#### Montana Department of Transportation Wetland Mitigation Monitoring Report

#### SILICON MOUNTAIN MITIGATION SITE

**Project Overview** 

Watershed: Watershed #2 – Upper Clark Fork of the Columbia River

**Monitoring Year: 2019** 

Years Monitored: 5<sup>th</sup> year of monitoring

Corps Permit Number: NWO-2012-01822-MTH

**Stream Protection Act (SPA) Number**: MDT-R2-74-201 **Monitoring Conducted By:** RESPEC/TREC/HDR for MDT

Dates Monitoring Was Conducted: July 25, 2019

**Purpose of the Approved Project:** 

The site was constructed to provide 11.45 acres of compensatory wetland mitigation credits and 12,369 stream mitigation credits for wetland and stream impacts associated with Butte Silver Bow County's Silicon Tech Park and Port project and impacts associated with future Montana Department of Transportation (MDT) project-related wetland and stream impacts in Watershed #2 – Upper Clark Fork River. The project is intended to: (a) establish 6.77 acres of emergent and scrub/shrub wetland by excavating and creating six wetland cells; (b) protect 10.06 acres of existing emergent and scrub/shrub wetland; (c) restore upland, wetland, and riparian areas that were impacted by the new roadway alignment via seeding and planting of mostly native graminoids, shrubs, and trees; (d) restore and reconstruct approximately 3,250 linear feet of the Sand Creek channel to its historic natural condition; and (e) relocate and restore approximately 650 linear feet of the Sand Creek channel on privately owned property south of the realignment project.

Site Location:

Latitude: 45.99848945 Longitude: -112.6629488 County: Butte Silver Bow Nearest Town: Rocker, MT

Map Included: Yes

Mitigation Site Construction Started: 2013 Construction Ended: 2015

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

Activity: Weed Spraying Date: July 7and 8, 2019 Specific recommendations for any additional

corrective actions: Weed treatment will continue in 2020.

**Anticipated Wetland Credit Acres: 11.45** 

Wetland Credit Acres Generated to Date: 12.16

**Anticipated Stream Credits: 12,369.5** 

Stream Credits Generated to Date: 12,369.5

**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 US Army Corps of Engineers (USACE).

**Performance Standards:** A summary of performance standards established for the Silicon Mountain site and whether or not they are being achieved is provided in Table 1.

**Table 1. Summary of Performance Standards** 

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three parameter criteria for hydrology, vegetation, and soils are met as outlined in the 1987 Wetland Manual and 2010 Regional Supplement.	Y	Areas that are identified as wetland habitat within the mitigation site meet the three parameter criteria.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Υ	Areas that are identified as wetland habitat within the mitigation site exhibit soil saturation for a minimum 12.5 percent of the growing season.
	Hydric soil conditions are present or appear to be forming.	Υ	Hydric soil characteristics are developing throughout a majority of the constructed wetlands.
Hydric Soil	Soil is sufficiently stable to prevent erosion.	Y	Overall, disturbed soil is stable and generally does not exhibit signs of erosion. In 2017, a few rills and gullies were noted on the southern slope of wetland Cell 5; north of the newly constructed bike path; and west of DP-2U, which resulted in sediment deposition. In 2019, perennial vegetation was established within and adjacent to the erosion and, with time, the rills and gullies will likely become inactive.
	Soil is able to support plant cover.	Υ	Plant cover is establishing within developed wetlands.
Hydrophytic	Success is achieved where combined absolute cover of facultative or wetter species is ≥ 70 percent.	Y	Created wetland cells support 70 percent or greater cover of hydrophytic vegetation (OBL, FACW, and FAC).
Vegetation	State-listed noxious weeds do not exceed 10 percent absolute cover.	Υ	Montana state-listed noxious weeds are estimated at 2 percent absolute cover within wetland areas.
Channel- Restoration	Revegetation along the new Sand Creek channel corridor will be considered successful when banks are vegetated with a majority of deep- rooting riparian and wetland herbaceous and woody plant species.	Υ	The majority of stream bank vegetation along the constructed Sand Creek channel corridor is dominated by vegetation communities with stability ratings equal to or greater than 6.
Success	The intent of the stream restoration is to allow for the stream to naturally migrate within the floodplain and to allow it to freely move and stabilize itself within the site.	Y	The stream has plenty of space within the floodplain for natural migration. The stream currently appears to be stable with no lateral adjustment observed after construction.
Stream Bank Vegetation	Banks are vegetated with a majority of deep-rooting riparian plant species that have root-stability indexes ≥ 6.	Y	The majority of stream bank vegetation along the constructed Sand Creek channel corridor is dominated by vegetation communities with stability ratings that are greater than or equal to 6.
Open Water	The project is intended to provide seasonal open water during the spring and early summer within excavated depressions. As the growing season progresses and the groundwater levels recede, vegetation is expected to germinate within the majority of the depressions. Open water with submerged and/or floating vegetation will, therefore, be considered successful and creditable.	Y	Wetland Cells 2, 3, and with portions of Cells 4 and 6 experience seasonal drawdown; rooted hydrophytic vegetation development has been observed; and wetland Cells 1, 5, and the northern quarter of Cell 4 appear to support perennial inundation and a developing aquatic macrophyte community.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
	Noxious weeds do not exceed 10 percent cover within upland buffer area.	Y	Noxious weed cover is approximately 4 percent within the upland buffer.
Upland Buffer	Any area that was disturbed within the creditable buffer zone must have at least 50 percent aerial cover of nonweed species by the end of the monitoring period.	Υ	Disturbed areas have established greater than 50 percent cover by non-weed species.
Weed Control	Control measures will be based on annual monitoring of the site to determine weed species and the degree of infestation within the site;		State-listed noxious weed species across the site have been monitored and mapped during each post-construction monitoring event. MDT administers an ongoing weed-control program.  Noxious weeds were sprayed in July 2019 by MDT's contractor and will continue ongoing weed-control efforts to reduce the existing noxious weed infestations. Montana state-listed noxious weeds are estimated at 6 percent absolute cover across the entire site.

#### **Summary Data**

**Wetland Delineation** —The total jurisdictional wetland and aquatic habitat acreage that was delineated at the Silicon Mountain mitigation site in 2019 was 18.3 acres, as shown in Table 2 and the figures in Appendix A. The delineation confirmed 7.5 acres of created wetland in the excavated cells and 10.8 acres in the preserved wetland areas. Uplands accounted for approximately 30.1 acres of the mitigation site; the remaining 1.7 acres are represented by the restored Sand Creek channel.

Table 2. Delineated Wetland Acres From 2015 Through 2019 at the Silicon Mountain Site

Wetland Habitat Type	2015 Acreage	2016 Acreage	2017 Acreage	2018 Acreage	2019 Acreage
Project Area	50.1	50.1	50.1	50.1	50.1
Establishment (Creation)	6.3	6.3	6.3	7.1	7.5
Preservation	10.3	10.3	10.8	10.8	10.8
<b>Total Wetland Habitat</b>	16.6	16.6	17.1	17.9	18.3

**Functional Assessment** – The 2008 Montana Wetland Assessment Method (MWAM) form [Berglund and McEldowney, 2008] was used to evaluate the site in 2019 (Appendix B). Four distinct Assessment Areas (AA) were evaluated at the site in 2019 and include AA1 – Created Wetland Cells 2, 3, and 4; AA2 – Created Wetland Cells 1 and 5; AA3 – Preservation Wetlands; and AA4 – Created Wetland Cell 6. Created Wetland Cells 1 and 5 rate as Category II wetlands and receive high ratings for General Wildlife Habitat, Production Export/Food Chain Support, Short- and Long-Term Surface-Water Storage, and Groundwater/Discharge/Recharge. All other wetlands within the site rate as Category III wetlands. MWAM ratings remained unchanged in 2019 from the previous year.

**Vegetation** – A total of 172 plant species have been identified at the site from 2015 through 2019, including 16 new species in 2019. Eight wetland and seven upland community types were identified and mapped at the mitigation site in 2019 (Figure A-3, Appendix A). Dominant plant species that were observed within each community are listed on the Wetland Mitigation Site Monitoring form (Appendix B). The vegetation community types identified on the site in 2019 include the following:

- Upland Type 2 Descurainia sophia/Thlaspi arvense
- Upland Type 3 Bromus inermis/Poa pratensis
- Upland Type 5 *Elymus repens/Bromus inermis*
- Upland Type 10 Artemisia tridentata/Poa spp.
- Upland Type 12 Elymus trachycaulus/Poa ampla
- Upland Type 13 Leymus cinereus/Elymus trachycaulus
- Upland Type 15 Poa pratensis/Elymus repens
- Wetland Type 4 Carex spp./Juncus balticus
- Wetland Type 7 Open Water/Aquatic Macrophytes
- Wetland Type 8 Salix exigua/Juncus balticus
- Wetland Type 9 *Juncus balticus/Elymus repens*
- Wetland Type 11 Typha latifolia
- Wetland Type 14 Eleocharis palustris/Deschampsia caespitosa
- Wetland Type 16 Juncus balticus/Eleocharis palustris
- Wetland Type 17 Salix spp.

Vegetation cover was measured along two belt transects (T-1 and T-2) in 2019 (Figure A-2, Appendix A). Photographs of the transect end points are provided in Appendix C. Table 3 summarizes the data for T-1 from 2015 through 2019. T-1 is 564 feet long and intersects vegetation community Types 3, 11, 13, and 16. Hydrophytic vegetation accounted for 86 percent of the transect in 2019. The percent of this transect that crosses hydrophytic vegetation communities has not changed over the last 3 years of monitoring but the total number of upland species has declined and hydrophytic species has increased.

Table 3. Data Summary for T-1 From 2015 Through 2019 at the Silicon Mountain Site

Monitoring Year	2015	2016	2017	2018	2019
Transect Length (feet)	564	564	564	564	564
Vegetation Community Transitions Along Transect	4	6	6	6	6
Vegetation Communities Along Transect	3	4	4	5	5
Hydrophytic Vegetation Communities Along Transect	1	2	2	2	2
Total Vegetative Species	51	48	54	42	43
Total Hydrophytic Species	30	26	33	28	31
Total Upland Species	21	22	21	14	12
Estimated % Total Vegetative Cover	90	90	90	90	93
Estimated % Unvegetated	10	10	10	10	7
% Transect Length Comprising Hydrophytic Vegetation Communities	80.5	81.3	86	86	86
% Transect Length Comprising Upland Vegetation Communities	19.5	18.7	14	14	14
% Transect Length Comprising Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

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Table 4 summarizes the data for T-2 from 2015 through 2019. T-2 is 219 feet long and intersects vegetation community Types 11, 14, and 15. Hydrophytic vegetation accounted for 90 percent of the transect in 2019.

Table 4. Data Summary for T-2 From 2015 Through 2019 at the Silicon Mountain Site

Monitoring Year	2015	2016	2017	2018	2019
Transect Length (feet)	219	219	219	219	219
Vegetation Community Transitions Along Transect	2	2	2	2	3
Vegetation Communities Along Transect	2	3	3	3	4
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	2
Total Vegetative Species	9	21	47	27	35
Total Hydrophytic Species	5	10	24	17	19
Total Upland Species	4	11	23	10	16
Estimated % Total Vegetative Cover	30	45	55	72	87.5
Estimated % Unvegetated	70	55	45	28	12.5
% Transect Length Comprising Hydrophytic Vegetation Communities	88.1	88.1	88.1	90.9	90.4
% Transect Length Comprising Upland Vegetation Communities	11.9	11.9	11.9	9.1	9.6
% Transect Length Comprising Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

Priority 2B noxious weeds that were identified within the Silicon Mountain mitigation site included spotted knapweed (*Centaurea stoebe*), Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*), common tansy (*Tanacetum vulgare*), and butter-and-eggs (*Linaria vulgaris*). Infestation areas were mapped in 2019 and are shown on Figure A-3 in Appendix A. MDT has an ongoing weed-control program for their mitigation sites that includes conducting an annual assessment of weeds that are identified at each location and containing and controlling the identified populations. MDT completed noxious weed spraying at the Silicon Mountain site on July 7–8, 2019. Performance standards for noxious weeds across the site are currently being met.

MDT planted an estimated 30,000 willow cuttings and 350 containerized shrubs and trees along the stream banks of the Sand Creek channel, in riparian areas, and in small clusters around the perimeter of the excavated wetland cells. An estimated 17 percent of the containerized woody plantings continue to survive through the 2019 survey. An estimated 85 percent of the willow cuttings that were installed survived; young twigs off the cuttings ranged from 12 to 42 inches in length. The willow cuttings were healthy and robust, and no signs of insect damage or disease were observed.

**Hydrology** – During the 2019 investigation, the average depth of surface water across the site was estimated at 1.0 feet with a range of depth from 0.5 to 3 feet. Open water was present in more than 90 percent of constructed wetland Cells 1 and 5. Shallow ponded water was present across approximately 70 percent of Cell 4. Soils were saturated to the surface within Cells 2 and 3. Cell 6 was dry during the July monitoring trip. Flowing water was present in the entire length of the Sand Creek channel, and significant debris and sand deposits were noted along the upper (southern portion) of the creek. Groundwater monitoring by the US Geological Survey (USGS) over the last 4 years indicates that groundwater levels are rising across the site, and May 2019 water levels are the highest recorded to date (0.63 foot below land surface).

**Photographs** – Seven wetland photo points and ten stream photo points were initially established in the project area in 2015 (PP-1 to PP-17; Figure A-2, Appendix A). Photographs of all of the surveyed channel cross sections, wetland determination data points, and vegetation transect endpoints (T-1 and

T-2) are provided in Appendix C. The locations of these photographs are illustrated on Figure A-2 in Appendix A. The 2019 photographs with a comparison to the first year of monitoring are provided in Appendix C. Please refer to previous years' monitoring reports for all previous annual photographs (<a href="https://www.mdt.mt.gov/publications/brochures/wetland\_mitigation.shtml">https://www.mdt.mt.gov/publications/brochures/wetland\_mitigation.shtml</a>).

**Soils** – Six soil pits were evaluated to determine the extent of hydric soil development across the site in 2019 (Appendix B). The soil profile at DP-1W, which is located in wetland Type 16 – *Juncus balticus/Eleocharis palustris*, revealed a very dark gray (10YR 3/1) silt loam in the upper 7 inches and a light brownish-gray (2.5 Y 6/2) silty clay loam below 7 inches. Hydric soil indicators included a depleted matrix (F3) at 7 inches. The soil profile at DP-2W, which is located in wetland Type 7 – Open Water/Aquatic Macrophytes, exhibited a dark gray (10YR 4/2) to very dark gray (10YR 3/1) silty clay in upper 16 inches. Hydric soil indicators were not observed for DP-2W, which is likely because of the location in a recently constructed wetland cell where soils may be too young to have formed hydric indicators. DP-3W is located on the edge of an existing wetland, Type 4 – *Carex spp./Juncus balticus*. The soils included dark organics in the upper 4 inches with a very dark grayish-brown clay soil below. Hydric soil indicators included redox concentrations at 5 inches. This soil meets the hydric soil indicator criteria for A11 – Depleted Below Dark Surface. No positive indicators of hydric soil were observed at any of the three upland data points.

**Wildlife** – Forty bird species were identified in 2019 at the Silicon Mountain site, including several wetland-dependent species. In addition to the bird observations, six mammals, one reptilian, and one amphibian species were also observed (Appendix B).

Stream Monitoring - The annual cross section survey of the Sand Creek reconstructed channel continues to reveal subtle horizontal and vertical changes year over year. Some sections exhibit slight scouring and/or lateral shifting of the thalweg and some sections show aggradation and/or point bar growth. For 2019, these changes can be observed in Cross Sections 1 and 2, and Cross Sections 3 and 4, respectively. As in previous years, Cross Section 6 shows the most pronounced changes in 2019. The section has aggraded since 2018 after it scoured the previous 2 years. Cross Section 7 (just downstream) has not changed substantially since construction and appears to serve as the hydraulic control for the reach immediately upstream because it has a similar bed elevation to the aggradation witnessed in Cross Section 6. These annual fluctuations are likely the result of varied relative magnitude in annual spring runoff. Anecdotal evidence suggests that 2017 and 2018 were large runoff years; whereas, 2019 is suspected to be of lesser magnitude. Large runoff years generally appear to induce more substantial scouring of pools, and low runoff years generally appear to promote relatively more aggradation. In 2019, all 16 belt transects that were monitored along Sand Creek exhibit vegetation communities with stability ratings of 6 or higher, which meets the performance standard. Willows represent 87.5 percent of the dominant community within the stream bank transects. The willows are increasing in height and width along the banks with slight shifts in species dominance.

Credit Summary — The goal of the stream mitigation component of the Silicon Mountain project includes restoring approximately 4,300 linear feet of Sand Creek of which 3,900 feet is considered creditable based on location and design. The project is expected to generate a total of 12,369.50 stream mitigation credits, as shown in Table 5. To date, the project is meeting the two success criteria established for stream mitigation components of the project. Stream cross sections for 2019 are provided in Appendix D and are compared to previous years' monitoring. The Sand Creek channel continues to develop as expected and is meeting success criteria.

Data collected during the 2019 monitoring revealed continued development of vegetation cover along the Sand Creek stream reaches. In 2019, all 16 belt transects that were monitored exhibit vegetation communities with stability ratings of 6 or higher, which meets the performance standard. Willows represent 87.5 percent of the dominant community within the stream bank transects. The willows are increasing in height and width along the banks with slight shifts in species dominance.

Table 5. 2019 Stream Mitigation Credits for the Silicon Mountain Site

Mitigation Reach	Linear Feet	Sum of Mitigation Factors <sup>(a)</sup>	Mitigation Credits	
Reach 1	3,250	3.20	10,400	
Reach 2	650	3.03	1,969.5	
Total	3,900		12,369.5	

<sup>(</sup>a) From Table 7 of Silicon Mountain Aquatic Resource Mitigation Plan, Watershed #2 – Upper Clark Fork of the Columbia River, Silverbow County, MT [Confluence Consulting, Inc., 2013].

A total of 29.1 acres were delineated at the Silicon Mountain site in 2019, including 7.50 acres of creation, 10.8 acres of preservation, and 10.8 acres of upland buffer. Applying the USACE-approved ratios to these values, a total of 12.16 acres of mitigation credit have been estimated in 2019 (Table 6), which exceeds the targeted 11.45 acres anticipated at this site.

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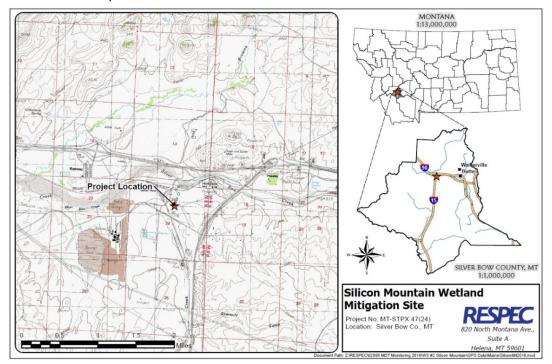
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Table 6. Summary of Wetland Mitigation Credits at the Silicon Mountain Site From 2015 Through 2019

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type	Anticipated Mitigation Surface Area (acres)	Approved	Anticipated Mitigation Credit (acres)	2015 Delineated Acres	2015 Mitigation Credit (acres)	2016 Delineated Acres	2016 Mitigation Credit (acres)	2017 Delineated Acres	2017 Mitigation Credit (acres)	2018 Delineated Acres	2018 Mitigation Credit (acres)	2019 Delineated Acres	2019 Mitigation Credit (acres)
Creation (Establishment)	11 7 3 4 & 5	Palustrine Emergent, Aquatic Bed	6.77	1:1	6.77	6.19	6.19	6.30	6.30	6.30	6.30	7.10	7.10	7.5	7.5
Preservation	Δτρας	Palustrine Emergent, Scrub-Shrub	10.06	4:1	2.52	10.24	2.56	10.30	2.57	10.8	2.7	10.8	2.7	10.8	2.5
Il Inland Buffer	50-Foot-Wide Upland Perimeter	N/A	10.80	5:1	2.16	10.8	2.16	10.80	2.16	10.80	2.16	10.80	2.16	10.8	2.16
	Totals		27.6		11.45	16.43	10.91	27.40	11.03	27.90	11.16	28.7	11.96	29.10	12.16

#### Maps, Plans, Photos

Site Location Map



Project Area Maps/Figures: See Appendix A

Data Forms: See Appendix B (Site Monitoring form, plant list, wildlife species list, USACE data forms, and

MWAM forms)

Photos: See Appendix C

Plans: See Appendix D of 2015 Monitoring Report

https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2015 REPORTS/2015 Silicon M

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#### **Conclusions**

Based on the results of the fifth year of monitoring, the mitigation site continues to develop into a diverse stream and wetland ecosystem. The site is meeting all established performance standard as documented in Table 1. Wetland cells are developing as intended and wetland acreage continues to increase with each successive monitoring event. The Sand Creek channel is dynamic and continues to develop. Willow cuttings installed along the banks of Sand Creek are doing well and streambanks are mostly stable with developing woody vegetation communities. At this time, no remedial actions are necessary because the site continues to develop as designed.

#### References

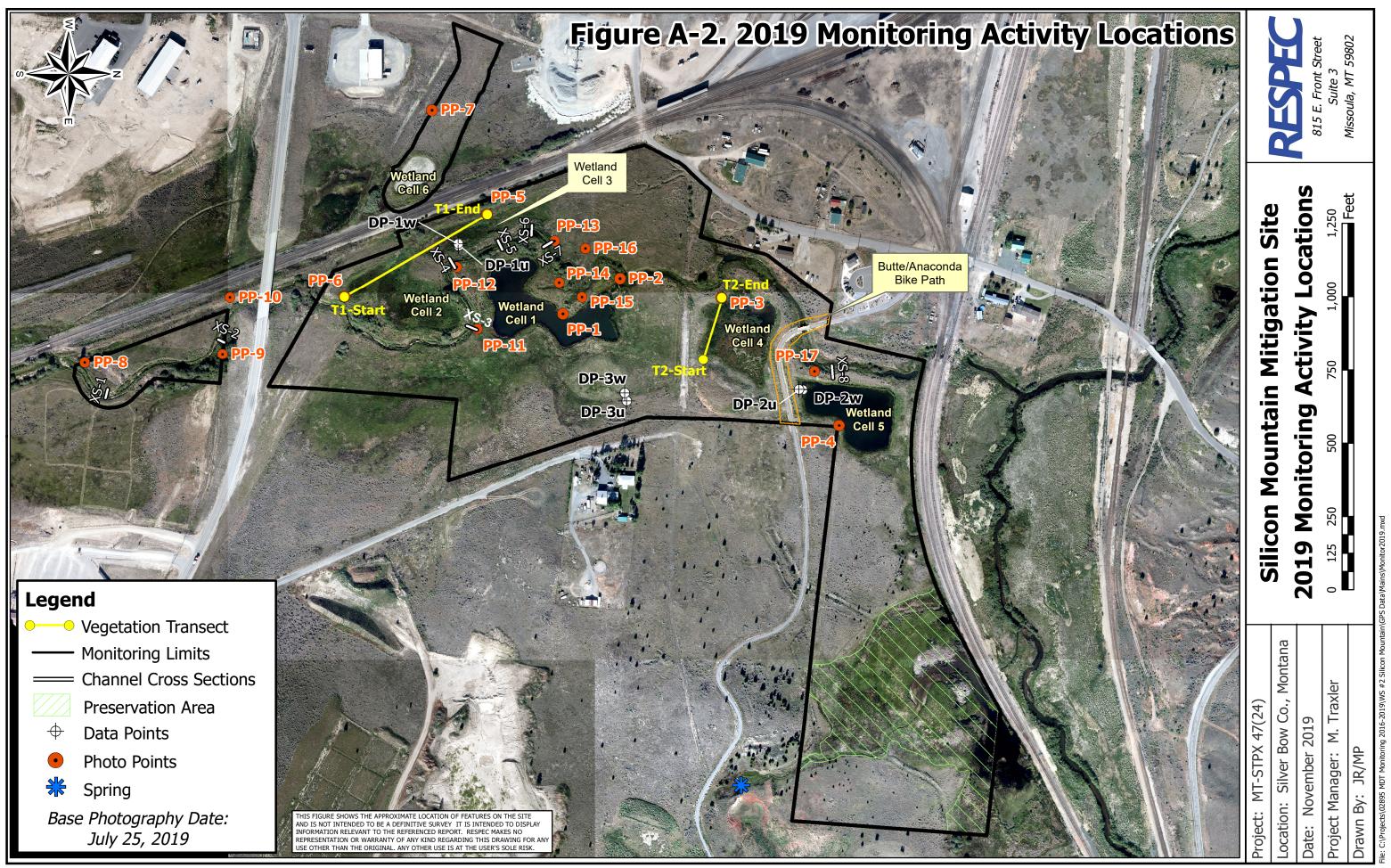
**Berglund, J. and R. McEldowney, 2008.** *MDT Montana Wetland Assessment Method,* PBS&J Project B43075.00, prepared by Post, Buckley, Schuh, & Jernigan, Helena, MT, for the Montana Department of Transportation, Helena, MT.

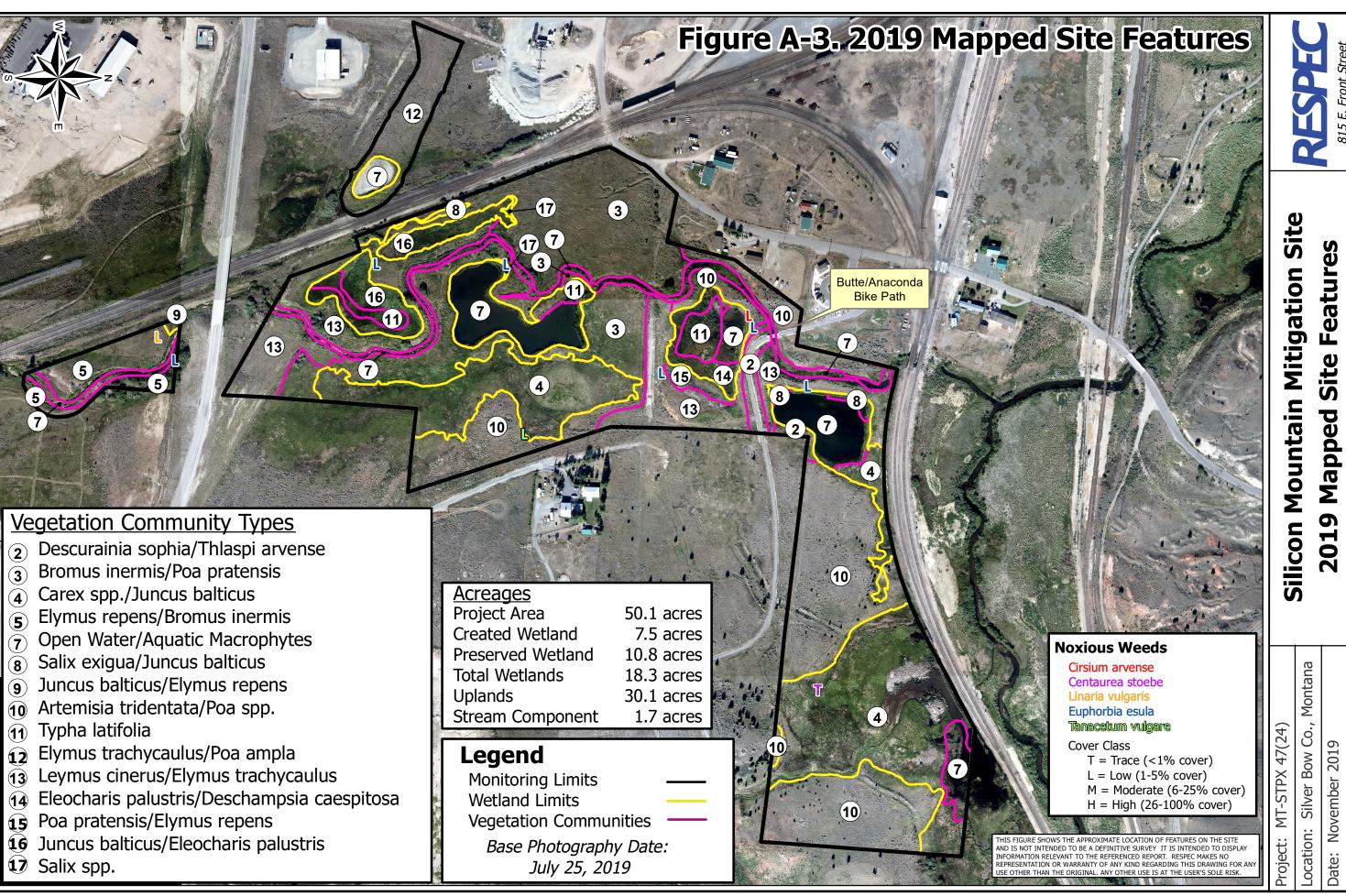
**Confluence Consulting, Inc., 2013.** Silicon Mountain Aquatic Resource Mitigation Plan, Watershed #2 – Upper Clark Fork of the Columbia River, Silverbow County, MT, CCI Project No. MDT.006, prepared by Confluence Consulting, Inc., Bozeman, MT, for the Montana Department of Transportation, Helena, MT.

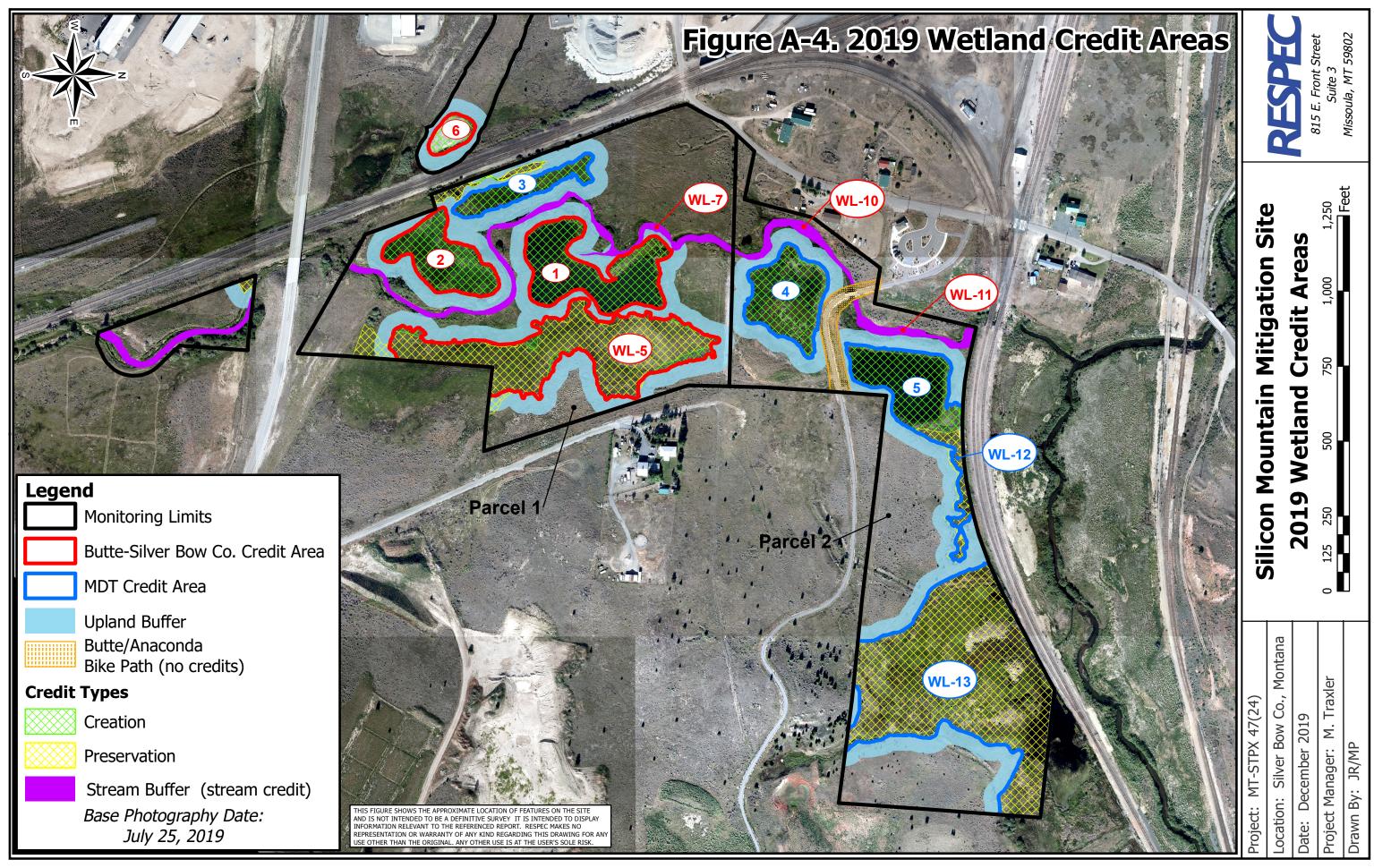
## APPENDIX A PROJECT AREA MAPS

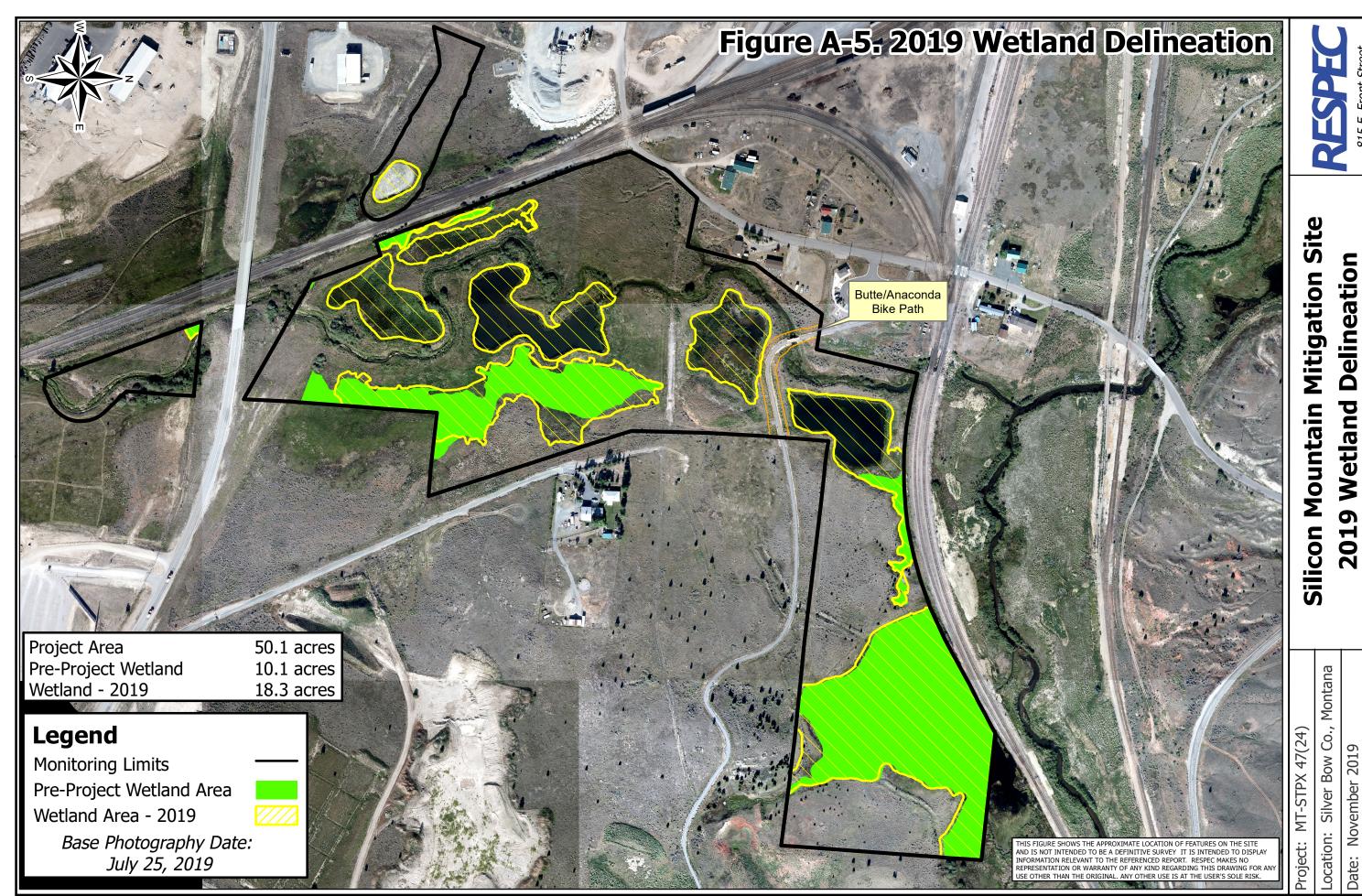
MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

A-1 RSI-2976









# APPENDIX B MONITORING FORMS

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

B-1 RSI-2976

## RESPEC/MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Silico Assessment Date: Jr Hoschouer, C. Seib Location: 5 miles we 119 on I-15 Legal Description: T Weather Conditions: Initial Evaluation Da Size of evaluation ar property	ert est of But Sunny a ate: June	19 tte R <u>9E</u> Se and warm 23, 2015	ection <u>24</u> Monit	Project Number: n(s) conducting the MDT District: B  Time of Day: 7:3 oring Year: 5 # ounding wetland:	e assessment  Sutte  So am  Visits in Ye	Milepost: <u>MP</u>		
		Н	YDROLOG	GY				
Surface Water Source: Sand Creek and a well defined spring Inundation: Present Average Depth: 1 feet Range of Depths: 0.5 -3ft Percent of assessment area under inundation: 25% Depth at emergent vegetation-open water boundary: 0.5 feet 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.): Open water was present in more than 90 percent of constructed wetland Cells 1 and 5. Shallow ponded water was present across approximately 70 percent of Cell 4. Soils were saturated to the surface within Cells 2 and 3. Cell 6 was dry during the July monitoring trip however, signs of ponded water included surface soil cracks, sparsely vegetated concave surface and water marks. Flowing water was present in the entire length of the Sand Creek channel; with significant debris and sand deposits noted along the upper (southern portion) of the creek. Wetland soils were saturated within the upper 12 inches, FAC-neutral test, geomorphic position and saturation visible on aerial imagery.  Groundwater Monitoring Wells: Present								
Record depth of water Well Number	Depth	Well Number	Depth	Well Number	Depth			
Additional Activities Checklist:								
COMMENTS / PROBLEMS: Two wells onsite that remained after construction are monitored by USGS.								

#### **VEGETATION COMMUNITIES**

Community Number: 2 Community Title (main spp): Descurainia sophia/Thlaspi arvens

Dominant Species	% Cover	Dominant Species	% Cover
Descurainia sophia	2 = 6-10%	Pascopyrum smithii	1 = 1-5%
Thlaspi arvense	2 = 6-10%	Elymus trachycaulus	1 = 1-5%
Camelina microcarpa	2 = 6-10%	Bromus tectorum	1 = 1-5%
Lepidium perfoliatum	2 = 6-10%	Leymus cinereus	1 = 1-5%
Bassia scoparia	2 = 6-10%	Artemisia tridentata	1 = 1-5%
Bromus tectorum	1 = 1-5%	Agropyrum cristatum	1 = 1-5%

Comments / Problems: <u>Upland community composed of mostly early successional, non-native species commonly found on disturbed landscapes. In 2018 this community type was mapped in one small <u>upland corner, east of wetland cell 5. In 2019, there is less Descurainia sophia but Thaspi arvens is still present.</u></u>

Community Number: 3 Community Title (main spp): Bromus inermis/Poa pratensis

Dominant Species	% Cover	<b>Dominant Species</b>	% Cover
Bromus inermis	4 = 21-50%	Poa palustris	1 = 1-5%
Poa pratensis	3 = 11-20%	Schedonorus pratensis	1 = 1-5%
Elymus repens	2 = 6-10%	Koeleria macrantha	1 = 1-5%
Leymus cinereus	2 = 6-10%	Achilla millefolium	1 = 1-5%
Elymus trachycaulus	2 = 6-10%	Trifolium hybridum	1 = 1-5%
Melilotus officinalis	2 = 6-10%	Astragalus cicer	1 = 1-5%

Comments / Problems: **Upland community** 

Community Number: 4 Community Title (main spp): Carex spp./Juncus balticus

Dominant Species	% Cover	Dominant Species	% Cover
Carex nebrascensis	3 = 11-20%	Poa palustris	2 = 6-10%
Carex utriculata	2 = 6-10%	Potentilla anserina	2 = 6-10%
Carex aquatilis	2 = 6-10%	Calamagrostis canadensis	1 = 1-5%
Carex praticola	1 = 1-5%	Deschampsia caespitosa	1 = 1-5%
Juncus balticus	3 = 11-20%	Mentha arvensis	1 = 1-5%
Poa pratensis	2 = 6-10%	Cirsium arvense	+ = < 1%

Comments / Problems: Existing wetland community. In 2019 a small area between Sand Creek and wetland cell 1 was mapped as CT4.

Community Number: <u>5</u> Community Title (main spp): <u>Elymus repens/Bromus inermis</u>

Dominant Species	% Cover	Dominant Species	% Cover
Elymus repens	4 = 21-50%	Potentilla anserina	1 = 1-5%
Bromus inermis	3 = 11-20%	Descurainia sophia	1 = 1-5%
Pascopyrum smithii	2 = 6-10%	Astragalus cicer	1 = 1-5%
Juneus balticus	2 = 6-10%	Bromus tectorum	1 = 1-5%
Poa pratensis	1 = 1-5%	Elymus trachycaulus	1 = 1-5%
Leymus cinereus	1 = 1-5%	Cirsium arvense	+=<1%

Comments / Problems: <u>Upland community south of the road alignment and overpass.</u>

#### **VEGETATION COMMUNITIES (continued)**

Community Number: 6 Community Title (main spp): Puccinella nutalliana/Deschampsia caespitosa

Dominant Species	% Cover	Dominant Species	% Cover
Puccinella nuttalliana	3 = 11-20%	Eleocharis palustris	1 = 1-5%
Deschampsia caespitosa	3 = 11-20%	Typha latifolia	1 = 1-5%
Beckmannia syzigachne	2 = 6-10%	Potentilla anserina	1 = 1-5%
Agrostis stolonifera	2 = 6-10%	Cyrtorhyncha cymbalaria	1 = 1-5%
Poa palustris	2 = 6-10%	Trifolium hybridum	1 = 1-5%
Juneus balticus	1 = 1-5%	Trifolium repens	1 = 1-5%

Comments / Problems: Originally a diverse wetland community type with dense cover. In 2018 areas previously mapped community type 6 have transitioned to wetter community types such as CT 7, CT 11 or CT 16.

Community Number: 7 Community Title (main spp): Open water/Aquatic macrophytes

Dominant Species	% Cover	Dominant Species	% Cover
Open water	5 = > 50%		
Algae, green	3 = 11-20%		
Lemma minor	2 = 6-10%		
Beckmannia syzigachne	2 = 6-10%		
Typha latifolia	2 = 6-10%		

Comments / Problems: Created wetland cells 1, 4, 5 and 6.

Community Number: 8 Community Title (main spp): Salix exigua/Juncus balticus

<b>Dominant Species</b>	% Cover	<b>Dominant Species</b>	% Cover
Salix exigua	4 = 21-50%	Calamagrostis canadensis	1 = 1-5%
Juncus balticus	3 = 11-20%	Hordeum jubatum	1 = 1-5%
Eleocharis palustris	2 = 6-10%	Glyceria striata	1 = 1-5%
Carex nebrascensis	2 = 6-10%	Cicuta douglasii	1 = 1-5%
Alopecurus arundinaceus	2 = 6-10%	Agrostis stolonifera	1 = 1-5%
Scirpus microcarpus	1 = 1-5%		

Comments / Problems: Existing wetland west of wetland cell 2. A new (2018) area on the northwestern side of wetland cell 5 and along the southwest portion of wetland cell 5 in 2019.

Community Number: **9** Community Title (main spp): **Juncus balticus/Elymus repens** 

Dominant Species	% Cover	Dominant Species	% Cover
Juncus balticus	4 = 21-50%	Cirsium arvense	+=<1%
Elymus repens	4 = 21-50%	Epilobium ciliatum	+ = < 1%
Poa palustris	2 = 6-10%	Hordeum jubatum	+=<1%
Symphyotrichum lanceolatum	1 = 1-5%	Rumex crispus	+=<1%
Potentilla anserina	1 = 1-5%	Geum macrophyllum	+=<1%
Solidago gigantea	1 = 1-5%		

Comments / Problems: **Small wetland in the corner of the parcel south of the bridge** 

#### **VEGETATION COMMUNITIES (continued)**

Community Number: **10** Community Title (main spp): **Artemisia tridentata/Poa spp.** 

Dominant Species	% Cover	Dominant Species	% Cover
Artemisia tridentata	3 = 11-20%	Juniperus scopulorum	2 = 6-10%
Poa ampla =juncifolia, secunda	3 = 11-20%	Koeleria macrantha	1 = 1-5%
Poa pratensis	2 = 6-10%	Bromus inermus	1 = 1-5%
Symphoricarpos falcatum	2 = 6-10%	Hesperostipa comata	1 = 1-5%
Pascopyrum smithii	3 = 11-20%	Ericamria nauseosa	1 = 1-5%
Pseudoroegneria spicata	2 = 6-10%	Astragalus agrestis	1 = 1-5%

Comments / Problems: **Upland shrubland** 

Community Number: 11 Community Title (main spp): Typha latifolia

Dominant Species	% Cover	Dominant Species	% Cover
Typha latifolia	5 = > 50%	Alysma plantago-aquatica	1 = 1-5%
Eleocharis palustris	2 = 6-10%	Schoenoplectus	3 = 11-20%
	2 - 0-1070	tabernaernaemontani	
Juneus balticus	1 = 1-5%	Mentha arvensis	+ = < 1%
Deschampsia caespitosa	1 = 1-5%	Ranunculus sceleratus	+ = < 1%
Cyrtorhyncha cymbalaria	1 = 1-5%	Scripus microcarpus	1 = 1-5%
Beckmannia syzigachne	1 = 1-5%	Water	3 = 11-20%

Comments / Problems: <u>In 2018, a portion of wetland cell 4 transitioned from CT 6 to a dominance of Typha latifolia. In 2019 CT 11 increased in size across wetland cell 4, replacing portions of CT14.</u>

Community Number: 12 Community Title (main spp): Elymus trachycaulus/Poa ampla

511110 (main 5pp). <u>223, 1145 (1145, 1146,</u>				
<b>Dominant Species</b>	% Cover	Dominant Species	% Cover	
Elymus trachycaulus	3 = 11-20%	Astragalus cicer	1 = 1-5%	
Elymus lanceolatus	2 = 6-10%	Elymus repens	1 = 1-5%	
Leymus cinereus	2 = 6-10%	Lepidum perifolium	1 = 1-5%	
Poa ampla = juncifolia, secunda	3 = 11-20%	Hordeum jubatum	1 = 1-5%	
Melilotus officinalis	2 = 6-10%	Cirsium arvense	+=<1%	
Agropyron cristatum	1 = 1-5%	Centaurea stoebe	+ = < 1%	

Comments / Problems: <u>Seeded upland areas transitioning from annual weedy species to more</u> perennial grasses. Also a shift in 2018 near the overpass from CT 12 to CT 13 with the expansion of <u>Leymus cinereus</u>.

Community Number: 13 Community Title (main spp): Leymus cinereus/Elymus trachycaulus

Dominant Species	% Cover	Dominant Species	% Cover
Leymus cinerus	4 = 21-50%	Festuca ovina	1 = 1-5%
Elymus trachycaulus	3 = 11-20%	Poa pratensis	1 = 1-5%
Elymus repens	1 = 1-5%	Melilotus officinalis	1 = 1-5%
Bromus inermis	1 = 1-5%	Hordeum jubatum	1 = 1-5%
Astragalus cicer	1 = 1-5%	Silene latifolia	+ = < 1%
Poa ampla = juncifolia, secunda	1 = 1-5%	Juneus balticus	1 = 1-5%

Comments / Problems: <u>Newly seeded upland areas along the Butte/Anaconda bike path shifting from annual weedy species (CT 2) to more perennial grasses and forbs.</u>

#### **VEGETATION COMMUNITIES (continued)**

Community Number: 14 Community Title (main spp): Eleocharis palustris/Deschampsia caespitosa

Dominant Species	% Cover	Dominant Species	% Cover
Eleocharis palustris	3 = 11-20%	Potentilla anserina	1 = 1-5%
Deschampsia caespitosa	3 = 11-20%	Epilobium ciliatum	1 = 1-5%
Juncus balticus	2 = 6-10%	Bechmannia syzigachne	1 = 1-5%
Poa palustris	1 = 1-5%	Typha latifolia	1 = 1-5%
Alopecurus aequalis	1 = 1-5%	Hordeum jubatum	1 = 1-5%
Mentha arvensis	1 = 1-5%	Agrostis stolonifera	1 = 1-5%

Comments / Problems: <u>CT 11 has expanded along the southwestern side of wetland cell 4 replacing a portion of CT 14.</u>

Community Number: 15 Community Title (main spp): Poa pratensis/Elymus repens

Dominant Species	% Cover	<b>Dominant Species</b>	% Cover
Poa pratensis	3 = 11-20%	Astragulus cicer	1 = 1-5%
Elymus repens	3 = 11-20%	Puccinellia nuttalliana	1 = 1-5%
Bromus inermis	2 = 6-10%	Bare ground	2 = 6-10%
Elymus trachycaulus	2 = 6-10%		
Leymus cinereus	2 = 6-10%		
Trifolium hybridum	1 = 1-5%		

Comments / Problems: CT 15 replaced a portion of CT 12 on the upland slope above wetland cell 4.

Community Number: 16 Community Title (main spp): Juncus balticus/Eleocharis palustris

<b>Dominant Species</b>	% Cover	<b>Dominant Species</b>	% Cover
Juneus balticus	3 = 11-20%	Epilobium ciliatum	1 = 1-5%
Eleocharis palustris	3 = 11-20%	Alopecurus pratensis	1 = 1-5%
Deschampsia caespitosa	2 = 6-10%	Glyceria grandis	1 = 1-5%
Beckmannia syziganchne	2 = 6-10%	Poa palustris	1 = 1-5%
Potentilla anserina	1 = 1-5%	Typha latifolia	1 = 1-5%
Cyrtorhyncha cymbalaria	1 = 1-5%	Bare soil, mud flats	2 = 6-10%

Comments / Problems: A new community type in 2018 replacing CT 6.

Community Number: 17 Community Title (main spp): Salix spp.

Dominant Species	% Cover	Dominant Species	% Cover
Salix exigua	4 = 21-50%		
Salix lutea (eriocephala)	2 = 6-10%		
Salix bebbiana	2 = 6-10%		
Salix geyeriana	2 = 6-10%		
Salix boothii	2 = 6-10%		
Alnus incana	1 = 1-5%		

Comments / Problems: This is a new community type added in 2019, starting to see the development of planted willows and alder as well as volunteer willows on the edges of wetland cells.

#### **Additional Activities Checklist:**

Record and map vegetative communities on aerial photograph.

#### PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes
Alnus incana		5	
Salix eriocephala		14	
Salix exigua		16	
Salix geyeriana		13	
Shepherdia argentea		10	

Comments / Problems: An estimated 350 containerized trees and shrubs were part of the original planting. During the 2015 monitoring a total of 47 live shrubs were noted; in 2016, 2017 and 2018 a total of 44 live shrubs were identified. During the July 2019 monitoring an additional 14 trees and shrubs were counted increasing the total to 58 live containerized plants.

## MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Silicon Mountain Date: July 25, 2019 Examiner: C. Seibert, T. Traxler, C. Hoschouer

Transect Number: 1 Approximate Transect Length: 564 feet Compass Direction from Start: 332° Note:

Transect Interval Length: 15 feet (station 0 to 15)		
Vegetation Community Type: Leymus cinereus/Elymus trachycaulus		
Plant Species	Cover	
Leymus cinereus	4 = 21-50%	
Elymus trachycaulus	3 = 11-20%	
Elymus repens	2 = 6-10%	
Poa pratensis, Poa ampla, Poa palustris	2 = 6-10%	
Festuca ovina	1 = 1-5%	
Epilobium ciliatum	1 = 1-5%	
Juncus balticus	1 = 1-5%	
Silene latifolia	+ = < 1%	
Astragalus cicer	+ = < 1%	
Euphorbia esula	+ = < 1%	
Bare soil and litter	2 = 6-10%	
Total Vegetative Cover:	90%	

Transect Interval Length: 16 feet (station 15 to 31)	
Vegetation Community Type: Juncus balticus/Eleocharis palustris	
Plant Species	Cover
Juncus balticus, Juncus effusus	3 = 11-20%
Deschampsia caespitosa	3 = 11-20%
Eleocharis palustris	3 = 11-20%
Alopecurus pratensis	1 = 1-5%
Poa palustris, Beckmannia syziganchne	2 = 6-10%
Cyrtorhyncha cymbalaria, Plantago major	1 = 1-5%
Epilobium ciliatum, Hordeum jubatum	1 = 1-5%
Juneus bufonius	1 = 1-5%
Potentilla anserina	1 = 1-5%
Typha latifolia	1 = 1-5%
Bare soil and litter (including moss)	2 = 6-10%
Total Vegetative Cover:	95%

Transect Interval Length: 33 feet (station 31 to 64)		
Vegetation Community Type: Typha latifolia		
Plant Species	Cover	
Typha latifolia	3 = 11-20%	
Eleocharis palustris	3 = 11-20%	
Juncus balticus, Juncus effusus	2 = 6-10%	
Glyceria grandis	1 = 1-5%	
Beckmannia syziganchne	2 = 6-10%	
Cyrtorhyncha cymbalaria	2 = 6-10%	
Deschampsia caespitosa	1 = 1-5%	
Poa palustris, Scirpus microcarpus	1 = 1-5%	
Alysma plantago-aquatica	1 = 1-5%	
Juncus bufonius	1 = 1-5%	
Bare soil (mud) and litter	2 = 6-10%	
Total Vegetative Cover:	95%	

Transect Interval Length: 200 feet (station 64 to 264)		
Vegetation Community Type: Juncus balticus/Eleocharis palustris		
Plant Species	Cover	
Juncus balticus, Juncus effusus	3 = 11-20%	
Eleocharis palustris	4 = 21-50%	
Beckmannia syziganchne	2 = 6-10%	
Deschampsia caespitosa, Phalaris arundinacea	2 = 6-10%	
Potentilla anserina, Cicuta douglasii	2 = 6-10%	
Alopecurus pratensis, Hordeum jubatum	1 = 1-5%	
Trifolium longipes	1 = 1-5%	
Carex nebrascensis, Plantago major	1 = 1-5%	
Poa palustris, Typha latifolia	1 = 1-5%	
Glyceria grandis	1 = 1-5%	
Alopecurus aequalis	1 = 1-5%	
Bare soil (mud) and litter	2 = 6-10%	
Total Vegetative Cover:	95%	

## MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Silicon Mountain Date: July 25, 2019 Examiner: C. Seibert, T. Traxler, C. Hoschouer

Transect Number: 1 Approximate Transect Length: 564 feet Compass Direction from Start: 332° Note:

Transect Interval Length: 34 feet (station 264 to 298)			
Vegetation Community Type: Leymus	Vegetation Community Type: Leymus cinereus/Elymus trachycaulus		
Plant Species		Cover	
Leymus cinereus		4 = 21-50%	
Elymus trachycaulus		3 = 11-20%	
Bromus inermis		3 = 11-20%	
Poa pratensis		2 = 6-10%	
Elymus repens		3 = 11-20%	
Astragalus cicer		1 = 1-5%	
Euphorbia esula, Thlaspi arvense		+ = < 1%	
Potentilla ansernia		1 = 1-5%	
Trifolium longipes		1 = 1-5%	
Rumex salicifolius		1 = 1-5%	
Bare soil and litter		1 = 1-5%	
Т	otal Vegetative Cover:	90%	

Transect Interval Length: 237 feet (station 298 to 535)		
Vegetation Community Type: Juncus balticus/Eleocharis palustris		
Plant Species	Cover	
Juneus balticus	4 = 21-50%	
Eleocharis palustris	2 = 6-10%	
Deschampsia caespitosa, Phalaris arundinaceus	2 = 6-10%	
Potentilla anserina, Symphyotrichum ciliatum	2 = 6-10%	
Poa palustris, Poa pratensis	1 = 1-5%	
Carex nebrascensis. Carex aquatilis	2 = 6-10%	
Typha latifolia	1 = 1-5%	
Epilobium ciliatus, Mentha arvensis	1 = 1-5%	
Cyrtorhyncha cymbalaria, Alopecurus arundinaceus	1 = 1-5%	
Glyceria striata, Hordeum jubatum	1 = 1-5%	
Bare soil and litter	2 = 6-10%	
Total Vegetative Cover:	90%	

Transect Interval Length: 29 ft (station 535 to 564)	
Vegetation Community Type: Bromus inermis/Poa pratensis	
Plant Species	Cover
Bromus inermis	4 = 21-50%
Poa pratensis, Poa palustris	3 = 11-20%
Elymus repens	1 = 1-5%
Trifolium hybridum	2 = 6-10%
Potentilla anserina	1 = 1-5%
Elymus trachycaulus	1 = 1-5%
Astragalus cicer	2 = 6-10%
Rumex salicifolius	1 = 1-5%
Mentha arvensis, Epilobium ciliatum	2 = 6-10%
Bare soil and litter	1 = 1-5%
Total Vegetative Cover:	95%

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	Cover
Total Wasserston Communication	0/
Total Vegetative Cover:	%

## MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Silicon Mountain Date: July 25, 2019 Examiner: C. Seibert, T. Traxler, C. Hoschouer

Transect Number: 2 Approximate Transect Length: 219 feet Compass Direction from Start: 288° Note: Traverses wetland cell 4

Transect Interval Length: 8 feet (station 0 to 8)		
Vegetation Community Type: Poa pratensis/Elymus repens		
Plant Species	Cover	
Poa pratensis	3 = 11-20%	
Elymus repens, Elymus trachycaulus	3 = 11-20%	
Trifolium hybridium	3 = 11-20%	
Bromus inermis	2 = 6-10%	
Leymus cinereus	2 = 6-10%	
Festuca ovina	1 = 1-5%	
Descurainia sophia	1 = 1-5%	
Hordeum jubatum	1 = 1-5%	
Puccinellia nuttalliana	1 = 1-5%	
Bare soil	2 = 6-10%	
Linium lewisi, Poa palustris	1 = 1-5%	
Total Vegetative Cover:	90%	

Transect Interval Length: <b>34 feet (station 8 to 42)</b> Vegetation Community Type: Eleocharis palustris/Desch	ampsia
caespitosa	
Plant Species	Cover
Eleocharis palustris	4 = 21-50%
Deschampsia caespitosa	3 = 11-20%
Agrostis stolonifera	3 = 11-20%
Poa palustris, Polygonum amphibium	2 = 6-10%
Alopecurus aequalis	1 = 1-5%
Juneus balticus	2 = 6-10%
Potentilla anserina, Mentha arvensis	2 = 6-10%
Epilobium ciliatum	1 = 1-5%
Beckmannia syzigachne	1 = 1-5%
Typha latifolia, Hordeum jubatum	1 = 1-5%
Total Vegetative Cover:	95%

Transect Interval Length: 164 feet (station 42 to 206)		
Vegetation Community Type: Typha latifolia		
Plant Species	Cover	
Typha latifolia	4 = 21-50%	
Eleocharis palustris	4 = 21-50%	
Calamagrostis canadensis	2 = 6-10%	
Juncus balticus	1 = 1-5%	
Schoenoplectus tabernaemontani	1 = 1-5%	
Carex nebrascensis	1 = 1-5%	
Salix lutea	1 = 1-5%	
Mentha arvensis	1 = 1-5%	
Beckmannia syzigachne, Deschampsia caespitosa	1 = 1-5%	
Potentilla anserina, Ranunculus sceleratus	1 = 1-5%	
Bare soil (mud flats)	3 = 11-20%	
Water	2 = 6-10%	
Total Vegetative Cover:	80%	

Transect Interval Length: 13 feet (station 206 to 219)				
Vegetation Community Type: Bromus inermis/Poa pratensis				
Plant Species	Cover			
Bromus inermis	3 = 11-20%			
Poa pratensis	2 = 6-10%			
Agrostis stolonifera	2 = 6-10%			
Beckmannia syzigachne	2 = 6-10%			
Deschampsia cespitosa	2 = 6-10%			
Poa ampla	1 = 1-5%			
Elymus repens	1 = 1-5%			
Cirsium arvense	1 = 1-5%			
Artemisia tridentata	1 = 1-5%			
Potentilla anserina, Sonchus arvensis	1 = 1-5%			
Solidago gigantea	1 = 1-5%			
Bare soil and litter	3 = 11-20%			
Total Vegetative Cover:	85%			

#### MDT WETLAND MONITORING - VEGETATION TRANSECT

Cover EstimateIndicator ClassSource+ = < 1%3 = 11-10%+ = ObligateP = Planted1 = 1-5%4 = 21-50%- = Facultative/WetV = Volunteer2 = 6-10%5 = > 50%0 = Facultative

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): \_\_\_\_%

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: A comprehensive species list was compiled for each community type during the July 2019 monitoring.

#### **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:**

$\boxtimes$	One photograph for each	of the four cardinal	directions surroundir	ng 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.

Location	Photograph Frame #	Photograph Description & Lat/Long	Compass Reading (°)
PP-1	1-5	West side of wetland cell 1	
PP2	1-3	Outside wetland cell 1	
PP3	1-4	West side of wetland cell 4	
PP4	1-5	East side of constructed wetland cell 5	
PP5	1-2	North end of T-1, constructed wetland cell 3	
PP6	1-2	South end of T-1, constructed wetland cell 3	
PP7	1	Cell 6, west side of tracks, south of overpass	
PP8	1-2	Southern edge of cell 6 - upstream end	SW, NW
PP9	1-2	Northern edge of cell 6 - downstream end	SW, NW
PP10	1-2	West side of wetland cell 3	
PP11	1-3	Sand Creek	
PP12	1-4	Sand Creek	
PP13	1-2	Sand Creek	
PP14	1	Headcut	S
PP15	1	Headcut	
PP16	1	Headcut	
PP17	1-2	Northern end of Sand Creek	W, N
T-1-S	1	South end of wetland cell 2	N
T-1-E	1	West side of cell 2	S
T-2-S	1	East side of wetland cell 4	W
T-2-E	1	West side of cell 4	E
DP-1w	1	Data point within wetland cell 3	
DP-1u	1	Upland point	
DP-2w	1	Data point within wetland cell 5	
DP-2u	1	Upland point	
DP-3w	1	Data point along the eastern edge of CT4	
DP-3u	1	Upland	

## **GPS SURVEYING**

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

GPS Checklist:  Upland/wetland boundary.
<ul> <li>4-6 landmarks that are recognizable on the aerial photograph.</li> <li>Start and End points of vegetation transect(s).</li> </ul>
Photograph reference points.  Groundwater monitoring well locations.
Bird nest boxes.
Comments / Problems:
WETLAND DELINEATION (attach COE delineation forms)
At each site conduct these checklist items:
<ul> <li>✓ Delineate wetlands according to the 1987 Army COE manual and regional supplement.</li> <li>✓ Delineate wetland – upland boundary onto aerial photograph.</li> </ul>
Comments / Problems:
FUNCTIONAL ASSESSMENT  Complete and attach full MDT Montana Wetland Assessment Method field forms.
Comments / Problems:
Comments / Problems: MAINTENANCE
MAINTENANCE  Were man-made nesting structure installed at this site? NA
MAINTENANCE
MAINTENANCE  Were man-made nesting structure installed at this site? NA  If yes, do they need to be repaired? NA  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 water flow into or out of the
MAINTENANCE  Were man-made nesting structure installed at this site? NA  If yes, do they need to be repaired? NA  If yes, describe the problems below and indicate if any actions were taken to remedy the problems.
Were man-made nesting structure installed at this site? <u>NA</u> If yes, do they need to be repaired? <u>NA</u> 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 water flow into or out of the wetland? <u>NA</u> If yes, are the structures working properly and in good working order? <u>NA</u>

WII	<b>I</b> DI	JFE

Were man-made nesting structures installed? No  If yes, type of structure: How many?  Are the nesting structures being used? NA  Do the nesting structures need repairs?  Mammals and Herptiles					
M	Number		Indir	ect Indication	on of Use
Mammal and Herptile Species	Observed	Tracks	Scat	Burrows	Other
	Observed	Tracks	Scat	Duilows	Other
Muskrat	1				Other
Muskrat Meadow voles	1				several
	1 2				
Meadow voles	1				
Meadow voles White-tailed deer	1				
Meadow voles White-tailed deer Mountain Cottontail	1				

Additional	<b>Activities</b>	<b>Checklist:</b>
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Birds

Coyote

<u>NA</u> Macroinvertebrate Sampling (if required)

Comments / Problems: \_\_\_\_\_

#### **BIRD SURVEY - FIELD DATA SHEET**

Site: Silicon Mountain Date: 7/25/19

Survey Time: 7:30 am to 5:30 pm

Dind Chasing	#	Behavior	Habitat	Dind Chasing	#	Behavior	Habitat
Bird Species				Bird Species			
American Coot	5	FO	SS	Hungarian Partridge	6	L	UP
American Robin	7	F	MF	American Crow	1	FO	UP
American Wigeon	2	FO L	MA UP				
Bank Swallow	2	FO	MA				
Barn Swallow	2	F	SS				
Black-billed Magpie	3	L	UP				
Blue-winged Teal	6	F	OW				
Brewer's Blackbirds	6	L	SS				
Brown-headed Cowbird	12	FO	UP				
Canada Geese	7	FO F L	MA OW				
Cinnamon Teal	15	F	OW				
Cliff Swallow	8	FO	MA OW				
Common Snipe	1	FO	MA				
Common Yellowthroat	1	FO	OW				
Eastern Kingbird	1	F	MA				
European Starlings	6	F	UP				
Gadwall	12	F L	OW				
Great Blue Heron	1	FO	MA OW				
Green-winged Teal	4	F	OW				
Horned Grebe	1	FO	MA				
Killdeer	8	BD	UP				
Mallard	10	L	OW				
Marsh Wren	2	F	MA				
Northern Harrier	2	FO	SS UP				
Northern Shoveler	1	L	MA				
Red-winged Blackbird	2	FO F	MA WM				
Ruddy Duck	2	F L	OW				
Savannah Sparrow	2	FO F	UP				
Sora	1	F	MA				
Spotted Sandpiper	2	L	MA				
Tree Swallow	6	FO	MF OW				
Vesper Sparrow	1	L	UP				
Western Meadowlark	1	L	UP				
Willow Flycatcher	1	FO	MA				
Wilson's Phalarope	1	F	MA				
Wilson's Snipe	3	F	MA				
Yellow Warbler	1	F	SS				
Yellow-headed	2	F	MA				
Blackbird	-	1					
DELLA MOD CODEC	1	L	l	HADIEAE CODEC	l	I .	l

#### BEHAVIOR CODES

BP = One of a breeding pairBD = Breeding displayF = Foraging

**FO** = Flyover **L** = Loafing

L = LoatingN = Nesting

#### HABITAT CODES

AB = Aquatic bed
FO = Forested
I = Island
MA = Marsh
MF = Mud Flat
OW = Open Water

SS = Scrub/Shrub UP = Upland buffer WM = Wet meadow

 $\mathbf{US} = \mathbf{Unconsolidated}$  shore

Weather: Warm with increasing clouds toward late afternoon.

Notes:

## Silicon Mountain Plant List (2015-2019)

Scientific Name	Common Name	WMVC Indicator Status <sup>(a,b)</sup>
Achillea millefolium	Common Yarrow	FACU
Agoseria glauca	Pale Goat Chicory	FAC
Agropyron cristatum	Crested Wheatgrass	UPL
Agrostis stolonifera	Spreading Bent	FAC
Algae, green	Algae, green	UPL
Alisma plantago-aquatica	Eurpean Water-Plantain	OBL
Alllium cernuum	Nodding Onion	FACU
Alopecurus aequalis	Short-Awn Meadow-Foxtail	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FAC
Alopecurus pratensis	Field Meadow Foxtail	FAC
Alyssum alyssoides	Pale or Yellow Alyssum	UPL
Alyssum desestorum	Dwarf Alyssum	UPL
Antennaria neglecta	Field Pussytoes	FACU
Artemisia campestris	Pacific Wormwood	FACU
Artemisia frigida	Fringed Sage	UPL
Artemisia ludovicinana	White Sagebrush	FACU
Artemisia tridentata	Big Sagebrush	UPL
Astragalus agrestis	Cock's-Head/Purple Milkvetch	FACW
Astragalus bisulcatus	Two-Grooved Milkvetch	UPL
Astragalus cicer	Chickpea Milkvetch	UPL
Astragalus miser	Milkvetch	UPL
Beckmannia syzigachne	American Slough Grass	OBL
Bidens cernua	Nodding Burr-Marigold	OBL
Bromus inermis	Smooth Brome	UPL
Bromus japonicus	Japanese Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Calamagrostis canadensis	Bluejoint	FACW
Camelina microcarpa	Little-Pod False Flax	FACU
Cardaria draba	Whitetop	UPL
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Woolly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex simulata	Analogue Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Catabrosa aquatica	Water Whorl Grass	OBL
Centaurea stoebe	Spotted Knapweed	UPL

Scientific Name	Common Name	WMVC Indicator Status <sup>(a,b)</sup>
Chaenactis douglasii	Douglas's Dustymaiden	UPL
Chenopodium album	Lamb's-Quarters	FACU
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium foliosum	Elk Thistle	FAC
Cirsium scariosum	Meadow Thistle	FAC
Collomia linearis	Narrow-Leaf Mountain-Trumpet	FACU
Crepis runcinata	Fiddleleaf Hawk's Beard	FACU
Crepis tectorum	Narrowleaf Hawksbeard	UPL
Cyrtorhyncha cymbalaria	Alkali Buttercup	OBL
Dasiphora fruticosa	Golden-Hardhack	FAC
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia richardsonii	Western Tansy Mustard	UPL
Descurainia sophia	Herb Sophia	UPL
Distichlis spicata (stricta)	Coastal/Inland Saltgrass	FACW
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FAC
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FAC
Elymus trachycaulus	Slender Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Equisetum arvense	Field Horsetail	FAC
Equisetum laevigatum	Smooth Scouring-Rush	FACW
Ericameria nauseosa	Rubber Rabbitbrush	UPL
<i>Erigeron</i> sp.	Fleabane	UPL
Erysimum inconspicuum	Small-flowered Wallflower	UPL
Euphorbia esula	Leafy Spurge	UPL
Festuca ovina	Sheep Fescue	UPL
Filago arvenvis	Field Cudweed	UPL
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	FACU
Gutierrezia sarothrae	Matchbrush	UPL
Hesperostipa comata	Needle-and-Thread	UPL
Heterotheca villosa	Hairy Golden Aster	UPL
Hordeum brachyantherum	Meadow Barley	FACW
Hordeum jubatum	Fox-Tail Barley	FAC
Hyoscyamus niger	Black Henbane	UPL

Scientific Name	Common Name	WMVC Indicator Status <sup>(a,b)</sup>
Ionactis alpina	Crag Aster	UPL
Iris missouriensis	Rocky Mountain Iris	FACW
Juncus balticus	Baltic Rush	FACW
Juncus bufonius	Toad Rush	FACW
Juncus effusus	Lamp Rush	FACW
Juncus longistylis	Long-Style Rush	FACW
Juncus mertensianus	Mertens' Rush	OBL
Juniperus scopulorum	Rocky Mountain Juniper	UPL
Kochia scoparia	Mexican-Fireweed	FAC
Koeleria macrantha	Prairie Junegrass	UPL
Lemna minor	Common Duckweed	OBL
Lepidium campestre	Field Pepper-grass	UPL
Lepidium perfoliatum	Clasping Pepperwort	FACU
Leymus cinereus	Great Basin Wild Rye	FAC
Linaria vulgaris	Butter-and-Eggs	UPL
Linum lewisii	Prairie Flax	UPL
Lupinus sericeus	Silky Lupine	UPL
Madia glomerata	Mountain Tarplant	FACU
Medicago lupulina	Black Medic	FACU
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Mimulus guttatus	Seep Monkey-Flower	OBL
Myosotis laxa	Bay Forget-Me-Not	OBL
Nasturtium officinale	Watercress	OBL
Orthocarpus tenuifolius	Thin-leaved Owl's-clover	UPL
Oxytropis deflexa	Pendant-pod Locoweed	FACU
Pascopyrum smithii	Western-Wheat Grass	FACU
Penstemon eriantherus	Fuzzy-Tongue Penstemon	UPL
Penstemon nitidus	Wax-leaf Beardtongue	UPL
Penstemon procerus	Pincushion Beardtongue	FAC
Penstemon strictus	Rocky Mountain Penstemon	UPL
Peritoma serrulata	Rocky Mountain Beeplant	FACU
Persicaria amphibia	Water Smartweed	OBL
Phacelia hastata	Silverleaf Scorpion-weed	UPL
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FAC
Phlox muscoides	Moss Phlox	UPL
Plantago eriopoda	Red-Wooly or Redwool Plantain	FACW
Plantago major	Great Plantain	FAC

Scientific Name	Common Name	WMVC Indicator Status <sup>(a,b)</sup>
Poa ampla (= P. secunda, P. junicifolia)	Big Bluegrass	FACU
Poa compressa	Flat-stem Bluegrass	FACU
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Polemonium pulcherrimum	Showy Jacob's-ladder	UPL
Polygonum aviculare	Yard Knotweed	FAC
Polypogon monspeliensis	Annual Rabbit's Foot Grass	FACW
Potentilla anserina	Silverweed	OBL
Potentilla gracilis	Graceful Cinquefoil	FAC
Pseudoroegneria spicata	Bluebunch Wheatgrass	UPL
Puccinellia distans	Spreading Alkali Grass	FACW
Puccinellia nuttalliana	Nuttall's Alkali Grass	FACW
Pyrrocoma integrifolia	Goldenweed	UPL
Ranunculus sceleratus	Cursed Buttercup	OBL
Ranunculus sp.	Buttercup	(OBL)
Ribes aureum	Golden Currant	FAC
Ribes irriguum	Idaho Gooseberry	UPL
Rorippa palustris	Bog Yellow Cress	OBL
Rumex crispus	Curly Dock	FAC
Rumex salicifolius	Willow Dock	FACW
Salix bebbiana	Gray Willow	FACW
Salix boothii	Booth's Willow	FACW
Salix exigua	Narrow-Leaf Willow	FACW
Salix geyerianna	Geyer Willow	FACW
Salix lutea (=S. eriocephala)	Yellow Willow	OBL
Schedonorus pratensis	Meadow False Rye Grass	FACU
Schoenocrambe linifolia	Plains Mustard	UPL
Schoenoplectus tabernaernaemontani	Soft-Stem Club-Rush	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Shephardia argentea	Silver Buffalo-Berry	FACU
Silene latifolia	White Cockle/Campion	UPL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sisymbrium loeselii	Smallpod Tumble Mustard	UPL
Sisyrinchium montanum	Strict Blue-eyed Grass	FAC
Solidago canadensis	Canadian Goldenrod	FACU
Solidago gigantea	Late Goldenrod	FACW
Sonchus arvensis	Field Sow-Thistle	FACU
Sphaeralcea coccinea	Scarlet Globemallow	UPL

Scientific Name	Common Name	WMVC Indicator Status <sup>(a,b)</sup>
Stachys pilosa	Hairy Hedge-Nettle	FACW
Stellaria longipes	Long-Stalk Starwort	FACW
Symphyotrichum ascendens	Western American-Aster	FACU
Symphyotrichum falcatum	Rough White Prairie American- Aster	FACU
Symphyotrichum lanceolatum	White Panicled American-Aster	OBL
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium hybridum	Alsike Clover	FAC
Trifolium longipes	Long-Stalk Clover	FAC
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Valeriana edulis	Tobacco-Root	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica americana	American Brooklime or Speedwell	OBL
Veronica anagallis-aquatica	Blue Water Speedwell	OBL
Veronica arvensis	Corm Speedwell	FACU

<sup>(</sup>a) 2016 NWPL (Lichvar *et al.*, 2016)

<sup>(</sup>b) Bolded species were documented for the first time in 2019

## Silicon Mountain Wildlife Species List (2015-2019)

Common Name	Scientific Name		
Bird			
American Crow	Corvus brachyrhynchos		
American Coot	Fulica americana		
American Robin	Turdus migratorius		
American Wigeon	Anas americana		
Bank Swallow Riparia riparia			
Barn Swallow	Hirundo rustica		
Black-billed Magpie	Pica hudsonia		
Blue-winged Teal	Spatula discors		
Brewer's Blackbird	Euphagus cyanocephalus		
Brown-headed Cowbird	Molothrus ater		
Canada Geese	Branta canadensis		
Cinnamon Teal	Anas cyanoptera		
Cliff Swallow	Hirundo pyrrhonota		
Common Grackle	Quiscalus quiscula		
Common Menganser	Mergus merganser		
Common Snipe	Gallinago gallinago		
Common Yellowthroat	Geothlypis trichas		
Eastern Kingbird	Tyrannus tyrannus		
Europeon Starling	Styrnus vulgaris		
Gadwall	Anas strepera		
Great Blue Heron	Ardea herodias		
Green-winged Teal	Anas crecca		
Horned Grebe	Podiceps auritus		
House Sparrow	Passer domesticus		
Hungarian Partridge	Perdix perdix		
Killdeer	Charadrius vociferus		
Lesser Scaup	Aythya affinis		
Magpie	Pica pica		
Mallard	Anas platyrhynchos		
Marsh Wren	Cistothorus palustris		
Mourning Dove	Zenaida macroura		
Northern Harrier	Circus cyaneus		
Northern Shoveler	Anas clypeata		
Red-tailed Hawk	Buteo jamaicensis		
Red-winged Blackbird	Agelaius phoeniceus		
Ring-billed Gull	Larus delawarensid		
Ruddy Duck Oxyura jamaicensis			

Sandhill Crane	Grus canadensis		
Savannah Sparrow	Passerculus sandwichensis		
Sora Rail	Porzana carolina		
Spotted Sandpiper	Actitis macularius		
Tree Swallow	Tachycineta bicolor		
Unknown duckling			
Vesper Sparrow	Pooecetes gramineus		
Western Bluebird	Sialia mexicana		
Western Meadowlark	Sturnella neglecta		
Willow Flycatcher	Empidonax traillii		
Wilson's Plalarope	Phalaropus tricolor		
Wilson's Snipe	Gallinago delicata		
Yellow Warbler	Dendroica petechia		
Yellow-headed Blackbird	Xanthocephalus xanthocephalus		
Mammal Mammal			
Coyote	Canis latrans		
Columbian Ground Squirrel	Urocitellus columbianus		
Cottontail Rabbit	Sylvilagus sp.		
Elk	Cervus canadensis (droppings)		
Ground squirrel sp.	Urocitellus columbionos (burrow)		
Meadow Vole	Microtus pennsylvanicus		
Mule Deer	Odocoileus hemionus		
Muskrat	Ondatra ziebethicus		
Raccoon sp.	Procyon lotor		
White-tailed Deer	Odocoileus virginianus		
Red Fox	Vulpes vulpes		
Amphibian and Reptile			
Columbia Spotted Frog	Rana luteiventris		

Bolded Species Observed in 2019

## MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1.	Project Name: Silicon Mounta	ain 2. MDTProject#: MI-SI	PX 47(24) 3. Control #: 604	<u>4000</u>							
3.	Evaluation Date: 7/25/2019	4. Evaluator(s): C. Hoschoue	r, T. Traxler, C. Seibert 5. We	etland/Site #(s): Created Cells	1and 5						
6.	Wetland Location(s): Towns	ship <u>3 N</u> , Range <u>9 W</u> , Section <u>2</u>	<u>4;</u> Township <u>N</u> , Range <u>E</u>	, Section							
	Approximate Stationing or F	Roadposts: <u>N/A</u>									
	Watershed: 2 - Upper Clark Fork County: _ Silver Bow										
7.	Evaluating Agency: RESPEC Purpose of Evaluation:  ☐ Wetland potentially affect Mitigation wetlands; pro ☐ Mitigation wetlands; pool ☐ Other	ected by MDT project e-construction		: (visually estimated) 3.56 (measured, e.g. GPS)  AA) Size (acre): (visuall mining AA) 3.56 (measured)							
10	D. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA (See manual for definitions.)										
	HGM Class (Brinson) Class (Cowardin) Modifier (Cowardin) Water Regime % OF AA										
	Depressional	Aquatic Bed	Excavated	Permanent / Perennial	95						
	Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	5						
I	_	_									

Comments: Two constructed wetlands with permanent/perennial water regime.

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) common

#### 12. GENERAL CONDITION OF AA

i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species lists.

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

Comments (types of disturbance, intensity, season, etc.): This is year 5 (2019) following construction, wetland cell 1 has a good perennial grass and forb establishment, with some minor annual and perennial weeds still persisting. Most of wetland cell 5 has established perennial vegetation with the exception of the southeast corner where annual weedy species are still common. The area surrounding this cell was disturbed with the construction of the new trail and bridge but in 2019 established perennial grasses were observed in these disturbed areas. The level of disturbance has decreased, the site has become stabilize with improved cover by perennial species. Rills and gullies noted in 2019 between the bike path and wetland cell 5 are still present but perennial grasses are established in and around the erosion.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Centaurea stoebe, Euphorbia esula, Cirsium arvense
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The site is a mitigation site comprised of two separate wetland cells (1 & 5) that are designed to intercept groundwater, and appear to have a more perennial water source. They have no surface connection to one another. Cell 1 does drain into Sand Creek, but is outside of Sand Creek's active floodplain area, and so is not subject to overbank flooding.
- 13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management peristence of additional		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes	mod	NA	NA	NA
1 class, but not a monoculture		←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Palustrine Aquatic Bed, Palustrine emergent

14A. HABITAT FOR FEDERAL	LY LIS	TED C	R PROF	POSED	THRE	EATEN	IED (	OR EN	NDANG	ERED	PLA	NTS C	OR AN	IMALS	3				
i. AA is Documented (D) or Su Primary or critical habitat (list Secondary habitat (list species Incidental habitat (list species No usable habitat	specie es)	ed (S) ( es) [ [	]	in: Che   S   S   S   S	eck bo	x base	ed on	defin	itions ir	n manu	ıal.								
ii. Rating: Based on the stronge	est hab	itat cho	sen in 1	4A(i) ab	ove,	select t	the co	orresp	onding	function	onal p	oint a	nd rati	ng.				F	
Highest Habitat Level	Doc/Pr	rimary	Sus/l	Primary	Do	oc/Sec	onda	ary :	Sus/Se	conda	ıry	Doc/I	ncider	ntal	Sus/	/Incide	ntal	Non	е
Functional Point/Rating							-											0L	
Sources for documented use (	(e.g. ob	servati	ons, rec	ords): <u>U</u>	SFW:	S, MTN	<u>IHP</u>												
14B. HABITAT FOR PLANTS ( Do not include species list				S1, S2,	OR S	S3 BY	THE	MON	TANA	NATUI	RAL	HERIT	AGE I	PROG	RAM				
i. AA is Documented (D) or Su Primary or critical habitat (list Secondary habitat (list species Incidental habitat (list species No usable habitat	specie es)	es) [ [	] D	S <u> </u>	_						al.								
ii. Rating: Based on the strong	est hab	oitat ch	osen in 1	I4A(i) al	_							point a	and rat	ing.					
	Doc/Pi	rimary	Sus/l	Primary	Do	oc/Sec	onda	ary :	Sus/Se	conda	ıry	Doc/I	ncider	ntal	Sus/	Incide	ntal	None	4
S1 Species Functional Point/Rating		-					-												
S2 and S3 Species	S2 and S3 Species																		
Functional Point/Rating							-		.:	5M									
Sources for documented use (	(e.g. ob	servati	ons, rec	ords): <u>M</u>	ITNHI	2													
14C. GENERAL WILDLIFE HA	BITAT	RATIN	G																
i. Evidence of Overall Wildlife				k subst:	antial	mode	rate	or lov	v haser	l on su	nnort	ina ev	idence	<b>.</b>					
Evidence of Overall Wilding	000	i tilo A	<b>4.</b> Once	ik odboli	aritial	, mode	iuto,	01 101	· basec	1 011 00	рроп	ing cv	iderioe						
☐ Substantial: Based on any or observations of abundant ☐ abundant wildlife sign suc ☐ presence of extremely lim ☐ interview with local biological or observations.	wildlife h as sc iiting ha	#s or l at, tracabitat fe	nigh spe ks, nest atures n	cies dive structur ot availa	es, g	ame tra	ails, e	etc.	d)	f  i s	ew or ittle to sparse	no wi no wi adjad	Idlife o Idlife s cent up	bserva sign bland fo	ations ood s	llowing during ources ith kno	g peak	use p	
<ul> <li>✓ Moderate: Based on any of t</li> <li>✓ observations of scattered</li> <li>✓ common occurrence of wi</li> <li>✓ adequate adjacent upland</li> <li>✓ interview with local biologic</li> </ul>	wildlife Idlife sig I food s	groups gn suc ources	or indiv	t, tracks							perio	ds							
ii. Wildlife Habitat Features: W For class cover to be considered percent composition of the AA (s	d evenly see #10	/ distrib )). Abb	uted, the reviation	e most a is for su	and le	ast pre water	evaler durat	nt <b>veg</b> tions a	<b>jetated</b> are as f	classe ollows:	es mu : P/P	st be v = perm	within 2 nanent	20% of /peren	f each				
S/I = seasonal/intermittent; T/E = Structural Diversity	= tempo	orary/e			= abs	sent [s	ee m	anuai	for furt	ner ae	TINITIO	ns of t	nese t	ermsj.					
(see #13)				High						$\triangleright$	☑ Mo	derate						.ow	
Class Cover Distribution (all vegetated classes)	l	☐ Eve	n		] Un	even			ΠЕ	ven	•		⊠ Un	even			□E	ven	
Duration of Surface Water in ≥ 10% of AA	P/P	S/I 1	/E A	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
✓ Low Disturbance at AA (see #12i)												E							
☐ Moderate Disturbance																			
at AA (see #12i)  High Disturbance at  AA (see #12i)																			
<u> </u>	- 6		- l · · ·			h al	4	la at ti		::!		d · ·		<u>I</u>					
iii. Rating: Use the conclusions  Evidence of Wildlife Use	s from I	and II	adove ai						ne funci es Rati		DOINT 8	and rat	ing.		٦.				
(i)	$\boxtimes$	Exce	ptional	**		High	at I C	Jacuit		oderat	е		□ Lo	w					
☐ Substantial														-	1				
		.91	1												1				
☐ Minimal															1				

Comments: Moderate wildlife use but exceptional wildlife habitat features.

14D. GENERAL FISH HABITAT	NA (proceed to 14E)
---------------------------	---------------------

If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check the NA box and proceed to 14E.

Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier].

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

i. Habitat Quality and Known / Suspected Fish Species in AA: Use matrix to select the functional point and rating.

Duration of Surface Water in AA	□Р	erman	ent / P	erenn	ial		□s	easoı	nal / Ir	ntermit	tent		П.	empo	rary / I	Ephen	neral	
Aquatic Hiding / Resting / Escape Cover	Opti	] imal	Adeq	] uate	Po	or	Opti	] mal	Ade	_ quate	Po	or	Opt	timal	Aded	]  uate	Po	oor
Thermal Cover: optimal / suboptimal	0	S	0	s	0	S	0	S	0	S	0	S	0	s	0	S	0	S
FWP Tier I fish species																		
FWP Tier II or Native Game fish species																		
FWP Tier III or Introduced Game fish																		
FWP Non-Game Tier IV or No fish species																		

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

ii. Modified Rating: NOTE: Modified score cannot exceed 1.0 or be less than 0.1.

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

YES, reduce score in **i** by 0.1 = \_\_\_ or NO

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area; specify in comments) for native fish or introduced game fish? 

YES, add to score in i or iia 0.1 = \_\_\_ or 

N0

iii. Final Score and Rating: \_ Comments:

#### **14E. FLOOD ATTENUATION** NA (proceed to 14F)

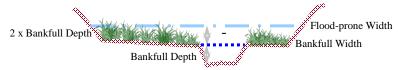
Applies only to wetlands that are subject to flooding via in-channel or overbank flow.

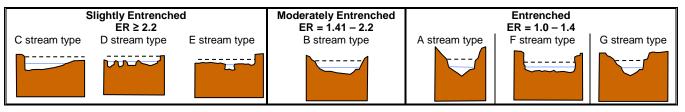
If wetlands in AA are not flooded from in-channel or overbank flow, check the NA box and proceed to 14F.

Entrenchment Ratio (ER) Estimation (see manual for additional guidance). Entrenchment ratio = (flood-prone width) / (bankfull width). Flood-prone width = estimated horizontal projection of where 2 X maximum bankfull depth elevation intersects the floodplain on each side of the stream.

 $\frac{75}{}$  /  $\frac{32}{}$  =  $\frac{2.34375}{}$ 

flood prone width / bankfull width = entrenchment ratio





i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Ruting: Working from top to bottom, use the m	G(11)( DO16					J.				
Estimated or Calculated Entrenchment	⊠ Sli	ightly Entre	nched				☐ Entrenched			
(Rosgen 1994, 1996)	C, D	, E stream t	ypes	В	stream typ	е	A, F, G stream types			
Percent of Flooded Wetland Classified as										
Forested and/or Scrub/Shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet			.6M							
AA contains unrestricted outlet										

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☒ NO Comments: AA is <10 acres. Wetland cell impounds water restricting return to Sand Creek. Floodprone width is greater than 75 and entrenchment ratio greater than 2.2.

14F.	SHORT AND LONG TERM SURFACE WATER STORAGE	□ NA	(proceed to	14G)	
	Applies to wetlands that flood or pond from overbank or in-char	nal flow	nrecinitation	unland surface flow	or aroundwater

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 the NA box and proceed to 14G.

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

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	⊠ 1.1	to 5 ac	re 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				.8H					
Wetlands in AA flood or pond < 5 out of 10 years									

Co	m	m	۵n	te		

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

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that substantia sedimenta toxicants, present.	tial to deliv or compou other funct illy impaire tion, sourc	er sedime inds at lev ions are n d. Minor es of nutr	nts, els ot ients or	Waterbody is need of TMDL causes" relat toxicants or A has potential nutrients, or c functions are sedimentation or signs of eu	developmer ed to sedime AA receives of to deliver hig compounds s substantially n, sources of	nt for "probal nt, nutrients, or surroundin gh levels of s such that othe y impaired. M nutrients or	ole or g land use ediments, er ajor
% Cover of Wetland Vegetation in AA	□≥	70%	⊠ <	70%	□≥7	70%	□<	70%
Evidence of Flooding / Ponding in AA	☐ Yes	☐ No		☐ No	☐ Yes	☐ No	☐ Yes	☐ No
AA contains no or restricted outlet			.7M					
AA contains unrestricted outlet								

Comments: The surrounding land use has the potential to deliver sediments and nutrients through influx of surface or groundwater.

## 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 which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of Surface Water Adjacent to Rooted Vegetation						
Ratings of ≥6 (see Appendix F).	□ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral				
□ ≥ 65%							
⊠ 35-64%	.7M						
☐ < 35%							

Comments: Vegetation with a rating of 6 or greater include Typha latifolia, Juncus balticus, Eleocharis palustris and Carex nebrascensis

## 14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	General Wildlife Habitat Rating (14Ciii)						
(14Diii)	⊠ E/H		_ L				
☐ E/H							
■ M							
L							
⊠ NA	Н						

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

Α		☐ Vegetated Component >5 acres					☑ Vegetated Component 1-5 acres				☐ Vegetated Component <1 acre							
В		ligh	ШМ	oderate		Low	⊠⊦	ligh		derate		Low	_ 	ligh	☐ Mo	derate		.ow
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P							.9H											
S/I																		
T/E/A																		

14I.	PRODUCTION EXPORT / FOOD CHAIN SUPPORT (contin	nued
iii. I	Modified Rating: Note: Modified score cannot exceed 1.0 or	r he

iii. Modified Rating: Note: Modified score cannot exceed 1.0 or be less than 0.1.

**Vegetated Upland Buffer:** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, AND that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

Is there an average ≥ 50-foot wide vegetated upland buffer around ≥ 75% of the AA's perimeter? ⊠ YES, add 0.1 to score in ii = 0.9 □ NO

iv. Final Score and Rating: 1H Comments: Vegetated component may increase as the site develops.

## 14J. GROUNDWATER DISCHARGE / RECHARGE

Check the appropriate indicators in i and ii below.

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

ii. Recharge Indicators	i.	Rec	harge	Indi	cator	s
-------------------------	----	-----	-------	------	-------	---

☐ Permeable substrate present without underlying impeding layer.
 ☐ Wetland contains inlet but no outlet.
 ☐ Stream is a known 'losing' stream. Discharge volume decreases.

Other:		

iii. Rating: Use the information from i and ii above and the table below to select the functional point and rating.

,		Duration of Saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE</u> or <u>WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>								
Criteria	⊠ P/P	☐ S/I	□ T	☐ None						
☐ Groundwater Discharge or Recharge	1H									
☐ Insufficient Data/Information										

Comments: Wetland mitigation cells with perennial water that intercept groundwater.

### 14K. UNIQUENESS

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Replacement Potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland OR plant association listed as "S1" by the MTNHP			cited ra diversi contail	es not contain are types AND ty (#13) is hig ns plant asso as "S2" by the	o structural gh OR ciation	AA does not contain previously cited rare types OR associations AND structural diversity (#13) is low-moderate			
Estimated Relative Abundance (#11)	□ Rare	☐ Common	□ Abundant	□ Rare	□ Common	□ Abundant	□ Rare	□ Common	□ Abundant	
□ Low Disturbance at AA (#12i)								.4M		
☐ Moderate Disturbance at AA (#12i)										
☐ <b>High Disturbance</b> at AA (#12i)										

Comments: AA does not contain rare types and structural diversity is moderate.

14	L. RECREATION / EDUCATION POTENTIAL
	Affords 'bonus' points if AA provides a recreational or educational opportunity.
i.	Is the AA a known or potential recreational or educational site? 🛛 YES, go to ii. 🔲 NO, check the NA box.
ii.	Check categories that apply to the AA: ☐ Educational/Scientific Study ☐ Consumptive Recreational ☐ Non-consumptive recreational
	☐ Other:

iii. Rating: Use the matrix below to select the functional point and rating.

Known or Potential Recreational or Educational Area	Known	Potential
Public ownership or public easement with general public access (no permission required)		
Private ownership with general public access (no permission required)		
Private or public ownership without general public access, or requiring permission for public access	.1M	

Comments: Site is a mitigation site that could be used for education purposes, but does not have general public access. Site is being used for educational studies by students at Montana State University and Montana Tech.

15. GENERAL SITE NOTES: The open water attracts a variety of waterfowl and birds which makes the site enjoyable to visit.

Function & Value Variables	Rating – Actual Functional Points	Possible Functional Points	Functional Units: Actual Points x Estimated AA Acreage	Indicate the Four Most Prominent Functions with an Asterisk					
A. Listed / Proposed T&E Species Habitat	low 0.00	1.00	0						
B. MT Natural Heritage Program Species Habitat	mod 0.50	1.00	1.78						
C. General Wildlife Habitat	high 0.90	1.00	3.20						
D. General Fish Habitat	NA	NA	0						
E. Flood Attenuation	mod 0.60	1.00	2.14						
F. Short and Long Term Surface Water Storage	high 0.80	1.00	2.85	*					
G. Sediment / Nutrient / Toxicant Removal	mod 0.70	1.00	2.50	*					
H. Sediment / Shoreline Stabilization	mod 0.70	1.00	2.50						
I. Production Export / Food Chain Support	high 1.00	1.00	3.56	*					
J. Groundwater Discharge / Recharge	high 1.00	1.00	3.56	*					
K. Uniqueness	mod 0.40	1.00	1.42						
L. Recreation / Education Potential (bonus point)	mod 0.10		0.36						
Total Points	6.70	10	23.86 Total	Functional Units					
Percent of Possible Score 67% (round to nearest whole number)									

	Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)
	<ul> <li>Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or</li> <li>Score of 1 functional point for Uniqueness; or</li> </ul>
	Score of 1 functional point for Flood Attenuation <b>and</b> answer to Question 14E.ii is "yes"; <b>or</b>
	Percent of possible score > 80% (round to nearest whole #).
	Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  ☐ Score of 1 functional point for MT Natural Heritage Program Species Habitat; or ☐ Score of .9 or 1 functional point for General Wildlife Habitat; or ☐ Score of .9 or 1 functional point for General Fish Habitat; or
	☐ "High" to "Exceptional" ratings for <b>both</b> General Wildlife Habitat <b>and</b> General Fish/Aquatic Habitat; <b>or</b> ☐ Score of .9 functional point for Uniqueness; <b>or</b>
	☑ Percent of possible score > 65% (round to nearest whole #).
	☐ Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if not go to Category III)  "Low" rating for Uniqueness; and
	☐ Vegetated <u>wetland</u> component < 1 acre (do <u>not</u> include upland vegetated buffer); <b>and</b>
	Percent of possible score < 35% (round to nearest whole #).
Į	
	OVERALL ANALYSIS AREA (AA) RATING: Check the appropriate category based on the criteria outlined above.

## MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1.	Project Name: Silicon Mount	ain 2. MDT Project #: MT-ST	PX 47(24) 3. Control #: 604	<u>4000</u>	
3.	Evaluation Date: 7/25/2019	4. Evaluator(s): C. Hoschoue	er, T. Traxler, C. Seibert 5. We	etland/Site #(s): Created Cells	<u>2, 3, 4</u>
6.	Wetland Location(s): Towns	ship <u>3 N</u> , Range <u>9 W</u> , Section <u>2</u>	<u>4;</u> Township <u>N</u> , Range <u>E</u>	, Section	
	Approximate Stationing or I	Roadposts: <u>N/A</u>			
	Watershed: 2 - Upper Clark	Fork County:Silver Bow			
7.	Evaluating Agency: RESPE Purpose of Evaluation:  Wetland potentially affe Mitigation wetlands; pr Mitigation wetlands; po Other	ected by MDT project e-construction	9. Assessment Area (	: (visually estimated) 3.36 (measured, e.g. GPS)  AA) Size (acre): (visuall rmining AA) 3.36 (measured)	
10	. CLASSIFICATION OF WET	LAND AND AQUATIC HABITA	ATS IN AA (See manual for def	initions.)	
	HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA
	Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	100
I.					
L					
L					
					4
	amments: Excavated emerger	nt wetlands with seasonal/intern	nittont water regime		

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.)

#### 12. GENERAL CONDITION OF AA

i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation

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

Comments (types of disturbance, intensity, season, etc.): There has been a fairly high level of disturbance due to site construction, trail and bridge construction in the past. This internal disturbance level has reduced to reflect the recovery and stabilization of the site. The area surrounding the site is primarily rural, but there are roads, a residence, and some commercial activity.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Euphorbia esula and Cirsium arvense
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA consists of wetland cells constructed to intercept groundwater. This AA is comprised of the wetland cells (2,3,4) that have a more seasonal /intermittent water regime. Sand Creek is not included in this AA because it's berms surrounding the cells do not allow for the creek to access these areas. The surrounding area is comprised of low rolling hills dominated by sagebrush and grasses.
- 13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

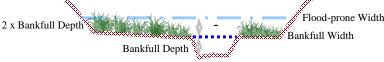
Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management peristence of additional		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes		NA	NA	NA
1 class, but not a monoculture	mod	←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Cells 2, 3 and 4 are palustrine emergent wetlands with a variety of different herbaceous vegetation including Juncus balticus, Deschampsia caespitosa, Typha latifolia, Eleocharis palustris and Cytorhycha cymbalaria.

14A. HABITAT FOR FEDERA	LLY LI	STED	OR P	ROP	OSED	THRE	EATEN	ED (	OR EN	DANG	ERED	PLA	NTS C	OR AN	IMALS	3				
i. AA is Documented (D) or S Primary or critical habitat (lis Secondary habitat (list spec Incidental habitat (list specie No usable habitat	t speci ies) es)	es) `			S S S	<u>-</u>														
ii. Rating: Based on the strong			_			_										_				
Highest Habitat Level	Doc/F		ry S		rimary	/ Do	c/Sec	onda	ary S	us/Se	conda	ry	Doc/li	ncider	ital	Sus	Incide	ental	None	е
Functional Point/Rating										-									0L	
Sources for documented use	(e.g. o	bserv	ations	, reco	rds): <u>L</u>	JSFW:	S, MTN	<u>IHP</u>												
14B. HABITAT FOR PLANTS Do not include species lis				TED :	S1, S2	, OR \$	83 BY	THE	MONT	ΓΑΝΑ Ι	NATU	RAL	HERIT	AGE I	PROGI	RAM				
i. AA is Documented (D) or S Primary or critical habitat (lis Secondary habitat (list spec Incidental habitat (list specie No usable habitat	t speci ies)		5) to co	$\square$	S <u>—</u> S <u>Ho</u> S <u>—</u>		x base t (S3),					al.								
ii. Rating: Based on the stron	gest ha	bitat o					select	the c	orresp	onding	g functi	onal	point a	and rat	ing.					_
Highest Habitat Level	Doc/F	Prima	ry S	Sus/P	rimary	/ Do	c/Sec	onda	ary S	us/Se	conda	ry	Doc/li	ncider	ntal	Sus/	Incide	ntal	None	
S1 Species Functional Point/Rating				-				-		-										
S2 and S3 Species Functional Point/Rating				-				-		.5	5M									
Sources for documented use	(e.a.o	hserv	ations	reco	rds). N	/TNHF	5					- 1								
14C. GENERAL WILDLIFE HA	ABITAT	Γ RAT	ING		, _		_													
i. Evidence of Overall Wildlife	e Use ı	n the	AA: (	Check	( subst	antial,	, mode	rate,	or low	based	l on su	pport	ing ev	idence						
☐ Substantial: Based on any ☐ observations of abundan ☐ abundant wildlife sign su ☐ presence of extremely lir ☐ interview with local biolog	it wildlif ich as s niting h	e #s c cat, tr abitat	or high acks, featur	spec nest s res no	structu ot avail	res, ga	ame tra	ails, e	etc.	d)	□ f □ li □ s	ew or ttle to parse	no wi no wi adjac	Idlife o Idlife s cent up	bserva ign land fo	ations ood s	ources	g peak	k]. use pe e of AA	
<ul> <li>Moderate: Based on any of</li> <li>□ observations of scattered</li> <li>□ common occurrence of w</li> <li>□ adequate adjacent uplan</li> <li>□ interview with local biolog</li> </ul>	d wildlife vildlife s d food	e grou sign su source	ips or uch as es	indivi scat,	tracks							perio	ds							
ii. Wildlife Habitat Features: For class cover to be considere percent composition of the AA S/I = seasonal/intermittent; T/E	ed even (see #1	ly dist 0). A	ribute bbrevi	d, the ations	most a	and le urface	ast pre water	valer durat	nt <b>veg</b> e ions a	etated re as fo	classe ollows:	es mu P/P	st be v = perm	within 2 nanent	20% of /peren	each	al dive n other	rsity is in terr	from # ns of th	#13. neir
Structural Diversity	1	, o. a. y,	оро.		ligh					0										
(see #13) Class Cover Distribution		E	ven			☐ Un	oven			E <sup>,</sup>		7 INIO	derate	⊠ Un	oven			L		
(all vegetated classes)  Duration of Surface	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
Water in ≥ 10% of AA  ✓ Low Disturbance at AA														Н						
(see #12i)  ☐ Moderate Disturbance																				
at AA (see #12i)																				
☐ <b>High Disturbance</b> at AA (see #12i)																				
iii. Rating: Use the conclusion	ns from	i and	ii abo	ve an	d the r	natrix	below	to se	lect th	e funct	ional p	oint a	and rat	ing.						
Evidence of Wildlife Use	_		_	_	W		Habit	at Fe	eature											
(i)		Exc	ceptio	nal			High			<u></u>	oderate	е		☐ Lo	w	4				
☐ Substantial					_		 71.4		_	-			ļ			4				
Moderate  ☐ Minimal							.7M 						1							
Minimal Comments: Moderate wildlife u	100 000	l biah	wildlif	a hah	itat for	turce				-			<u> </u>							
comments: iviouerate wiidlife t	use and	i nign	wiidiif	<del>८</del> 1180	ııaı iea	iluies.	<u>.</u>													

B-30

								W	etland	d/Site	#(s): <u>C</u>	reated	Cells	2, 3 a	nd 4					
14	D. GENERAL FISH HABITA If the AA is not used by fis entrapped in a canal], the	h, fish	use is		storabl	le due	to ha		onstra	aints, c	or is not	t desire	ed fron	n a ma	anager	nent p	erspec	tive [s	uch as	fish
	Assess this function if the precluded by perched culv					existin	g situa	ation is	"corr	ectab	le" sucl	h that t	he AA	could	l be us	ed by f	fish [i.e	., fish	use is	
	Type of Fishery:  Cole	d Wate	r (CW	) 🔲 \	/Varm	Water	(WW	) Use	the C	CW or	WW gu	uideline	es in th	e mar	nual to	comple	ete the	matrix	۲.	
i.	Habitat Quality and Known	Susp	ected	Fish S	pecie	s in A	A: Us	e mat	rix to	select	the fur	nctiona	l point	and r	ating.					
	Duration of Surface Water in AA	□Р€	erman	ent / P	erenn	ial		□s	easoı	nal / Ir	ntermit	tent		ד□	empo	rary / I	Ephen	neral		
	Aquatic Hiding / Resting / Escape Cover	Opti	] mal	Adeq	] uate	Po	oor	Opti	] mal	Ade	quate	Po	or	Opt	timal	Aded	] quate	Po	oor	
	Thermal Cover: optimal / suboptimal	0	s	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	
	FWP Tier I fish species																			
	FWP Tier II or Native Game fish species																			
	FWP Tier III or Introduced Game fish																			
	FWP Non-Game Tier IV or No fish species																			
So	urces used for identifying f	ish sp	p. pot	entially	/ foun	d in A	A:			•	•	•	•		•		•			
ii.	Modified Rating: NOTE: Mo	dified	score	cannot	excee	ed 1.0	or be	less th	an 0.	1.										
ΜL	Is fish use of the AA significar DEQ list of waterbodies in nee pport, <b>or</b> do aquatic nuisance	d of TI	MDL d	lévelopi	ment v	vith lis	ted "P	robabl	e Imp	aired	Uses" i	includir	ng cold	d or w	arm wa	ater fis	hery o	r aqua	tic life	
b) na	Does the AA contain a docurr tive fish or introduced game fi	nented sh? [	spawr ] <b>YES</b>	ning are <b>3</b> , add t	ea or o	<i>ther c</i> e in <b>i</b> d	<i>ritical</i> or <b>iia</b> (	<i>habita</i> : ).1 = _	t featu _ or	ıre (i.e ⊠ N0	e., sanc )	tuary p	ool, u	pwelli	ng area	a; spec	cify in o	comme	ents) fo	or
iii.	Final Score and Rating: _	Comm	ents:																	
14	E. FLOOD ATTENUATION  Applies only to wetlands to  If wetlands in AA are not for	hat are looded	subje	NA (pro ect to flo in-char	oding	via in	-chanı	nel or o	overba eck th	ank flo ne NA	w. box an	d proc	eed to	14F.						
<b>E</b> n	trenchment Ratio (ER) Estir ood-prone width = estimated h	<b>nation</b> orizont	(see tal pro	manual jection	for ac	dition ere 2 >	al guid ( maxi	dance) mum l	. Ent bankfı	renchi ull dep	ment ra oth elev	atio = (f ration in	lood-p	rone the	width) / e flood	/ (bank olain o	full wid n each	dth). i side (	of the s	stream.
flo	/ / / / / / / / / / / / / / / / / / /	= _ n = enti	renchr	ment ra	tio		2 x F	Bankful	l Depi	th	Bar	nkfull D	epth	<del>-</del>		(Augus)	g -	ood-pro	one Wid lth	th



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

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Estimated or Calculated Entrenchment	☐ SI	ightly Entre	nched	☐ Mod	lerately Enti	renched	☐ Entrenched			
(Rosgen 1994, 1996)	C, D	C, D, E stream types			stream typ	e	A, F, G stream types			
Percent of Flooded Wetland Classified as										
Forested and/or Scrub/Shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet										
AA contains unrestricted outlet										

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☒ NO Comments: AA is less than 10 acres.

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 the NA box and proceed to 14G.

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

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	⊠ 1.1	to 5 ac	re feet	☐ ≤1 acre foot			
Duration of Surface Water at Wetlands within the AA	□ P/P	□ S/I	□ <b>T/E</b>	□ P/P	⊠ S/I	□ T/E	□ P/P	□ S/I	□ T/E	
Wetlands in AA flood or pond ≥ 5 out of 10 years					.6M					
Wetlands in AA flood or pond < 5 out of 10 years										

Comments: Wetland cells intercept groundwater.

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

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that e substantia sedimenta toxicants, present.	ial to delivor compou other funct lly impaire tion, source	er sedime inds at lev ions are n d. Minor es of nutr	nts, els ot ients or	Waterbody is need of TMDI causes" relat toxicants or A has potential nutrients, or c functions are sedimentation or signs of eu	developmer ed to sedime AA receives o to deliver hig compounds s substantially n, sources of	nt for "probal nt, nutrients, or surroundin gh levels of s such that othe g impaired. M nutrients or	ole or g land use ediments, er ajor
% Cover of Wetland Vegetation in AA	⊠≥`	70%	□<	70%	□≥7	70%	□<	70%
Evidence of Flooding / Ponding in AA	☐ Yes	⊠ No	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No
AA contains no or restricted outlet		.8H						
AA contains unrestricted outlet								

Comments: Cells have the potential to receive compounds through groundwater inputs.

## 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 which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of S	Duration of Surface Water Adjacent to Rooted Vegetation									
Ratings of ≥6 (see Appendix F).	☐ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral								
□ ≥ 65%											
⊠ 35-64%		.6M									
☐ < 35%											

Comments: Wave action is likely across a portion of these wetland cells at times. Vegetation includes Juncus balticus, Typha latifolia and Eleocharis palustris with rating of 6 or greater.

### 14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	Genera	l Wildlife Habitat Rati	ng (14Ciii)
(14Diii)	☐ E/H	$\boxtimes$ M	L
☐ E/H			
■ M			
⊠ NA		M	

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

Α		Vegeta	ted Co	mponent	: >5 ac	res								☐ Vegetated Component <1 acre						
В		ligh	☐ Moderate ☐ Low		☐ High					Low	☐ High				☐ Low					
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No		
P/P																				
S/I									.6M											
T/E/A																				

			Wetland	l/Site #(s	): Created Cel	ls 2, 3 and 4			
14I. PRODUCTION EXPORT / FOOD CH	IAIN SI	UPPORT (contir	nued)						
iii. Modified Rating: Note: Modified score	re cann	ot exceed 1.0 o	r be less than	0.1.					
Vegetated Upland Buffer: Area with mowing or clearing (unless for weed of a sthere an average ≥ 50-foot wide vegetable).	ontrol).					_	•	·	
iv. Final Score and Rating: .7M Comr	nents:	Cells contain a	subsurface ou	tlet; have	e vegetated bu	ffers.			
14J. GROUNDWATER DISCHARGE / R Check the appropriate indicators in	-	_							
i. Discharge Indicators  The AA is a slope wetland. Springs or seeps are known or vegetation growing during do wetland occurs at the toe of Seeps are present at the wet AA permanently flooded during Wetland contains an outlet, by Shallow water table and the southers.	ormant s a natura land ed ng drou out no ir	season/drought. al slope. lge. ight periods. nlet.		☐ Per ☐ We ☐ Stre	rge Indicators meable substr tland contains eam is a known er:	ate present wi inlet but no ou	ıtlet.	, , ,	0 ,
iii. Rating: Use the information from i an	d ii abo	ve and the table	e below to sele	ct the fu	nctional point a	and rating.			=
Criteria				S RECH	ands <u>FROM G</u> ARGING THE ☐ T			STEM	
☐ Groundwater Discharge or Rech	arge		.7M						
☐ Insufficient Data/Information	-1	( - l ll - · · · - · · · · ·							
Comments: Mitigation cells designed to in	ntercep	t snallow ground	awater aquiter.						
14K. UNIQUENESS									
i. Rating: Working from top to bottom, us	se the n	matrix below to s	select the func	tional po	int and rating.				
Replacement Potential	sprin fores asso	ontains fen, bo igs or mature (s ited wetland Of ciation listed as ITNHP	>80 yr-old) R plant	cited r divers contai	es not contail are types ANI ity (#13) is hig ns plant asso as "S2" by the	O structural gh OR ciation	previou associa	es not containusly cited rarations AND sty (#13) is low	e types OR tructural
Estimated Relative Abundance (#11)	□ Rar	e 🗆 Common	□ Abundant	□ Rare	□ Common	☐ Abundant	□ Rare	□ Common	
■ Low Disturbance at AA (#12i)									.3L
Moderate Disturbance at AA (#12i)									
☐ High Disturbance at AA (#12i)  Comments:									
14L. RECREATION / EDUCATION POTI Affords 'bonus' points if AA provides i. Is the AA a known or potential recrea ii. Check categories that apply to the A	a recreational A: ⊠	eational or educational	ational opportusite? XES	ınity. <b>S</b> , go to ii		eck the NA box	<b>ι</b> .	ımptive recrea	ational
iii. Rating: Use the matrix below to selec		· <u></u> -	nd rating						
		al Recreational		al Area			Known	Potential	Ħ
Public ownership or public easemer					on required)				7
Private ownership with general publ	ic acce	ess (no permis	sion required	)					_
Private or public ownership without					sion for publ	ic access	.1M		

Comments: Site is a mitigation site that could be used for education purposes, but does not have general public access. Site is being used for educational studies by students at Montana State University and Montana Tech.

15. GENERAL SITE NOTES: \_\_\_\_\_

Function & Value Variables	Rating – Actual Functional Points	Possible Functional Points	Functional Units: Actual Points x Estimated AA Acreage	Indicate the Four Most Prominent Functions with an Asterisk
A. Listed / Proposed T&E Species Habitat	low 0.00	1.00	0	
B. MT Natural Heritage Program Species Habitat	mod 0.50	1.00	1.68	
C. General Wildlife Habitat	mod 0.70	1.00	2.35	*
D. General Fish Habitat	NA	NA	0	
E. Flood Attenuation	NA	NA	0	
F. Short and Long Term Surface Water Storage	mod 0.60	1.00	2.02	
G. Sediment / Nutrient / Toxicant Removal	high 0.80	1.00	2.69	*
H. Sediment / Shoreline Stabilization	mod 0.60	1.00	2.02	
I. Production Export / Food Chain Support	mod 0.70	1.00	2.35	*
J. Groundwater Discharge / Recharge	mod 0.70	1.00	2.35	*
K. Uniqueness	low 0.30	1.00	1.01	
L. Recreation / Education Potential (bonus point)	mod 0.10		0.336	
Total Points	5.00	9		Functional Units
Percent of Possibl	e Score 56% (round	to nearest who	e number)	

	Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or
	Score of 1 functional point for Uniqueness; <b>or</b>
	Score of 1 functional point for Flood Attenuation <b>and</b> answer to Question 14E.ii is "yes"; <b>or</b>
	Percent of possible score > 80% (round to nearest whole #).
	Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)    Score of 1 functional point for MT Natural Heritage Program Species Habitat; or   Score of .9 or 1 functional point for General Wildlife Habitat; or   Score of .9 or 1 functional point for General Fish Habitat; or   "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or   Score of .9 functional point for Uniqueness; or   Percent of possible score > 65% (round to nearest whole #).
	☐ Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if not go to Category III)  "Low" rating for Uniqueness; and
	☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and
	Percent of possible score < 35% (round to nearest whole #).
Į	
0	<b>OVERALL ANALYSIS AREA (AA) RATING:</b> Check the appropriate category based on the criteria outlined above.

## MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1.	Project Name: Silicon Mount	<u>ain</u> 2. MDT Project #: <u>MT-ST</u>	PX 47(24) 3. Control #: 604	<u>4000</u>							
3.	Evaluation Date: 7/25/2019	4. Evaluator(s): C. Hoschoue	er, T. Traxler, C. Seibert 5. We	etland/Site #(s): Preservation							
6.	Wetland Location(s): Towns	ship <u>3 N</u> , Range <u>9 W</u> , Section <u>2</u>	<u> 4;</u> Township <u>N</u> , Range <u>E</u>	, Section							
	Approximate Stationing or I	Roadposts: <u>N/A</u>									
	Watershed: 2 - Upper Clark	Fork County: _ Silver Bow									
7.											
	<u> </u>										
10	<ul><li>✓ Mitigation wetlands; po</li><li>✓ Other</li></ul>	st-construction	(see manual for dete	rmining AA) 10.8 (measure							
10	<ul><li>✓ Mitigation wetlands; po</li><li>✓ Other</li></ul>	st-construction	(see manual for dete	rmining AA) 10.8 (measure							
10	<ul><li>☑ Mitigation wetlands; po</li><li>☐ Other</li><li>☐ CLASSIFICATION OF WET</li></ul>	st-construction  LAND AND AQUATIC HABITA	(see manual for dete ATS IN AA (See manual for def	rmining AA) <u>10.8</u> (measure initions.)	ed, e.g. GPS)						
10		st-construction  LAND AND AQUATIC HABITA  Class (Cowardin)	(see manual for dete ATS IN AA (See manual for def	rmining AA) 10.8 (measure initions.) Water Regime	ed, e.g. GPS)  % OF AA						
10		LAND AND AQUATIC HABITA  Class (Cowardin)  Aquatic Bed	(see manual for dete ATS IN AA (See manual for def	rmining AA) 10.8 (measure initions.) Water Regime Permanent / Perennial	% <b>OF AA</b> 5						
10	Purpose of Evaluation:  Wetland potentially affected by MDT project  Mitigation wetlands; pre-construction  Mitigation wetlands; post-construction  Other  CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA (See manual for definitions.)  HGM Class (Brinson)  Class (Cowardin)  Modifier (Cowardin)  Modifier (Cowardin)  Modifier (Permanent / Perennial 5  Depressional  Emergent Wetland  Modifier Wetland  Depressional  Medias (Reimeasured, e.g. GPS)  10.8 (measured, e.g. GPS)  Modifier (AA) Size (acre):  (visually estimated)  10.8 (measured, e.g. GPS)  Modifier (Cowardin)  Modifier (Cowardin)										
10	Mitigation wetlands; po Other CLASSIFICATION OF WET HGM Class (Brinson)  Depressional Depressional	LAND AND AQUATIC HABITA Class (Cowardin) Aquatic Bed Emergent Wetland	(see manual for dete ATS IN AA (See manual for def	rmining AA) 10.8 (measure initions.)  Water Regime  Permanent / Perennial Seasonal / Intermittent	% <b>OF AA</b> 5						

#### Comments:

- 11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) common
- 12. GENERAL CONDITION OF AA

i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species lists.

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

Comments (types of disturbance, intensity, season, etc.): The wetland mitigation site was constructed in 2014 which consisted of substantial excavation to create new wetlands and channel re-alignment/restoration. In 2016 the area surrounding the existing wetlands was disturbed as a result of the new trail and bridge. In 2019, previously disturbed areas are stable and well vegetated with seeded perennial grasses and forbs or the expansion of native, existing desirable species.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: <u>Centaurea stoebe, Cirsium arvense, Euphorbia esula, Linaria vulgaris.</u>
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA consists of pre-existing depressional wetlands located adjacent to Sand Creek and south of Silver Bow Creek. Land use surrounding the AA includes commercial developments, agriculture (grazing/pasture), transportation (railroad and highway) and private residences.

13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management p existence of additional	O (1 )	Modified Rating
≥3 (or 2 if one is forested) classes	high	NA	NA	NA
2 (or 1 if forested) classes		NA	NA	NA
1 class, but not a monoculture		←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Palustrine Emergent, Palustrine Scrub/Shrub, Palustrine Aquatic Bed

14A. HABITAT FOR FEDERAL	LY LIS	STED (	OR PROF	OSED .	THRE	EATEN	IED (	OR EN	IDANG	ERED	PLA	NTS C	OR AN	IMALS	6				
i. AA is Documented (D) or Su Primary or critical habitat (list Secondary habitat (list species Incidental habitat (list species No usable habitat	uspecto specie es) s)	ed (S) es) [ [	□ D □ □ □ D □ □ □	S  S  S	ck bo — —	x base	ed on	defini	itions ir	n manu	al.								
Rating: Based on the strongest habitat chosen in 14A(i) above, select the corresponding functional point and rating.  Highest Habitat Level   Doc/Primary   Sus/Primary   Doc/Secondary   Sus/Secondary   Doc/Incidental   Sus/Incidental   None																			
	Doc/P	rimary	Sus/F	Primary	Do	c/Sec	onda	ıry S	Sus/Se	conda	ry	Doc/li	ncider	ntal	Sus/	Incide	ntal	None	е
					0 = 1 1 1				-									0L	
Sources for documented use (	(e.g. ob	oservat	ions, reco	ords): <u>U</u> S	SFWS	5, MIN	<u>IHP</u>												
				S1, S2,	OR S	S3 BY	THE	MON'	TANA	NATUI	RAL	HERIT	AGE I	PROG	RAM				
Primary or critical habitat (list Secondary habitat (list specie Incidental habitat (list species	specie es)	es) É	□	S							al.								
					_														-
	Doc/P	rimary	Sus/F	Primary	Do	c/Sec	onda	ry S	Sus/Se	conda	ry	Doc/li	ncider	ntal	Sus/l	ncide	ntal	None	4
•							-		-										
										= 1.4									1
					<u> </u>				.:	JIVI									
Sources for documented use (	(e.g. ob	oservat	ions, reco	ords): MTNHP															
14C. GENERAL WILDLIFE HA	set for documented use (e.g. observations, records): USFWS, MTNHP  HABITAT FOR PLANTS OR ANIMALS RATED S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM  Do not include species listed in 14A above.  Is Documented (D) or Suspected (S) to contain: Check box based on definitions in manual. It is provided the provided of the provided in the stronger of the provided in the stronger habitat (list species)																		
i. Evidence of Overall Wildlife	Use ir	n the A	A: Chec	k substa	antial.	mode	rate.	or low	v based	l on su	pport	ting evi	idence	١.					
☐ observations of abundant☐ abundant wildlife sign suc☐ presence of extremely lim	wildlife th as so niting ha	e #s or cat, tra abitat fe	high spec cks, nest eatures n	cies dive structure ot availa	es, ga	ame tra	ails, e	etc.	d)	□ f □ li □ s	ew or ttle to parso	r no wi o no wi e adjad	Idlife o Idlife s cent up	bserva ign bland fo	ations ood s	during ources	g peak	use pe	
<ul> <li>☑ observations of scattered</li> <li>☑ common occurrence of wi</li> <li>☑ adequate adjacent upland</li> </ul>	wildlife Idlife si I food s	group ign suc sources	s or indiv h as scat	, tracks,	r rela nest	tively fe structi	ew sp ures,	oecies game	during trails,	peak   etc.	perio	ds							
For class cover to be considered	d evenly	y distril	outed, the	e most a	nd le	ast pre	valer	nt veg	etated	classe	s mu	ıst be v	within 2	20% of	each	al dive	rsity is in teri	from #	#13. neir
S/I = seasonal/intermittent; T/E =	= tempo														riiai,				
(see #13)				High							] Mo	derate	)					.ow	
		☐ Eve	en	D	<b>∐</b> Un	even				ven			□ Un	even				ven	
Water in ≥ 10% of AA	P/P	S/I	Г/Е А	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
(see #12i)					E														
☐ <b>High Disturbance</b> at AA (see #12i)																			-
iii Dating, Lloo the conclusion	o from	i ond ::	ahaya s	ad tha ==	otriss	holow	to oc	loot th	o funci	ional -	oint :	and ret	ina					-	
iii. Rating: Use the conclusions  Evidence of Wildlife Use	S HOM	ı and li	above ar						es Rati	_	OINT 8	anu rat	ing.		1				
(i)	⊳	Exce	ptional	•••		High				oderat	е		□ Lo	w					
☐ Substantial		-	-												1				
		.9	Н																
☐ Minimal			<u>-                                      </u>												_				

Comments: Moderate wildlife use but high wildlife habitat features.

NA (proceed to 14E

If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check the NA box and proceed to 14E.

Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier].

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

i. Habitat Quality and Known / Suspected Fish Species in AA: Use matrix to select the functional point and rating.

Duration of Surface Water in AA	☐ Pe	☐ Permanent / Perennial							☐ Seasonal / Intermittent							☐ Temporary / Ephemeral					
Aquatic Hiding / Resting / Escape Cover	Opti	] imal	Adeq	] uate	Po	or	Opti	Optimal Adequate		Poor		☐ Optimal		Adequate		□ Poor					
Thermal Cover: optimal / suboptimal	0	S	0	s	0	S	0	S	0	S	0	s	0	S	0	S	0	S			
FWP Tier I fish species						-															
FWP Tier II or Native Game fish species																					
FWP Tier III or Introduced Game fish																					
FWP Non-Game Tier IV or No fish species																					

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

ii. Modified Rating: NOTE: Modified score cannot exceed 1.0 or be less than 0.1.

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity, or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? TES, reduce score in i by 0.1 = \_\_ or 🖾 N0

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area; specify in comments) for native fish or introduced game fish?  $\square$  YES, add to score in i or iia 0.1 =  $\_$  or  $\boxtimes$  N0

iii. Final Score and Rating: Comments:

#### 14E. FLOOD ATTENUATION

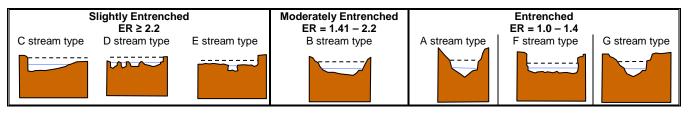
NA (proceed to 14F) Applies only to wetlands that are subject to flooding via in-channel or overbank flow.

If wetlands in AA are not flooded from in-channel or overbank flow, check the NA box and proceed to 14F.

Entrenchment Ratio (ER) Estimation (see manual for additional guidance). Entrenchment ratio = (flood-prone width) / (bankfull width). Flood-prone width = estimated horizontal projection of where 2 X maximum bankfull depth elevation intersects the floodplain on each side of the stream.

flood prone width / bankfull width = entrenchment ratio





i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

reamig. Working from top to bottom, doe the m		711 10 001001	1110 101101	ional pon	ne di i di i di ini	9.				
Estimated or Calculated Entrenchment	Sli	☐ Slightly Entrenched			erately Entr	enched	☐ Entrenched			
(Rosgen 1994, 1996)	C, D	C, D, E stream types			B stream type			A, F, G stream types		
Percent of Flooded Wetland Classified as										
Forested and/or Scrub/Shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet										
AA contains unrestricted outlet										

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

YES NO Comments:

14F.	SHORT AND LONG TERM SURFACE WATER STORAGE		to 14G)	
	Applies to wetlands that flood or pond from overbank or in-cha	nnel flow, precipitation	on, upland surface flow.	or groun

dwater flow. If no wetlands in the AA are subject to flooding or ponding, then check the NA box and proceed to 14G.

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

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fe	eet	⊠ 1.1	to 5 ac	re feet		≤1 acre t	foot
Duration of Surface Water at Wetlands within the AA	□ P/P	□ S/I	□ <b>T/E</b>	⊠ P/P	□ S/I	□ T/E	□ P/P	□ S/I	□ <b>T/E</b>
Wetlands in AA flood or pond ≥ 5 out of 10 years				.8H					
Wetlands in AA flood or pond < 5 out of 10 years									

Comments: Preservation wetlands receive water from precipitation, runoff, groundwater and a spring.

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

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that e substantia sedimenta toxicants, present.	ial to delivor compount other funct lly impaire tion, source	er sedime inds at lev ions are n ed. Minor ees of nutr	ents, rels oot rients or	Waterbody is 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	□≥.	<b>□</b> ≥ 70%		<b>□ ≥ 70%</b>		□ < <b>70</b> %			
Evidence of Flooding / Ponding in AA	☐ Yes	☐ No		☐ No	☐ Yes	☐ No	☐ Yes	☐ No	
AA contains no or restricted outlet			.7M						
AA contains unrestricted outlet									

**Comments:** Evidence of flooding or ponding in the preservation wetlands.

#### 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 which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of Surface Water Adjacent to Rooted Vegetation					
Ratings of ≥6 (see Appendix F).	□ Permanent / Perennial	☐ Seasonal / Intermittent	☐ Temporary / Ephemeral			
□ ≥ 65%						
⊠ 35-64%	.7M					
☐ < 35%						

Comments: Preservation wetlands in the far eastern portion of the site include a shoreline with standing water. Vegetation includes a mix of Typha latifolia, Carex utriculata and Juncus balticus.

## 14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	Genera	l Wildlife Habitat Rati	ng (14Ciii)
(14Diii)	☐ E/H	$\boxtimes$ M	L
☐ E/H			
■ M			
⊠ NA		M	

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

Α	$\boxtimes$	Vegeta	ted Co	mponent	>5 ac	res		Vegeta	ated Co	mponent	1-5 ac	res		Veget	ated Co	mponen	t <1 ac	re
В		ligh	⊠ M	oderate		Low	_	ligh	□ Mc	derate		Low		ligh	☐ Mo	derate		.ow
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P				.5M														
S/I																		
T/E/A																		

□ Rare ☑ Common □ Abundant

.4M

Wetland/Site #(s): Preservation Wetlands

14I.	PRODUCTION	EXPORT /	FOOD CH	ain Suppof	R <b>T</b> (continued)
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iii. Modified Rating: Note: Modified score cannot exceed 1.0 or be less than 0.1. Vegetated Upland Buffer: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, AND that is not subjected to periodic mechanical mowing or clearing (unless for weed control). Is there an average ≥ 50-foot wide vegetated upland buffer around ≥ 75% of the AA's perimeter? 

✓ YES, add 0.1 to score in ii = 0.50 
✓ NO iv. Final Score and Rating: .6M Comments: well-vegetated upland buffer around greater than 75 percent of the AA's perimeter. 14J. GROUNDWATER DISCHARGE / RECHARGE Check the appropriate indicators in i and ii below. i. Discharge Indicators ii. Recharge Indicators Permeable substrate present without underlying impeding layer.

Wetland contains inlet but no outlet. ☐ The AA is a slope wetland. ☐ Springs or seeps are known or observed. ☐ Stream is a known 'losing' stream. Discharge volume decreases. ☐ Wetland occurs at the toe of a natural slope. Other: ☐ Seeps are present at the wetland edge. AA permanently flooded during drought periods. ☐ Wetland contains an outlet, but no inlet. Shallow water table and the site is saturated to the surface. Other: iii. Rating: Use the information from i and ii above and the table below to select the functional point and rating Duration of Saturation at AA Wetlands FROM GROUNDWATER DISCHARGE or WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM □ T Criteria ☑ P/P S/I ■ None 1H ☐ Insufficient Data/Information Comments: Some preserved wetlands are groundwater fed, the large wetland in the NE corner is fed by a spring. 14K. UNIQUENESS i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating. AA contains fen, bog, warm AA does not contain previously AA does not contain springs or mature (>80 yr-old) cited rare types AND structural previously cited rare types OR Replacement Potential forested wetland OR plant diversity (#13) is high OR associations AND structural association listed as "S1" by contains plant association diversity (#13) is low-moderate the MTNHP listed as "S2" by the MTNHP

☐ <b>High Disturbance</b> at AA (#12i)									
Comments: Wetlands of this type are cor	nmon in t	he area hut h	ave low disturb	ance in c	comparison to	others impact	ed by lan	d manageme	nt

□ Abundant

□ Rare □ Common □ Abundant

**14L. RECREATION / EDUCATION POTENTIAL** \quad NA (proceed to Overall Summary and Rating page) Affords 'bonus' points if AA provides a recreational or educational opportunity.

□ Rare □ Common

i. Is the AA a known or potential recreational or educational site? XES, go to ii. \(\subseteq\) NO, check the NA box.

ii. Check categories that apply to the AA: ☐ Educational/Scientific Study ☐ Consumptive Recreational ☐ Non-consumptive recreational ☐ Other:

iii. Rating: Use the matrix below to select the functional point and rating.

Estimated Relative Abundance (#11)

■ Moderate Disturbance at AA (#12i)

■ Low Disturbance at AA (#12i)

Known or Potential Recreational or Educational Area	Known	Potential
Public ownership or public easement with general public access (no permission required)		
Private ownership with general public access (no permission required)		
Private or public ownership without general public access, or requiring permission for public access	.1M	

Comments: Site is a mitigation site that could be used for education purposes, but does not have general public access. Site is being used for educational studies by students at Montana State University and Montana Tech.

15. GENERAL SITE NOTES: Overall improved hydrology across the preservation wetlands in 2019 due to higher groundwater, precipitation and runoff.

Function & Value Variables	Rating – Actual Functional Points	Possible Functional Points	Functional Units: Actual Points x Estimated AA Acreage	Indicate the Four Most Prominent Functions with an Asterisk		
A. Listed / Proposed T&E Species Habitat	low 0.00	1.00	0			
B. MT Natural Heritage Program Species Habitat	mod 0.50	1.00	5.40			
C. General Wildlife Habitat	high 0.90	1.00	9.72	*		
D. General Fish Habitat	NA	NA	0			
E. Flood Attenuation	NA	NA	0			
F. Short and Long Term Surface Water Storage	high 0.80	1.00	8.64	*		
G. Sediment / Nutrient / Toxicant Removal	mod 0.70	1.00	7.56	*		
H. Sediment / Shoreline Stabilization	mod 0.70	1.00	7.56			
I. Production Export / Food Chain Support	mod 0.50	1.00	5.40			
J. Groundwater Discharge / Recharge	high 1.00	1.00	10.8	*		
K. Uniqueness	mod 0.40	1.00	4.32			
L. Recreation / Education Potential (bonus point)	mod 0.10		1.08			
Total Points	5.60	9		Functional Units		
Percent of Possible Score 62% (round to nearest whole number)						

	Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or ☐ Score of 1 functional point for Uniqueness; or
	<ul> <li>Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or</li> <li>Percent of possible score &gt; 80% (round to nearest whole #).</li> </ul>
	Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Percent of possible score > 65% (round to nearest whole #).
	□ Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if not go to Category III)  "Low" rating for Uniqueness; and
	<ul> <li>☐ Vegetated wetland component &lt; 1 acre (do not include upland vegetated buffer); and</li> <li>☐ Percent of possible score &lt; 35% (round to nearest whole #).</li> </ul>
	OVERALL ANALYSIS AREA (AA) RATING: Check the appropriate category based on the criteria outlined above.
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## MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

Project Name: Silicon Mountain 2. MDT Project #: MT-STPX 47(24) 3. Control #: 6044000													
Evaluation Date: 7/25/2019 4. Evaluator(s): C. Hoschouer, T. Traxler, C. Seibert 5. Wetland/Site #(s): Created Cell 6													
Wetland Location(s): Township 3 N, Range 9 W, Section 24; Township N, Range E, Section													
Approximate Stationing or Roadposts: N/A													
Watershed: 2 - Upper Clark Fork County:Silver Bow													
Purpose of Evaluation:  Wetland potentially affe Mitigation wetlands; pre Mitigation wetlands; po Other	<ul> <li>Wetland potentially affected by MDT project</li> <li>Mitigation wetlands; pre-construction</li> <li>Mitigation wetlands; post-construction</li> <li>9. Assessment Area (AA) Size (acre): (visually estimated)</li> </ul>												
0. CLASSIFICATION OF WET		r											
HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA									
Depressional	Depressional Aquatic Bed Excavated Seasonal / Intermittent 98												
Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	2									
				1 1									

Comments: 2018 was the first year that water was observed within the excavated portion of wetland cell 6. This cell was dry during 2019 monitoring,

but monitoring was conducted one month later than usual in 2019 and the cell likely had standing water earlier in the summer.

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.) abundant

#### 12. GENERAL CONDITION OF AA

 i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species lists.

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

Comments (types of disturbance, intensity, season, etc.): Wetland Cell 6 is within the old road alignment, the construction in the cell included excavation, regrading and revegetation. The reseeded uplands are stable and well vegetated with seeded perennial grasses and forbs as well as the expansion of native, existing desirable species. No ponded water was observed in the excavated depression during 2019 monitoring but the cell was likely inundated earlier in the summer.

- ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Centaurea stoebe
- iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA consists of a depressional wetland and upland buffer at the bottom of a gentle hillslope. Land use surrounding the AA includes commercial developments and transportation (railroad tracks and highway).

13. STRUCTURAL DIVERSITY (Based on number of "Cowardin" vegetated classes present [do not include unvegetated classes]; see #10 above.)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management p existence of additional v		Modified Rating
≥3 (or 2 if one is forested) classes		NA	NA	NA
2 (or 1 if forested) classes	mod	NA	NA	NA
1 class, but not a monoculture		←NO	YES→	
1 class, monoculture (1 species comprises ≥90% of total cover)		NA	NA	NA

Comments: Palustrine emergent, Palustrine Aquatic Bed

14A. HABITAT FOR FEDERAL	LLY LI	STED	OR F	PROP	OSED	THRE	EATEN	IED (	OR EN	IDANG	ERED	PLA	NTS C	OR AN	IMALS	8				
i. AA is Documented (D) or S Primary or critical habitat (list Secondary habitat (list specience) Incidental habitat (list specience) No usable habitat	t speci es)		6) to c		s s	eck bo	x base	ed on	defini	itions ir	n manu	ıal.								
ii. Rating: Based on the strong	est ha	bitat c	hoser	n in 14	4A(i) ab	ove, s	select t	the c	orresp	onding	functi	onal <sub>l</sub>	point a	nd rati	ng.					
Highest Habitat Level	Doc/F	Prima	ry S	Sus/F	rimary	Do	c/Sec	onda	ary S	Sus/Se	conda	ıry	Doc/I	ncide	ntal	Sus	Incide	ntal	Non	е
Functional Point/Rating								-											0L	7
Sources for documented use	(e.a. o	bserv	ations	. reco	ords): U	SFW	S. MTN	NHP				!			<u> </u>					
14B. HABITAT FOR PLANTS  Do not include species lis					S1, S2	, OR S	53 BY	THE	MON	TANA	NATU	RAL	HERIT	AGE I	PROG	RAM				
<ul> <li>i. AA is Documented (D) or S         Primary or critical habitat (list Secondary habitat (list special Incidental habitat (list special No usable habitat     </li> </ul>	t speci es) es)	ies)			S <u>—</u> S <u>Hoa</u> S <u>—</u> S	ary ba	t (S3),	<u>Preb</u>	le's sh	nrew (S	<u>3)</u>									
ii. Rating: Based on the strong						_														_
Highest Habitat Level	Doc/F	Prima	ry S	Sus/F	Primary	/ Do	c/Sec	onda	ary S	Sus/Se	conda	ıry	Doc/I	ncide	ntal	Sus/	Incide	ntal	None	4
S1 Species Functional Point/Rating	,			-				-		•										
S2 and S3 Species Functional Point/Rating				-				-			5M									
Sources for documented use	(e.g. o	bserv	ations	, reco	ords): <u>M</u>	<u>1TNH</u>	_													
14C. GENERAL WILDLIFE HA				Chac	k eubet	antial	mode	rate	or low	u hasar	l on eu	nnor	ting ev	idence	<b>.</b>					
□ Substantial: Based on any one observations of abundant □ abundant wildlife sign sut □ presence of extremely lin □ interview with local biolog	t wildlif ch as s niting h	e #s c cat, tr abitat	or high acks, featu	spec nest res n	cies dive structurot ot avail	res, g	ame tra	ails, e	etc.	d)	⊠ f ⊠ l □ s	ew o	r no wi o no wi e adjad	idlife o ildlife s cent up	bserva sign bland f	ations ood s	llowing during ources ith kno	g peak	use p	
Moderate: Based on any of □ observations of scattered □ common occurrence of w □ adequate adjacent upland □ interview with local biolog	wildlife vildlife s d food	e grou sign su source	ips or uch as es	indivi scat	, tracks							perio	ds							
ii. Wildlife Habitat Features: \\ For class cover to be considere percent composition of the AA ( S/I = seasonal/intermittent; T/E	d even see #1	ly dist 0). Al	ribute bbrevi	d, the	most a	and le ırface	ast pre water	valeı durat	nt <b>veg</b> tions a	etated are as f	classe ollows:	es mu : P/P	ust be v = pern	within : nanent	20% of peren	f each				
Structural Diversity					High								derate						ow	
(see #13) Class Cover Distribution		E	ven			☐ Un	even			ПЕ		3•	l	 ⊠ Un	even			□ Ε		
(all vegetated classes)  Duration of Surface	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α
Water in ≥ 10% of AA  ☑ Low Disturbance at AA														Н						
(see #12i)  ☐ Moderate Disturbance																				
at AA (see #12i)																				_
☐ <b>High Disturbance</b> at AA (see #12i)																				
iii. Rating: Use the conclusion	s from	i and	ii abo	ve ar	nd the n	natrix	below	to se	elect th	ne func	tional p	oint	and ra	ting.						
Evidence of Wildlife Use					W			at Fe	eature	s Rati	ng (ii)									
(i)		_ Exc	ceptic	nal		$\boxtimes$	High			<u></u>	oderat	е	1	☐ Lo	W	4				
☐ Substantial																				
☐ Moderate							41.4		_				1			-				
Minimal				.11.111.5			.4M									_				
Comments: Small wetland with	Ilmited	d valu	e to w	ııdlife	<u>.</u>															

14D. GENERAL FISH HABITAT	NA (proceed to 14E
---------------------------	--------------------

If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check the NA box and proceed to 14E.

Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier].

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

i. Habitat Quality and Known / Suspected Fish Species in AA: Use matrix to select the functional point and rating.

Duration of Surface Water in AA	□ P	erman	ent / P	erenn	ial		□s	easoı	nal / Ir	termit	tent		<b>□</b> T	empo	rary / I	Ephem	neral	
Aquatic Hiding / Resting / Escape Cover	Opti	] imal	Adeq	] uate	Po	or	Opti	] mal	Ade	] quate	Po	or	Opt	timal	Aded	]  uate	Po	oor
Thermal Cover: optimal / suboptimal	0	S	0	S	0	S	0	s	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species																		
FWP Tier II or Native Game fish species																		
FWP Tier III or Introduced Game fish																		
FWP Non-Game Tier IV or No fish species																		

Sources used for identifying fish spp. potentially found in AA: NA

ii. Modified Rating: NOTE: Modified score cannot exceed 1.0 or be less than 0.1.

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

YES, reduce score in **i** by 0.1 = \_\_\_ or NO

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area; specify in comments) for native fish or introduced game fish? 

YES, add to score in i or iia 0.1 = \_\_\_ or 

N0

iii. Final Score and Rating: \_ Comments:

#### 14E. FLOOD ATTENUATION

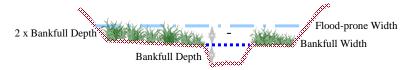
NA (proceed to 14F)

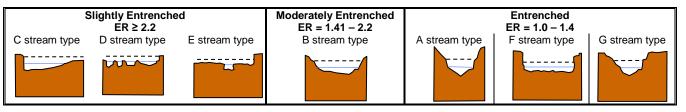
Applies only to wetlands that are subject to flooding via in-channel or overbank flow.

If wetlands in AA are not flooded from in-channel or overbank flow, check the NA box and proceed to 14F.

Entrenchment Ratio (ER) Estimation (see manual for additional guidance). Entrenchment ratio = (flood-prone width) / (bankfull width). Flood-prone width = estimated horizontal projection of where 2 X maximum bankfull depth elevation intersects the floodplain on each side of the stream.

flood prone width / bankfull width = entrenchment ratio





i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

٠٠,	Taing: Working from top to bottom, doe the matrix below to select the fanotional point and fating.										
	Estimated or Calculated Entrenchment	☐ Sli	ightly Entre	nched	Mod	lerately Entr	enched	☐ Entrenched			
	(Rosgen 1994, 1996)	C, D, E stream types			В	stream typ	е	A, F, G stream types			
	Percent of Flooded Wetland Classified as										
	Forested and/or Scrub/Shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
	AA contains no outlet or restricted outlet										
	AA contains unrestricted outlet										

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA? ☐ YES ☐ NO Comments: AA subject to flooding is less than 10 acres. Depressional wetland restricts discharge or drainage to the east toward the railroad tracks.

14F. SHORT AND LONG TERM SURFACE WATER STORAGE	☐ NA (proceed to 14G)
Applies to wetlands that flood or pond from overbank or in-change	nel flow, precipitation, upland surface flow, or groundwater flow

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 the NA box and proceed to 14G.

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

Estimated Maximum Acre Feet of Water Contained in Wetlands within the AA that are Subject to Periodic Flooding or Ponding		>5 acre fo	eet	☐ <b>1</b> .1	to 5 ac	re feet	⊠≤	≤1 acre f	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								.3L	
Wetlands in AA flood or pond < 5 out of 10 years									

Comments: This wetland is subject to ponding from precipitation, upland surface flow but primarily from seasonal high groundwater.

#### 

Applies to wetland with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	AA receive has potent nutrients, such that a substantia sedimenta toxicants, present.	tial to deliv or compou other funct illy impaire tion, sourc	er sedime nds at lev ions are n d. Minor es of nutr	nts, els ot ients or	Waterbody is 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%	□≥7	70%	□<	70%		
Evidence of Flooding / Ponding in AA	☐ Yes	□No	⊠ Yes	□No	☐ Yes	☐ No	☐ Yes	☐ No		
AA contains no or restricted outlet			.7M							
AA contains unrestricted outlet										

Comments: Very minor sedimentation was noted in the bottom of the wetland.

# 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 which is subject to wave action.

If 14H does not apply, check the NA box and proceed to 14I.

% Cover of Wetland Streambank or Shoreline by Species with Stability	Duration of S	urface Water Adjacent to Roo	ted Vegetation
Ratings of ≥6 (see Appendix F).	☐ Permanent / Perennial	Seasonal / Intermittent	☐ Temporary / Ephemeral
□ ≥ 65%			
□ 35-64%			
⊠ < 35%		.2L	

Comments: This small wetland is likely subject to wave action as long as surface or ponded water is present.

## 14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating	General Wildlife Habitat Rating (14Ciii)								
(14Diii)	☐ E/H	$\boxtimes$ M							
☐ E/H									
■ M									
L									
⊠ NA		M							

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

Α	☐ Vegetated Component >5 acres						☐ Vegetated Component 1-5 acres											
В	B ☐ High		☐ Moderate		Low		☐ High		☐ Moderate		Low		☐ High				☐ Low	
С	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P																		
S/I																.3L		
T/E/A																		

Wetland contains an outlet, but no inlet.

Other: Seasonally high groundwater

☐ Shallow water table and the site is saturated to the surface.

Wetland/Site #(s): Created Cell 6

41.	4I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT (continued)	
ii.	ii. Modified Rating: Note: Modified score cannot exceed 1.0 or be less than 0.1.	
	Vegetated Upland Buffer: Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS mowing or clearing (unless for weed control).  Is there an average ≥ 50-foot wide vegetated upland buffer around ≥ 75% of the AA's performance.	, , , , , , , , , , , , , , , , , , ,
٧.	v. Final Score and Rating: <u>.4M</u> Comments: <u>There is a 50-foot buffer around the wetlar</u>	<u>ıd</u>
I4J	4J. GROUNDWATER DISCHARGE / RECHARGE Check the appropriate indicators in i and ii below.	
	Springs or seeps are known or observed.	able substrate present without underlying impeding layer. d contains inlet but no outlet. is a known 'losing' stream. Discharge volume decreases.

iii. Rating: Use the information from i and ii above and the table below to select the functional point and rating

rating. ese the information normalian	Duration of Sat	Duration of Saturation at AA Wetlands FROM GROUNDWATER DISCHARGE or WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM							
Criteria	☐ P/P	⊠ S/I	□ T	☐ None					
☐ Groundwater Discharge or Recharge		.7M							
☐ Insufficient Data/Information									

Comments: Wetland with likely seasonal surface water supported by seasonally high groundwater, runoff and precipitaion.

## 14K. UNIQUENESS

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Replacement Potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland OR plant association listed as "S1" by the MTNHP			cited ra diversi contail	es not contain are types ANE ty (#13) is hig ns plant asso as "S2" by the	structural h OR ciation	AA does not contain previously cited rare types OR associations AND structural diversity (#13) is low-moderate		
Estimated Relative Abundance (#11)	□ Rare	□ Common	□ Abundant	□ Rare	□ Common	☐ Abundant	□ Rare	□ Common	
									.3L
☐ Moderate Disturbance at AA (#12i)									
☐ <b>High Disturbance</b> at AA (#12i)									

Comments: Wetlands of this type are abundant in the area but have low disturbance in comparison to others impacted by land management.

14L	RECREATION / EDUCATION POTENTIAL NA (proceed to Overall Summary and Rating page)  Affords 'bonus' points if AA provides a recreational or educational opportunity.
i. I	s the AA a known or potential recreational or educational site?   YES, go to ii.   NO, check the NA box.
ii.	Check categories that apply to the AA: ☐ Educational/Scientific Study ☐ Consumptive Recreational ☐ Non-consumptive recreational ☐ Other: Currently this AA does not meet the 3 categories above.
iii.	Rating: Use the matrix below to select the functional point and rating.

Known or Potential Recreational or Educational Area	Known	Potential
Public ownership or public easement with general public access (no permission required)		
Private ownership with general public access (no permission required)		
Private or public ownership without general public access, or requiring permission for public access	.1M	

Comments: Site is very close to active railroad tracks and currently a little difficult access unless you walk in from the west side. Site is being used for educational studies by students at Montana State University and Montana Tech.

15. GENERAL SITE NOTES: It will be interesting to see the continued development of created cell 6 with time and the continued improvement of wildlife habitat and wetland habitat.

Function & Value Variables	Rating – Actual Functional Points	Possible Functional Points	Functional Units: Actual Points x Estimated AA Acreage	Indicate the Four Most Prominent Functions with an Asterisk
A. Listed / Proposed T&E Species Habitat	low 0.00	1.00	0	
B. MT Natural Heritage Program Species Habitat	mod 0.50	1.00	0.155	*
C. General Wildlife Habitat	mod 0.40	1.00	0.124	
D. General Fish Habitat	NA	NA	0	
E. Flood Attenuation	NA	NA	0	
F. Short and Long Term Surface Water Storage	low 0.30	1.00	0.093	
G. Sediment / Nutrient / Toxicant Removal	mod 0.70	1.00	0.217	*
H. Sediment / Shoreline Stabilization	low 0.20	1.00	0.062	
I. Production Export / Food Chain Support	mod 0.40	1.00	0.124	*
J. Groundwater Discharge / Recharge	mod 0.70	1.00	0.217	*
K. Uniqueness	low 0.30	1.00	0.093	
L. Recreation / Education Potential (bonus point)	mod 0.10		0.0028	
Total Points	3.60	9	1.1019 Total	Functional Units
Percent of Possibl	e Score 40% (round	to nearest who	e number)	

	Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or
	Score of 1 functional point for Uniqueness; <b>or</b>
	Score of 1 functional point for Flood Attenuation <b>and</b> answer to Question 14E.ii is "yes"; <b>or</b>
	Percent of possible score > 80% (round to nearest whole #).
	Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or Score of .9 or 1 functional point for General Wildlife Habitat; or Score of .9 or 1 functional point for General Fish Habitat; or "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or Score of .9 functional point for Uniqueness; or Percent of possible score > 65% (round to nearest whole #).
	□ Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
	Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if not go to Category III)  "Low" rating for Uniqueness; and
	☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and
	Percent of possible score < 35% (round to nearest whole #).
_	NATIONAL I ANIAL VOIC AREA (AA) RATINO
U	<b>OVERALL ANALYSIS AREA (AA) RATING:</b> Check the appropriate category based on the criteria outlined above.

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

	Lat.: 45 e, frequently me of year? gnificantly o	Local relief .99848945 y flooded cor ? Yes disturbed? blematic?	nplex  No C  Are "N	ormal Circumstances" present? Yes  No  No  eded, explain any answers in Remarks.)
Landform (hillslope, terrace, etc.): Valley bottom  ubregion (LRR): LRR E  oil Map Unit Name: Riverrun, occasionally flooded-Mannixlee e climatic/hydrologic conditions on the site typical for this ti  ure Vegetation , Soil , or Hydrology signare Vegetation , soil , or Hydrology na  Summary of Findings - Attach site map sho  Hydrophytic Vegetation Present? Yes No  Hydric Soil Present? Yes No	Lat.: 45 e, frequently me of year? gnificantly o	Local relief .99848945 y flooded cor ? Yes disturbed? blematic?	nplex  No C  Are "N	Convex, none): CONVEX  Slope: 5.0 % / 2.9  Long.: -112.6629488  NWI classification: PEM  (If no, explain in Remarks.)  cormal Circumstances" present?  Yes No
ubregion (LRR): LRR E  oil Map Unit Name: Riverrun, occasionally flooded-Mannixlee e climatic/hydrologic conditions on the site typical for this ti are Vegetation , Soil , or Hydrology signare Vegetation , soil , or Hydrology na  Summary of Findings - Attach site map sho  Hydrophytic Vegetation Present? Yes No  Hydric Soil Present? Yes No	Lat.: 45 c, frequently me of year gnificantly of	.99848945 y flooded cor ? Yes disturbed? blematic?	nplex No Are "N	Long.: -112.6629488 Datum: WGS84  NWI classification: PEM  (If no, explain in Remarks.)  lormal Circumstances" present? Yes No Ceded, explain any answers in Remarks.)
oil Map Unit Name: Riverrun, occasionally flooded-Mannixlee e climatic/hydrologic conditions on the site typical for this ti tre Vegetation , Soil , or Hydrology signare Vegetation , Soil , or Hydrology na  Summary of Findings - Attach site map sho  Hydrophytic Vegetation Present? Yes No  Hydric Soil Present? Yes No	me of year gnificantly o	y flooded core Yes disturbed? blematic?	No CAre "N	NWI classification: PEM  (If no, explain in Remarks.)  lormal Circumstances" present? Yes No Oeded, explain any answers in Remarks.)
oil Map Unit Name: Riverrun, occasionally flooded-Mannixlee e climatic/hydrologic conditions on the site typical for this ti tre Vegetation , Soil , or Hydrology signare Vegetation , Soil , or Hydrology na  Summary of Findings - Attach site map sho  Hydrophytic Vegetation Present? Yes No  Hydric Soil Present? Yes No	me of year? gnificantly o aturally pro	? Yes	No CAre "N	NWI classification: PEM  (If no, explain in Remarks.)  lormal Circumstances" present? Yes No Oeded, explain any answers in Remarks.)
e climatic/hydrologic conditions on the site typical for this ting.  Are Vegetation , Soil , or Hydrology signare Vegetation , Soil , or Hydrology nations.  Summary of Findings - Attach site map shows the site of the site	me of year? gnificantly o aturally pro	? Yes	No CAre "N	(If no, explain in Remarks.)    ormal Circumstances" present? Yes   No   eded, explain any answers in Remarks.)
Are Vegetation , Soil , or Hydrology signare Vegetation , Soil , or Hydrology na signare Vegetation , Soil , or Hydrology na Summary of Findings - Attach site map show the Hydrophytic Vegetation Present? Yes No   Hydric Soil Present? Yes No   Yes No	gnificantly o	disturbed?	Are "N	ormal Circumstances" present? Yes No No eded, explain any answers in Remarks.)
Are Vegetation , Soil , or Hydrology na  Summary of Findings - Attach site map sho  Hydrophytic Vegetation Present? Yes No  Hydric Soil Present? Yes No	aturally pro	blematic?	(If nee	eded, explain any answers in Remarks.)
Summary of Findings - Attach site map sho  Hydrophytic Vegetation Present? Yes No   Hydric Soil Present? Yes No   No   No   No   No   No   No   No			•	
Hydric Soil Present? Yes No •				
•		T		
Wetland Hydrology Present? Yes ○ No •			Sampled A	Vac O Na 📵
		withir	a Wetland	i? Tes C NO G
Remarks:		ı		
Mapped as PEM on the USFWS National Wetland Inventory has been altered due to a constructed wetland. Field data in				
<b>VEGETATION -</b> Use scientific names of plants	S.	Dominant		
Tree Stratum (Plot size: 30 Foot Radius )	Absolute % Cover	Species? . Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1	0	0.0%		Number of Dominant Species That are OBL, FACW, or FAC:  (A)
2	0	0.0%		
3	0	0.0%		Total Number of Dominant Species Across All Strata: 1 (B)
4	0	0.0%		
Sapling/Shrub Stratum (Plot size: 15 Foot Radius )	0	= Total Cove	er	Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)
1	0	0.0%		Prevalence Index worksheet:
2	0	0.0%		Total % Cover of: Multiply by:
3	0	0.0%		OBL species x 1 =
4		0.0%		FACW species $0 \times 2 = 0$
5	0	0.0%		FAC species $20 \times 3 = 60$
Herb Stratum (Plot size: 5 Foot Radius )	0	= Total Cove	er	FACU species $\frac{0}{72}$ x 4 = $\frac{0}{260}$
1 Astragalus cicer	60	<b>✓</b> 65.2%	UPL	UPL species $\frac{72}{}$ x 5 = $\frac{360}{}$
2. Leymus cinereus	15	16.3%	FAC	Column Totals: <u>92</u> (A) <u>420</u> (B)
3 Bromus inermis	10	10.9%	UPL	Prevalence Index = B/A = 4.565
4. Poa pratensis	5	5.4%	FAC	Hydrophytic Vegetation Indicators:
5 Linaria vulgaris	2	2.2%	UPL	1 - Rapid Test for Hydrologic Vegetation
6		0.0%		2 - Dominance Test is > 50%
7		0.0%		3 - Prevalence Index is ≤3.0 <sup>1</sup>
9	0	0.0%		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
10	0	0.0%		data in Remarks or on a separate sheet)
11	0	0.0%		5 - Wetland Non-Vascular Plants 1
	92	= Total Cov	er	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 Foot Radius )				$^{1}$ Indicators of hydric soil and wetland hydrology must
1	0	0.0%		be present, unless disturbed or problematic.
2	0	0.0%		Hydrophytic Vegetation
	0	= Total Cove	er	Present? Yes No   No
% Bare Ground in Herb Stratum: $_{f 0}$				

<sup>\*</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

ofile Descri	.pc.o (Desc								
Depth	Ma	trix		Red	ox Featu			·	
inches)	Color (moi	st) <u>9</u>	<u>′</u> С	olor (moist)	%	Type 1	Loc2	Texture	Remarks
0-11	10YR :	3/1 1	00					Silt Loam	
11-14	10YR -	4/4 1	00					Sandy Silt Loam	
Iric Soil I Histosol (A	ndicators: (Ap	•		Matrix, CS=Covere unless otherwis Sandy Redox Stripped Matri	se noted.) (S5)		ains <sup>2</sup> Loc	2 cm Muck (A10)	lematic Hydric Soils <sup>3</sup> :
Black Histi Hydrogen Depleted I Thick Dark	ic (A3) Sulfide (A4) Below Dark Surfi k Surface (A12)	ace (A11)	[ [ [ [	Loamy Mucky Loamy Gleyed Depleted Matr Redox Dark So Depleted Dark	Mineral (F Matrix (F2 ix (F3) urface (F6)	2)	in MLRA 1)	☐ Red Parent Mate ☐ Other (Explain in  3Indicators of hydroph wetland hydrology	n Remarks) ytic vegetation and
1	ck Mineral (S1) eyed Matrix (S4)			Redox depress		. , ,		unless disturbed or	
	ayer (if presen	t):							
Type:	h ) .							Hydric Soil Present?	Yes O No 💿
Depth (inchemarks:	hes):	erved. Sid	e slope of t	the wetland.				Hydric Soil Present?	Yes ○ No •
Depth (inch		erved. Sid	e slope of t	- the wetland.				Hydric Soil Present?	Yes ○ No •
Depth (inchemarks: hydric soil	indicators obs	erved. Sid	e slope of t	the wetland.				Hydric Soil Present?	Yes ○ No ●
Depth (inch demarks: to hydric soil ydrology ydrology Yetland Hyd	indicators obs	ors:						Hydric Soil Present?	Yes ○ No ●
Depth (inch demarks: to hydric soil ydrology ydrology Yetland Hyd	indicators obs	ors:		the wetland.	oply)				Yes ○ No ●
Depth (inchemarks: ) hydric soil  ydrology  etland Hydrimary India  Surface W	indicators obs	ors:		heck all that ap	ed Leaves	(B9) (excep	ot MLRA	Secondary Ind	icators (minimum of two req ned Leaves (B9) (MLRA 1, 2,
Depth (inch demarks:	indicators obs	ors:		heck all that ap Water-Stain 1, 2, 4A, and	ed Leaves d 4B)	(B9) (exce	ot MLRA	Secondary Indi  Water-Stair 4A, and 4B	icators (minimum of two req ned Leaves (B9) (MLRA 1, 2, )
Depth (inch demarks: p hydric soil ydrology yetland Hydrimary India Surface W High Wate	rology Indicators (minimulator (A1) er Table (A2) n (A3)	ors:		heck all that ap  Water-Stain 1, 2, 4A, and Salt Crust (E	ed Leaves d 4B) 311)		ot MLRA	Secondary Indi  Water-Stair 4A, and 4B,	icators (minimum of two req ned Leaves (B9) (MLRA 1, 2, ) atterns (B10)
Depth (inch demarks:	rology Indications obsumed in the cators (minimulater (A1) er Table (A2) in (A3) urks (B1)	ors:		heck all that ar Water-Stain 1, 2, 4A, and Salt Crust (E	ed Leaves d 4B) B11) ertebrates	(B13)	ot MLRA	Secondary Indi  Water-Stair 4A, and 4B  Drainage Pa  Dry Season	icators (minimum of two req ned Leaves (B9) (MLRA 1, 2, ) atterns (B10) Water Table (C2)
Depth (inche Remarks:	rology Indicate cators (minime Vater (A1) er Table (A2) in (A3) arks (B1) Deposits (B2)	ors:		heck all that ap Water-Stain 1, 2, 4A, and Salt Crust (E Aquatic Inve	ed Leaves d 4B) d 11) ertebrates ulfide Odo	(B13) r (C1)		Secondary Indi  Water-Stair 4A, and 4B;  Drainage Pa  Dry Season  Saturation	icators (minimum of two req ned Leaves (B9) (MLRA 1, 2, ) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9)
pepth (inchemarks: b hydric soil  ydrology  /etland Hydric Surface W High Water Ma Sediment Drift depo	rology Indicate cators (minimulater (A1) er Table (A2) in (A3) arks (B1) Deposits (B2) osits (B3)	ors:		heck all that ap Water-Stain 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen Si Oxidized Rh	ed Leaves d 4B) B11) ertebrates ulfide Odor zospheres	(B13) r (C1) s on Living F		Secondary Ind  Water-Stair 4A, and 4B)  Drainage Pa  Dry Season  Saturation V  Geomorphic	icators (minimum of two req ned Leaves (B9) (MLRA 1, 2, ) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) c Position (D2)
pepth (inch Remarks: b hydric soil  ydrology  /etland Hydr  Surface W  High Wate Saturation Water Ma Sediment Drift depo Algal Mat	rology Indicate cators (minimulater (A1) er Table (A2) in (A3) arks (B1) expensits (B2) osits (B3) or Crust (B4)	ors:		heck all that ap Water-Stain 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of	ed Leaves d 4B) 311) ertebrates ulfide Odor zospheres Reduced I	(B13) r (C1) s on Living F Iron (C4)	Roots (C3)	Secondary Ind  Water-Stair 4A, and 4B;  Drainage Pa  Dry Season  Saturation V  Geomorphic  Shallow Aqu	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) uitard (D3)
pepth (inch demarks: b hydric soil  ydrology /etland Hydr Surface W High Wate Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo	rology Indicate Cators (minimulater (A1) er Table (A2) in (A3) irks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5)	ors:		heck all that ap Water-Staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron	ed Leaves 1 4B) 311) ertebrates ulfide Odor zospheres Reduced I Reduction	(B13) r (C1) s on Living F Iron (C4) i in Tilled So	Roots (C3)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation V Geomorphic Shallow Aqu	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, ) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) c Position (D2) uitard (D3) I Test (D5)
pepth (inch demarks: b hydric soil  ydrology /etland Hydr Surface W High Water Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface S	rology Indicate Cators (minime Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) foil Cracks (B6)	ors: um of one	required; c	heck all that ar  Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S	ed Leaves d 4B) st11) ertebrates ulfide Odor zospheres Reduced I Reduction stressed Pl	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation Geomorphic Shallow Aqu FAC-neutral Raised Ant	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) uitard (D3) I Test (D5) Mounds (D6) (LRR A)
pepth (inchemarks: b) hydric soil  ydrology  retland Hydrimary India Surface W High Water Ma Sediment Drift depo Algal Mat Iron Depo Surface S Inundatio	rology Indicate Cators (minimulater (A1) er Table (A2) in (A3) irks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5)	ors: um of one	required; c	heck all that ap Water-Staine 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron	ed Leaves d 4B) st11) ertebrates ulfide Odor zospheres Reduced I Reduction stressed Pl	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation Geomorphic Shallow Aqu FAC-neutral Raised Ant	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, ) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) c Position (D2) uitard (D3) I Test (D5)
pepth (inch Demarks:	rology Indications obsorbed in (A2) on (A3) or	ors: um of one	required; c	heck all that ar  Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S	ed Leaves d 4B) st11) ertebrates ulfide Odor zospheres Reduced I Reduction stressed Pl	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation Geomorphic Shallow Aqu FAC-neutral Raised Ant	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) uitard (D3) I Test (D5) Mounds (D6) (LRR A)
pepth (inch Remarks: b hydric soil  ydrology  yetland Hyd  Surface W  High Water Ma  Sediment  Drift depc  Algal Mat  Iron Depc  Surface S  Inundatio  Sparsely W  ield Observation	rology Indications obsorbed indicators obsorbed indicators (minimus Vater (A1) er Table (A2) in (A3) er Table (A2) or (Caste (B3) or Crust (B4) obsits (B5) er Visible on Aeri Vegetated Concatations:	ors: um of one ial Imagery ave Surface	required; c	heck all that ap Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain	ed Leaves d 4B) ertebrates ulfide Odor zospheres Reduced I Reduction ctressed Pl in in Rem	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation Geomorphic Shallow Aqu FAC-neutral Raised Ant	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) uitard (D3) I Test (D5) Mounds (D6) (LRR A)
pepth (inch Remarks: b hydric soil  ydrology  yetland Hyd  Surface W  High Water Ma  Sediment  Drift depc  Algal Mat  Iron Depc  Surface S  Inundatio  Sparsely W  ield Observation	rology Indications obsorbed indicators obsorbed indicators (minimus Vater (A1) er Table (A2) in (A3) er Table (A2) or (Caste (B3) or Crust (B4) obsits (B5) er Visible on Aeri Vegetated Concatations:	ors: um of one ial Imagery ave Surface Yes	required; compared (B7) (B8)	heck all that ar  Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rh Presence of Recent Iron Stunted or S	ed Leaves d 4B) ertebrates ulfide Odor zospheres Reduced I Reduction ctressed Pl in in Rem	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation Geomorphic Shallow Aqu FAC-neutral Raised Ant	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) uitard (D3) I Test (D5) Mounds (D6) (LRR A)
Depth (inch Remarks: o hydric soil  Ydrology Vetland Hydr Surface W High Water Ma Sediment Drift depo Algal Mat Iron Depo Surface S Inundatio Sparsely W Sield Observa	rology Indicate cators (minimulators (Minimulators)	ors: um of one ial Imagery ave Surface Yes  Yes	required; compared (B7) (B8) No  No  No  No	heck all that ap Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain	ed Leaves d 48) (311) (311) (311) (311) (311) (312) (313) (3	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)  Dils (C6)  LRR A)	Secondary Indi Water-Stair 4A, and 4B; Drainage Pa Dry Season Saturation N Geomorphic Shallow Aqı FAC-neutral Raised Ant Frost Heave	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) Littard (D3) I Test (D5) Mounds (D6) (LRR A) E Hummocks (D7)
Depth (inch Remarks: o hydric soil  ydrology Vetland Hydi Surface W High Water Water Ma Sediment Drift depc Algal Mat Iron Depc Surface S Inundatio Sparsely \ Vetland Observation Vater Table Price Startation Presidents	rology Indicate cators (minimulators (Manual Manual	ors: um of one ial Imagery ave Surface Yes	required; compared (B7) (B8)	heck all that ap Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain	ed Leaves d 48) st11) ertebrates ulfide Odor zospheres Reduced I Reduction ctressed Pl in in Rem.	(B13) r (C1) s on Living F Iron (C4) n in Tilled So	Roots (C3)  Dils (C6)  LRR A)	Secondary Indi Water-Stair 4A, and 4B) Drainage Pa Dry Season Saturation Geomorphic Shallow Aqu FAC-neutral Raised Ant	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) Littard (D3) I Test (D5) Mounds (D6) (LRR A) E Hummocks (D7)
Depth (inch Remarks: o hydric soil  ydrology Vetland Hydi Surface W High Water Saturatior Water Ma Sediment Drift depc Algal Mat Iron Depc Surface S Inundatio Sparsely V Field Observation Courface Water Vater Table Prosturation Presincludes capill	rology Indicate cators (minime Vater (A1) er Table (A2) in (A3) erks (B1) or Crust (B4) exists (B5) eric (	ial Imagery ave Surface  Yes O Yes O	required; c  (B7) (B8)  No   No   No   No   No   No   No   No	heck all that ap Water-Stain- 1, 2, 4A, and Salt Crust (E Aquatic Inve Hydrogen St Oxidized Rhi Presence of Recent Iron Stunted or S Other (Explain	ed Leaves d 48) st1) ertebrates ulfide Odoi zospheres Reduced I Reduction stressed Pl ain in Rem. hes):	(B13) r (C1) s on Living F Iron (C4) n in Tilled Sc lants (D1) ( arks)	Roots (C3)  Dils (C6)  LRR A)  Wetla	Secondary Indi Water-Stair 4A, and 4B; Drainage Pa Dry Season Saturation N Geomorphic Shallow Aqı FAC-neutral Raised Ant Frost Heave	icators (minimum of two requed Leaves (B9) (MLRA 1, 2, 1) atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) C Position (D2) Littard (D3) I Test (D5) Mounds (D6) (LRR A) E Hummocks (D7)

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

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

Project/Site: Silicon Mountain	City	y/County: Silver Bow	Sampling Date: 25-Jul-19			
Applicant/Owner: MDT			State: MT Sampling Point: DP-1W			
Investigator(s): Cindy Hoschouer, Tanner Traxler	9	Section, Township, R	ange: S 24 T 3N R 9W			
Landform (hillslope, terrace, etc.): Valley bottom	Lo	ocal relief (concave,	convex, none): concave Slope:0.0 % /0.0 °			
Gubregion (LRR): LRR E	<b>Lat.:</b> 45.99		Long.: -112.6629828			
oil Map Unit Name: Riverrun, occasionally flooded-Mannixle			NWI classification: PEM			
re climatic/hydrologic conditions on the site typical for this t		Yes • No				
	inne or year? ignificantly dis		Normal Circumstances" present? Yes  No  No			
	-		, , , , , , , , , , , , , , , , , , ,			
Are Vegetation □ , Soil □ , or Hydrology □ n Summary of Findings - Attach site map sho	aturally proble	<b>(</b>	eded, explain any answers in Remarks.)			
Hydrophytic Vegetation Present? Yes No	Tring Suin		actions, cransects, important reactives, etc.			
		Is the Sampled				
		within a Wetlan	<sub>d?</sub> Yes • No ·			
Remarks: PEM wetland located in Cell 3.						
FLM Wetiand located in Celi 5.						
<b>VEGETATION</b> - Use scientific names of plant	s. c	Dominant				
	s	Species? Rel.Strat. Indicator	Dominance Test worksheet:			
<u>Tree Stratum</u> (Plot size: 30 Foot Radius )	% Cover C		Number of Dominant Species			
1,	0	0.0%	That are OBL, FACW, or FAC:1(A)			
2		0.0%	Total Number of Dominant			
3			Species Across All Strata: 1 (B)			
4	0		Percent of dominant Species			
Sapling/Shrub Stratum (Plot size: 15 Foot Radius )		Total Cover	That Are OBL, FACW, or FAC: 100.0% (A/B)			
1,	_	0.0%	Prevalence Index worksheet:			
2			Total % Cover of: Multiply by:			
3			OBL species $\underline{10}$ x 1 = $\underline{10}$			
4			FACW species $\underline{66}$ x 2 = $\underline{132}$			
5	0		FAC species $4 \times 3 = 12$			
Herb Stratum (Plot size: 5 Foot Radius )	=	Total Cover	FACU species $0 \times 4 = 0$			
1 Juncus balticus	60	75.0% FACW	UPL species $0 \times 5 = 0$			
2. Typha latifolia	5	6.3% OBL	Column Totals: <u>80</u> (A) <u>154</u> (B)			
3 Epilobium ciliatum	5	6.3% FACW	Prevalence Index = B/A = 1.925			
4_ Carex nebrascensis	3	3.8% OBL				
5 Poa palustris	2	2.5% FAC	Hydrophytic Vegetation Indicators:			
6. Alopecurus arundinaceus	_2	2.5% FAC	<ul> <li>✓ 1 - Rapid Test for Hydrologic Vegetation</li> <li>✓ 2 - Dominance Test is &gt; 50%</li> </ul>			
7. Deschampsia cespitosa	_1	1.3% FACW	$\checkmark$ 2 - Dominance Test is > 50% $\checkmark$ 3 - Prevalence Index is ≤3.0 <sup>1</sup>			
8. Beckmannia syzigachne						
9. Glyceria striata		OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)			
10.————————————————————————————————————	0		5 - Wetland Non-Vascular Plants 1			
11.————————————————————————————————————		Total Cover	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
Woody Vine Stratum (Plot size: 30 Foot Radius )		Total Cover	Indicators of hydric soil and wetland hydrology must			
	0	0.0%	be present, unless disturbed or problematic.			
1	0 [	0.0%	Hydrophytic			
۷		Total Cover	Vegetation Var (a) Na (			
		rotal Cover	Present? Yes V No V			
% Bare Ground in Herb Stratum: 20			riesent:			

<sup>\*</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil									Sampling Point:	DP-1W
Profile Desc	ription: (Desc	ribe to the	depth nee	ded to document	the indi	icator or c	onfirm the	absence of indicator	·s.)	
Depth	M	latrix		Red	ox Featı	ıres			-	
(inches)	Color (m	oist)	%	Color (moist)	%	Type 1	Loc2	Texture	Rema	
0-7	10YR	3/1	100					Silt Loam	organics and s	small gravel
7-12	2.5Y	6/2	100					Silty Clay Loam		
-	-							-		
1			M D						M. M. I.	
- ''							rains ²Loc	cation: PL=Pore Lining.		
	_	Applicable	to all LRRs	, unless otherwis		.)			oblematic Hydric So	ils³:
Histosol (	. ,			Sandy Redox ( Stripped Matri	. ,			2 cm Muck (A	•	
Black His	pedon (A2)			Loamy Mucky	` '	F1) (evcent	in MI RA 1)	Red Parent M	` ,	
	n Sulfide (A4)			Loamy Gleyed	•	, , ,	III PILION 1)	Other (Explain	n in Remarks)	
	Below Dark Su	rface (A11)		✓ Depleted Matr	•	-,				
	rk Surface (A12	, ,		Redox Dark Su	. ,	5)		3 Indicators of hydro	phytic vegetation and	
	uck Mineral (S1	•		☐ Depleted Dark	Surface	(F7)			gy must be present,	
	eyed Matrix (S4			Redox depress	sions (F8)	)		unless disturbed	or problematic.	
	ayer (if prese									
Type:									_	
Depth (inc	ches):							Hydric Soil Presen	t? Yes 🖲 No	$\circ$
Remarks:										
Hydrolog	у									
Wetland Hyd	drology Indica	itors:								
Primary Ind	icators (minin	num of on	e required;	check all that ap	ply)			Secondary I	ndicators (minimum	of two required
Surface \	Water (A1)			☐ Water-Staine		(B9) (exce	pt MLRA	Water-St	tained Leaves (B9) (ML	RA 1, 2,
✓ High Wa	ter Table (A2)			1, 2, 4A, and	1 4B)			4A, and	4B)	
<b>✓</b> Saturation	on (A3)			Salt Crust (B	11)			☐ Drainage	e Patterns (B10)	
☐ Water M	arks (B1)			Aquatic Inve	rtebrates	(B13)		☐ Dry Seas	son Water Table (C2)	
Sedimen	t Deposits (B2)			Hydrogen Su	ılfide Odo	or (C1)		Saturation	on Visible on Aerial Ima	gery (C9)
☐ Drift dep	oosits (B3)			Oxidized Rhi	zosphere	s on Living	Roots (C3)	☐ Geomor	ohic Position (D2)	
Algal Ma	t or Crust (B4)			Presence of	Reduced	Iron (C4)		Shallow	Aquitard (D3)	
☐ Iron Dep	osits (B5)			Recent Iron	Reduction	n in Tilled S	oils (C6)	<b>✓</b> FAC-neu	tral Test (D5)	
Surface :	Soil Cracks (B6)			Stunted or S	tressed P	Plants (D1) (	(LRR A)	Raised A	nt Mounds (D6) (LRR A	١)
Inundati	on Visible on A	erial Imager	y (B7)	Other (Expla	in in Rem	narks)		Frost He	ave Hummocks (D7)	
Sparsely	Vegetated Con	cave Surfac	e (B8)							
Field Obsess										
Field Observ		Yes O	No 💿	Danth (in a			7			
Surface Wate	r Present?	_	_	Depth (inc	nes):					
Water Table F	Present?	Yes 💿	No O	Depth (inc	hes):	3			nt? Yes • N	o O
Saturation Pre		Yes 💿	No $\bigcirc$	Depth (inc	hes):	0	Weti	and Hydrology Prese	nt? res © IV	0 🔾
(includes capi Describe Rec				or well, aerial pho	otos, pre	evious insp	ections), i	f available:		
Remarks:										
	aturated to th	e surface	Water in n	it at 3".						

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

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

Project/Site: Silicon Mountain		City/County:	Silver Bow	Sampling Date: 25-Jul-19
Applicant/Owner: MDT				State: MT Sampling Point: DP-2U
Investigator(s): Cindy Hoschouer, Tanner Traxler		Section, To	wnship, Ra	ange: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Valley bottom		Local relief	(concave, c	convex, none): convex Slope: 5.0 % / 2.9
Subregion (LRR): LRR E	Lat.: 46	.0017268		Long.: -112.6612105 Datum: WGS84
oil Map Unit Name: Riverrun, occasionally flooded-Mannixle				NWI classification: Upland
e climatic/hydrologic conditions on the site typical for this t			. ● No C	
	ignificantly			lormal Circumstances" present? Yes   No ○
	aturally pro			eded, explain any answers in Remarks.)
Summary of Findings - Attach site map sho			-	
Hydrophytic Vegetation Present? Yes No •		T. 11.	6	•
Hydric Soil Present? Yes ○ No ●			Sampled A	Vac O Na 📵
Wetland Hydrology Present? Yes ○ No ●		withir	a Wetland	1? Tes C NO G
Remarks:		ı		
Paired upland sample point on the slope above wetland cel	II 5.			
<b>VEGETATION -</b> Use scientific names of plant	S.	Dominant Species?		
Tree Stratum (Plot size: 30 Foot Radius )	Absolute % Cover	Rel.Strat.	Indicator Status	Dominance Test worksheet:
1.	96 Cover		Status	Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
2		0.0%		That are obt, facw, of fac.
3		0.0%		Total Number of Dominant Species Across All Strata: 2 (B)
4	0	0.0%		Species Across Air Strata.
Sapling/Shrub Stratum (Plot size: 15 Foot Radius )	0	= Total Cov	er	Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)
1	0	0.0%		Prevalence Index worksheet:
2	0	0.0%		Total % Cover of: Multiply by:
3	0	0.0%		OBL species
4		0.0%		FACW species x 2 =0
5	0	0.0%		FAC species $42 \times 3 = 126$
Herb Stratum (Plot size: 5 Foot Radius )	0	= Total Cove	er	FACU species $30 \times 4 = 120$
1 Elymus lanceolatus	30	<b>✓</b> 40.0%	FACU	UPL species $\frac{3}{}$ x 5 = $\frac{15}{}$
Leymus cinereus	20	26.7%	FAC	Column Totals:
3_Elymus trachycaulus	10	13.3%	FAC	Prevalence Index = $B/A = 3.480$
4. Elymus repens	10	13.3%	FAC	Hydrophytic Vegetation Indicators:
5. Bromus inermis	3	4.0%	UPL	1 - Rapid Test for Hydrologic Vegetation
6. Alopecurus pratensis	2	2.7%	FAC	2 - Dominance Test is > 50%
7		0.0%		3 - Prevalence Index is ≤3.0 ¹
8.—		0.0%		4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9		0.0%		data in Remarks or on a separate sheet)
10.	_	0.0%		$oxed{\ }$ 5 - Wetland Non-Vascular Plants $^1$
11.	75	= Total Cove		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 Foot Radius )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1	0	0.0%		be present, unless disturbed or problematic.
2.	0	0.0%		Hydrophytic
	0	= Total Cove	er	Vegetation   Yes ○ No ●
				1 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
% Bare Ground in Herb Stratum: 25				

<sup>\*</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Depth	יייי (הבפרווחה וס נ	e uepui iieet	ica to aocailleilt	LIC INVICATOR O			
Donth	Matrix				i commin the	absence of indicators.	,
(inches)	Matrix Color (moist)	%	Read Color (moist)	ox Features M Type	Loc²	Texture	Remarks
	10YR 3/2	100	color (IIIOISC)	<u> 70                                   </u>		Silt Loam	Kemarks
	10YR 3/2	100	·			Silty Clay Loam	
14-16 	10YR 2/2					Silty Clay	_
pe: C=Concent	tration. D=Depletion	n. RM=Reduced	Matrix, CS=Covered	d or Coated San	d Grains <sup>2</sup> Loc	cation: PL=Pore Lining. M	=Matrix
-	cators: (Applicab	le to all LRRs,		_			olematic Hydric Soils <sup>3</sup> :
Histosol (A1)	(40)		Sandy Redox (	•		2 cm Muck (A10	•
Histic Epipedo			Stripped Matrix	` '	ont in MIDA 1)	Red Parent Mat	` '
Black Histic (A	*		Loamy Gleyed	Mineral (F1) (exc Matrix (F2)	cρι III MLKA I)	Other (Explain i	n Kemarks)
	mae (A4) ow Dark Surface (A1	1)	Depleted Matrix	. ,			
Thick Dark Su	•	11)	Redox Dark Su	. ,		3 Indianton of the state of	outio voqototice eed
Sandy Muck 1	. ,		Depleted Dark			<sup>3</sup> Indicators of hydropl wetland hydrology	
Sandy Muck I	` ,		Redox depressi			unless disturbed o	
estrictive Laye							
Type:	. ( present)						
Depth (inches)	۸.					Hydric Soil Present?	Yes O No 💿
Remarks: o hydric soil ind	dicators observed.						
	licators observed.						
o hydric soil inc							
o hydric soil inc ydrology Vetland Hydrolo	ogy Indicators:						
o hydric soil inc			check all that app	ply)		_Secondary Inc	licators (minimum of two req
ydrology Vetland Hydrolo	ogy Indicators: ors (minimum of		Water-Staine	d Leaves (B9) (e	except MLRA	Water-Stai	ned Leaves (B9) (MLRA 1, 2,
ydrology Vetland Hydrolo	ogy Indicators: ors (minimum of e			d Leaves (B9) (e	except MLRA		ned Leaves (B9) (MLRA 1, 2,
ydrology Vetland Hydrolo Primary Indicat  Surface Wate	ogy Indicators: ors (minimum of er er (A1) Fable (A2)		Water-Staine	d Leaves (B9) (6 4B)	except MLRA	Water-Stai 4A, and 4E	ned Leaves (B9) (MLRA 1, 2,
ydrology /etland Hydrology   Surface Wate	ogy Indicators: ors (minimum of er (A1) Fable (A2)		Water-Staine 1, 2, 4A, and Salt Crust (B:	d Leaves (B9) (6 4B)	except MLRA	Water-Stai 4A, and 4E	ned Leaves (B9) (MLRA 1, 2,
ydrology /etland Hydrolo   Surface Wate   High Water T	ogy Indicators: ors (minimum of er (A1) Table (A2) (33) (B1)		Water-Staine 1, 2, 4A, and Salt Crust (B: Aquatic Inver	d Leaves (B9) (6 4B) 11)	except MLRA	Water-Stai 4A, and 4E Drainage F Dry Season	ned Leaves (B9) (MLRA 1, 2, B) Patterns (B10) n Water Table (C2)
ydrology /etland Hydrolo   Surface Wate   High Water T   Saturation (A	ogy Indicators: ors (minimum of er (A1) Fable (A2) (A3) (B1) posits (B2)		Water-Staine 1, 2, 4A, and Salt Crust (B: Aquatic Inver	d Leaves (B9) (6 4B) 11) tebrates (B13)	·	Water-Stai 4A, and 4E Drainage F Dry Season Saturation	ned Leaves (B9) (MLRA 1, 2, 3) Patterns (B10)
ydrology Vetland Hydrolo Primary Indicate Surface Water High Water T Saturation (A Water Marks Sediment De	ogy Indicators: ors (minimum of er (A1) Table (A2) (B1) posits (B2) (S (B3)		Water-Staine 1, 2, 4A, and Salt Crust (B: Aquatic Inver Hydrogen Su Oxidized Rhiz	d Leaves (B9) (e 4B) 11) tebrates (B13) Ifide Odor (C1)	ing Roots (C3)	Water-Stai 4A, and 4E Drainage F Dry Season Saturation Geomorph	ned Leaves (B9) (MLRA 1, 2, B) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9)
ydrology Vetland Hydrolo Surface Wate High Water T Saturation (A Water Marks Sediment De Drift deposits	ogy Indicators: ors (minimum of er (A1) Table (A2) A3) (B1) posits (B2) s (B3) Crust (B4)		Water-Staine 1, 2, 4A, and Salt Crust (B: Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of F	d Leaves (B9) (e 4B) 11) tebrates (B13) Ifide Odor (C1) cospheres on Livi	ng Roots (C3)	Water-Stai 4A, and 4E Drainage F Dry Season Saturation Geomorph Shallow Ac	ned Leaves (B9) (MLRA 1, 2, 3) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9) Ic Position (D2)
ydrology Vetland Hydrolo Surface Water High Water T Saturation (A Water Marks Sediment De Drift deposits Algal Mat or	ogy Indicators: ors (minimum of er (A1) Table (A2) A3) (B1) posits (B2) S (B3) Crust (B4) S (B5)		Water-Staine 1, 2, 4A, and Salt Crust (B: Aquatic Inver Hydrogen Su Oxidized Rhiz Presence of F	d Leaves (B9) (e 4B) 11) tebrates (B13) lfide Odor (C1) cospheres on Livi Reduced Iron (C4 Reduction in Tille	ing Roots (C3) 4) ad Soils (C6)	Water-Stai 4A, and 4E Drainage F Dry Season Saturation Geomorph Shallow Ac FAC-neutra	ned Leaves (B9) (MLRA 1, 2, 3)  Patterns (B10)  n Water Table (C2)  Visible on Aerial Imagery (C9) ic Position (D2) quitard (D3) al Test (D5)
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US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

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

vestigator(s): Cindy Hoschouer, Tanner Traxler andform (hillslope, terrace, etc.): Valley bottom		Section, Township	State: MT Sampling Point: DP-2W
andform (hillslope, terrace, etc.): Valley bottom		Section, Township	Downer C 24 T 2N D 0M
		,	, Range: S 24 T 3N R 9W
huseign (LDD): LDD 5		Local relief (concav	re, convex, none): convex Slope: 5.0 % / 2.9
bregion (LRR): LRR E		00176209	Long.: -112.6612077 Datum: WGS84
il Map Unit Name: Riverrun, occasionally flooded-Mannix			NWI classification: Upland
climatic/hydrologic conditions on the site typical for this			
	significantly d		
			,
, , , , ,	naturally prob	`	needed, explain any answers in Remarks.)  Ocations, transects, important features, etc.
lydrophytic Vegetation Present? Yes No			· · · · · · · · · · · · · · · · · · ·
lydric Soil Present? Yes   No		Is the Sample	Vac (A) Na (
Vetland Hydrology Present? Yes   No		within a Wet	and? Tes © NO C
Remarks: NWI indicates upland, however this is a fairly new constr water level slightly lower than 2018.	ucted wetland	site within Cell 5. [	Data point taken 5 feet from the edge of the water. Surface
<b>/EGETATION -</b> Use scientific names of plan	nts.	Dominant Species 2	
Tree Stratum (Plot size: 30 Foot Radius )	Absolute % Cover	Species? Rel.Strat. Indica Cover Status	
1		0.0%	Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
2		0.0%	
3		0.0%	Total Number of Dominant Species Across All Strata: 1 (B)
4	0	0.0%	_
Sapling/Shrub Stratum (Plot size: 15 Foot Radius )	:	= Total Cover	Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)
1,	0		Prevalence Index worksheet:
2		0.0%	Total % Cover of: Multiply by:
3			OBL species15 x 1 =15
4			FACW species63 x 2 =126
5			
Herb Stratum (Plot size: 5 Foot Radius )	:	= Total Cover	FACU species $0 \times 4 = 0$
1 Juncus balticus	60	✓ 63.2% FACW	UPL species $\frac{1}{}$ x 5 = $\frac{5}{}$
2. Poa reflexa	10	10.5% OBL	Column Totals: <u>95</u> (A) <u>194</u> (B)
3. Hordeum jubatum	5	5.3% FAC	Prevalence Index = B/A = 2.042
4. Potentilla gracilis	5	5.3%FAC	Hydrophytic Vegetation Indicators:
5. Eleocharis palustris	5	5.3%OBL	1 - Rapid Test for Hydrologic Vegetation
6. Geum macrophyllum			2 - Dominance Test is > 50%
7. Elymus trachycaulus		2.1% FAC	$\checkmark$ 3 - Prevalence Index is $\le$ 3.0 $^1$
8. Epilobium ciliatum 9. Agrostis gigantea	2	2.1% FACW 2.1% FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
9_Agrosus gigantea 10_Thlaspi arvense		1.1% UPL	data in Remarks or on a separate sheet)
10	1	1.1% FACW	5 - Wetland Non-Vascular Plants 1
	95	= Total Cover	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 Foot Radius )			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1			_
2			Hydrophytic Vegetation
	:	= Total Cover	Present? Yes  No
% Bare Ground in Herb Stratum: 5			

<sup>\*</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Depth inches)		ribe to the latrix	. aanen naad					
14-16	-		deptii need			nfirm the	absence of indicators	5.)
0-14 14-16	COIOI (III		<u></u>	Redox Fe Color (moist) %		Loc2	Texture	Remarks
14-16	10YR			oloi (illoist) _ 90	в туре	LOC-	Silty Clay	Remarks
		4/1	100				<u> </u>	10% sand
16+	10YR	3/1	100				Silty Clay	
	10YR	4/2	100				Sandy Silt	
· · · · · · · · · · · · · · · · · · ·				unless otherwise not		iins ²Loc	ation: PL=Pore Lining. I	M=Matrix bblematic Hydric Soils <sup>3</sup> :
Histosol (A	-	Аррисавіе	to all LKKS,	Sandy Redox (S5)	.eu.)		2 cm Muck (A1	•
Histic Epip	•			Stripped Matrix (S6)	)		_ `	•
Black Histi	` ,		Ī	Loamy Mucky Minera	•	n MIRA 1)	Red Parent Ma  Other (Explain	` '
_	Sulfide (A4)			Loamy Gleyed Matrix	. ,	ii iiLixa 1)	✓ Other (Explain	in Remarks)
_	Below Dark Su	rface (A11)	ſ	Depleted Matrix (F3)	` '			
	k Surface (A12	, ,	Ī	Redox Dark Surface	•		3radiante - Ch. 1	de dia consiste di secono di
	•	•	Ī	Depleted Dark Surfa	` '		<sup>3</sup> Indicators of hydrop wetland hydrolog	phytic vegetation and y must be present,
¬ '	ck Mineral (S1	•	ſ	Redox depressions (			unless disturbed of	
	eyed Matrix (Sa ayer (if prese							·
Type:	ayer (ii prese	ancy.						
Depth (inch	hoc):						Hydric Soil Present	? Yes 💿 No 🔾
Remarks:	ies)							
ydrology	/							
	rology Indic	ators:						
etland Hyd								
-	cators (minir	num of on	e required; o	check all that apply)	_		_Secondary In	dicators (minimum of two red
-		num of on	e required; (	check all that apply)  Water-Stained Lea	— ives (B9) (excep	t MLRA		dicators (minimum of two rec
Primary Indic		num of on	e required; (		— aves (B9) (excep	t MLRA		nined Leaves (B9) (MLRA 1, 2,
Primary Indic	Vater (A1) er Table (A2)	num of on	e required; (	Water-Stained Lea	— aves (B9) (excep	t MLRA	Water-Sta 4A, and 4	nined Leaves (B9) (MLRA 1, 2, B)
Primary Indic  Surface W  High Wate  Saturation	Vater (A1) er Table (A2) n (A3)	num of on	e required; (	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)	. ,	t MLRA	Water-Sta 4A, and 4	nined Leaves (B9) (MLRA 1, 2, B) Patterns (B10)
Primary India  Surface W  High Wate  Saturation  Water Ma	Vater (A1) er Table (A2) n (A3) nrks (B1)		e required; (	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra	ates (B13)	t MLRA	Water-Sta 4A, and 4  Drainage  Dry Seaso	nined Leaves (B9) (MLRA 1, 2, B) Patterns (B10) on Water Table (C2)
Primary India Surface W High Wate Saturation Water Ma Sediment	Vater (A1) er Table (A2) n (A3) arks (B1) : Deposits (B2)		e required; o	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide (	ates (B13) Odor (C1)		Water-Sta 4A, and 4  □ Drainage □ Dry Seaso ✓ Saturation	nined Leaves (B9) (MLRA 1, 2, B)  Patterns (B10)  On Water Table (C2)  On Visible on Aerial Imagery (C9)
Primary India Surface W High Wate Saturation Water Ma Sediment Drift depo	Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B2) osits (B3)		e required; o	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizospho	ates (B13) Odor (C1) eres on Living R		Water-Sta 4A, and 4 □ Drainage □ Dry Seaso ✓ Saturation ✓ Geomorpl	eined Leaves (B9) (MLRA 1, 2, B)  Patterns (B10)  on Water Table (C2)  on Visible on Aerial Imagery (C9)  nic Position (D2)
Primary India Surface W High Wate Saturation Water Ma Sediment Drift depo	Vater (A1) er Table (A2) n (A3) arks (B1) : Deposits (B2)		e required; (	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide (	ates (B13) Odor (C1) eres on Living R		Water-Sta 4A, and 4 □ Drainage □ Dry Seaso ✓ Saturation ✓ Geomorpl	nined Leaves (B9) (MLRA 1, 2, B)  Patterns (B10)  On Water Table (C2)  On Visible on Aerial Imagery (C9)
Primary India Surface W High Wate Saturation Water Ma Sediment Drift depo	Vater (A1) er Table (A2) n (A3) irks (B1) Deposits (B2) osits (B3) or Crust (B4)		e required; (	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizospho	ates (B13) Odor (C1) Beres on Living R Ced Iron (C4)	oots (C3)	Water-Sta 4A, and 4  □ Drainage □ Dry Seaso ✓ Saturation ✓ Geomorpl □ Shallow A	eined Leaves (B9) (MLRA 1, 2, B)  Patterns (B10)  on Water Table (C2)  on Visible on Aerial Imagery (C9)  nic Position (D2)
Primary India Surface W High Wate Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo	Vater (A1) er Table (A2) n (A3) irks (B1) Deposits (B2) osits (B3) or Crust (B4)		e required; (	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizospho	ates (B13) Odor (C1) Heres on Living R Ced Iron (C4) Ction in Tilled So	oots (C3) ils (C6)	Water-Sta 4A, and 4  □ Drainage □ Dry Seaso ✓ Saturation ✓ Geomorpi □ Shallow A ✓ FAC-neutr	pained Leaves (B9) (MLRA 1, 2, B)  Patterns (B10)  On Water Table (C2)  On Visible on Aerial Imagery (C9)  Paic Position (D2)  quitard (D3)
Primary India Surface W High Wate Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface Su	Vater (A1) er Table (A2) in (A3) urks (B1) i Deposits (B2) osits (B3) or Crust (B4) osits (B5)	)		Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizosph)  Presence of Reduct  Recent Iron Reduct  Stunted or Stresse	ates (B13) Odor (C1) Heres on Living R Leed Iron (C4) Ction in Tilled So Led Plants (D1) (L	oots (C3) ils (C6)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An	Patterns (B10) on Water Table (C2) on Visible on Aerial Imagery (C9) nic Position (D2) quitard (D3) ral Test (D5) of Mounds (D6) (LRR A)
rimary India Surface W High Water Saturatior Water Ma Sediment Drift depo Algal Mat Iron Depo Surface Si Inundatio	Vater (A1) er Table (A2) in (A3) irks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) ioil Cracks (B6)	) erial Imagel	ry (B7)	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizosphi Presence of Reduc	ates (B13) Odor (C1) Heres on Living R Leed Iron (C4) Ction in Tilled So Led Plants (D1) (L	oots (C3) ils (C6)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An	pained Leaves (B9) (MLRA 1, 2, B)  Patterns (B10)  On Water Table (C2)  On Visible on Aerial Imagery (C9)  Onic Position (D2)  quitard (D3)  ral Test (D5)
Primary India Surface W High Water Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface Si Inundatio Sparsely V	Vater (A1) er Table (A2) n (A3) urks (B1) Deposits (B2) posits (B3) or Crust (B4) posits (B5) coil Cracks (B6) on Visible on Av	) erial Imagel	ry (B7)	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizosph)  Presence of Reduct  Recent Iron Reduct  Stunted or Stresse	ates (B13) Odor (C1) Heres on Living R Leed Iron (C4) Ction in Tilled So Led Plants (D1) (L	oots (C3) ils (C6)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An	Patterns (B10) on Water Table (C2) on Visible on Aerial Imagery (C9) nic Position (D2) quitard (D3) ral Test (D5) of Mounds (D6) (LRR A)
Primary India Surface W High Water Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface Si Inundatio Sparsely V	Vater (A1) er Table (A2) in (A3) erks (B1) in Deposits (B2) posits (B3) or Crust (B4) posits (B5) in Oracks (B6) in Visible on Ai Vegetated Cor ations:	) erial Imagei icave Surfac	ry (B7) ce (B8)	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresse  Other (Explain in F	ates (B13) Odor (C1) Heres on Living R Leed Iron (C4) Ction in Tilled So Led Plants (D1) (L	oots (C3) ils (C6)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An	Patterns (B10) on Water Table (C2) on Visible on Aerial Imagery (C9) nic Position (D2) quitard (D3) ral Test (D5) of Mounds (D6) (LRR A)
Primary India Surface W High Water Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface So Inundatio Sparsely W	Vater (A1) er Table (A2) in (A3) irks (B1) ir Deposits (B2) osits (B3) or Crust (B4) osits (B5) ioil Cracks (B6) ion Visible on Ai Vegetated Cor ations: Present?	) erial Imagei icave Surfac <b>Yes</b> ○	ry (B7) ce (B8)	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizosph)  Presence of Reduct  Recent Iron Reduct  Stunted or Stresse	ates (B13) Odor (C1) Heres on Living R Ced Iron (C4) Cition in Tilled So Ed Plants (D1) (L Remarks)	oots (C3) ils (C6)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An	Patterns (B10) on Water Table (C2) on Visible on Aerial Imagery (C9) nic Position (D2) quitard (D3) ral Test (D5) of Mounds (D6) (LRR A)
Primary India Surface W High Water Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface So Inundatio Sparsely \ Field Observa Surface Water Water Table Pr	Vater (A1) er Table (A2) in (A3) irks (B1) ir Deposits (B2) osits (B3) or Crust (B4) osits (B5) ioil Cracks (B6) in Visible on Ai Vegetated Cor ations: Present?	) erial Imagei icave Surfac Yes • Yes •	ry (B7) te (B8)  No   No   No	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresse  Other (Explain in F	ates (B13) Odor (C1) Heres on Living R Leed Iron (C4) Ction in Tilled So Led Plants (D1) (L	oots (C3) ils (C6) RR A)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An □ Frost Hea	Patterns (B10) Patterns (B10) In Water Table (C2) In Visible on Aerial Imagery (C9) Inic Position (D2) Iquitard (D3) Iral Test (D5) It Mounds (D6) (LRR A) Ive Hummocks (D7)
Surface W High Wate Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface So Inundatio	Vater (A1) er Table (A2) in (A3) irks (B1) i Deposits (B2) osits (B3) or Crust (B4) osits (B5) ioil Cracks (B6) ion Visible on Ai Vegetated Cor ations: Present? resent?	) erial Imagei icave Surfac <b>Yes</b> ○	ry (B7) te (B8)  No   No   No	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra  Hydrogen Sulfide ( Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in F	ates (B13) Odor (C1) Heres on Living R Ced Iron (C4) Cition in Tilled So Ed Plants (D1) (L Remarks)	oots (C3) ils (C6) RR A)	Water-Sta 4A, and 4  □ Drainage □ Dry Seasc ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An	Patterns (B10) Patterns (B10) In Water Table (C2) In Visible on Aerial Imagery (C9) Inic Position (D2) Iquitard (D3) Iral Test (D5) It Mounds (D6) (LRR A) Ive Hummocks (D7)
Primary India Surface W High Water Saturation Water Ma Sediment Drift depo Algal Mat Iron Depo Surface So Inundatio Sparsely \ Field Observa Surface Water Water Table Pr Saturation Presincludes capill	Vater (A1) er Table (A2) in (A3) irks (B1) ir Deposits (B2) osits (B3) or Crust (B4) osits (B5) ioil Cracks (B6) ion Visible on Ai Vegetated Cor ations: Present? resent? sent? lary fringe)	) erial Imagei cave Surfac Yes ○ Yes ○ Yes ○	No O No O	Water-Stained Lea 1, 2, 4A, and 4B)  Salt Crust (B11)  Aquatic Invertebra Hydrogen Sulfide ( Oxidized Rhizospho Presence of Reduct Recent Iron Reduct Stunted or Stresse Other (Explain in F	ates (B13) Odor (C1) Interes on Living Reced Iron (C4) Interest on Tilled So and Plants (D1) (Lection in Tilled So and Plants)  Interest of the Interest of th	oots (C3) ils (C6) RR A)  Wetla	Water-Sta 4A, and 4  □ Drainage □ Dry Seaso ☑ Saturation ☑ Geomorpl □ Shallow A ☑ FAC-neutr □ Raised An □ Frost Hea	Patterns (B10) Patterns (B10) In Water Table (C2) In Visible on Aerial Imagery (C9) Inic Position (D2) Iquitard (D3) Iral Test (D5) It Mounds (D6) (LRR A) Ive Hummocks (D7)

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

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

Project/Site: Silicon Mountain	Cit	y/County: Silver Bow	Sampling Date: 25-Jul-19
Applicant/Owner: MDT			State: MT Sampling Point: DP-3U
investigator(s): Cindy Hoschouer, Tanner Traxler		Section, Township, I	Range: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Valley bottom	L	ocal relief (concave,	convex, none): CONVEX Slope: 1.0 % / 0.6
Subregion (LRR): LRR E	Lat.: 46.0	0011962	Long.: -112.6609638 Datum: WGS84
oil Map Unit Name: Riverrun, occasionally flooded-Manni			NWI classification: Upland
e climatic/hydrologic conditions on the site typical for th		Yes   No	_
Are Vegetation, Soil, or Hydrology	significantly dis		Normal Circumstances" present? Yes No
	naturally probl		• • • • • • • • • • • • • • • • • • • •
, , , ,		<b>(</b>	eeded, explain any answers in Remarks.) cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No •			· · · · · · · · · · · · · · · · · · ·
Hydric Soil Present? Yes No •		Is the Sampled	Area  Yes O No   No
Wetland Hydrology Present?		within a Wetlar	nd? Yes ○ No ⑤
Remarks:			
This sample point is located within 3 feet of the wetland	l line at the base	of an upland slope.	
<b>VEGETATION -</b> Use scientific names of pla		Dominant	
Tree Stratum (Plot size: 30 Foot Radius )		Species? Rel.Strat. Indicato Cover Status	
1		0.0%	Number of Dominant Species That are OBL, FACW, or FAC:  (A)
2		0.0%	
3	0	0.0%	Total Number of Dominant Species Across All Strata: 1 (B)
4.	0	0.0%	
Sapling/Shrub Stratum (Plot size: 15 Foot Radius )	0=	Total Cover	Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)
1	0	0.0%	Prevalence Index worksheet:
2	0	0.0%	Total % Cover of: Multiply by:
3		0.0%	OBL species 0 x 1 = 0
4		0.0%	FACW species $10 \times 2 = 20$
5	0	0.0%	FAC species $\underline{5}$ x 3 = $\underline{15}$
(District Freehading )		Total Cover	FACU species $\frac{55}{}$ x 4 = $\frac{220}{}$
Herb Stratum (Plot size: 5 Foot Radius )	40 -	<b>✓</b> 57.1% FACU	UPL species $\frac{0}{x}$ $x = \frac{0}{x}$
1. Poa secunda			Column Totals:
Antennaria neglecta     Juncus balticus		14.3% FACU FACW	Prevalence Index = B/A = 3.643
4 Potentilla gracilis		7.1% FAC	
5 Symphyotrichum ascendens	-	7.1% FACU	Hydrophytic Vegetation Indicators:
6		0.0%	1 - Rapid Test for Hydrologic Vegetation
7		0.0%	2 - Dominance Test is > 50%
8.———	0	0.0%	☐ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
9			4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
10.—			5 - Wetland Non-Vascular Plants <sup>1</sup>
11			☐ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 30 Foot Radius )	=	Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
1	0	0.0%	be present, unless disturbed or problematic.
2		0.0%	Hydrophytic
	=	Total Cover	Vegetation Present? Yes ○ No ●
% Bare Ground in Herb Stratum: $15$			

<sup>\*</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

r/drology  etland Hydrology Indicators: rimary Indicators (minimum of one required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Satt Crust (B11) Water Marks (B1) Water Marks (B1) Water Marks (B1) Water Oxidized Rhizospheres on Living Roots (C3) Algal Mat or Crust (B4) Fresence of Reduced Iron (C4) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B8)  Pesson Water Merks (B1) Drint deposits (B5) Coxidized Rhizospheres on Living Roots (C3) Sturface Soil Cracks (B6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Depth (inches):  Wetland Hydrology Present? Yes No Depth (inches):	•									
Indicator   Texture   Remarks   Dos   Sandy   Silt Loam   Dos	•		1atrix		Red	lox Featu	ures			
Ease   1978   3/2   100   Sandy Site Loam   Sandy Redox (S5)   Cardy Redox (S5)   Cardy Redox (S6)	inches)	Color (m	oist)	% (	Color (moist)	%	Type 1	Loc <sup>2</sup>	Texture	Remarks
pe: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains	0-5	10YR	4/2	100					Loam	
ge: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains *Location: PL=Pore Lining, M=Matrix    drif Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)   Indicators for Problematic Hydric Soils 3:    Histosol (A1)   Sandy Redox (CS)   Q cm Muck (A10)   Red Parent Material (TF2)    Black Histic, (A3)   Loamy Mucky Mineral (F1) (except in MLRA 1)   Cherry Capital in Remarks)    Hydrogen Suiride (A2)   Depleted Below Dark Surface (A11)   Depleted Matrix (F2)    Depleted Blow Dark Surface (A12)   Redox Dark Surface (F6)    Sandy Huck Mineral (S1)   Sandy Huck Mineral (S1)   Redox Dark Surface (F7)    Sandy Huck Mineral (S1)   Redox Dark Surface (F8)    Sandy Huck Huck Soil Present? Yes   No  Popth (Inches):   Redox Dark Surface (F8)    Wettland Hydrology Indicators (F8)   Redox Dark Surface (F8)    No Published Park Soil Present? Yes   No  Popth (Inches):   Redox Dark Surface (F8)    Wettland Hydrology Present? Yes   No  Popth (Inches):   Redox Dark Surface (F8)    Wettland Hydrology Present? Yes   No  Popth (Inches):   Redox Dark Sur	5-18	10YR	3/2	100					Loam	
Histoso (A1)   Sandy Redox (S5)   Common   Com	18-20	7.5YR	3/2	100					Sandy Silt Loam	
Histosol (A1) Histosol (A1) Histosol (A1) Histosol (A1) Histosol (A2) Black Histic (A3) Black Histic (A3) Black Histic (A3) Black Histic (A3) Depleted Below Dark Surface (A12) Pepleted Matrix (F3) Sandy Muck Mineral (F1) Sandy Muck Mineral (S1) Sandy Muck Mineral Muck Mineral Muck Mineral M										
Hydrogen Sulfide (A4)	<b>dric Soil I</b> Histosol ( <i>I</i> Histic Epip	A1) pedon (A2)			unless otherwis  Sandy Redox Stripped Matr	se noted (S5) ix (S6)	.)		Indicators for Probl 2 cm Muck (A10) Red Parent Mater	lematic Hydric Soils <sup>3</sup> : rial (TF2)
Type:	Hydrogen Depleted Thick Dar Sandy Mu	Sulfide (A4) Below Dark Su k Surface (A12 ack Mineral (S1	)		Loamy Gleyed Depleted Mati Redox Dark S Depleted Darl	l Matrix (F rix (F3) urface (F6 k Surface	5) (F7)	,	<sup>3</sup> Indicators of hydrophy wetland hydrology r	ytic vegetation and nust be present,
### Depth (inches):	trictive L	ayer (if prese	ent):							
drology  stland Hydrology Indicators: imary Indicators (minimum of one required; check all that apply) Surface Water (A1) High Water Table (A2) Saturation (A3) Salt Crust (B11) Darinage Patterns (B10) Water Marks (B1) Aquatic Invertebrates (B13) Dry Season Water Table (C2) Sediment Deposits (B2) Hydrogen Sulfide Odor (C1) Sediment Deposits (B3) Oxidized Rhizospheres on Living Roots (C3) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Recent Iron Reduction in Tilled Soils (C6) Surface Soil Cracks (B6) Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A) Inundation Visible on Aerial Imagery (B7) Sparsely Vegetated Concave Surface (B8)  Wetland Hydrology Present? Yes No Depth (inches):	Timor									0 0
Advance Soil indicators observed. Very sandy soils below 18 inches.    Continuous	Type:									
etland Hydrology Indicators:  rimary Indicators (minimum of one required; check all that apply)  Surface Water (A1)  High Water Table (A2)  Saturation (A3)  Saturation (A3)  Water Marks (B1)  Aquatic Invertebrates (B13)  Drift deposits (B2)  Hydrogen Sulfide Odor (C1)  Algal Mat or Crust (B4)  Frost Heave Hummocks (D5)  Surface Soli Cracks (B6)  Surface Soli Cracks (B6)  Surface Soli Cracks (B6)  Surface Soli Cracks (B6)  Surface Water Present?  Frace Water Present?  Yes  No  Depth (inches):  Depth (inches):  Water-Stained Leaves (B9) (except MLRA  Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)  Dry Season Water Table (C2)  Saturation (V3)	Depth (inc		bserved. Ve	ery sandy so	bils below 18 inc	ches.			Hydric Soil Present?	Yes ○ No ●
Surface Water (A1)	Depth (inc		bserved. Ve	ery sandy so	- oils below 18 ind	ches.			Hydric Soil Present?	Yes ○ No ●
Surface Water (A1)	Depth (inc emarks: hydric soil	indicators of	bserved. Ve	ery sandy so	- oils below 18 ind	ches.			Hydric Soil Present?	Yes ○ No ●
High Water Table (A2)  Saturation (A3)  Salt Crust (B11)  Drainage Patterns (B10)  Water Marks (B1)  Sediment Deposits (B2)  Drift deposits (B3)  Oxidized Rhizospheres on Living Roots (C3)  Algal Mat or Crust (B4)  Iron Deposits (B5)  Surface Soil Cracks (B6)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  Aq. and 4B)  4A, and 4B)  Drainage Patterns (B10)  Drainage Patterns (B10)  Drainage Patterns (B10)  Dry Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Doxidized Rhizospheres on Living Roots (C3)  Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-neutral Test (D5)  Stunted or Stressed Plants (D1) (LRR A)  Raised Ant Mounds (D6) (LRR A)  The control of the	Depth (inc emarks: hydric soil	indicators of		ery sandy so	bils below 18 inc	ches.			Hydric Soil Present?	Yes ○ No ●
Saltration (A2)  Saturation (A3)  Salt Crust (B11)  Drainage Patterns (B10)  Dry Season Water Table (C2)  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)  Salt Crust (B11)  Drainage Patterns (B10)  Dry Season Water Table (C2)  Saturation Visible on Aerial Imagery (C9)  Double Geomorphic Position (D2)  Shallow Aquitard (D3)  FAC-neutral Test (D5)  Stunted or Stressed Plants (D1) (LRR A)  Raised Ant Mounds (D6) (LRR A)  Frost Heave Hummocks (D7)  Sparsely Vegetated Concave Surface (B8)  Redd Observations:  Inface Water Present?  Yes No  Depth (inches):	Depth (inc emarks: hydric soil ydrology fetland Hyd	indicators of	ators:							
Water Marks (B1)	Depth (inc emarks: hydric soil ydrology etland Hyd rimary Indi	indicators of	ators:		check all that ap	oply)ed Leaves	s (B9) (exce	ept MLRA	Secondary Indi	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2,
Sediment Deposits (B2)	Depth (inc emarks: hydric soil ydrology etland Hyd rimary Indi	indicators of	ators:		check all that ap Water-Stain 1, 2, 4A, an	oply) ed Leaves d 4B)	s (B9) (exce	pt MLRA	Secondary Indi	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2,
Drift deposits (B3)  Oxidized Rhizospheres on Living Roots (C3)  Algal Mat or Crust (B4)  Presence of Reduced Iron (C4)  Shallow Aquitard (D3)  Iron Deposits (B5)  Recent Iron Reduction in Tilled Soils (C6)  Surface Soil Cracks (B6)  Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  eld Observations:  urface Water Present?  Yes No  Depth (inches):	Depth (inc emarks: hydric soil drology etland Hyd rimary Indi Surface V High Wat	Indicators of variations of variations (minimizer (A1) ter Table (A2) in (A3)	ators:		check all that and the state of	oply) led Leaves d 4B) B11)		pt MLRA	Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2, utterns (B10)
Algal Mat or Crust (B4)	Depth (inc emarks: hydric soil ydrology etland Hyd rimary Indi Surface V High Wat Saturatio Water Ma	Indicators of Indicators of Indicators (Indicators (In	ators: num of one		check all that ap Water-Stain 1, 2, 4A, an Salt Crust (I	oply) ed Leaves d 4B) B11) ertebrates	s (B13)	ept MLRA	Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2, utterns (B10)
Iron Deposits (B5)	Depth (incommerce)  Property (incommerce)  Pr	Indicators of Indicators of Indicators (Indicators (In	ators: num of one		check all that ap Water-Stain 1, 2, 4A, an Salt Crust (I Aquatic Inve	oply) ed Leaves d 4B) B11) ertebrates ulfide Odd	s (B13) or (C1)		Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa  Dry Season  Saturation V	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2, atterns (B10) Water Table (C2) /isible on Aerial Imagery (C9)
Surface Soil Cracks (B6) Stunted or Stressed Plants (D1) (LRR A) Raised Ant Mounds (D6) (LRR A)  Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Frost Heave Hummocks (D7)  Sparsely Vegetated Concave Surface (B8)  seld Observations:  urface Water Present? Yes No  Depth (inches):	pepth (inc emarks: hydric soil ydrology etland Hyd rimary Indi Surface V High Wat Saturatio Water Ma Sediment Drift depo	Indicators of Indicators of Indicators (Indicators (In	ators: num of one		check all that ap Water-Stain 1, 2, 4A, an Salt Crust (I Aquatic Inve	oply) led Leaves d 4B) B11) ertebrates ulfide Odo izosphere	s (B13) or (C1) es on Living		Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa  Dry Season  Saturation V	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2, atterns (B10) Water Table (C2) /isible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7)  Sparsely Vegetated Concave Surface (B8)  eld Observations:  urface Water Present?  Yes No  Depth (inches):  Depth (inches):  Uturation Present?  Yes No  Depth (inches):  Depth (inches):  Depth (inches):  Depth (inches):  Depth (inches):  Depth (inches):	pepth (inc emarks: hydric soil ydrology fetland Hyd rimary Indi Surface V High Wate Saturatio Water Ma Sediment Drift depo	Indicators of Indicators of Indicators (minimater (A1) (minimater Table (A2) (minimater Table (B1) (minimater (B1) (minimater (B1) (minimater (B2) (minimater (B2) (minimater (B2) (minimater (B3) (minimater (B4) (minimater	ators: num of one		check all that ap Water-Stain 1, 2, 4A, an Salt Crust (I Aquatic Invi Hydrogen S Oxidized Rh	oply)  ed Leaves d 4B)  B11)  ertebrates ulfide Odd izosphere	s (B13) or (C1) es on Living Iron (C4)	Roots (C3)	Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa  Dry Season  Saturation N  Geomorphic  Shallow Aqu	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2, atterns (B10) Water Table (C2) Visible on Aerial Imagery (C9) Position (D2) uitard (D3)
Sparsely Vegetated Concave Surface (B8)  eld Observations:  urface Water Present? Yes No Depth (inches):  ater Table Present? Yes No Depth (inches):  uturation Present?  reductes capillary fringe)  Wetland Hydrology Present? Yes No Depth (inches):	pepth (inc emarks: hydric soil ydrology etland Hyd rimary Indi Surface V High Wat Saturatio Water Ma Sediment Drift depo	Indicators of Indicators of Indicators (Minimater (A1) (Mater (A3)) (Mater (B4)) (M	ators: num of one		check all that ap Water-Stain 1, 2, 4A, an Salt Crust (I Aquatic Inve	oply)  ed Leaves d 4B)  B11)  ertebrates ulfide Odd izosphere Reduced Reduction	s (B13) or (C1) s on Living Iron (C4) n in Tilled S	Roots (C3)	Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa  Dry Season  Saturation V  Geomorphic  Shallow Aqu  FAC-neutral	cators (minimum of two req ed Leaves (B9) (MLRA 1, 2, htterns (B10) Water Table (C2) /isible on Aerial Imagery (C9) : Position (D2) hitard (D3) Test (D5)
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escribe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:	Depth (inc. Remarks: Depth (inc. Remark)	Indicators of Indicators of Indicators (Indicators (In	erial Imagen	e required; of (B7) to (B8) No • No •	check all that and the second of the second	oply)  ed Leaves d 4B)  B11)  ertebrates ulfide Odd izosphere Reduced Reduction Stressed F ain in Ren  ches):	s (B13) or (C1) es on Living Iron (C4) n in Tilled S Plants (D1)	Roots (C3) ioils (C6) (LRR A)	Secondary Indi  Water-Stain 4A, and 4B)  Drainage Pa  Dry Season  Saturation N  Geomorphic  Shallow Aqu  FAC-neutral  Raised Ant I  Frost Heave	cators (minimum of two requed Leaves (B9) (MLRA 1, 2, atterns (B10) Water Table (C2) /isible on Aerial Imagery (C9) Position (D2) aitard (D3) Test (D5) Mounds (D6) (LRR A) Hummocks (D7)

US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

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

roject/Site: Silicon Mountain		City/County: Silv	ver Bow	Sampli	ng Date: 25-Ju	ul-19
pplicant/Owner: MDT			State:	MT Sam	pling Point:	DP-3W
		Section, Town	ship, Range: S 24	<b>T</b> 3N	<b>R</b> 9W	
Landform (hillslope, terrace, etc.): Valley bottom		Local relief (co	ncave, convex, non	e): concave	Slope: 1	0 <b>% /</b> 0.6 °
ubregion (LRR): LRR E	Lat.: 46	.00009981	Long.: -1	12.6610697	— Datum	: WGS84
oil Map Unit Name: Riverrun, occasionally flooded-Mannixle				NWI classification		
e climatic/hydrologic conditions on the site typical for this		G		o, explain in Remar		
	significantly		•	mstances" present	_	No O
	naturally pro			n any answers in R		
Summary of Findings - Attach site map sh				-	-	tures, etc.
Hydrophytic Vegetation Present? Yes  No		7.11.0				
Hydric Soil Present? Yes   No			mpled Area	● No ○		
Wetland Hydrology Present? Yes   No		within a \	Wetland? Yes	⊕ NO ∪		
Remarks:		<u> </u>				
This sample point is located on the east side of the project	t area within	community typ	e 4.			
<b>VEGETATION -</b> Use scientific names of plan	ts.	Dominant Species?				
Tree Stratum (Plot size: 30 Foot Radius )	Absolute % Cover	Rel.Strat. In	dicator Dominano	e Test worksheet:		
1.	_	0.0%	Number of	Dominant Species BL, FACW, or FAC:	2	(A)
2		0.0%	mac are o	be, thew, of the.		(4)
3		0.0%		ber of Dominant ross All Strata:	2	(B)
4	0	0.0%		1000 / III Struca.		
Sapling/Shrub Stratum (Plot size: 15 Foot Radius )	0	= Total Cover		f dominant Species OBL, FACW, or FAC		% (A/B)
1	0	0.0%	Prevalence	e Index worksheet:	1	
2	0	0.0%	Tota	al % Cover of:	Multiply by:	
3		0.0%	OBL speci	ies <u>70</u>	x 1 =	70
4			FACW spec	ies <u>10</u>	x 2 =2	20
5		0.0%	——— FAC speci	ies <u>0</u>	x 3 =	0
Herb Stratum (Plot size: 5 Foot Radius )	0	= Total Cover	FACU spec	_	^	0
1 Carex nebrascensis	50	<b>✓</b> 62.5% O	BL UPL speci	ies <u>0</u>	x 5 =	0
Carex aquatilis	20		BL Column To	otals: <u>80</u>	(A)	00 (B)
3 Deschampsia cespitosa	10			elence Index = B/A	= 1.125	5_
4	0	0.0%	Undersalbad	tic Vegetation Indi		
5		0.0%	' ' '	pid Test for Hydrolo		_
6		0.0%		minance Test is > 5		•
7	_	0.0%		evalence Index is ≤		
8.—	_	0.0%	—— I —	rphological Adapta		cupporting
9		0.0%		a in Remarks or on		
10.	•	0.0%	🗌 5 - We	tland Non-Vascular	Plants 1	
11.	80	= Total Cover	Problei	matic Hydrophytic	Vegetation <sup>1</sup> (E	xplain)
Woody Vine Stratum (Plot size: 30 Foot Radius )			<sup>1</sup> Indicato	rs of hydric soil and	d wetland hydr	ology must
1	0	0.0%	be presen	t, unless disturbed	or problemation	с.
2.		0.0%	Hydrophy			
	0	= Total Cover	Vegetation Present?		0	

<sup>\*</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

ofile Descri	iption: (Des	scribe to th	e aeptn n	eeded to documen	t tne inai	cator or c	ommin me	absence of indicators	•)
Depth		Matrix	-	Red	dox Featu	ıres			
(inches)	Color (		%	Color (moist)	%	Type 1	Loc2	Texture	Remarks
0-4	10YR	2/1	100					organics	
4-11	2.5Y	4/2	95	7.5YR 5/8	5	С	M	Silty Clay	
11-16	7.5YR	2.5/2	100					Silt Loam	
dric Soil I  Histosol (A	ndicators:			ed Matrix, CS=Cover Rs, unless otherwi	se noted.		rains <sup>2</sup> Loc	ination: PL=Pore Lining. N  Indicators for Pro  2 cm Muck (A10	blematic Hydric Soils <sup>3</sup> :
Black Histi Hydrogen Depleted I	Sulfide (A4) Below Dark S	•	)	Stripped Mati	Mineral (I d Matrix (F crix (F3)	2)	in MLRA 1)	Red Parent Mat Other (Explain	` '
Sandy Mu Sandy Gle	k Surface (Al ck Mineral (S eyed Matrix (S	51) 54)		Redox Dark S Depleted Dar Redox depres	k Surface	(F7)		<sup>3</sup> Indicators of hydrop wetland hydrology unless disturbed o	must be present,
octrictivo I :	ayer (if pre	sent):							
									0 0
Type: Depth (incl emarks:		esent in the	e 4-11" lay	ver.				Hydric Soil Present	Yes  No
Type: Depth (incl Remarks:		esent in the	e 4-11" lay	/er.				Hydric Soil Present	Yes  No
Type: Depth (incl Remarks: edox concen	ntrations pro	esent in the	e 4-11" lay	ver.				Hydric Soil Present	Yes No O
Type: Depth (incl Remarks: edox concen	ntrations pro		e 4-11" lay	/er.				Hydric Soil Present	Yes No O
Type: Depth (incl Remarks: edox concen  ydrology Vetland Hyd	ntrations pro	cators:			ylaq				
Type: Depth (incl Remarks: edox concen  ydrology Vetland Hyd	ntrations pro  / rology Indi cators (min	cators:		d; check all that a	ned Leaves	s (B9) (exce	pt MLRA	Secondary Inc	dicators (minimum of two required Leaves (B9) (MLRA 1, 2,
Type:	ntrations pro  / rology Indi cators (min	cators: imum of oi		d; check all that a  Water-Stair 1, 2, 4A, an	ned Leaves nd 4B)	s (B9) (exce	pt MLRA	_Secondary Inc	dicators (minimum of two required Leaves (B9) (MLRA 1, 2,
Type:	rology Indicators (min Vater (A1) er Table (A2)	cators: imum of oi		d; check all that a  Water-Stair 1, 2, 4A, an	ned Leaves nd 4B) B11)	. , ,	pt MLRA	Secondary Inc  Water-Sta 4A, and 4B	dicators (minimum of two required Leaves (B9) (MLRA 1, 2, 3)
Type: Depth (incl Remarks: Redox concen  ydrology Vetland Hyd Primary Indi Surface W High Wate Saturation Water Ma	rology Indi cators (min Vater (A1) er Table (A2) n (A3) urks (B1)	cators: imum of or		d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (	ned Leaves nd 4B) B11) ertebrates	(B13)	pt MLRA	Secondary Inc  Water-Sta 4A, and 4b  Drainage I	dicators (minimum of two required Leaves (B9) (MLRA 1, 2, B) Patterns (B10) In Water Table (C2)
Type:	rology Indicators (min Vater (A1) er Table (A2) in (A3) irks (B1)	cators: imum of or		d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (  Aquatic Inv	ned Leaves nd 4B) B11) ertebrates Gulfide Odd	s (B13) or (C1)		Secondary Inc  Water-Sta 4A, and 4B  Drainage B  Dry Seaso  Saturation	dicators (minimum of two requined Leaves (B9) (MLRA 1, 2, B) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9)
Type:	rology Indicators (min Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B3)	cators: imum of or		d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (  Aquatic Inv  Hydrogen S	ned Leaves nd 4B) B11) ertebrates Sulfide Odo nizospheres	(B13) or (C1) s on Living		Secondary Inc Water-Sta 4A, and 4B Drainage B Dry Seaso Saturation Geomorph	dicators (minimum of two requined Leaves (B9) (MLRA 1, 2, 3) Patterns (B10) n Water Table (C2) Visible on Aerial Imagery (C9) ic Position (D2)
Type:	rology Indicators (min Vater (A1) er Table (A2) n (A3) rks (B1) Deposits (B3) or Crust (B4)	cators: imum of or		d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (  Aquatic Inv  Hydrogen S  Oxidized Rh	ned Leaves nd 4B) B11) ertebrates Sulfide Odo nizospheres	s (B13) or (C1) s on Living Iron (C4)	Roots (C3)	Secondary Inc Water-Sta 4A, and 4B Drainage B Dry Seaso Saturation Geomorph Shallow Ac	dicators (minimum of two requined Leaves (B9) (MLRA 1, 2, 3) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9) Ic Position (D2) quitard (D3)
Type:	rology Indi cators (min Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B3) or Crust (B4) posits (B5)	cators: imum of or ) 2)		d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (  Aquatic Inv  Hydrogen S  Oxidized Rh  Presence of	ned Leaves ad 4B) B11) ertebrates Gulfide Odo nizospheres f Reduced n Reduction	or (B13) or (C1) s on Living Iron (C4) n in Tilled S	Roots (C3)	Secondary Ind Water-Sta 4A, and 4B Drainage B Dry Seaso Saturation Geomorph Shallow Ac	dicators (minimum of two required Leaves (B9) (MLRA 1, 2, 3) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9) Ic Position (D2) quitard (D3) al Test (D5)
Type:	rology Indi cators (min Vater (A1) er Table (A2) n (A3) arks (B1) Deposits (B3) or Crust (B4 posits (B5) foil Cracks (B	cators: imum of or ) 2) )	ne require	d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (  Aquatic Inv  Hydrogen S  Oxidized Rh  Presence of  Recent Iror  Stunted or	ned Leaves ad 4B) B11) ertebrates Sulfide Odd nizospheres f Reduced n Reduction Stressed P	or (B13) or (C1) s on Living Iron (C4) n in Tilled S	Roots (C3)	Secondary Inc Water-Sta 4A, and 4f Drainage I Dry Seaso Saturation Geomorph Shallow Ac FAC-neutr. Raised Ant	dicators (minimum of two required Leaves (B9) (MLRA 1, 2, 3) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9) Iic Position (D2) Iquitard (D3) Ial Test (D5) Is Mounds (D6) (LRR A)
Type:	rology Indicators (min Vater (A1) er Table (A2) in (A3) inks (B1) Deposits (B3) or Crust (B4) posits (B5) ioil Cracks (B	cators: imum of or  )  2)  )  6)  Aerial Image	ne require	d; check all that a  Water-Stair 1, 2, 4A, an  Salt Crust (  Aquatic Inv  Hydrogen S  Oxidized Rh  Presence of	ned Leaves ad 4B) B11) ertebrates Sulfide Odd nizospheres f Reduced n Reduction Stressed P	or (B13) or (C1) s on Living Iron (C4) n in Tilled S	Roots (C3)	Secondary Inc Water-Sta 4A, and 4f Drainage I Dry Seaso Saturation Geomorph Shallow Ac FAC-neutr. Raised Ant	dicators (minimum of two required Leaves (B9) (MLRA 1, 2, 3) Patterns (B10) In Water Table (C2) Visible on Aerial Imagery (C9) Ic Position (D2) quitard (D3) al Test (D5)
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US Army Corps of Engineers

Western Mountains, Valleys, and Coast - Version 2.0

# APPENDIX C PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

C-1 RSI-2976



Photo Point: 1. Photo 1: View of western edge of cell 1 looking NW. Bearing: 333 degrees Year: 2015



Photo Point: 1. Photo 1: View of western edge of cell 1 looking NW. Bearing: 333 degrees Year: 2019



Photo Point: 1. Photo 2: View of central portion of cell 1 looking NE. Bearing: 26 degrees Year: 2015



Photo Point: 1. Photo 2: View of central portion of cell 1 looking NE. Bearing: 26 degrees Year: 2019



Photo Point: 1. Photo 3: View of central portion of cell 1 looking E. Bearing: 86 degrees Year: 2015



Photo Point: 1. Photo 3: View of central portion of cell 1 looking E. Bearing: 86 degrees Year: 2019



Photo Point: 1. Photo 4: View of southern end of cell 1 looking SE. Bearing: 166 degrees Year: 2015



Photo Point: 1. Photo 4: View of southern end of cell 1 looking SE. Bearing: 166 degrees Year: 2019



Photo Point: 1. Photo 5: View of western side of cell 1 looking SW. Bearing: 202 degrees Year: 2015



Photo Point: 1. Photo 5: View of western side of cell 1 looking SW. Bearing: 202 degrees Year: 2019



Photo Point: 2. Photo 1: View of Sand Creek channel looking NE. Bearing: 40 degrees Year: 2015



Photo Point: 2. Photo 1: View of Sand Creek channel looking NE. Bearing: 40 degrees Year: 2019



Photo Point: 2. Photo 2: View outside cell 1 looking east. Bearing: 86 degrees Year: 2015



Photo Point: 2. Photo 2: View outside cell 1 looking east. Bearing: 86 degrees Year: 2019



Photo Point: 2. Photo 3: View of eastern portion of cell 1 looking SE. Bearing: 113 degrees Year: 2015



Photo Point: 2. Photo 3: View of eastern portion of cell 1 looking SE. Bearing: 113 degrees Year: 2019



Photo Point: 3. Photo 1: View of western edge of cell 4 looking NW. Bearing: 314 degrees Year: 2015



Photo Point: 3. Photo 1: View of western edge of cell 4 looking NW. Bearing: 314 degrees Year: 2019



Photo Point: 3. Photo 2: View of western side of cell 4 looking N. Bearing: 343 degrees Year: 2015



Photo Point: 3. Photo 2: View of western side of cell 4 looking N. Bearing: 343 degrees Year: 2019



Photo Point: 3. Photo 3: View across center of cell 4 looking NW. Bearing: 66 degrees Year: 2015



Photo Point: 3. Photo 3: View across center of cell 4 looking NW. Bearing: 66 degrees Year: 2019



Photo Point: 3. Photo 4: View of southern side of cell 4 looking SE. Bearing: 114 degrees Year: 2015



Photo Point: 3. Photo 4: View of southern side of cell 4 looking SE. Bearing: 114 degrees Year: 2019

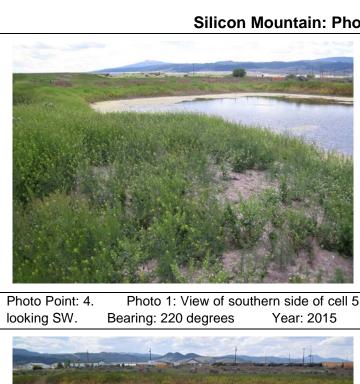




Photo Point: 4. Photo 1: View of southern side of cell 5 looking SW. Bearing: 220 degrees Year: 2019



Photo Point: 4. Photo 2: View across SE portion of cell 5 looking W. Year: 2015 Bearing: 268 degrees



Photo Point: 4. Photo 2: View across SE portion of cell 5 looking W. Bearing: 268 degrees Year: 2019



Photo Point: 4. looking NW.

Photo 3: View across center of cell 5 Bearing: 321 degrees Year: 2015



Photo Point: 4. Photo 3: View across center of cell 5 looking NW. Bearing: 321 degrees Year: 2019



Photo Point: 4. Photo 4: View of eastern side of cell 5 looking N. Bearing: 24 degrees Year: 2015



Photo Point: 4. Photo 4: View of eastern side of cell 5 looking N. Bearing: 24 degrees Year: 2019



Photo Point: 4. Photo 5: View of eastern side of cell 5 looking NE. Bearing: 56 degrees Year: 2015



Photo Point: 4. Photo 5: View of eastern side of cell 5 looking NE. Bearing: 56 degrees Year: 2019



Photo Point: 5. Photo 1: View of north end of cell 3 looking SE. Bearing: 145 degrees Year: 2015



Photo Point: 5. Photo 1: View of north end of cell 3 looking SE. Bearing: 145 degrees Year: 2019



Photo Point: 5. Photo 2: View of north end of cell 3 looking NW. Bearing: 345 degrees Year: 2015



Photo Point: 5. Photo 2: View of north end of cell 3 looking NW. Bearing: 345 degrees Year: 2019



Photo Point: 6. Photo 1: View of south end of cell 2 looking NW. Bearing: 326 degrees Year: 2015



Photo Point: 6. Photo 1: View of south end of cell 2 looking NW. Bearing: 326 degrees Year: 2019



Photo Point: 6. Photo 2: View of southeast side of cell 2 looking N. Bearing: 352 degrees Year: 2015



Photo Point: 6. Photo 2: View of southeast side of cell 2 looking N. Bearing: 352 degrees Year: 2019

#### Silicon Mountain: Photo Point and Stream Photographs



Photo Point: 7. Photo 1: View of cell 6 looking east. Bearing: 95 degrees Year: 2015



Photo Point: 7. Photo 1: View of cell 6 looking east. Bearing: 95 degrees Year: 2019



Photo Point: 8. Photo 1: View of the south end of Sand Creek looking SW. Bearing: 213 degrees Year: 2015



Photo Point: 8. Photo 1: View of the south end of Sand Creek looking SW. Bearing: 213 degrees Year: 2019



Photo Point: 8. Photo 2: View across southern portion of Sand Creek looking SE. Bearing: 28 degrees Year: 2015



Photo Point: 8. Photo 2: View across southern portion of Sand Creek looking SE. Bearing: 28 degrees Year: 2019



Photo Point: 9. Photo 1: View of Sand Creek downstream of PP-8 looking SE. Bearing: 148 degrees Year: 2015



Photo Point: 9. Photo 1: View of Sand Creek downstream of PP-8 looking SE. Bearing: 148 degrees Year: 2019



Photo Point: 9. Photo 2: View of Sand Creek downstream of PP-9 looking N. Bearing: 356 degrees Year: 2015



Photo Point: 9. Photo 2: View of Sand Creek downstream of PP-9 looking N. Bearing: 356 degrees Year: 2019



Photo Point: 10. Photo 1: View of the channel/slopes under overpass looking NW. Bearing: 312 degrees Year: 2015



Photo Point: 10. Photo 1: View of the channel/slopes under overpass looking NW. Bearing: 312 degrees Year: 2019



Photo Point: 10. Photo 2: View of Sand Creek looking NE Bearing: 66 degrees Year: 2015



Photo Point: 10. Photo 2: View of Sand Creek looking NE Bearing: 66 degrees Year: 2019



Photo Point: 11. Photo 1: View of Sand Creek looking SE. Bearing: 144 degrees Year: 2015



Photo Point: 11. Photo 1: View of Sand Creek looking SE. Bearing: 144 degrees Year: 2019



Photo Point: 11. Photo 2: View of stream x-section 3 looking S. Bearing: 178 degrees Year: 2015



Photo Point: 11. Photo 2: View of stream x-section 3 looking S. Bearing: 178 degrees Year: 2019



Photo Point: 11. Photo 3: View downstream of stream x-section 3 looking NW. Bearing: 300 degrees Year: 2015



Photo Point: 11. Photo 3: View downstream of stream x-section 3 looking NW. Bearing: 300 degrees Year: 2019



Photo Point: 12. Photo 1: View SW across stream x-section 4. Bearing: 216 degrees Year: 2015



Photo Point: 12. Photo 1: View SW across stream x-section 4. Bearing: 216 degrees Year: 2019



Photo Point: 12. Photo 2: View SW across stream x-section 4. Bearing: 284 degrees Year: 2015



Photo Point: 12. Photo 2: View SW across stream x-section 4. Bearing: 284 degrees Year: 2019



Photo Point: 12. Photo 3: View west across Sand Creek channel. Bearing: 270 degrees Year: 2015



Photo Point: 12. Photo 3: View west across Sand Creek channel. Bearing: 270 degrees Year: 2019



Photo Point: 12. Photo 4: View NW of stream x-section 4. Bearing: 348 degrees Year: 2015



Photo Point: 12. Photo 4: View NW of stream x-section 4. Bearing: 348 degrees Year: 2019



Photo Point: 13. Photo 1: View SE of stream x-section 7. Bearing: 153 degrees Year: 2015



Photo Point: 13. Photo 1: View SE of stream x-section 7. Bearing: 153 degrees Year: 2019



Photo Point: 13. Photo 2: View NE of stream x-section 7. Bearing: 341 degrees Year: 2015



Photo Point: 13. Photo 2: View NE of stream x-section 7. Bearing: 341 degrees Year: 2019



Photo Point: 14. Photo 1: View of middle headcut looking south. Bearing: 178 degrees Year: 2015



Photo Point: 14. Photo 1: View of middle headcut looking south. Bearing: 178 degrees Year: 2019



Photo Point: 15. Photo 1: View of the eastern headcut looking S. Bearing: 189 degrees Year: 2015



Photo Point: 15. Photo 1: View of the eastern headcut looking S. Bearing: 189 degrees Year: 2019



Photo Point: 16. Photo 1: View of western headcut looking west. Bearing: 270 degrees Year: 2015



Photo Point: 16. Photo 1: View of western headcut looking west. Bearing: 270 degrees Year: 2019



Photo Point: 17. Photo 1: View of Sand Creek channel looking W. Bearing: 157 degrees Year: 2015



Photo Point: 17. Photo 1: View of Sand Creek channel looking W. Bearing: 157 degrees Year: 2019



Photo Point: 17. Photo 2: View of Sand Creek channel looking N. Bearing: 356 degrees Year: 2015



Photo Point: 17. Photo 2: View of Sand Creek channel looking N. Bearing: 356 degrees Year: 2019

### **Silicon Mountain: Transect Photographs**



Transect 1: Start Bearing: 305 degrees





Transect 1: Start Bearing: 305 degrees

Location: South end cell 2 Year: 2019



Transect 1: End Bearing: 177 degrees

Location: West end of cell 2 Year: 2015



Transect 1: End Bearing: 177 degrees

Location: West end of cell 2 Year: 2019

### **Silicon Mountain: Transect Photographs**



Transect 2: Start Bearing: 106 degrees



Location: West side of cell 4 Year: 2015



Transect 2: Start Bearing: 106 degrees

Location: West side of cell 4 Year: 2019



Transect 2: End Bearing: 285 degrees



Location: East side of cell 4 Year: 2015



Transect 2: End Bearing: 285 degrees

Location: East side of cell 4 Year: 2019

#### **Silicon Mountain: Data Points**





Cross-section 1: At center looking upstream. Year: 2017



Cross-section 1: At center looking upstream. Year: 2019



Cross-section 1: At center looking downstream. Year: 2017



Cross-section 1: At center looking downstream. Year: 2019



Cross-section 2: At center looking upstream. Year: 2017



Cross-section 2: At center looking upstream. Year: 2019



Cross-section 2: At center looking downstream. Year: 2017



Cross-section 2: At center looking downstream. Year: 2019



Cross-section 3: At center looking upstream. Year: 2017



Cross-section 3: At center looking upstream. Year: 2019



Cross-section 3: At center looking downstream. Year: 2017



Cross-section 3: At center looking downstream. Year: 2019



Cross-section 4: At center looking upstream. Year: 2017



Cross-section 4: At center looking upstream. Year: 2019



Cross-section 4: At center looking downstream. Year: 2017



Cross-section 4: At center looking downstream. Year: 2019



Cross-section 5: At center looking upstream. Year: 2017



Cross-section 5: At center looking upstream. Year: 2019



Cross-section 5: At center looking downstream. Year: 2017



Cross-section 5: At center looking downstream. Year: 2019



Cross-section 6: At center looking upstream. Year: 2017



Cross-section 6: At center looking upstream. Year: 2019



Cross-section 6: At center looking downstream. Year: 2017



Cross-section 6: At center looking downstream. Year: 2019



Cross-section 7: At center looking upstream. Year: 2017



Cross-section 7: At center looking upstream. Year: 2019



Cross-section 7: At center looking downstream. Year: 2017



Cross-section 7: At center looking downstream. Year: 2019



Cross-section 8: At center looking upstream. Year: 2017



Cross-section 8: At center looking upstream. Year: 2019



Cross-section 8: At center looking downstream. Year: 2017



Cross-section 8: At center looking downstream. Year: 2019

# APPENDIX D Surveyed Stream Cross Sections

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

D-1 RSI-2976

