.5%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
453A	Glendive-Havre complex, 0 to 2 percent slopes, occasionally flooded	47.3	1.1%
462A	Hanly-Glendive complex, 0 to 2 percent slopes, nonflooded	26.9	0.7%
471A	Harlake silty clay, 0 to 2 percent slopes, occasionally flooded	251.2	6.1%
473A	Lallie silty clay, 0 to 2 percent slopes	17.6	0.4%
481A	Havre loam, 0 to 2 percent slopes, occasionally flooded	194.7	4.7%
486A	Glendive-Havre complex, 0 to 2 percent slopes, nonflooded	79.4	1.9%
489A	Spinekop silty clay loam, 0 to 2 percent slopes	53.5	1.3%
531D	Kobase silty clay loam, 2 to 15 percent slopes, gullied	154.1	3.7%
573D	Lonna, Cambeth, and Yamacall soils, gullied, 8 to 15 percent slopes	70.0	1.7%
621B	Marvan-Vanda silty clays, 0 to 4 percent slopes	148.2	3.6%
742E	Neldore-Abor silty clays, 4 to 25 percent slopes	3.3	0.1%
797E	Yamacall-Busby-Blacksheep complex, 8 to 25 percent slopes	14.3	0.3%
811C	Creed-Pinehill loams, 2 to 8 percent slopes	15.2	0.4%
892D	Yamacall-Delpoint-Cabbart loams, 4 to 15 percent slopes	13.4	0.3%
901C	Sonnett-Sonnett, thin surface, complex, 2 to 8 percent slopes	1.0	0.0%
902C	Sonnett, thin surface-Slickspots complex, 0 to 8 percent slopes	394.4	9.5%
Totals for Area of Interest		4,139.5	100.0%