Montana Department of Transportation Wetland Mitigation Monitoring Report

US 93 PETERSON MITIGATION SITE

Project Overview

Watershed: Watershed #3 – Lower Clark Fork

Monitoring Year: 2020

Years Monitored: 12th year of monitoring

Corps Permit Number: NWO-2005-90-185

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: August 5-6, 2020

Purpose of the Approved Project:

US 93 Peterson is one of five sites developed in cooperation with the permitting and natural resources staff from the Confederated Salish and Kootenai Tribes (CSKT) of the Flathead Nation to mitigate for wetland impacts associated with eight segments of the US 93 Evaro-to-Polson highway reconstruction project by the Montana Department of Transportation (MDT). This report assesses the final of the five wetland mitigation sites, US 93 Peterson, that has yet to meet its required mitigation goals and objectives as determined by the US Army Corps of Engineers (USACE) and the CSKT Shoreline Protection Program. The 2004 wetland mitigation plan provided wetland mitigation concepts, identified wetland community types targeted for establishment, and calculated the wetland mitigation credits expected to be obtained from each site. At US 93 Peterson, the CSKT-regulated wetlands were meant to mitigate for 1.49 acres of impacts, and the USACE-regulated wetlands were meant to mitigate for 2.77 acres of impacts.

Site Location:

Latitude: 47.361717 **Longitude:** -114.099755

County: Lake County **Nearest Town:** St. Ignatius, MT

Map Included: Yes

Mitigation Site Construction Started: 2004 **Construction Ended:** 2007

Dates of Any Recent Corrective or Maintenance Activities (since previous report):

Activity: Adaptive management actions were undertaken this spring to replace failing log crib dams constructed with the original project in 2004. Construction work entailed the replacement of Log Dam 1 and Log Dam 2, installation of earthen berms, repairs of the earthen berm at Log Dam 6, and installation of a new Log Dam (1A) and earthen berm. Appendix D contains the adaptive management plan set used for the repairs. **Date:** May 2020

Activity: Weed Spray. **Date:** May 5, 2020 **Specific recommendations for any additional corrective actions:** Weed management will continue in 2021.

Anticipated Wetland Credit Acres: USACE – 2.39, CSKT – 1.31

Wetland Credit Acres Generated to Date: USACE – 3.47, CSKT – 1.47

Previous Monitoring Reports:

https://www.mdt.mt.gov/publications/brochures/wetland_mitigation.shtml

Requirements (from approved mitigation plan, banking instrument, or Department of Army (DA) permit conditions)

Monitoring Period: 5 years from construction completion or until concurrence by the USACE.

Performance Standards: 1) Construction of impoundments using 12 log crib structures and earthen berms, 2) excavation of an oxbow basin along the outer fringe of existing wetland boundaries and 3) planting of shrubs and herbaceous plugs within the oxbow basin, wetland fringe, and log crib structures. Target wetland types are scrub/shrub and emergent vegetation classes including communities of thin-leaf alder (*Alnus incana)*, red osier dogwood (*Cornus alba),* Nebraska sedge (*Carex nebrascensis)*, and Baltic rush (*Juncus balticus*). Revegetation was completed in 2006, and most recent crib repairs were made in May, 2020.

Summary Data

Wetland Delineation – The total wetland acreage delineated in 2020 was 3.94 acres, an increase of 0.74 acres since 2017 (Table 1; Figure A-3, Appendix A). The increase in wetland acreage is a result of overflow from an irrigation ditch in the southwestern corner of the property, and as a result of repairs made on two crib structures in May 2020, which improved hydrologic function by increasing water and sediment retention. It appears that the irrigation overflow has likely happened in the past, but was actively flooding the slope during the site visit in 2020 (Figure A-4, Appendix A). A photo showing the irrigation water entering the site is provided in Appendix C.

Table 1. Delineated Wetland Acreage from 2016 through 2017 and 2020 at the US 93 Peterson Site

Habitat Type	2016	2017	2020
Wetland Area (acres)	3.20	3.20	3.94

Vegetation – A total of 83 plant species have been identified at the site in the 12 years of monitoring, with three new species reported in 2020. Two areas containing state-listed Priority 2A and 2B noxious weeds were mapped at the US 93 Peterson site in 2020 (Figure A-3, Appendix A). Canada thistle (*Cirsium arvense)* and whitetop (*Lepidium draba)* ranged from trace to moderate occurrences, while houndstongue (*Cynoglossum officinale),* yellow flag iris (*Iris pseudacorus)* and ventenata (*Ventenata dubia)* occurred as trace and low cover classes.

Two upland community types and three wetland community types were identified and mapped at the site in 2020 (Figure A-3, Appendix A). Wetland type 11 (*Dipsacus fullonum/Carex nebrascensis*) is no longer present at the site and has evolved since 2017 into wetland type 12 (*Carex nebrascensis/Poa pratensis*). The species composition for each community type is provided in detail in the Wetland Mitigation Site Monitoring form (Appendix B). The vegetation community types identified within the site in 2020 include the following:

- Wetland Type 2 – *Phalaris arundinacea*
- Wetland Type 8 – *Typha latifolia/Phalaris arundinacea*
- Wetland Type 12 – *Carex nebrascensis/Poa pratensis*
- Upland Type 7 – *Elymus repens/Poa pratensis*
- Upland Type 10 – *Elymus repens/Sisymbrium altissimum*

Vegetation cover was measured along two transects (T-1 and T-2) in 2020 (Figure A-2, Appendix A). Photographs of the transect end points are provided in Appendix C. Table 2 summarizes the data for T-1. T-1 is 144 feet long and intersected upland community Type 7 – *Elymus repens/Poa pratensis* and wetland community Type 8 – *Typha latifolia*/*Phalaris arundinacea*; 85.4 percent of the transect crossed wetland habitat, consistent with results in 2017. The number of hydrophytic species increased from 7 to 12, while the total number of species observed remained the same between 2017 and 2020 at 14. Total vegetative cover remained unchanged at 95 percent.

Table 2. Data Summary for T-1 From 2016 - 2017 and 2020 at the US 93 Peterson Site

Monitoring Year	**2016**	**2017**	**2020**
Transect Length (feet)	144	144	144
Vegetation Community Transitions along Transect	2	2	2
Vegetation Communities along Transect	2	2	2
Hydrophytic Vegetation Communities along Transect	1	1	1
Total Vegetative Species	15	14	14
Total Hydrophytic Species	12	7	12
Total Upland Species	3	7	2
Estimated % Total Vegetative Cover	96	95	95
Estimated % Unvegetated	4	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	73.6	85.4	85.4
% Transect Length Comprising Upland Vegetation Communities	26.4	14.6	14.6
% Transect Length Comprising Unvegetated Open Water	0	0	0
% Transect Length Comprising Mudflat	0	0	0

Data collected on T-2 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 3. T-2 is 325 feet long and intersects upland community Type 7 – *Elymus repens/Poa pratensis* and wetland community Type 8 – *Typha latifolia*/*Phalaris arundinacea;* 72 percent of the transect crossed wetland habitat in 2020, which is a consistent with results from 2017. The number of hydrophytic species doubled from 6 to 12, while the total number of species observed stayed the same between the two years at 17. Total vegetative cover remained unchanged at 95 percent.

Table 3. Data Summary for T-2 From 2016 - 2017 and 2020 at the US 93 Peterson Site

Monitoring Year	**2016**	**2017**	**2020**
Transect Length (feet)	325	325	325
Vegetation Community Transitions along Transect	3	3	3
Vegetation Communities along Transect	2	2	2
Hydrophytic Vegetation Communities along Transect	1	1	1
Total Vegetative Species	18	17	17
Total Hydrophytic Species	14	6	12
Total Upland Species	4	11	5
Estimated % Total Vegetative Cover	93	95	95
Estimated % Unvegetated	7	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	67.7	72.0	72.0
% Transect Length Comprising Upland Vegetation Communities	32.3	28.0	28.0
% Transect Length Comprising Unvegetated Open Water	0	0	0
% Transect Length Comprising Mudflat	0	0	0

Hydrology – The main source of hydrology at the Peterson site is an unnamed perennial tributary of Post Creek. The mitigation site is located within a ¼-mile-long wetland corridor aligned east to west that follows the topographic gradient toward Post Creek. The project area is exposed to seasonal flooding during spring runoff, seasonal high groundwater, and sustained flows during summer from irrigation returns. Immediately east of US 93 and the Peterson site is a small reservoir located on private land. The landowner manipulates the channel flows from this reservoir that supply hydrology to the mitigation site. In May 2020, log crib structures (i.e., log dams 1, 1A, 2, and 6)and earthen berms were newly installed, repaired, or replaced to improve water impoundment and increase wetland creation around

the creek. At the southwest border of the property, water is flowing downhill and north into the mitigation site from the adjacent property (Figure 4, Appendix A), and has increased wetland acreage up the hillslope and outside of the floodplain area.

Soils – Soil test pits were excavated at 3 locations (Figure A-2, Appendix A). Wetland test pits were located inside the excavated depressions in areas recently rehydrated by crib repair work, while the upland test pit was located upslope and adjacent to the wetland boundary. Soil textures within wetland test pits ranged from silty clay loam to silty clay. Although hydric soil indicators were not observed at wetland test pits, wetland hydrology was present, all dominant plant species were hydrophytic, and the wetland boundary had an abrupt edge (1987 USACE Wetland Delineation Manual). No hydric soil indicators were observed in the upland test pit.

Photographs – Photographs were taken at photo points 1–8 (PP1 to PP8), transect endpoints, and data points. These and additional site photos of the repaired cribs and outflow structures are provided in Appendix C, with comparisons between 2020 and the first year of monitoring. MDT added photo point 8 in 2020 to monitor the newly installed Log Crib 1A and is included for the first time in this report. Please refer to previous years' monitoring reports for all previous annual photographs (https://www.mdt.mt.gov/publications/brochures/wetland_mitigation.shtml).

Functional Assessment – The 2020 results of the functional assessments are summarized in Table 4. Completed Montana Wetland Assessment Method (MWAM) forms for the US 93 Peterson site are provided in Appendix B. Overall, the site rates as a Category II wetland and has generated 33.88 Functional Units. The actual points scored on the MWAM have remained consistent from 2017 to 2020, and the increase in functional units is due to the increase in wetland acreage at the site. Expected wetland credits are shown in table 5.

Table 4. Montana Wetland Assessment Method Summary for the US 93 Peterson Site

Function and Value Parameters from the MDT Montana Wetland Assessment Method (1999)	2016 (AA-1)	2017 (AA-1)	2020 (AA-1)
Listed/Proposed T&E Species Habitat	High (0.8)	High (0.8)	High (0.8)
MTNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.1)
General Wildlife Habitat	High (0.9)	High (0.9)	High (0.9)
General Fish/Aquatic Habitat	NA	NA	NA
Flood Attenuation	High (0.8)	High (0.8)	High (0.8)
Short and Long Term Surface Water Storage	High (0.8)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	High (1.0)	High (1.0)	High (1.0)
Production Export/Food Chain Support	High (0.8)	High (0.8)	High (0.8)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Mod (0.4)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential	High (1.0)	High (1.0)	High (1.0)
Actual Points / Possible Points	**8.6/11**	**8.6/11**	**8.6/11**
% of Possible Score Achieved	**78%**	**78%**	**78%**
Overall Category	**II**	**II**	**II**
Total Acreage of Assessed Wetlands and Open Water within Easement (ac)	**3.2**	**3.2**	**3.94**
Total Functional Units (acreage x actual points) **(fu)**	**27.52**	**27.52**	**33.88**
Net Acreage Gain (ac)	**1.94**	**1.94**	**2.68**
Net Functional Unit Gain	**20.84**	**20.84**	**27.2**

Wildlife – Sixteen bird species, including seven newly documented species, were identified at the site in 2020. New species include American Goldfinch (*Spinus tristis*), Brewer's Blackbird (*Euphagus cyanocephalus*), Eastern Kingbird (*Tyrannus tyrannus*), Rufous Hummingbird *(Selasphorus rufus*), Tree Swallow (*Tachycineta bicolor*), and Turkey Vulture (*Cathartes aura*). In addition to the 16 bird species, two white-tailed deer (*Odocoileus virginianus*), a Columbia spotted frog (Rana luteiventris), evidence of meadow voles (*Microtus pennsylvanicus*) and coyote tracks (*Canis latrans*) were observed at the site (Appendix B, Site Monitoring Form).

Credit Summary – Including both creation and rehabilitation/secondary restoration credit acres, the site is currently receiving 3.47 USACE credit acres and 1.47 CSKT credit acres. Table 5 summarizes the estimated wetland credits based on USACE-approved credit ratios and the wetland delineation completed in August 2020. Credit acres calculated in 2020 exceed anticipated credit acres for both the USACE and CSKT. Wetland acreage totaled 3.94 acres in 2020, an increase of 0.74-acres since 2017. Wetlands are expected to continue to develop across the site, especially along the southwestern corner of the property where irrigation overflow is supplying increased hydrology.

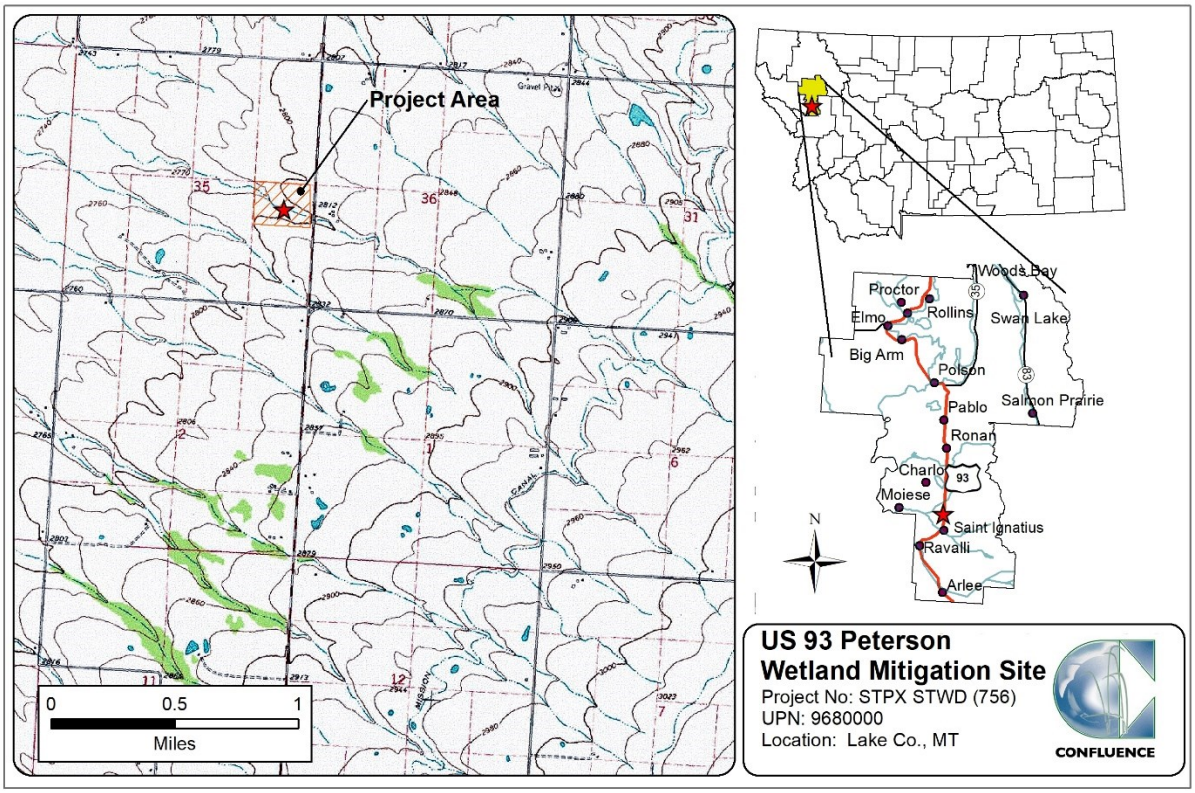
Table 5. Expected Wetland Mitigation Credits for US 93 Peterson Site from 2016-2017 and 2020

Targeted Mitigation Type	Credit Ratio		Anticipated Credit (acre)		2016 Wetland (acre)	2016 Credit (acre)		2017 Wetland (acre)	2017 Credit (acre)		2020 Wetland (acre)	2020 Credit (acre)	
	USACE	CSKT	USACE	CSKT		USACE	CSKT		USACE	CSKT		USACE	CSKT
Creation	1:1	3.36:1	2.14	0.64	1.95	1.95	0.58	1.95	1.95	0.58	2.69	2.69	0.80
Rehabilitation/secondary restoration	1.61:1* (2014)	1.86:1	0.25	0.67	1.25	0.78	0.67	1.25	0.78	0.67	1.25	0.78	0.67
Total	**--**	**--**	**2.39**	**1.31**	**3.20**	**2.73**	**1.25**	**3.20**	**2.73**	**1.25**	**3.94**	**3.47**	**1.47**

*Corrected rehabilitation/secondary restoration ratio

Maps, Plans, Photos

Site Location Map



Project Area Maps/Figures: See Appendix A.

Data Forms: See Appendix B (Plant list, Site Monitoring form, USACE data forms, and MWAM forms).

Photos: See Appendix C.

Conclusions

Based on the results of the twelfth year of monitoring, the mitigation site is continuing to develop into a diverse wetland ecosystem. The site is meeting its performance standards, including the construction of 12 log crib structures and earthen berms, excavation of an oxbow basin along the outer fringe of pre-existing wetland boundaries, and the planting of shrubs and herbaceous plugs within the oxbow basin, wetland fringe, and log crib structures. Increases in wetland acreage and expansion of emergent wetland habitat reported in 2020 are a result of the repairs made on crib structures to increase water impoundment and enhance hydrologic function, along with increased hydrology from irrigation ditch overflow coming from the southwest corner of the site (Figure A-4, Appendix A).

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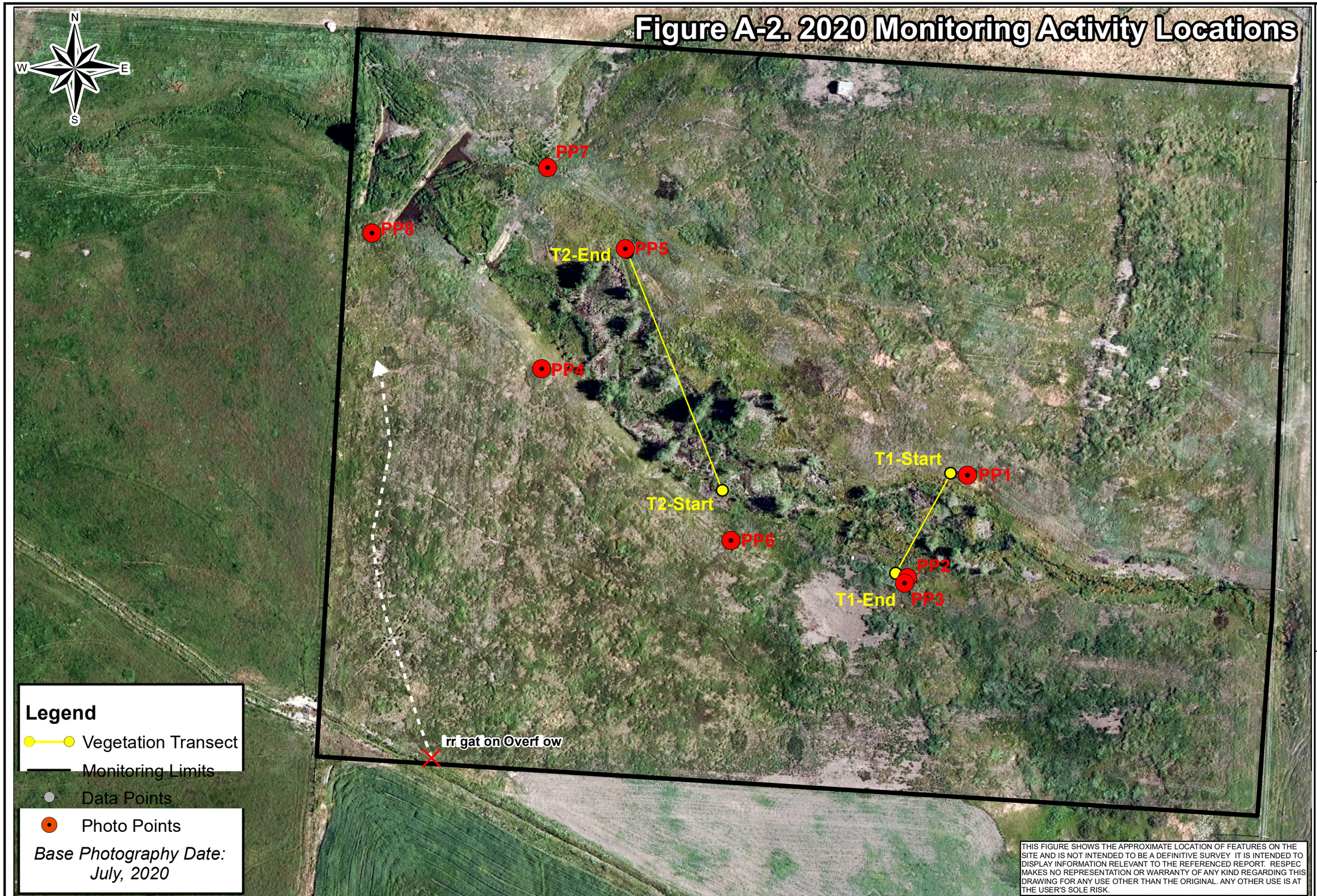
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APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

Figure A-2. 2020 Monitoring Activity Locations



Legend

- Vegetation Transect
- Monitoring Limits
- Data Points
- Photo Points

Base Photography Date: July, 2020

THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. RESPEC MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

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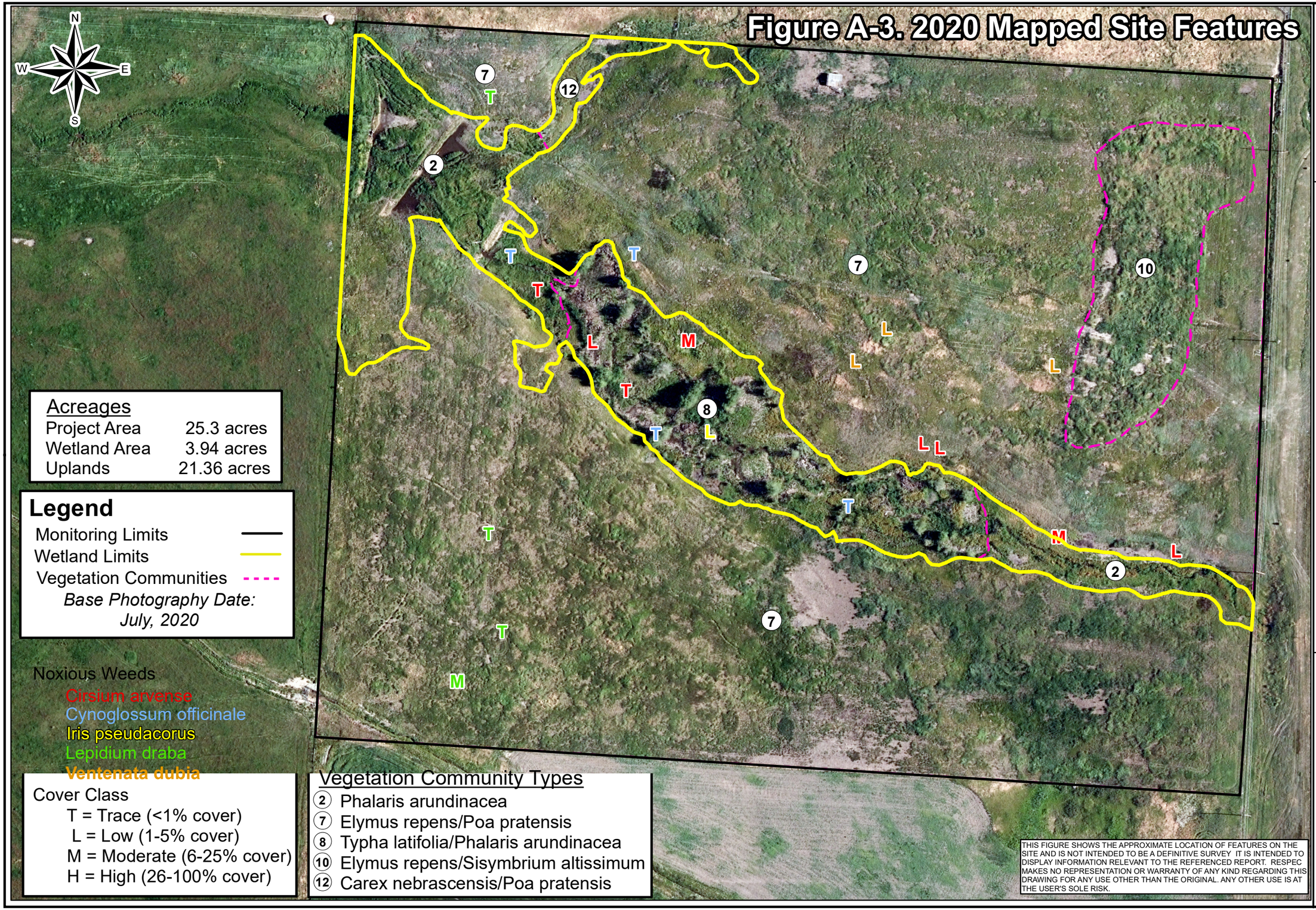
US-93 Peterson Mitigation Site
2020 Monitoring Activity Locations

0 60 120 240 360 480 600 Feet

Project:	STPX STWD (756)
Location:	Lake Co., Montana
Date:	September 2020
Project Manager:	R. McEldowney
Drawn By:	S. Weyant

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Figure A-3. 2020 Mapped Site Features



Acreages	
Project Area	25.3 acres
Wetland Area	3.94 acres
Uplands	21.36 acres

Legend

- Monitoring Limits
- Wetland Limits
- Vegetation Communities

Base Photography Date: July, 2020

Noxious Weeds
- Cirsium arvense
- Cynoglossum officinale
- Iris pseudacorus
- Lepidium draba
- Ventenata dubia

Cover Class
- T = Trace (<1% cover)
- L = Low (1-5% cover)
- M = Moderate (6-25% cover)
- H = High (26-100% cover)

Vegetation Community Types
- (2) Phalaris arundinacea
- (7) Elymus repens/Poa pratensis
- (8) Typha latifolia/Phalaris arundinacea
- (10) Elymus repens/Sisymbrium altissimum
- (12) Carex nebrascensis/Poa pratensis

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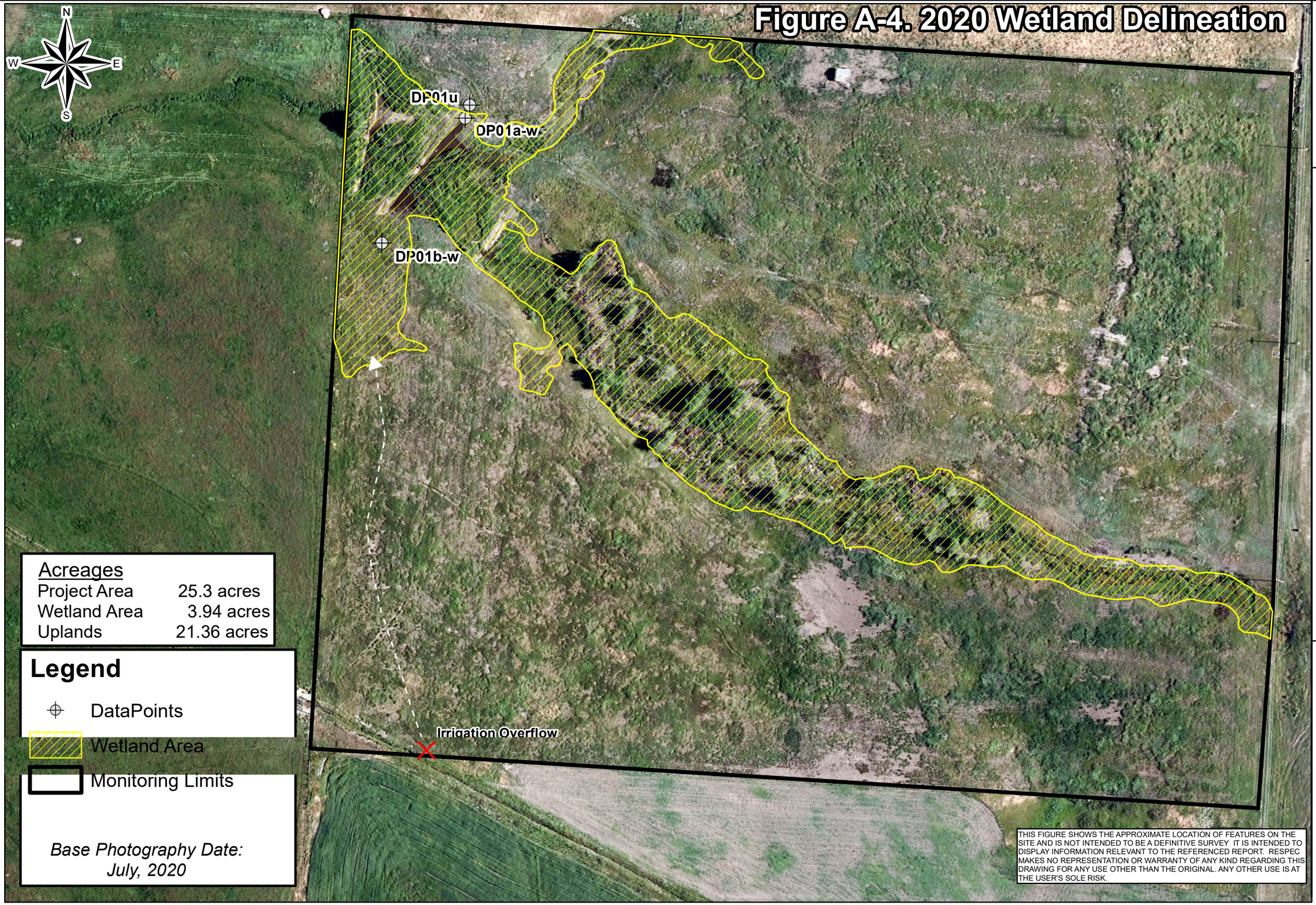
US-93 Peterson Mitigation Site
2020 Mapped Site Features

0 60 120 240 360 480 600 Feet

Project: STPX STWD (756)
Location: Lake Co., Montana
Date: September 2020
Project Manager: R. McEldowney
Drawn By: S. Weyant

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Figure A-4. 2020 Wetland Delineation



Acreages	
Project Area	25.3 acres
Wetland Area	3.94 acres
Uplands	21.36 acres

Legend

- DataPoints
- Wetland Area
- Monitoring Limits

Base Photography Date: July, 2020

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US-93 Peterson Mitigation Site
2020 Wetland Delineation

0 60 120 240 360 480 600 Feet

Project:	STPX STWD (756)
Location:	Lake Co., Montana
Date:	September 2020
Project Manager:	R. McEldowney
Drawn By:	S. Weyant

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APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: US 93 Peterson Assessment Date/Time 8/5/2020

Person(s) conducting the assessment: R McEldowney

Weather: 65 degrees, calm, mostly cloudy Location: St. Ignatius

MDT District: Missoula Milepost: 35.5

Legal Description: T 19N R 20W Section(s) 35

Initial Evaluation Date: 8/15/2008 Monitoring Year: 12 #Visits in Year: 1

Size of Evaluation Area: 25 (acres)

Land use surrounding wetland:

Residential & agriculture.

HYDROLOGY

Surface Water Source: Unnamed tributary to Post Creek; irrigation ditch diversion.

Inundation: ☑ Average Depth: 0.5 **(ft)** Range of Depths: 0-3 **(ft)**

Percent of assessment area under inundation: 50 %

Depth at emergent vegetation-open water boundary: 0 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: Yes

Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:

Drift lines & stained vegetation.

Groundwater Monitoring Wells

Record depth of water surface below ground surface, in feet.

Additional Activities Checklist:

☐ Map emergent vegetation-open water boundary on aerial photograph.

☐ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining, etc.)

☐ Use GPS to survey groundwater monitoring well locations, if present.

Hydrology Notes:

Unlike past years, inundation behind the cib structures at the downstream end was present during the site visit, indicating the structures have been improved and are working as intended. No obvious signs of breaching due to voids, undercuts, etc. were observed. There is some evidence that the site was more heavily inundated earlier in the season with drift lines and stained vegetation.

VEGETATION COMMUNITIES

Site US 93 Peterson

(Cover Class Codes **0** = < 1%, **1** = 1-5%, **2** = 6-10%, **3** = 11-20%, **4** = 21-50% , **5** = >50%)

Community # 2 **Community Type:** Phalaris arundinacea / **Acres:** 1.9

Species	Cover class	Species	Cover class
Alnus incana	1	Brassica juncea	4
Carex utriculata	2	Cirsium arvense	1
Dipsacus fullonum	2	Impatiens ecalcarata	1
Juncus balticus	1	Nasturtium officinale	2
Phalaris arundinacea	4	Poa palustris	1
Solanum dulcamara	1	Veronica sp.	2

Comments:

Wetland community type.

Community # 7 **Community Type:** Elymus repens / Poa pratensis **Acres:** 20

Species	Cover class	Species	Cover class
Brassica juncea	1	Bromus inermis	2
Bromus tectorum	1	Carex nebrascensis	2
Cirsium arvense	1	Dipsacus fullonum	2
Elymus repens	4	Juncus balticus	1
Pascopyrum smithii	2	Phalaris arundinacea	0
Poa pratensis	4	Rosa woodsii	1
Sisymbrium altissimum	0	Sonchus arvensis	1
Ventenata dubia	1		

Comments:

Upland community type.

Community # 8 **Community Type:** Typha latifolia / Phalaris arundinacea **Acres:** 1.8

Species	Cover class	Species	Cover class
Alnus incana	2	Brassica juncea	1
Carex nebrascensis	1	Carex utriculata	2
Cirsium arvense	1	Dipsacus fullonum	3
Epilobium ciliatum	3	Geum macrophyllum	1
Lemna minor	1	Mentha arvensis	1
Nasturtium microphyllum	1	Nasturtium officinale	3
Phalaris arundinacea	3	Poa palustris	1
Poa pratensis	1	Rosa woodsii	1
Solanum dulcamara	3	Typha latifolia	4

Comments:

Wetland community type.

Community # 10 **Community Type:** Elymus repens / Sisymbrium altissimum **Acres:** 1.4

Species	Cover class	Species	Cover class
Bromus inermis	1	Cirsium vulgare	0
Elymus repens	3	Sisymbrium altissimum	1

Comments:

Upland community type.

Community # 12 **Community Type:** Carex nebrascensis / Poa pratensis **Acres:** 0.2

Species	Cover class	Species	Cover class
Brassica juncea	2	Carex nebrascensis	5
Carex stipata	1	Elymus repens	2
Glyceria grandis	1	Pascopyrum smithii	1
Poa pratensis	3	Typha latifolia	1

Comments:

Community type 12 was added in 2020 to replace type 11 (Dispacus fullonum/Carex nebrascensis).

Total Vegetation Community Acreage **25.3**

VEGETATION TRANSECTS

Site: US 93 Peterson Date: 8/5/2020

Transect Number: 1 **Compass Direction from Start:** 210 °

Interval Data:

Ending Station 17 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Brassica juncea	1	Dipsacus fullonum	1
Elymus repens	4	Poa pratensis	4

Ending Station 140 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	0	Brassica juncea	2
Carex nebrascensis	0	Carex utriculata	0
Cirsium arvense	1	Dipsacus fullonum	2
Epilobium ciliatum	0	Nasturtium microphyllum	4
Phalaris arundinacea	2	Poa pratensis	0
Rosa woodsii	1	Solanum dulcamara	1
Typha latifolia	3		

Ending Station 144 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Brassica juncea	1	Elymus repens	2
Poa pratensis	5		

Transect Notes:

Wetland interval has increased 17 feet in length since 2017.

Transect Number: 2 **Compass Direction from Start:** 340 °

Interval Data:

Ending Station 193 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	2	Brassica juncea	1
Carex nebrascensis	1	Cirsium arvense	0
Dipsacus fullonum	2	Epilobium ciliatum	3
Geum macrophyllum	0	Nasturtium officinale	2
Phalaris arundinacea	1	Rosa woodsii	0
Solanum dulcamara	4	Typha latifolia	4

Ending Station 217 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Brassica juncea	0	Dipsacus fullonum	0
Poa pratensis	5		

Ending Station 258 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	1	Brassica juncea	0
Carex nebrascensis	3	Epilobium ciliatum	1
Geum macrophyllum	0	Nasturtium officinale	1
Poa palustris	0	Typha latifolia	5

Ending Station 325 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Bromus tectorum	1	Carex nebrascensis	1
Pascopyrum smithii	1	Poa pratensis	5
Ventenata dubia	1		

Transect Notes:

Interval at ending station 217 is transitioning.

PLANTED WOODY VEGETATION SURVIVAL

US 93 Peterson

Planting Type	#Planted	#Alive	Notes
Alnus incana	1163		
Beula occidentalis	817		
Cornus alba	408		
Crataegus douglasii			
Ribes hudsonianum	245		
Rosa woodsii	450		
Salix exigua	408		

Comments

No planted woody vegetation survival was assessed during 2020. Woody plants were evaluated based on an ocular observation. Alnus incana has the highest woody plant density and is thriving. Rosa woodsii and Cornus alba are present along the wetland/upland boundary.

US 93 Peterson

WILDLIFE

Birds

Were man-made nesting structures installed? No

If yes, type of structure: _____

How many? _____

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
American Goldfinch			
Black-billed Magpie			
Brewer's Blackbird			
Canada Goose	23		
Eastern Kingbird			
Northern Harrier			
Red-winged Blackbird	3		
Rufus Hummingbird			
Sora Rail			
Tree Swallow			
Turkey Vulture	4		
Vesper Sparrow			
Western Meadowlark			
Wilson's Snipe	2		
Yellow Warbler	1		
Yellow-rumped Warbler			

Bird Comments

Seven new bird species observed in 2020.

BEHAVIOR CODES

BP = One of a breeding pair **BD** = Breeding display **F** = Foraging **FO** = Flyover **L** = Loafing **N** = Nesting

HABITAT CODES

AB = Aquatic bed **SS** = Scrub/Shrub **FO** = Forested **UP** = Upland buffer **I** = Island

WM = Wet meadow **MA** = Marsh **US** = Unconsolidated shore **MF** = Mud Flat **OW** = Open Water

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Columbia Spotted Frog	1	No	No	No	
Coyote	0	No	Yes	No	
Meadow Vole	0	No	No	No	
White-tailed Deer	2	No	No	Yes	

Wildlife Comments:

Sightings, tracks, and scat indicate wildlife presence.

US 93 Peterson

PHOTOGRAPHS

Take photographs of the following permanent reference points listed in the check list below. Record the direction of the photograph using a compass. When at the site for the first time, establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3 feet above ground. Survey the location with a resource grade GPS and mark the location on the aerial photograph.

Photograph Checklist:

☐ One photograph for each of the four cardinal directions surrounding the wetland.

☐ At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.

☑ At least one photograph showing the buffer surrounding the wetland.

☑ One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
DP01a-w	47.362632	-114.101473		Wetland sample point.
DP01b-w	47.362185	-114.101858		Wetland sample point.
DP01u	47.362678	-114.101453		Upland sample point.
PP1	47.361538	-114.098828	175	Photo point 1: Photo 1.
PP2-1	47.361169	-114.099105	35	Photo point 2: Photo 1.
PP2-2	47.361169	-114.099105	110	Photo point 2: Photo 2.
PP3	47.36115	-114.099117	45	Photo point 3.
PP4	47.361821	-114.101036	30	Photo point 4.
PP5	47.362254	-114.100645	175	Photo point 5.
PP6	47.361263	-114.100017	315	Photo point 6.
PP7-1	47.362521	-114.101066	5	Photo point 7: Photo 1.
PP7-2	47.362521	-114.101066	267	Photo point 7: Photo 2.
PP8	47.362257	-114.101944	34	Photo point 8.
T1-End	47.361169	-114.099105	45	Photo point 2. T-1 End.
T1-Start	47.361538	-114.098828	215	Photo point 1. T-1 Start.
T2-End	47.362242	-114.100633	315	Photo point 5. T-2 End.
T2-Start	47.361435	-114.100076	135	Transect 2 start.

Comments:

Photo point 8 created in 2020.

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ADDITIONAL ITEMS CHECKLIST

Hydrology

☐ Map emergent vegetation/open water boundary on aerial photos.
☐ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).

Photos

☐ One photo from the wetland toward each of the four cardinal directions
☐ One photo showing upland use surrounding the wetland.
☐ One photo showing the buffer around the wetland
☐ One photo from each end of each vegetation transect, toward the transect

Vegetation

☑ Map vegetation community boundaries

☑ Complete Vegetation Transects

Soils

☑ Assess soils

Wetland Delineations

☑ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)
☑ Delineate wetland – upland boundary onto aerial photograph.

Wetland Delineation Comments

3.94 acres of wetland delineated in 2020.

Functional Assessments

☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.

Functional Assessment Comments:

Category II Wetland.

Maintenance

Were man-made nesting structures installed at this site? No

If yes, do they need to be reaired?

If yes, describe the problems below and indicate if any actions were taken to remedy the problems.

Were man-made structures built or installed to impound water or control waterflow into or out of the wetland? Yes

If yes, are the structures in need of repair No

Water flow entering the site from irrigation ditch seepage in southwestern corner of site, which has increased wetland acreage.

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

Project/Site: US 93 Peterson | City/County: Lake | Sampling Date: 8/6/2020

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01a-w

Investigator(s): McEldowney | Section, Township, Range: S 35 T 19N R 20W

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 47.362632 | Long: -114.101473 | Datum: NAD 83

Soil Map Unit Name: 143: Ronan silty clay loam, 4-8% slopes | NWI classification: PEMC

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

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

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

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM wetland, sample point is located in an area recently rehydrated by the crib repair work completed in May 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Brassica juncea	3	☐	UPL
Eleocharis palustris	25	☑	OBL
Juncus bufonius	15	☑	FACW
Pascopyrum smithii	15	☑	FACU
Phalaris arundinacea	5	☐	FACW
Typha latifolia	3	☐	OBL
Veronica americana	2	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 30

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	30 X 1	30
FACW species	20 X 2	40
FAC species	0 X 3	0
FACU species	15 X 4	60
UPL species	3 X 5	15
Column Totals	68 (A)	145 (B)

Prevalence Index = B/A = 2.13235

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Bare ground (BG)=30%. Herbaceous wetland vegetation dominated sample point.

SOIL Sampling Point: DP01a-w

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks:

Although no hydric soil indicators were observed during the site visit, wetland hydrology was present, all dominant plant species were hydrophytic, and the wetland boundary had an abrupt edge (1987 COE Wetland Delineation Manual). This sample point is located in a recently inundated area and supported by hydrophytic vegetation.

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☐ ☑
☑ ☐ 0 ☑ ☐

Iron deposits, algal mats, and 2 inches of surface water observed in sample plot.

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

Project/Site: US 93 Peterson | City/County: Lake | Sampling Date: 8/6/2020

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01b-w

Investigator(s): McEldowney | Section, Township, Range: S 35 T 19N R 20W

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): LRR E | Lat: 47.362185 | Long: -114.101858 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silty loam, 0-1% slopes | NWI classification: Not Mapped

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

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

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

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM wetland, located near west boundary in the north-west corner of site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Brassica juncea	3	☐	UPL
Carex nebrascensis	65	☑	OBL
Cirsium arvense	1	☐	FAC
Poa pratensis	25	☑	FAC
Verbascum blattaria	1	☐	UPL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	65 X 1	65
FACW species	0 X 2	0
FAC species	26 X 3	78
FACU species	0 X 4	0
UPL species	4 X 5	20
Column Totals	95 (A)	163 (B)

Prevalence Index = B/A = 1.71579

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
BG=5%. Herbaceous wetland vegetation dominated sample point.

SOIL

Sampling Point: DP01b-w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					Silty Clay Loam	**Saturated due to aquitard.**
12-16	7.5YR 5/3	100					Silty Clay	**Soil moist.**

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Although no hydric soil indicators were observed during the site visit, wetland hydrology was present, all dominant plant species were hydrophytic, and the wetland boundary had an abrupt edge (1987 COE Wetland Delineation Manual). This sample point is located in an area inundated by agricultural runoff and is supported by hydrophytic vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

High water table observed at 10 inches and soils saturated to surface.

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

Project/Site: US 93 Peterson | City/County: Lake | Sampling Date: 8/6/2020

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01u

Investigator(s): McEldowney | Section, Township, Range: S 35 T 19N R 20W

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): convex | Slope (%): 5

Subregion (LRR): LRR E | Lat: 47.362678 | Long: -114.101453 | Datum: NAD 83

Soil Map Unit Name: 143: Ronan silty clay loam, 4-8% slopes | NWI classification: PEM

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

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

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

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Located on slope adjacent to DP01a-w.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Domiant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Lepidium draba	2	☐	UPL
Pascopyrum smithii	20	☑	FACU
Poa pratensis	60	☑	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 15

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	60 X 3	180
FACU species	20 X 4	80
UPL species	2 X 5	10
Column Totals	82 (A)	270 (B)

Prevalence Index = B/A = 3.29268

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:
Dry hillside. BG=15%. Graminoid dominated vegetation, including both FAC, FACU, and UPL species.

SOIL

Sampling Point: DP01u

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

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

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☐

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology.

MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

1. Project Name: US 93 Peterson **2. Project #:** NH 5-2(122)31 **Control #:** 9680000

3. Evaluation Date: 8/6/2020 **4. Evaluator(s):** R McEldowney **5. Wetland / Site #(s):** AA-1

6. Wetland Location(s) i. T: 19 N **R:** 20 W **S:** 35 **T:** __ N **R:** __ E **S:** _____

ii. Approx. Stationing / Mileposts: ~ RP 35.5 US 93 North

iii. Watershed: 4 - Flathead **GPS Reference No. (if applies):** _____

Other Location Information: Lake County

7. A. Evaluating Agency CCI - MDT

8. Wetland Size (total acres): _____ (visually estimated)
3.94 (measured, e.g. GPS)

B. Purpose of Evaluation:
- ☐ Wetlands potentially affected by MDT project
- ☐ Mitigation wetlands; pre-construction
- ☒ Mitigation wetlands; post-construction
- ☐ Other

9. Assessment Area (total acres): _____ (visually estimated)
3.94 (measured, e.g. GPS)

Comments: _____

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA

HGM CLASS [1]	SYSTEM [2]	SUBSYSTEM [2]	CLASS [2]	WATER REGIME [2]	MODIFIER [2]	% OF AA
Riverine	Palustrine	None	Emergent Wetland	Permanently Flooded	Impounded	80
Riverine	Palustrine	None	Scrub-Shrub Wetland	Permanently Flooded	Impounded	10
Slope	Palustrine	None	Emergent Wetland	Seasonally Flooded	Impounded	10
---	---	---	---	---	---	

[1] = Smith et al. 1995. [2] = Cowardin et al. 1979.

Comments: Site is a combination of PEM/PSS wetlands.

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin)
Common **Comments:** _____

12. GENERAL CONDITION OF AA

i. Regarding Disturbance: (Use matrix below to select appropriate response.)

	Predominant Conditions Adjacent (within 500 Feet) To AA		
Conditions Within AA	Land managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings.	Land not cultivated, but moderately grazed or hayed or selectively logged or has been subject to minor clearing; contains few roads or buildings.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.
AA occurs and is managed in predominantly a natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	---	low disturbance	---
AA not cultivated, but moderately grazed or hayed or selectively logged or has been subject to relatively minor clearing, or fill placement, or hydrological alteration; contains few roads or buildings.	---	---	---
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	---	---	---

Comments: (types of disturbance, intensity, season, etc.) AA includes an unnamed perennial stream channel and adjacent wetlands, including those associated with a stream diversion that enters the mitigation site from the north. Wetlands within AA constructed in 2006 and managed in a natural state. Adjacent area is subject to grazing.

ii. Prominent weedy, alien, & introduced species: Cirsium arvense, Cynoglossum officinale, Lepidium draba, Iris pseudocorus, and Ventenata dubia.

iii. Briefly describe AA and surrounding land use / habitat: Rangeland to the north, south, and west; US 93 corridor to the east.

13. STRUCTURAL DIVERSITY (Based on 'Class' column of #10 above.)

Number of 'Cowardin' Vegetated Classes Present in AA	≥3 Vegetated Classes or ≥ 2 if one class is forested	2 Vegetated Classes or 1 if forested	≤ 1 Vegetated Class
Select Rating	---	Moderate	---

Comments: Emergent and scrub/shrub vegetation types.

14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS AND ANIMALS

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D ☐ S	_____
Secondary habitat **(list species)**	☒ D ☐ S	Grizzly bear (LT)
Incidental habitat **(list species)**	☐ D ☐ S	_____.
No usable habitat	☐ D ☐ S	_____

ii. **Rating** (Based on the strongest habitat chosen in 14A(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	.8 (M)	---	---	---	---

If documented, list the source (e.g., observations, records, etc.)**:** USFWS T&E list and CSKT Wildlife staff observation in 2017/2018.

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.
Do not include species listed in 14A(i).

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D ☐ S	_____
Secondary habitat **(list species)**	☐ D ☐ S	_____
Incidental habitat **(list species)**	☐ D ☒ S	Great Blue Heron (S3)
No usable habitat	☐ D ☐ S	_____

iii. **Rating** Based on the strongest habitat chosen in 14B(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.

Highest Habitat Level:	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	.1 (L)	---

If documented, list the source (e.g., observations, records, etc.)**:** MNHP

14C. General Wildlife Habitat Rating

i. **Evidence of overall wildlife use in the AA:** Check either substantial, moderate, or low.

☐ **Substantial** (based on any of the following)
- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

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

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

ii. **Wildlife Habitat Features** Working from top to bottom, select appropriate AA attributes to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from #13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see #10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.

Structural Diversity (from #13)	☐High								☒Moderate								☐Low			
Class Cover Distribution (all vegetated classes)	☐Even				☐Uneven				☐Even				☒Uneven				☐Even			
Duration of Surface Water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	E	--	--	--	--	--	--	--
Moderate disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

iii. **Rating** Use 14C(i) and 14C(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L) for this function.

Evidence of Wildlife Use from 14C(i)	**Wildlife Habitat Features Rating** from 14C(ii)			
	☒ Exceptional	☐ High	☐ Moderate	☐ Low
Substantial	--	--	--	--
Moderate	.9 (H)	--	--	--
Low	--	--	--	--

Comments: General wildlife rated high based on low disturbance to the area and moderate habitat use.

14D. GENERAL FISH/AQUATIC HABITAT RATING ☒ **NA** (proceed to 14E)

If the AA is not or was not historically used by fish due to lack of habitat or excessive gradient, then check the NA box above.

Assess if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [*e.g.* fish use is precluded by perched culvert or other barrier, etc.]. If fish use occurs in the AA but is not desired from a resource management perspective (*e.g.* fish use within an irrigation canal], then Habitat Quality [14D(i)] below should be marked as "Low", applied accordingly in 14D(ii) below, and noted in the comments.

i. **Habitat Quality** Pick the appropriate AA attributes in matrix to determine the quality rating of exceptional (E), high (H), moderate (M), or low (L).

Duration of Surface Water in AA	☐ Permanent/Perennial			☐ Seasonal / Intermittent			☐ Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects (*e.g.* submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading – 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. **Modified Habitat Quality:** Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity **or** is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support**?**
☐ **Y** ☒ **N** If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: ☐ E ☐ H ☐ M ☐ L

iii. **Rating** Use the conclusions from 14D(i) and 14D(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L).

Types of Fish Known or Suspected Within AA	**Modified Habitat Quality** from 14D(ii)			
	☐ Exceptional	☐ High	☐ Moderate	☐ Low
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: General fish habitat rating determined Not Applicable due to impassable barriers (log cribs) that prevent fish from using AA.

14E. FLOOD ATTENUATION ☐ **NA** (proceed to 14G)

Applies only to wetlands subject to flooding via in-channel or overbank flow.
If wetlands in AA do not flood from in-channel or overbank flow, then check NA above.

i. **Rating** Working from top to bottom, mark the appropriate attributes to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Estimated wetland area in AA subject to periodic flooding	☐ ≥ 10 acres			☒ <10, >2 acres			☐ ≤2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	--	--	--	.8 (H)	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--	--

ii. **Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA?** (check)
☐**Y** ☒**N** **Comments:** Log crib structures were installed as beaver dam analogues to spread flow out and create wetland habitat. The dense cattail marsh works to slow flood waters and functions similarily to woody vegetaiton, so the score was increased from 0.5 to 0.8

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)

Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow.
If no wetlands in the AA are subject to flooding or ponding, then check NA above.

i. Rating Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
Abbreviations: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding.	☐ >5 acre feet			☒ <5, >1 acre feet			☐ ≤1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **≥ 5 out of 10 years**	--	--	--	.8 (H)	--	--	--	--	--
Wetlands in AA flood or pond **< 5 out of 10 years**	--	--	--	--	--	--	--	--	--

Comments: Log crib structures impound and store water.

14G. SEDIMENT/NUTRIENT/TOXICANT RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)

Applies to wetlands with the potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.
If no wetlands in the AA are subject to such input, check NA above.

i. **Rating** Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants **or** AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	☒ ≥ 70%		☐ < 70%		☐ ≥ 70%		☐ < 70%	
Evidence of flooding or ponding in AA	☒ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No
AA contains **no or restricted outlet**	1 (H)	--	--	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--

Comments: The AA routinely floods and is dominated by emergent vegetation, and has a restricted outlet created by log crib structures.

14H. SEDIMENT/SHORELINE STABILIZATION ☐ **NA** (proceed to 14I)

Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body that is subject to wave action. If this does not apply, then check NA above.

i. **Rating** Working from top to bottom, use the matrix below to arrive at the functional point and rating exceptional (E), high (H), moderate (M), or low (L) for this function.

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	☒Permanent / Perennial	☐Seasonal / Intermittent	☐Temporary / Ephemeral
≥ 65 %	1 (H)	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments: Dominant wetland cover provided by Typha latifolia and Phalaris arudinacea.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. **Rating** Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
A = acreage of vegetated component in the AA. **B** = structural diversity rating from #13. **C** = Yes (Y) or No (N) as to whether or not the AA contains a surface or subsurface outlet; **P/P** = permanent/perennial; **S/I** = seasonal/intermittent; **T/E/A**= temporary/ephemeral/absent.

A	☐ Vegetated component >5 acres						☒ Vegetated component 1-5 acres						☐ Vegetated component <1 acre					
B	☐ High		☐ Moderate		☐ Low		☐ High		☒ Moderate		☐ Low		☐ High		☐ Moderate		☐ Low	
C	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☒Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N
P/P	--	--	--	--	--	--	--	--	.8H	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments: Vegetated component of AA is 3.94 acres, scrub-shrub and emergent wetland present, AA contains surface water outlet. Permanent/perennial water present.

14J. GROUNDWATER DISCHARGE/RECHARGE (D/R) (Check the indicators in i & ii below that apply to the AA.)

i. ☒ **Discharge Indicators**
- ☐ Springs are known or observed.
- ☐ Vegetation growing during dormant season/drought.
- ☐ Wetland occurs at the toe of a natural slope.
- ☒ Seeps are present at the wetland edge.
- ☐ AA permanently flooded during drought periods.
- ☐ Wetland contains an outlet, but no inlet.
- ☐ Other _____

ii. ☒ **Recharge Indicators**
- ☐ Permeable substrate presents without underlying impeding layer.
- ☐ Wetland contains inlet but not outlet.
- ☒ Other Water entering at south-west border of site from irrigation overflow.

iii. **Rating:** Use the information from 14J(i) and 14J(ii) above and the table below to arrive at the functional point and rating of high (H) or low (L) for this function.

Criteria	Functional Point and Rating
AA has known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	--
Available Discharge/Recharge information inadequate to rate AA D/R potential	--

Comments: Majority of site hydrology from surface water and water retention by cribs, but seep soccur on north and south of creek.

14K. UNIQUENESS

i. Rating Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Replacement Potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP.			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP.			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate.		
Estimated Relative Abundance from #11	☐rare	☐common	☐abundant	☐rare	☐common	☐abundant	☐rare	☒common	☐abundant
Low disturbance at AA (#12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--

Comments: Common wetland types.

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? ☐ **Yes** [**Rate** ☐ **High (1.0)**, then proceed to 14L(ii) only] ☒ **No** [Proceed to 14L(iii)]

ii. Check categories that apply to the AA: ☐ Educational / scientific study ☐ Consumptive rec. ☐ Non-consumptive rec. ☐ Other

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?
☒ **Yes** [Proceed to 14L (ii) and then 14L(iv)] ☐ **No** [Rate as low in 14L(iv)]

iv. Rating Use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Ownership	Disturbance at AA from #12(i)		
	☒ Low	☐ Moderate	☐ High
Public ownership	1(H)	--	--
Private ownership	--	--	.1(L)

Comments: Site has potential for education.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	moderate	0.8	1	3.15
B. MT Natural Heritage Program Species Habitat	low	0.10	1	0.39
C. General Wildlife Habitat	high	0.90	1	3.54
D. General Fish/Aquatic Habitat	N/A		--	
E. Flood Attenuation	high	0.80	1	3.15
F. Short and Long Term Surface Water Storage	high	0.80	1	3.15
G. Sediment/Nutrient/Toxicant Removal	high	1.00	1	3.94
H. Sediment/Shoreline Stabilization	high	1.00	1	3.94
I. Production Export/Food Chain Support	high	0.80	1	3.15
J. Groundwater Discharge/Recharge	high	1.00	1	3.94
K. Uniqueness	moderate	0.40	1	1.576
L. Recreation/Education Potential	high	1.00	1	3.94
	Totals:	**8.60**	**11.00**	33.87
		Percent of Total Possible Points:	**78%** (Actual / Possible) x 100 [rd to nearest whole #]	

Category I Wetland: (Must satisfy **one** of the following criteria. If not satisfied, proceed to Category II.)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E(ii) is "yes"; **or**
- ☐ Percent of total Possible Points is > 80%.

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following Category II criteria. If not satisfied, proceed to Category IV.)
- ☐ Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; **or**
- ☒ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ☐ Score of .9 or 1 functional point for General Fish/Aquatic Habitat; **or**
- ☐ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish / Aquatic Habitat; **or**
- ☐ Score of .9 functional point for Uniqueness; **or**
- ☒ Percent of total possible points is > 65%.

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

Category IV Wetland: (Criteria for Categories I or II are not satisfied **and** all of the following criteria are met; If not satisfied, return to Category III.)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export / Food Chain Support; **and**
- ☐ Percent of total possible points is < 30%.

OVERALL ANALYSIS AREA (AA) RATING: (Check appropriate category based on the criteria outlined above.)

☐ **I** ☒ **II** ☐ **III** ☐ **IV**

US 93N Peterson Wetland Mitigation Site – 2008 – 2020 Vegetation Species List

Scientific Name	Common Name	WMVC Wetland Indicator[(a)]
Agropyron cristatum	Crested Wheatgrass	UPL
Alnus incana	Speckled Alder	FACW
Asparagus officinalis	Asparagus	FACU
Bistorta bistortoides	American Bistort	FACW
Brassica juncea	**Chinese Mustard**	**UPL**
Bromus arvensis	Field Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Cardaria draba	Whitetop	UPL
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Woolly Sedge	OBL
Carex sp.	Sedge	N/A
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Carex vesicaria	Lesser Bladder Sedge	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium vulgare	Bull Thistle	FACU
Cornus alba	Red Osier	FACW
Cynoglossum officincale	Gypsy-Flower	FACU
Dactylis glomerata	Orchard Grass	FACU
Descurainia sophia	Herb Sophia	UPL
Dianthus sp.	Pink	N/A
Dipsacus fullonum	Fuller's Teasel	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elodea sp.	Waterweed	N/A
Elymus repens	Creeping Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Festuca arundinacea	Tall fescue	UPL
Festuca sp.	Fescue	N/A
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria grandis	American Manna Grass	OBL
Impatiens ecalcarata	Spurless Touch-Me-Not	FACW
Iris pseudacorus	Pale-Yellow Iris	OBL
Juncus balticus	Baltic Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus sp.	Rush	N/A
Juncus tenuis	Lesser Poverty Rush	FAC
Kochia scoparia	Mexican Kochia	FAC
Lactuca serriola	Prickly Lettuce	FACU
Lemna minor	Common Duckweed	OBL

Scientific Name	Common Name	WMVC Wetland Indicator[(a)]
Lepidium campestre	Field Pepper-grass	UPL
Lepidium perfoliatum	Clasping Pepperwort	FACU
Leucanthemum vulgare	Ox-Eye Daisy	FACU
Malva neglecta	Dwarf Cheeseweed	UPL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Nasturtium microphyllum	**One-Row Watercress**	**OBL**
Nasturtium officinale	Watercress	OBL
Nepeta cataria	Catnip	FACU
Oenanthe sp.	Waterdropwort	N/A
Pascopyrum smithii	Western-Wheat Grass	FACU
Persicaria amphibia	Water Smartweed	OBL
Persicaria amphibia	Water Smartweed	OBL
Phalaris arundinacea	Reed Canary Grass	FACW
Plantago lanceolata	English Plantain	FACU
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Poa sp.	Bluegrass	N/A
Potentilla recta	Sulphur Cinquefoil	UPL
Potentilla sp.	Cinquefoil	N/A
Rosa woodsii	Woods' Rose	FACU
Rumex crispus	Curly Dock	FAC
Salix bebbiana	Gray Willow	FACW
Salix drummondiana	Drummond's Willow	FACW
Salix sp.	Willow	N/A
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Silene latifolia	Bladder Campion	UPL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Solanum dulcamara	Climbing Nightshade	FAC
Sonchus arvensis	Field Sow-Thistle	FACU
Suaeda calceoliformis	Paiuteweed	FACW
Symphoricarpos albus	Common Snowberry	FACU
Thlaspi arvense	Field Pennycress	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium pratense	Red Clover	FACU
Trifolium sp.	Clover	N/A
Typha latifolia	Broad-Leaf Cat-Tail	OBL

US 93N Peterson Wetland Mitigation Site – 2008 – 2020 Vegetation Species List

Scientific Name	Common Name	WMVC Wetland Indicator[(a)]
Ventenata dubia	**Ventenata**	**UPL**
Verbascum blattaria	White Moth Mullein	UPL
Verbascum thapsus	Great Mullein	FACU
Veronica sp.	Speedwell	N/A

[(a)] 2018 NWPL (USACE 2018)

New species identified in 2020 are **bolded**.

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

US93 Peterson: Photo Point Photographs



Photo Point: 1 **Location:** PP1
Bearing: 135 degrees **Year:** 2017

No photo available.

Photo Point: 1 **Location:** PP1
Bearing: 135 degrees **Year:** 2020



Photo Point: 1 **Location:** Transect 1 Start
Bearing: 215 degrees **Year:** 2017



Photo Point: 1 **Location:** Transect 1 Start
Bearing: 215 degrees **Year:** 2020

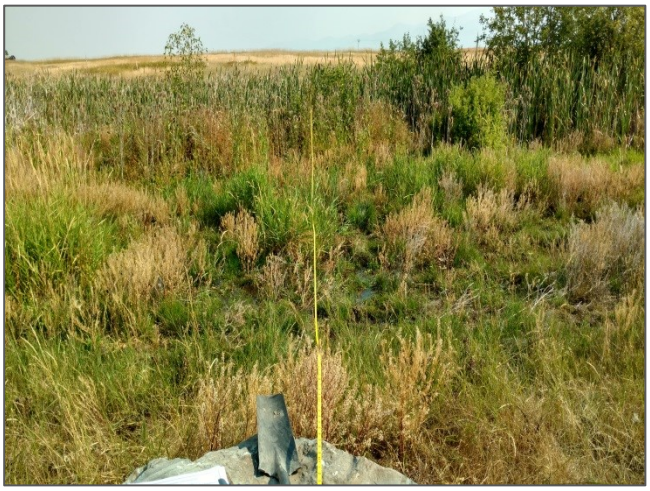


Photo Point: 2 **Location:** Transect 1 End
Bearing: 45 degrees **Year:** 2017



Photo Point: 2 **Location:** Transect 1 End
Bearing: 45 degrees **Year:** 2020

US93 Peterson: Photo Point Photographs



Photo Point: 2 **Location:** PP2 photo 1
Bearing: 35 degrees **Year**: 2017



Photo Point: 2 **Location:** PP2 photo 1
Bearing: 35 degrees **Year:** 2020



Photo Point: 2 **Location:** PP2 photo 2
Bearing: 110 degrees **Year:** 2017



Photo Point: 2 **Location:** PP2 photo 2
Bearing: 110 degrees **Year:** 2020

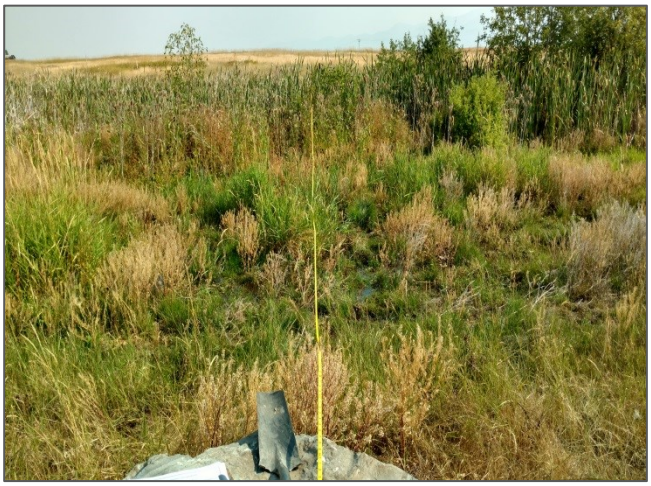


Photo Point: 3 **Location:** South of Transcent 1 End
Bearing: 45 degrees Year: 2017



Photo Point: 3 **Location:** South of Transect 1 End
Bearing: 45 degrees **Year:** 2020

US93 Peterson: Photo Point Photographs



Photo Point: 4 **Location:** Looking across T-2
Bearing: 30 degrees **Year:** 2017



Photo Point: 4 **Location:** Looking across T-2
Bearing: 30 degrees **Year:** 2020



Photo Point: 5 Location: Wetland boundary
Bearing: 175 degrees Year: 2017



Photo Point: 5 Location: Wetland boundary
Bearing: 175 degrees Year: 2020



Photo Point: 6 **Location:** Transcect 2 Start
Bearing: 315 degrees **Year:** 2017



Photo Point: 6 **Location:** Transect 2 Start
Bearing: 315 degrees **Year:** 2020

US93 Peterson: Photo Point Photographs

Photo not taken in previous years.

Photo Point: T-2 End **Location:** Transect 2 End
Bearing: 315 degrees **Year:** 2017



Photo Point: T-2 End **Location:** Transect 2 End
Bearing: 315 degrees **Year:** 2020

Photo not taken in previous years.

Photo Point: 7 **Location:** PP7 photo 1
Bearing: 5 degrees **Year:** 2017



Photo Point: -1 **Location:** PP7 photo 1
Bearing: 5 degrees **Year:** 2020

Photo not taken in previous years.

Photo Point: 7 **Location:** PP7 photo 2
Bearing: 267 degrees **Year:** 2017



Photo Point: 7 **Location:** PP7 photo 2
Bearing: 267 degrees **Year:** 2020

US93 Peterson: Photo Point Photographs

Photo point created in 2020.



Photo Point: 8 **Location:** New crib structure.
Bearing: 34 degrees Year: 2020

US93 Peterson: Data Point Photographs



Data Point: DP01w
Year: 2020



Data Point: DP02u
Year: 2020



Data Point: DP01a-w
Year: 2020



Facing upgradient (southeast) at irrigation water flowing onto site from south-adjacent property in the southwest portion of the mitigation site.

US93 Peterson: Additional Site Photographs



Water flowing into site from adjacent irrigation overflow.
Location: Southwest Property Border **Year: 2020**



Looking N/E at recently constructed upstream crib structure.
Year: 2020



Looking N/NE at new middle crib structure.
Year: 2020



Looking N/NE at middle crib structure outfall.
Year: 2020



Looking south at downstream outfall structure.
Year: 2020



Looking north from south side of downstream-most crib structure.
Year: 2020

APPENDIX D

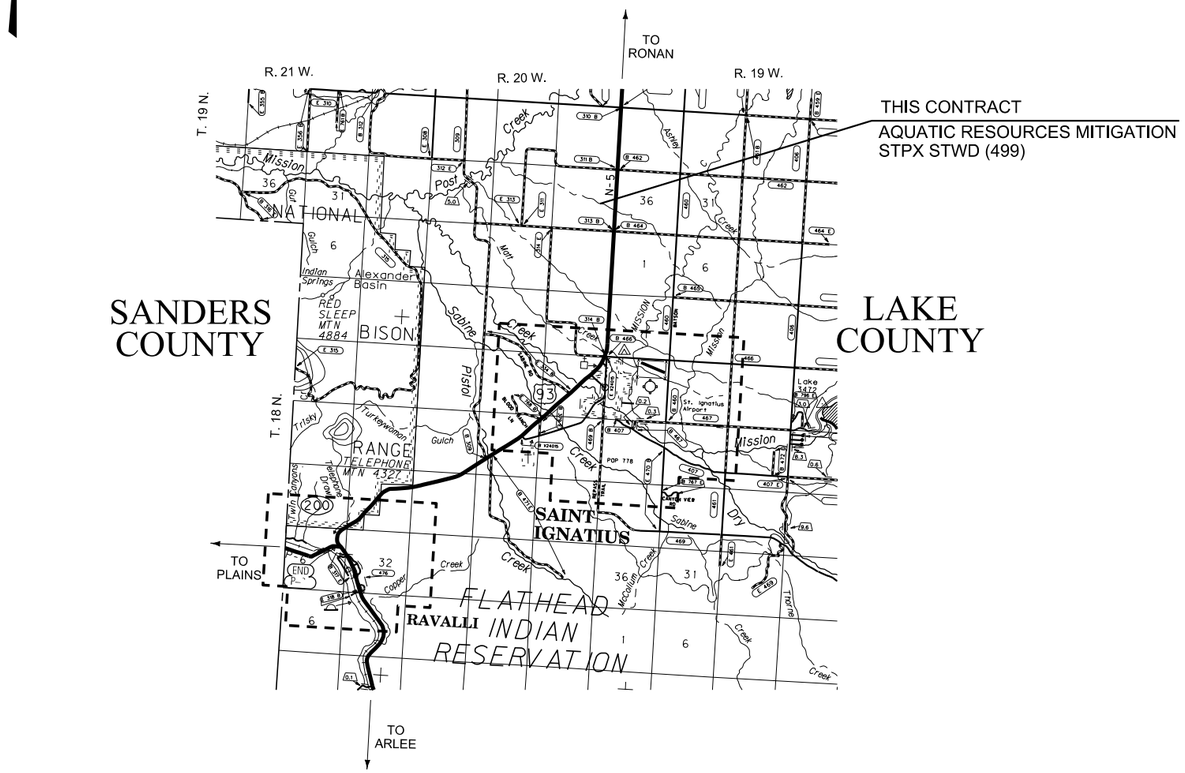
U.S. 93 ADAPTIVE MANAGEMENT PLAN SET

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana



MONTANA DEPARTMENT OF TRANSPORTATION

PROJECT NO. STPX STWD(499)
AQUATIC RESOURCES MITIGATION
2017-D1-WETLAND FEASIBILITY/MONITORING
US 93 PETERSON ADAPTIVE MANAGEMENT
LAKE COUNTY



PLANS PREPARED BY
ROBERT PECCIA & ASSOCIATES 825 CUSTER AVENUE P.O. BOX 5653 HELENA, MONTANA 59601 PH:(406)447-5000 FAX:(406)447-5036

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R / W & I.C.	
P. E.	

ROBERT PECCIA & ASSOCIATES

BY April Gerth

DATE JUNE 13, 2018

MONTANA
APRIL E. GERTH
11186 PE
LICENSED PROFESSIONAL ENGINEER

MONTANA
DEPARTMENT OF TRANSPORTATION

RECEIVED :

BY _____ _____
ENVIRONMENTAL SERVICES BUREAU CHIEF DATE

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\DETAILS\3367RDTTLZ01.DGN	DESIGNED BY			WETLAND PLANS	
2		8/2/2018	REVIEWED BY				
		8:28:36 AM april	CHECKED BY			UPN 3367013	

CSF=0.99927915

TABLE OF CONTENTS

ROAD PLANS	SHEET NO.
TITLE SHEET	1
TABLE OF CONTENTS	2
NOTES	2
LINEAR & LEVEL DATA	2
CONTROL DIAGRAM & ABSTRACT	3
SUMMARIES	4
CONTRACTOR SURVEY & LAYOUT	4
CLEARING & GRUBBING	4
LOG DAM	4
GRADING	4
RANDOM RIPRAP	4
TOPSOIL & SEEDING	4
SITE MAP	5
DETAIL	6-7
LOG DAM 1A & 2	6
LOG DAM 1	7
PLAN	8-9

NOTES

GENERAL

INSTALL LOG DAMS AT LOCATIONS SHOWN ON THE PLANS. THE PROJECT MANAGER MAY ADJUST PLACEMENT TO MAXIMIZE PONDING.

USE DOUGLAS-FIR OR WESTERN LARCH WOOD MATERIAL FOR DAM CONSTRUCTION.

PLACE DAMS UPSTREAM TO DOWNSTREAM.

UTILIZE EXCESS MATERIAL FROM DAM EXCAVATION ON DAM BERM OR AS DAM BACKFILL AS DIRECTED BY THE PROJECT MANAGER.

REMOVE EXISTING LOG DAM TO POINT OF BURIAL OR AS NECESSARY TO PLACE NEW LOG DAM.

EXCAVATE BERM MATERIAL IN WETLAND EXPANSION AREAS, OUTSIDE WETLAND AREA, AS DIRECTED BY THE PROJECT MANAGER.

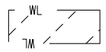
STAGE EQUIPMENT AND MATERIALS OUTSIDE OF THE WETLAND AREA, BY THE EXISTING GATES IN THE NORTHEAST AND SOUTHWEST CORNERS OF THE PROPERTY.

RECLAIM ALL DISTURBED AREAS, INCLUDING ACCESS AND STAGING AREAS.

MINIMIZE DISTURBANCE TO EXISTING WETLANDS AND SHRUBS AS POSSIBLE.

WETLANDS

WETLANDS EXIST ON SITE AND MAY EXIST BEYOND THE PROJECT LIMITS. WETLAND AREAS WITHIN THE PROJECT LIMITS HAVE BEEN DELINEATED AND ARE SHOWN ON THE PLANS. ANY ACTION IMPACTING WETLAND AREAS OUTSIDE OF THE PROJECT LIMITS IS THE RESPONSIBILITY OF THE CONTRACTOR.



DELINEATED WETLAND AREAS

DO NOT DRIVE MOTORIZED VEHICLES OVER ANY DELINEATED WETLANDS OUTSIDE OF THE DAM CONSTRUCTION SITES. FILL BERM BREACH AREAS ON DAM 6 USING HAND EQUIPMENT ONLY.

DO NOT DISTURB

EXISTING LOG DAMS #3, #4, #5, #7, #8, #9, #10, #11, AND #12.

WORK TO BE COMPLETED

1. LOG DAM 1 - REPLACE AND ADD BERMS.
2. LOG DAM 1A - NEW AND ADD BERM.
3. LOG DAM 2 - REPLACE AND ADD BERM.
4. LOG DAM 6 - REPAIR BREACHES IN EXISTING BERM.

UTILITIES

CALL THE UTIILITIES UNDERGROUND LOCATION CENTER (811) OR OTHER NOTIFICATION SYSTEM FOR THE MARKING AND LOCATION OF ALL LINES AND SERVICE BEFORE EXCAVATING.

GRADING & TOPSOIL

1. SALVAGE TOPSOIL FROM ALL PLANNED DISTURBED AREAS. REPLACE TOPSOIL ON DISTURBED AREA WHEN GRADING IS COMPLETE.

2. BERM
   A. MATERIALS. USE SOIL EXCAVATED FROM THE PROJECT SITE.
   B. CONSTRUCTION.
      1. REMOVE ALL TOPSOIL, ORGANIC MATTER, AND OTHER DELETERIOUS MATERIALS FROM BENEATH THE EMBANKMENT FOOTPRINT.
      2. CONSTRUCT THE EMBANKMENT TO THE DIMENSIONS SHOWN ON THE PLANS. PLACE AND COMPACT THE EMBANKMENT MATERIAL IN LIFTS HAVING A MAXIMUM LOOSE THICKNESS OF EIGHT INCHES.

LINEAR & LEVEL DATA

BEARING SOURCE

GRID – MONTANA COORDINATE SYSTEM NAD83-1992

LEVEL DATUM SOURCE

NAVD88 (GNSS DERIVED ELEVATIONS USING GEOID 12A
AND FROM DIFFERENTIAL LEVELS HOLDING BMS A554 AND E543)

COMBINATION SCALE FACTOR

ALL COORDINATES ARE STATE PLANE (SEE CONTROL DIAGRAM).
CSF FOR THE PROJECT IS 0.99927915.

SEEDING

1. SEED ALL AREAS DISTURBED BY CONSTRUCTION USING A BROADCAST SEEDING METHOD (APPROXIMATELY 0.8 ACRES).

2. RAKE OR OTHERWISE SCARIFY THE SEEDED GROUND TO INCORPORATE THE SEED INTO THE UPPER 1/2 INCH OF SOIL.

3. WITHIN 24 HOURS FOLLOWING SEEDING AND SCARIFICATION, INSTALL A LONG TERM EROSION CONTROL BLANKET (ECB) ON THE TOP AND SLOPES OF THE RE-CONSTRUCTED BERM. THE ECB MUST BE COMPOSED AND CONSTRUCTED OUT OF 100% BIODEGRADABLE NATURAL FIBERS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS UTILIZING WOODEN 8 TO 12 INCH SPIKES.

SPECIES	LBS OF PLS PER ACRE
RIPARIUM STREAMBANK WHEATGRASS	9.9
CANADENSIS BLUEJOINT REEDGRASS	2.5
TRACHYCAULUS SLENDER WHEATGRASS	17.3
MILLEFOLIUM COMMON YARROW	0.6
ANGUSTIFOLIUM FIREWEED	0.2

DESIGN CHANGES

DESIGN CHANGES MADE DURING CONSTRUCTION MUST BE APPROVED BY MDT AQUATIC MITIGATION ENGINEER (406-444-7273).

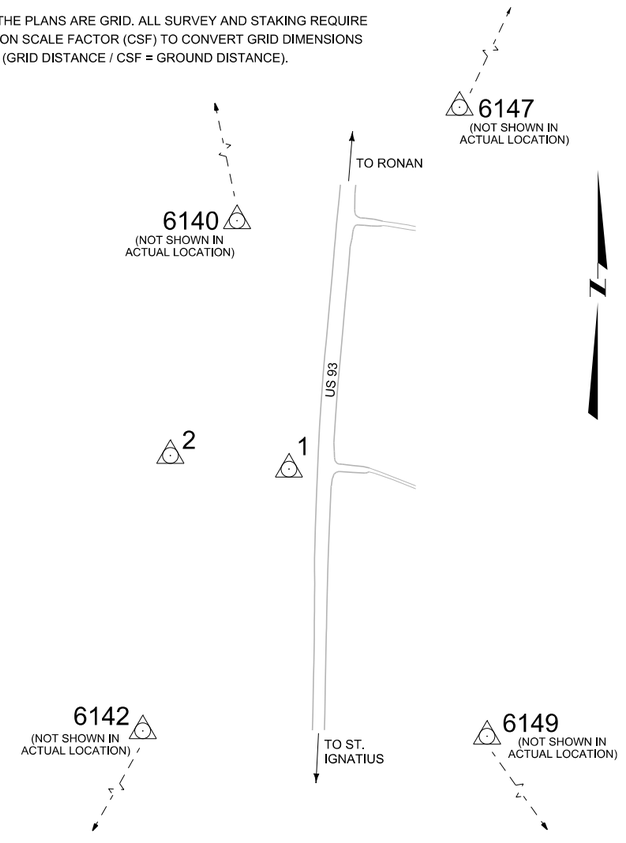
CONTROL DIAGRAM & ABSTRACT

CONTROL ABSTRACT				
POINT NAME/NUMBER	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	LOCATION AND DESCRIPTION
1	1,167,813.430	830,437.952	2,815.15	SET RPA RPC 100 FT WEST OF HWY 93, 250 FT NW OF CULVERT CROSSING UNDER HWY 93 FOR "PETERSEN CREEK".
2	1,167,858.255	830,046.597	2,803.26	SET RPA RPC 394 FT WEST OF CP 1 IN FIELD, 153 FT N OF CL "PETERSEN CREEK".
6140	1,171,002.349	829,778.337	2,798.85	FOUND 2" AC ON REBAR, PHOTO CONTROL POINT FROM ORIGINAL HWY 93 NORTH MDT PROJECT.
6142	1,165,673.493	829,222.91	2,820.43	FOUND 2" AC ON REBAR, PHOTO CONTROL POINT FROM ORIGINAL HWY 93 NORTH MDT PROJECT.
6147	1,170,850.213	831,885.198	2,801.72	FOUND 2" AC ON REBAR, PHOTO CONTROL POINT FROM ORIGINAL HWY 93 NORTH MDT PROJECT. (DID NOT USE FOR CALIBRATION-UNRELIABLE RESULT)
6149	1,165,549.812	832,062.448	2,868.76	FOUND 2" AC ON REBAR, PHOTO CONTROL POINT FROM ORIGINAL HWY 93 NORTH MDT PROJECT.
6147	1,170,850.178	831,885.703	2,801.93	RECORD COORDINATE FROM MDT

NOTE:
THIS PROJECT IS ON THE MONTANA COORDINATE SYSTEM NAD83-1992.
NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF
INTERNATIONAL FEET AND ELEVATIONS ARE IN UNITS OF U.S. SURVEY FEET.

DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE / CSF = GROUND DISTANCE).

CSF = 0.99927915



SCALE 1" = 500'

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\DETAILS\3367RDTRVZ01.DGN	DESIGNED BY			WETLAND PLANS	2017-D1-WETLAND FEASIBILITY/MONITORING	STPX STWD(499)
2		8/2/2018	REVIEWED BY					
		8:09:19 AM april	CHECKED BY			LAKE COUNTY	CSF=0.99927915 UPN 3367013	SHEET 3

SUMMARY

CONTRACTOR SURVEY & LAYOUT

STATION		lump sum	REMARKS
FROM	TO	CONTRACTOR SURVEY & LAYOUT	
		1	PROJECT SITE
TOTAL		1	

CLEARING & GRUBBING

STATION	lump sum	REMARKS
	CLEARING AND GRUBBING	
	1	LOG DAMS 1, 1A, 2, 6, OXBOW BASIN
TOTAL	1	

LOG DAM *

STATION	each	REMARKS
LOG DAM 1	1	
LOG DAM 1A	1	
LOG DAM 2	1	
TOTAL	3	

* INCLUDE LOGS, EXCAVATION AND EMBANKMENT, GEOTEXTILE, EROSION CONTROL BLANKET & LOG FASTENERS IN THE UNIT BID PRICE PER EACH LOG DAM.

GRADING

STATION	cubic yards		REMARKS
	UNCL. EXCAVATION	UNCL. BORROW	
LOG DAM 6		5	REPAIR BREACHES IN EXISTING BERM *
	18		OXBOW BASIN, INCL. OVEREXCAVATION FOR TOPSOIL
TOTAL	18	5	

* AS DIRECTED BY THE PROJECT MANAGER.

RANDOM RIPRAP

STATION	cubic yards	REMARKS
	RANDOM RIPRAP	
	CL. I	
LOG DAM 1	3.1	
LOG DAM 1A	2.4	
LOG DAM 2	2.4	
TOTAL	7.9	

TOPSOIL & SEEDING

STATION	cubic yards	acres		REMARKS
	TOPSOIL SALVAGING & PLACING	WETLAND SEEDING - WETLAND	WETLAND SEEDING - UPLAND	
LOG DAM 1	11	0.1		INCLUDES BERMS
LOG DAM 1A	10	0.1		INCLUDES BERMS
LOG DAM 2	6	0.1		INCLUDES BERMS
LOG DAM 6	2	0.1		REPAIR DISTURBANCE AREA
		0.1	0.2	ACCESS ROUTES & BORROW AREAS
OXBOW BASIN	34	0.1		
TOTAL	63	0.6	0.2	

SITE MAP



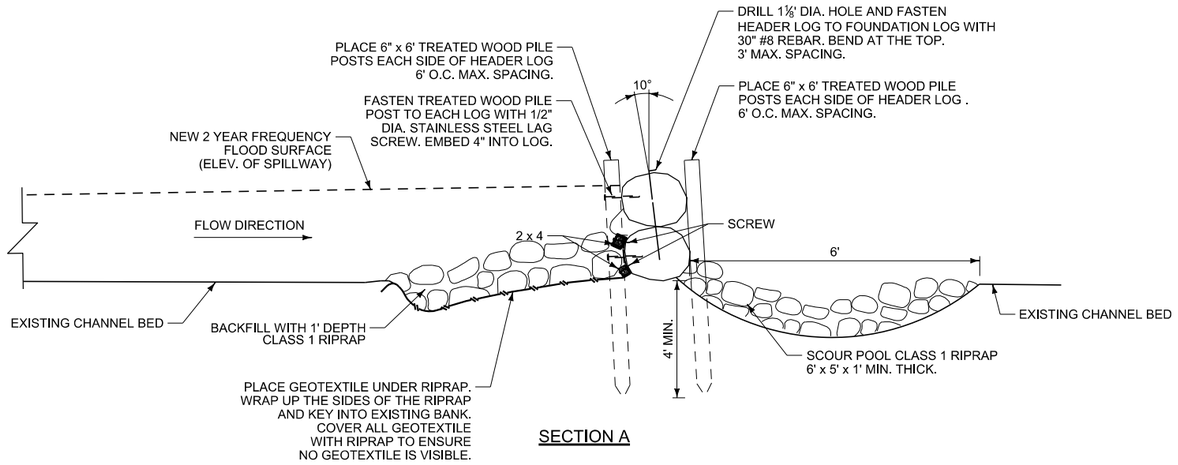
NEW BERM

WL
WL

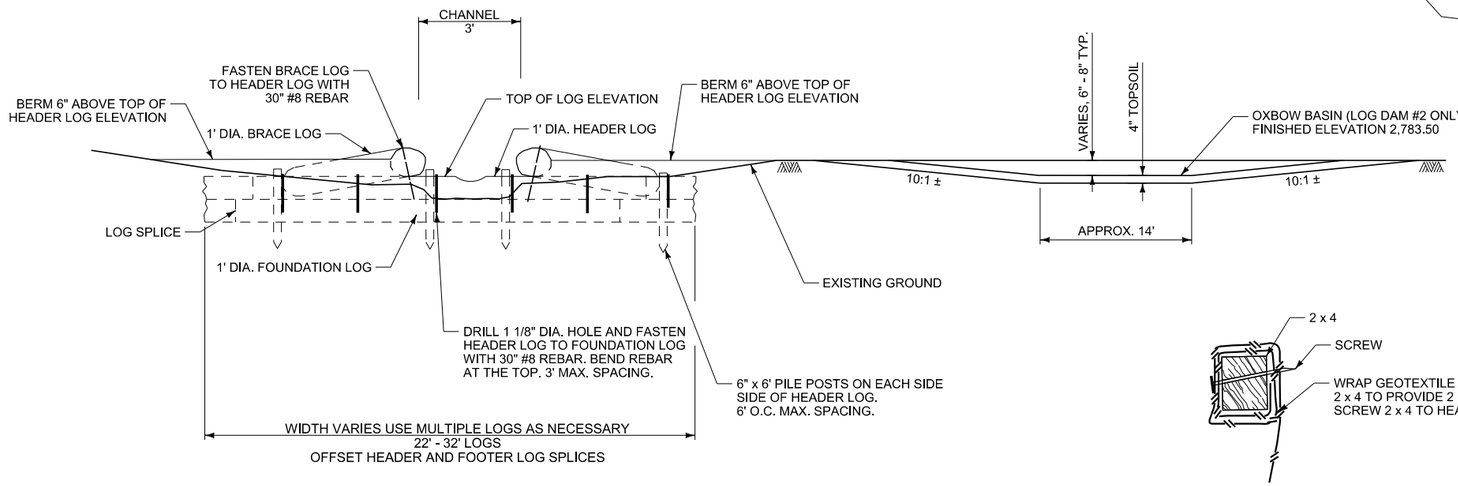
DELINEATED WETLAND AREAS

2	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\DETAILS\3367RDTTLZ01.DGN	DESIGNED BY			WETLAND PLANS	2017-D1-WETLAND FEASIBILITY/MONITORING		STPX STWD(499)
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		8:28:47 AM april	CHECKED BY			LAKE COUNTY	CSF=0.99927915	UPN 3367013	SHEET 5

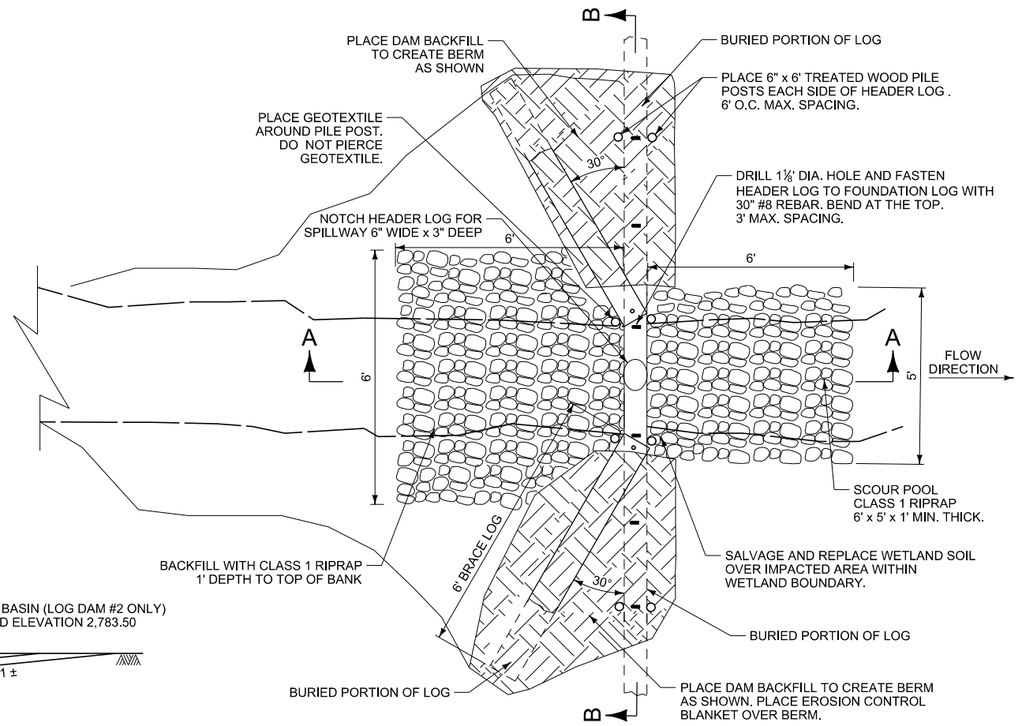
DETAIL



SECTION A

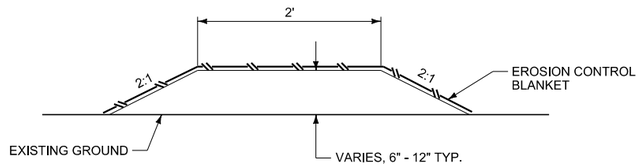


SECTION B

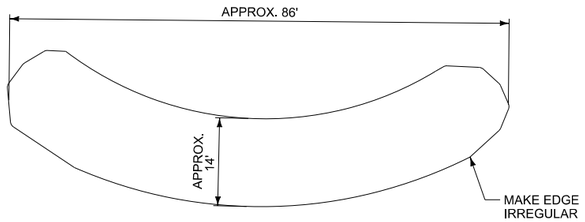


PLAN VIEW - LOG DAM

GEOTEXTILE FASTENING DETAIL



BERM SECTION



EXCAVATED OXBOW BASIN DETAIL

NOTE:

OVEREXCAVATE TO PROVIDE FOR 4" OF TOPSOIL REPLACEMENT.

LOG DAM SUMMARY OF QUANTITIES*

LOG DAM NUMBER	linear feet		square yards		cubic yards			
	LENGTH OF LOGS** Δ	WIDTH OF LOG CRIB	GEOTEXTILE Δ	EROSION CONTROL BLANKET Δ	SCOUR POOL RIPRAP	RIPRAP	EXC. Δ	EMB. Δ
1A	262	125	4	100	1.1	1.3	22	28
2	122	55	4	53	1.1	1.3	12	16

* FOR INFORMATIONAL PURPOSES ONLY.

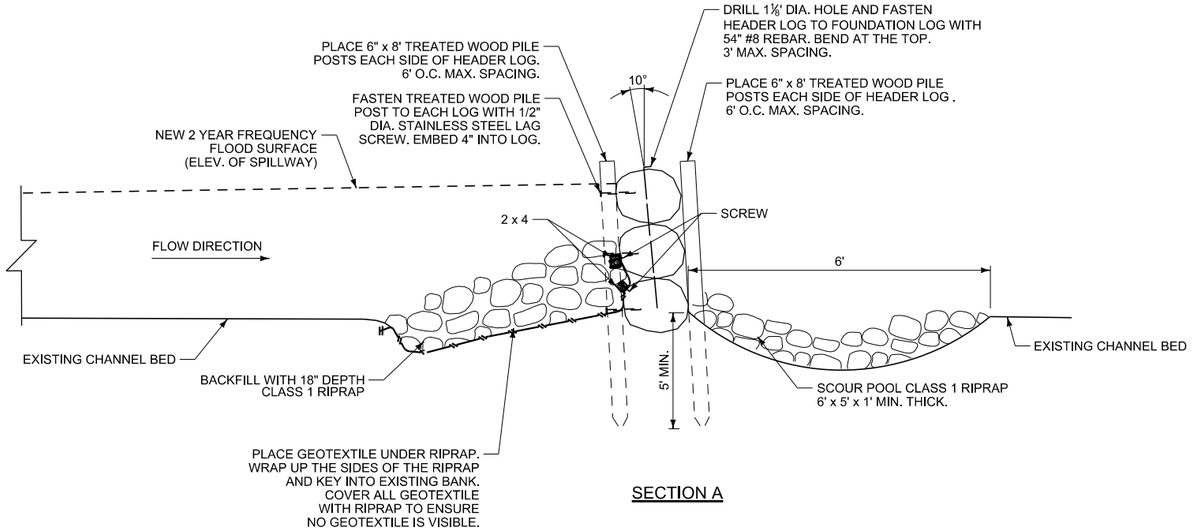
** TOTAL LOG LENGTHS. EACH HEADER AND FOUNDATION LOG MIN. 22' - MAX. 32'. INCLUDES 2 - 6' BRACE LOGS.

Δ INCLUDE LOGS, BERMS, EXCAVATION AND EMBANKMENT, PILEPOSTS, GEOTEXTILE, EROSION CONTROL BLANKET & LOG FASTENERS IN THE UNIT BID PRICE PER EACH LOG DAM.

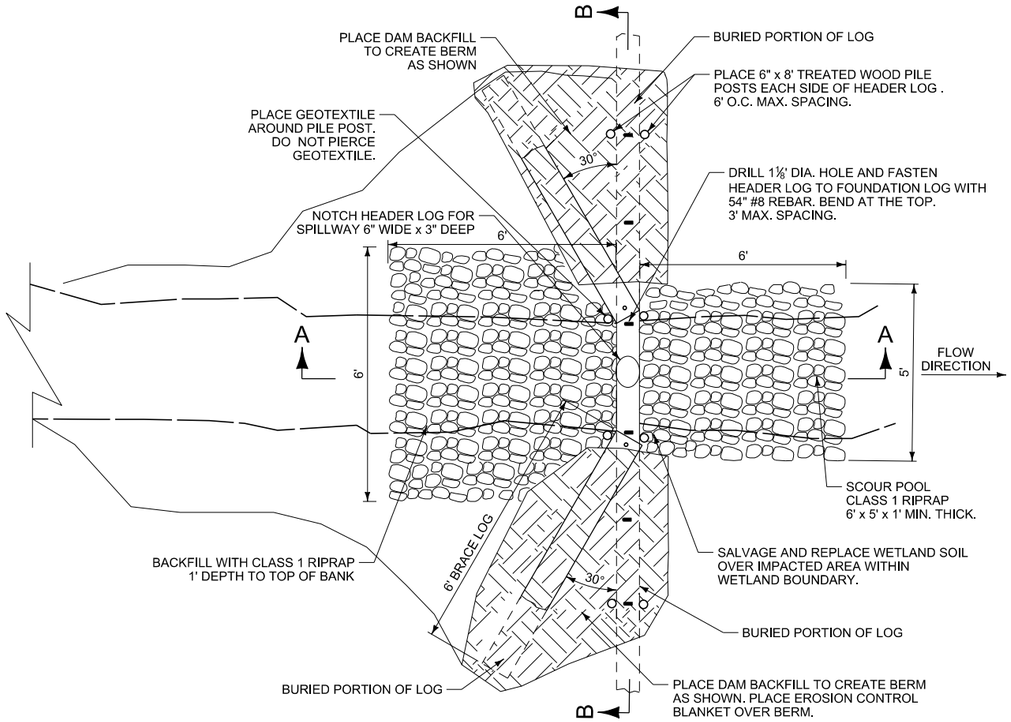
LOG DAM 1A & 2 DETAIL

NOT TO SCALE

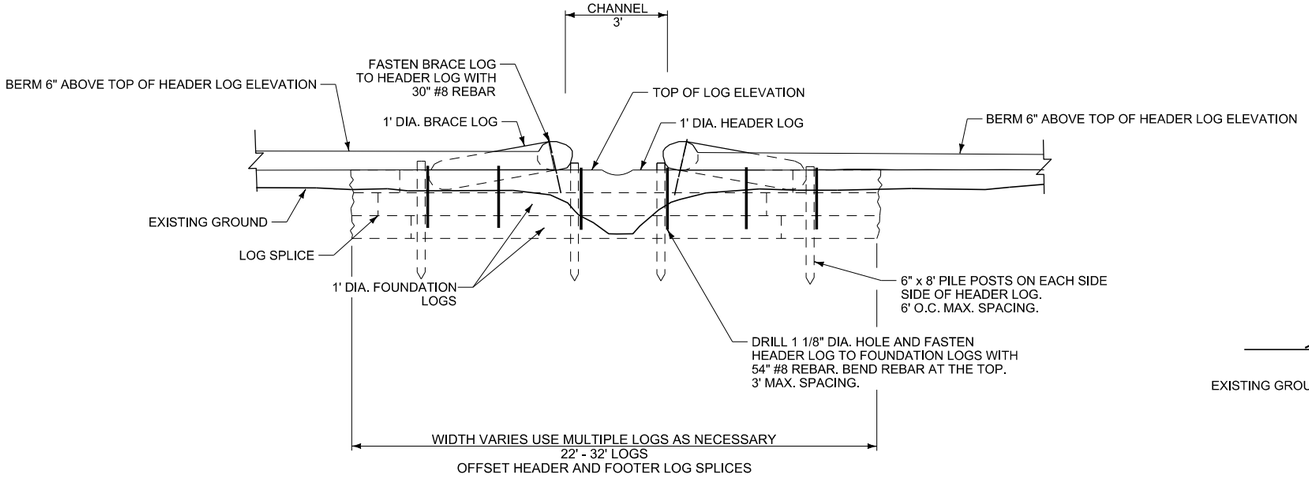
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		8:09:00 AM april	CHECKED BY		LAKE COUNTY	CSF=0.99927915 UPN 3367013	SHEET 6



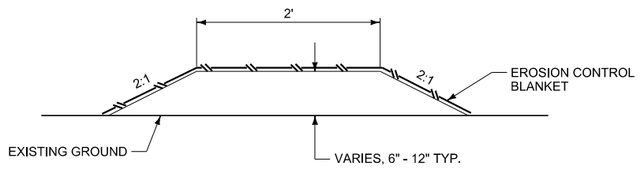
SECTION A



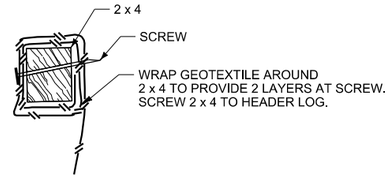
PLAN VIEW - LOG DAM



SECTION B



BERM SECTION



GEOTEXTILE FASTENING DETAIL

LOG DAM SUMMARY OF QUANTITIES*

LOG DAM NUMBER	linear feet		square yards		cubic yards			
	LENGTH OF LOGS** Δ	WIDTH OF LOG CRIB	GEOTEXTILE Δ	EROSION CONTROL BLANKET Δ	SCOUR POOL RIPRAP	RIPRAP	EXC. Δ	EMB. Δ
1	228	72	4	102	1.1	2.0	18	35

* FOR INFORMATIONAL PURPOSES ONLY.

** TOTAL LOG LENGTHS. EACH HEADER AND FOUNDATION LOG MIN. 22' - MAX. 32'. INCLUDES 2 - 6' BRACE LOGS.

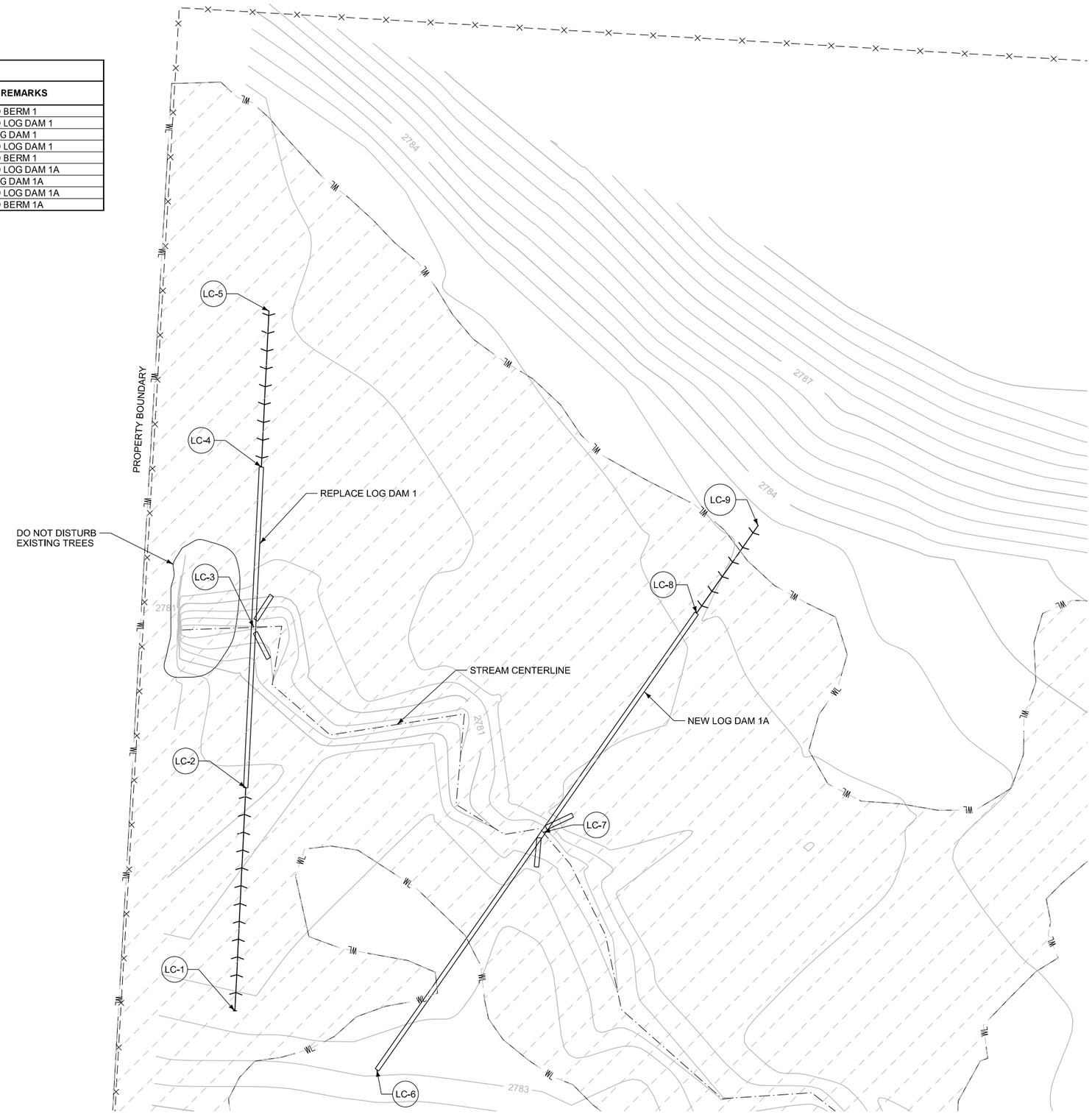
Δ INCLUDE LOGS, BERMS, EXCAVATION AND EMBANKMENT, PILEPOSTS, GEOTEXTILE, EROSION CONTROL BLANKET & LOG FASTNERS IN THE UNIT BID PRICE PER EACH LOG DAM.

LOG DAM 1 DETAIL

NOT TO SCALE

COORDINATE TABLE

POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	REMARKS
LC-1	1,168,111.060	829,299.639	2,782.44	SOUTH END BERM 1
LC-2	1,168,161.200	829,302.070	2,781.94	SOUTH END LOG DAM 1
LC-3	1,168,197.158	829,303.817	2,781.94	CENTER LOG DAM 1
LC-4	1,168,233.115	829,305.563	2,781.94	NORTH END LOG DAM 1
LC-5	1,168,268.074	829,307.261	2,782.44	NORTH END BERM 1
LC-6	1,168,097.935	829,331.466	2,782.78	SOUTH END LOG DAM 1A
LC-7	1,168,151.175	829,368.756	2,782.78	CENTER LOG DAM 1A
LC-8	1,168,200.321	829,403.175	2,782.78	NORTH END LOG DAM 1A
LC-9	1,168,219.979	829,416.942	2,783.28	NORTH END BERM 1A

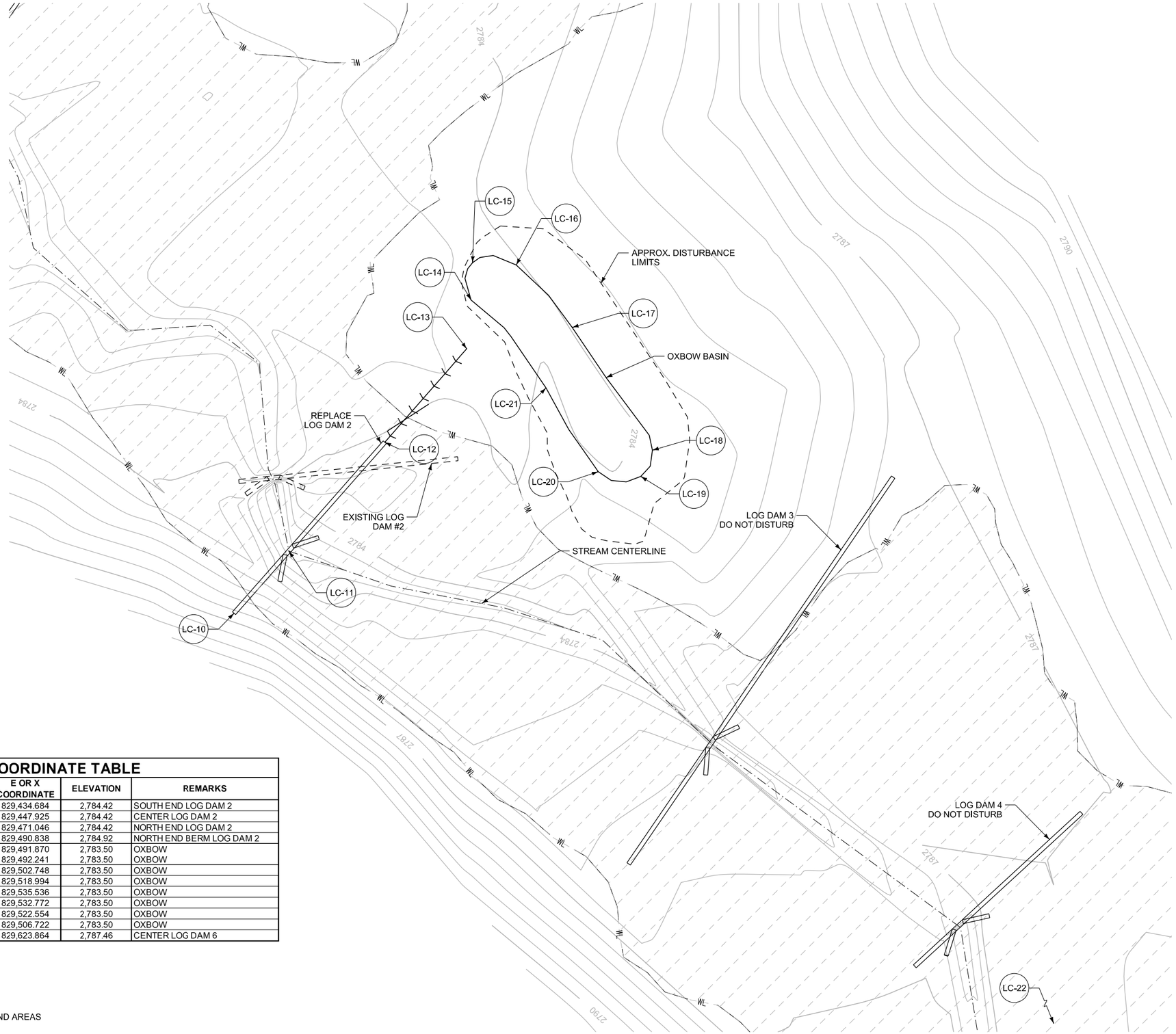


NEW BERM

DELINEATED WETLAND AREAS

SCALE 1" = 25'

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\PLAN\3367RDPLNZ01.DGN	DESIGNED BY			WETLAND PLANS	2017-D1-WETLAND FEASIBILITY/MONITORING		STPX STWD(499)
2		8/2/2018	REVIEWED BY						
		8:51:48 AM april	CHECKED BY			LAKE COUNTY	CSF=0.99927915	UPN 3367013	SHEET 8



COORDINATE TABLE

POINT NUMBER	N OR Y COORDINATE	E OR X COORDINATE	ELEVATION	REMARKS
LC-10	1,168,023.300	829,434.684	2,784.42	SOUTH END LOG DAM 2
LC-11	1,168,038.290	829,447.925	2,784.42	CENTER LOG DAM 2
LC-12	1,168,064.565	829,471.046	2,784.42	NORTH END LOG DAM 2
LC-13	1,168,087.110	829,490.838	2,784.92	NORTH END BERM LOG DAM 2
LC-14	1,168,098.910	829,491.870	2,783.50	OXBOW
LC-15	1,168,107.914	829,492.241	2,783.50	OXBOW
LC-16	1,168,107.371	829,502.748	2,783.50	OXBOW
LC-17	1,168,088.152	829,518.994	2,783.50	OXBOW
LC-18	1,168,062.722	829,535.536	2,783.50	OXBOW
LC-19	1,168,056.154	829,532.772	2,783.50	OXBOW
LC-20	1,168,057.389	829,522.554	2,783.50	OXBOW
LC-21	1,168,082.402	829,506.722	2,783.50	OXBOW
LC-22	1,167,857.700	829,623.864	2,787.46	CENTER LOG DAM 6

NEW BERM

DELINEATED WETLAND AREAS

SCALE 1" = 25'

3	MDT MONTANA DEPARTMENT OF TRANSPORTATION	...\RD\PLAN\3367RDPLNZ01.DGN	DESIGNED BY			WETLAND PLANS	2017-D1-WETLAND FEASIBILITY/MONITORING	STPX STWD(499)
1		8/2/2018	REVIEWED BY					
		8:51:51 AM april	CHECKED BY			LAKE COUNTY	CSF=0.99927915 UPN 3367013	SHEET 9