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: 2020

Years Monitored: 6th year of monitoring

Corps Permit Number: NWO-2012-01822-MTH

Stream Protection Act (SPA) Number: MDT-R2-74-201
Monitoring Conducted By: Confluence Consulting Inc
Dates Monitoring Was Conducted: June 30 - July 1, 2020

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 8, 2020 Specific recommendations for any additional corrective

actions: Weed treatment will continue in 2021.

Anticipated Wetland Credit Acres: 11.45

Wetland Credit Acres Generated to Date: 10.61

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 at least 12.5 percent of the growing season.
	Hydric soil conditions are present or appear to be forming.	Υ	Hydric soil characteristics have developed throughout all constructed wetlands.
Hydric Soil	Soil is sufficiently stable to prevent erosion.	Υ	Overall, disturbed soil is stable and generally does not exhibit signs of erosion.
	Soil is able to support plant cover.	Υ	Plant cover is establishing well within developed wetlands.
Hydrophytic	Success is achieved where combined absolute cover of facultative or wetter species is ≥ 70 percent.	Υ	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 that are greater than or equal to 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 a portion of 4 and 6 experience seasonal drawdown and rooted hydrophytic vegetation is present. Wetland Cells 1, 5, the northern portion of 4, and portion of WL-13 appear to support perennial inundation and exhibit an aquatic macrophyte community.
	Noxious weeds do not exceed 10 percent cover within upland buffer area.	Y	Noxious weed cover is approximately 2 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.	Y	Disturbed areas have established greater than 50 percent cover by non-noxious weed species.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
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; control measures based on the monitoring results will be implemented by MDT to minimize and/or eliminate the intrusion of state-listed noxious weed species within the site.	Y	State-listed noxious weed species across the site have been monitored and mapped during each post-construction monitoring event. MDT administers on-going weed-control programs. Noxious weeds were sprayed in July 2020 by MDT's contractor and will continue on-going weed control efforts to reduce existing noxious weed infestations. Montana state-listed noxious weeds are estimated at 4 percent absolute cover across the entire site.

Summary Data

Wetland Delineation — The total wetland acreage delineated in 2020, including pre-existing wetland areas, was 15.7 acres (Table 2; Appendix A), which is a decrease of 2.6 acres since 2019. The delineation confirmed 6.0 acres of created wetland in the excavated cells and 9.7 acres in the preserved wetland areas (Table 2). In 2020, the USACE provided guidance on open water, defining it as "areas of open water of any depth with less than 5% rooted emergent vegetation, no vegetation, submerged non-rooted vegetation, and/or submerged vegetation rooted in the substrate that does not extend above the water surface." In accordance with this recent USACE guidance, open water accounted for 3.8 acres of the mitigation site in 2020 (Table 2). The decrease in total wetland acreage observed in 2020 is primarily a result of this recent change in open water. Uplands accounted for approximately 28.9 acres of the mitigation site and the remaining 1.7 acres are represented by the restored Sand Creek channel (Figure A-3, Appendix A).

Table 2. Delineated Wetland and Aquatic Habitat Acres From 2015 Through 2020 at the Silicon Mountain Site

Wetland Habitat Type	2015 Acreage	2016 Acreage	2017 Acreage	2018 Acreage	2019 Acreage	2020 Acreage
Project Area	50.1	50.1	50.1	50.1	50.1	50.1
Establishment (Creation)	6.2	6.3	6.3	7.1	7.5	6.0
Preservation	10.3	10.3	10.8	10.8	10.8	9.7
Open Water						3.8
Total Wetland & Aquatic Habitat	16.5	16.6	17.1	17.9	18.3	19.4

Vegetation – A total of 177 plant species have been identified at the site from 2015 through 2020, including five new species in 2020. Vegetation communities were identified by species composition and dominance. The following eight wetland and six upland community types were identified and mapped at the mitigation site in 2020:

- 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 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.

The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring form (Appendix B), and the community boundaries shown on Figure A-3 (Appendix A). A portion of upland Type 13 is considered wetland where it surrounds wetland cell 6 in the western part of the project area.

Vegetation cover was measured along two belt transects (T-1 and T-2) in 2020 (Figure A-2, Appendix A). Photographs of the transect end points are provided in Appendix C. Table 3 summarizes the data for T-1 from 2015 through 2020. 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 2020. While the percent of this transect that crosses hydrophytic vegetation communities has not changed over the last 4 years of monitoring, the total number of hydrophytic species has increased since 2019.

Table 3. Data Summary for T-1 From 2015 Through 2020 at the Silicon Mountain Site

Monitoring Year	2015	2016	2017	2018	2019	2020
Transect Length (feet)	564	564	564	564	564	564
Vegetation Community Transitions Along Transect	4	6	6	6	6	6
Vegetation Communities Along Transect	3	4	4	5	5	4
Hydrophytic Vegetation Communities Along Transect	1	2	2	2	2	2
Total Vegetative Species	51	48	54	42	43	47
Total Hydrophytic Species	30	26	33	28	31	35
Total Upland Species	21	22	21	14	12	12
Estimated % Total Vegetative Cover	90	90	90	90	93	93
Estimated % Unvegetated	10	10	10	10	7	7
% Transect Length Comprising Hydrophytic Vegetation Communities	80.5	81.3	86	86	86	86
% Transect Length Comprising Upland Vegetation Communities	19.5	18.7	14	14	14	14
% Transect Length Comprising Open Water	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0	0

Table 4 summarizes the data for T-2 from 2015 through 2020. T-2 is 219 feet long and intersects vegetation community Types 3, 11, 14, and 15. Hydrophytic vegetation accounted for 90 percent of the transect in 2020 which is consistent with observations in 2018 and 2019. Total species observed along the transect, including hydrophytic species, increased during the 2020 monitoring event, while total upland species decreased.

Table 4. Data Summary for T-2 From 2015 Through 2020 at the Silicon Mountain Site

Monitoring Year	2015	2016	2017	2018	2019	2020
Transect Length (feet)	219	219	219	219	219	219
Vegetation Community Transitions Along Transect	2	2	2	2	3	3
Vegetation Communities Along Transect	2	3	3	3	4	4
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	2	2
Total Vegetative Species	9	21	47	27	35	37
Total Hydrophytic Species	5	10	24	17	19	26
Total Upland Species	4	11	23	10	16	11
Estimated % Total Vegetative Cover	30	45	55	72	87.5	85
Estimated % Unvegetated	70	55	45	28	12.5	15
% Transect Length Comprising Hydrophytic Vegetation Communities	88.1	88.1	88.1	90.9	90.4	89.5
% Transect Length Comprising Upland Vegetation Communities	11.9	11.9	11.9	9.1	9.6	10.5
% Transect Length Comprising Open Water	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	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*), butter-and-eggs (*Linaria vulgaris*), and Russian knapweed (*Acroptilon repens*). Infestation areas were mapped in 2020 and are shown on Figure A-3 in Appendix A. Weed control efforts have been effective in decreasing weed infestations from 2019 to 2020. MDT has an ongoing weed-control program, which included weed spraying by contractors on July 8, 2020, following the June/July 2020 monitoring event. 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 had survived through the 2020 survey. An estimated 85 percent of the installed willow cuttings had survived; young shoots arising from the installed cuttings ranged from 12 to 45 inches in length. The willow cuttings were healthy and robust, with no signs of insect damage or disease observed.

Hydrology – During the 2020 investigation, the average depth of surface water across the site was estimated at 1.0 feet with a range of depths from 0.3 to 3 feet. Open water, totaling 3.8 acres, was present and mapped within constructed Cells 1, 5, 6, and 4, and within preserved wetland cell 13. Soils were saturated to the surface within Cells 2 and 3. 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 6 years indicates that groundwater levels are rising across the site. May 2019 and 2020 water levels were the highest recorded to date, at 0.63-ft and 0.85-ft below land surface, respectively. Monitoring efforts in 2020 shows groundwater levels in a portion of site 0.85 to 2.9 feet below the land surface elevation of 5,347 feet from April through September (Table 5) [USGS, 2020].

Table 5. 2020 USGS Groundwater Well Data for the Silicon Mountain Site

2020 Discrete water-level measurements					
Date	Time Mountain Time	Depth to water level, feet below land surface			
4/2/2020	1:24	2.28			
5/19/2020	9:56	1.01			
6/18/2020	4:54	0.85			
7/22/2020	2:05	2.7			
8/27/2020	10:53	2.92			
9/24/2020	10:42	2.81			

Soils – Soil test pits were excavated at 14 locations to determine the extent of hydric soil development across the site in 2020 (Appendices A and B). Soil textures within wetland test pits ranged from mucky peat to silty clay. Hydric soil indicators were observed in all wetland test pits and included histic epipedon, depleted matrix, loamy gleyed matrix, and hydrogen sulfide. Soil textures within upland test pits ranged from loamy sand to clay. No hydric soil indicators were observed in any of the upland test pits. Additional field observations for the 14 data points are provided in the wetland determination data forms in Appendix B.

In 2017, there were a few rills and gullies noted on the southern slope of wetland Cell 5, north of the newly constructed bike path, which resulted in sediment deposition. In 2020, perennial vegetation has established within and adjacent to the erosion and with time, the rills and gullies will likely become inactive.

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 surveyed channel cross sections, wetland determination data points, and vegetation transect endpoints (T-1 and T-2) are provided in Appendix C, with comparison between 2020 and the first year of monitoring. The locations of these photographs are illustrated on Figure A-2 in Appendix A. Please refer to previous years' monitoring reports for all previous annual photographs

(https://www.mdt.mt.gov/publications/brochures/wetland mitigation.shtml).

Functional Assessment – The 2008 Montana Wetland Assessment Method (MWAM) form [Berglund and McEldowney, 2008] was used to evaluate the site in 2020 (Table 6; Appendix B). Four distinct Assessment Areas (AA) were evaluated at the site in 2020 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 are classified as Category II wetlands and received an exceptional rating for Production Export/Food Chain Support and high ratings for General Wildlife Habitat, Shortand Long-Term Surface-Water Storage, and Groundwater/Discharge/Recharge. Preservation Wetlands were also classified as Category II wetlands and received high ratings for General Wildlife Habitat, Shortand Long-Term Surface-Water Storage, and Groundwater/Discharge/Recharge. All other wetlands within the site rate as Category III wetlands.

Table 6. Montana Wetland Assessment Method Summary for the Silicon Mountain Site

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2020 AA 1 (Created Wetland Cells 2, 3, and 4)	2020 AA 2 (Created Wetland Cells 1 and 5)	2020 AA3 (Preservation Wetlands)	2020 AA4 (Created Wetland Cell 6)
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
Montana Natural Heritage Program Species (MTNHP) Habitat	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)
General Wildlife Habitat	Mod (0.7)	High (0.9)	High (0.9)	Mod (0.4)
General Fish/Aquatic Habitat	NA	NA	NA	NA
Flood Attenuation	NA	Mod (0.6)	NA	NA
Short- and Long-Term, Surface-Water Storage	Mod (0.6)	High (0.8)	High (0.8)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	High (1.0)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Sediment/Shoreline Stabilization	Mod (0.6)	Mod (0.7)	Mod (0.7)	Low (0.2)
Production Export/Food Chain Support	Mod (0.7)	Exceptional (1.0)	Mod (0.6)	Mod (0.4)
Groundwater Discharge/Recharge	Mod (0.7)	High (1.0)	High (1.0)	Mod (0.7)
Uniqueness	Low (0.3)	Mod (0.4)	Mod (0.4)	Low (0.3)
Recreation/Education Potential (bonus points)	Mod (0.10)	Mod (0.10)	Mod (0.10)	Mod (0.10)
Actual Points/Possible Points	5.2/9	6.7/10	5.9/9	3.6/9
% of Possible Score Achieved	58%	67%	66%	40%
Overall Category	III	II	II	111
Total Acreage of Assessed Wetlands Within Site Boundaries	3.4	4.9	10.8	0.44
Functional Units (acreage × actual points)	17.68	32.56	63.72	1.58

Wildlife – Twenty-nine bird species were identified in 2020 at the Silicon Mountain site and included several wetland-dependent species. In addition to the bird observations, a white-tailed jack rabbit and unidentified frog species were also observed (Appendix B).

Stream Monitoring — The annual cross section survey of the Sand Creek reconstructed channel revealed subtle horizontal and vertical changes since 2019. Some sections exhibit slight scouring and/or lateral shifting of the thalweg while other sections exhibit aggradation and/or point bar growth. In 2020, these changes were more pronounced in Cross Sections 1, 3, 6, and 7. As in previous years, Cross Section 6 shows the most noticeable shifts since 2019 (see Cross Section figures in Appendix D). The section aggraded in 2019 and 2020, while it exhibited scouring in 2017 and 2018. Cross Section 7 (just downstream) has not changed substantially since construction and appears to serve as the hydraulic control for the reach immediately upstream, likely due to the similar bed elevation and 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, 2019 was a smaller runoff year, and 2020 of greater magnitude than 2019. Large runoff years generally appear to induce more substantial scouring of pools, and low runoff years generally appear to promote relatively more aggradation.

In 2020, all 16 belt transects monitored along Sand Creek exhibited vegetation communities with stability ratings of 6 or greater, which successfully meets the site's performance criterion. Willow species, including yellow willow (Salix lutea), narrow-leaf willow (Salix exigua), and Pacific willow (Salix lutea)

lasiandra), represent the dominant community type identified along the stream bank transects. Dominant herbaceous species observed within the willow dominated communities included red-tinge bulrush (Scripus microcarpus), Nebraska sedge (Carex nebrascensis), and Northwest Territory sedge (Carex utriculata). The willows continue to increase in height and width along the stream banks, with minor shifts in species dominance observed during the 2020 monitoring event.

Credit Summary - Stream Credits

The goal of the stream mitigation component of the Silicon Mountain project includes restoring approximately 4,300 linear feet of Sand Creek, with 3,900 linear feet 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 7. To date, the project is meeting the two success criteria established for stream mitigation components of the project. Stream cross sections for 2020 are provided in Appendix D and are compared to previous years' monitoring.

Mitigation Reach	Linear Feet	Sum of Mitigation Factors ^(a)	Mitigation Credits
Reach 1	3,250	3.20	10,400
Reach 2	650	3.03	1,969.5
Total	3.900		12.369.5

Table 7. 2020 Stream Mitigation Credits for the Silicon Mountain Site

Credit Summary – Wetland Credits

A total of 15.69 acres of wetland habitat were delineated at the Silicon Mountain site in 2020, including 6.04 acres of creation and 9.65 acres of preservation. A total of 30.24 acres, including 10.80 acres of upland buffer and 3.75 acres of open water, were used to calculate the mitigation credit acres (Table 8).

Applying the USACE-approved ratios to these values, a total of 10.61 acres of mitigation credit have been estimated in 2020 (Table 8), which is 0.84 acres short of the targeted 11.45 acres anticipated at this site. As described on page 3, the decrease in total wetland acreage observed in 2020 is the result of the recent change for open water habitat at the request of the USACE. The open water habitat, which represented a total of 3.75 acres in 2020, is classified as either lacustrine aquatic bed or palustrine aquatic bed under the USFWS classification system [FGDC, 2013].

⁽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].

Table 8. Summary of Wetland Mitigation Credits at the Silicon Mountain Site from 2016 through 2020

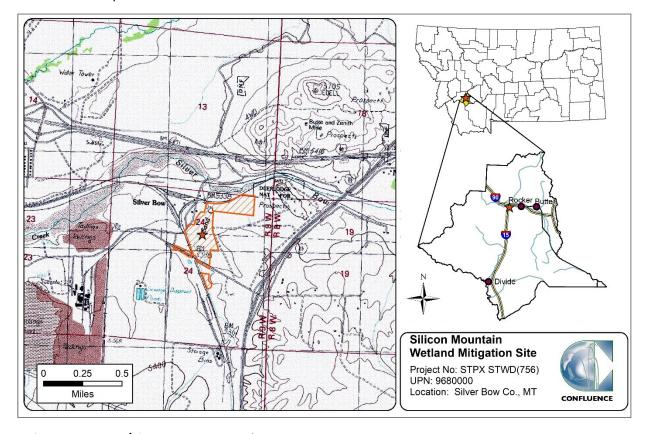
Compensatory Mitigation Type	Mitigation Area Description	Wetland Type ^(b)	Anticipated Mitigation Surface Area (acres)	USACE- Approved Mitigation Ratios	Anticipated Mitigation Credit (acres)	2016 Delineated Acres	2016 Mitigation Credit (acres)	2017 Delineated Acres	2017 Mitigation Credit (acres)	2018 Delineated Acres	2018 Mitigation Credit (acres)	2019 Delineated Acres	2019 Mitigation Credit (acres)	2020 Delineated Acres	2020 Mitigation Credit (acres)
	Wetland Cells 1, 2, 3, 4, 5 & 6	Palustrine Emergent, Aquatic Bed	6.77	1:1	6.77	6.30	6.30	6.30	6.30	7.10	7.10	7.5	7.5	6.04	6.04
Preservation	Existing Wetland Areas	Palustrine Emergent, Scrub-Shrub	10.06	4:1	2.52	10.30	2.57	10.8	2.7	10.8	2.7	10.8	2.5	9.65	2.41
Il Inland Butter	50-Foot-Wide Upland Perimeter	N/A	10.80	5:1	2.16	10.80	2.16	10.80	2.16	10.80	2.16	10.8	2.16	10.80	2.16
Open Water(a)	Wetland Cells 1, 4, 5, & 13	Lacustrine/ Palustrine Aquatic Bed	TBD ^(a)	TBD ^(a)	TBD ^(a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.75	TBD ^(a)
	Totals		27.6		11.45	27.40	11.03	27.90	11.16	28.7	11.96	29.10	12.16	30.24	10.61

⁽a) Mitigation ratios and crediting for Open Water are To Be Determined (TBD).

⁽b) [FGDC, 2013]

Maps, Plans, Photos

Site Location Map



Project Area Maps/Figures: See Appendix A

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

Photos: See Appendix C

Cross Sections: See Appendix D

Plans: See Appendix D of 2015 Monitoring Report

https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2015_REPORTS/2015_Silicon_M

ountain FINAL.PDF

Conclusions

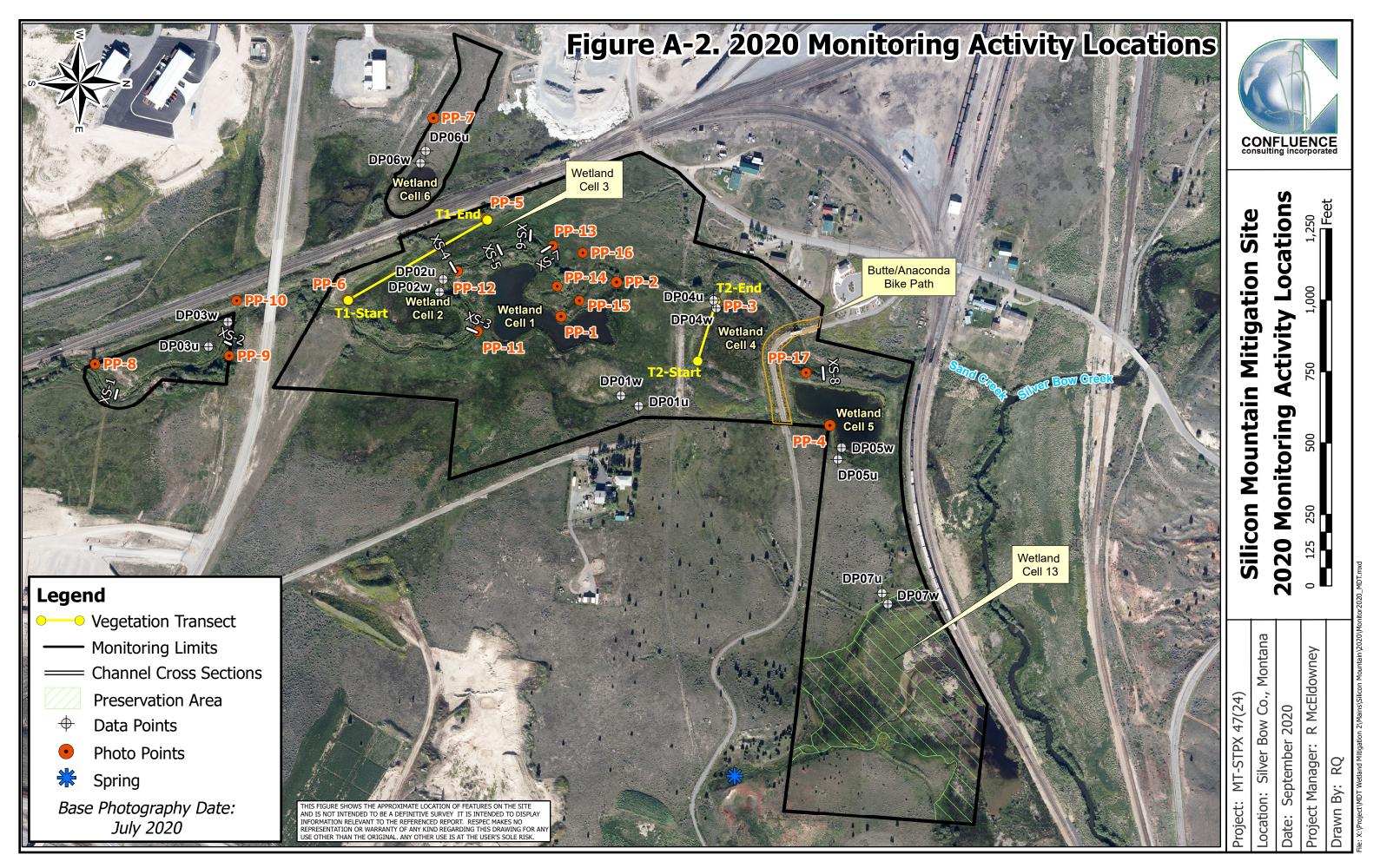
Based on the results of the sixth year of monitoring, the mitigation site continues to develop into a diverse stream and wetland ecosystem. The site is meeting all established performance criteria, as documented in Table 1. Wetland cells are developing as intended and wetland acreage continues to increase 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 establishing woody vegetation communities. At this time, no remedial actions are necessary because the site has continued to develop as intended.

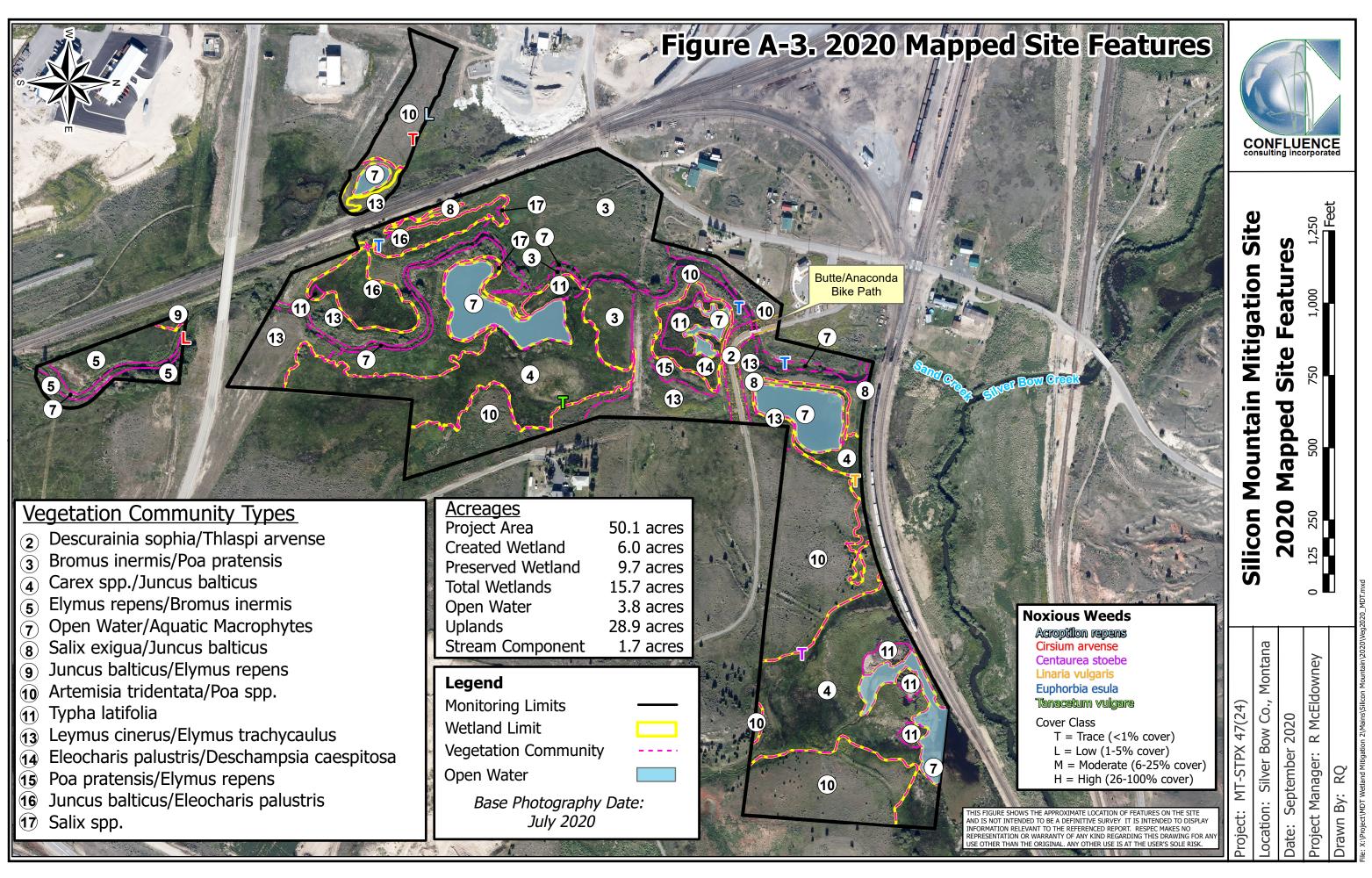
References

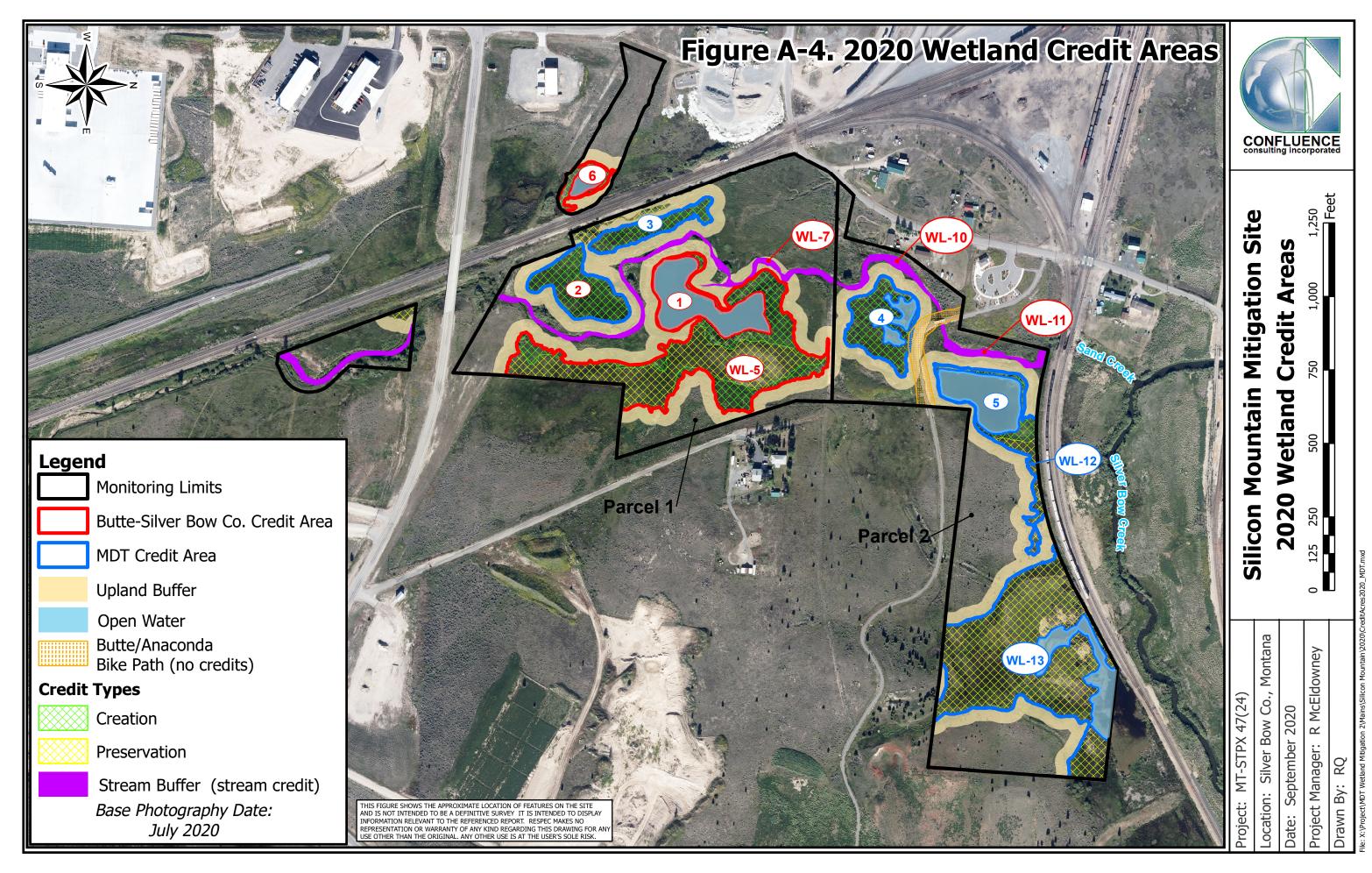
- Berglund, J. and R. McEldowney. 2008. MDT Montana Wetland Assessment Method, PBS&J Project B43072.00, prepared by Post, Buckley, Schuh, & Jernigan, Helena, MT, for the Montana Department of Transportation, Helena, MT.
- Confluence Consulting, Inc., 2013. Silicon Mountain Aquatic Resource Mitigation Plan, Watershed #2 Upper Clark Fork of the Columbia River, Silver Bow County, MT, CCI Project No. MDT.006, prepared by Confluence Consulting, Inc., Bozeman, MT, for the Montana Department of Transportation, Helena, MT.
- **Environmental Laboratory.** 1987. *Corps of Engineers Wetlands Delineation Manual*. U.S. Army Corps of Engineers. Washington, DC.
- **Federal Geographic Data Committee (FGDC).** 2013. *Classification of wetlands and deepwater habitats of the United States*. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.
- Lesica, P. 2012. Manual of Montana Vascular Plants, Brit Press, Fort Worth, TX.
- **Montana Natural Heritage Program.** 2020. *Montana Species of Concern Report*. Montana Natural Heritage Program. Accessed on 1 October 2020 at http://mtnhp.org/SpeciesOfConcern/?AorP=p
- Natural Resources Conservation Service (NRCS). 2020. Soil Survey (SSURGO) Database for [Silver Bow County Area, Montana]. Accessed on 1 October 2020 at http://websoilsurvey.nrcs.usda.gov/
- Natural Resources Conservation Service (NRCS). 2018. Field Indicators of Hydric Soils in the United States, Version 8.2. L.M. Vasilas, G.W. Hurt, and J.F. Berkowitz (eds.). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils. 55 p.
- **US Army Corps of Engineers (USACE).** 2005. *Montana Mitigation Information*. Accessed on 10 October 2016 at http://www.nwo.usace.army.mil/Missions/Regulatory-Program/Montana/Mitigation/
- **U.S. Army Corps of Engineers (USACE).** 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, Coasts Region (Version 2.0), prepared by U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Environmental Laboratory, Vicksburg, MS.
- **U.S. Army Corps of Engineers (USACE).** 2018. *National Wetland Plant List (Version 3.4),* prepared by U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH.
- **U.S. Fish and Wildlife Service (USFWS).** 2020. *IPaC Resource List*. Environmental Conservation Online System (ECOS). Accessed on 1 October 2020 at https://ecos.fws.gov/ipac/
- **U.S. Geological Survey (USGS).** 2020. Annual Summary of Data Collected at Mitigation Areas, April September 2020. Prepared for Montana Department of Transportation by Sean Lawlor and August Schultz, U.S. Geological Survey, Wyoming-Montana Water Science Center, October 22, 2020.

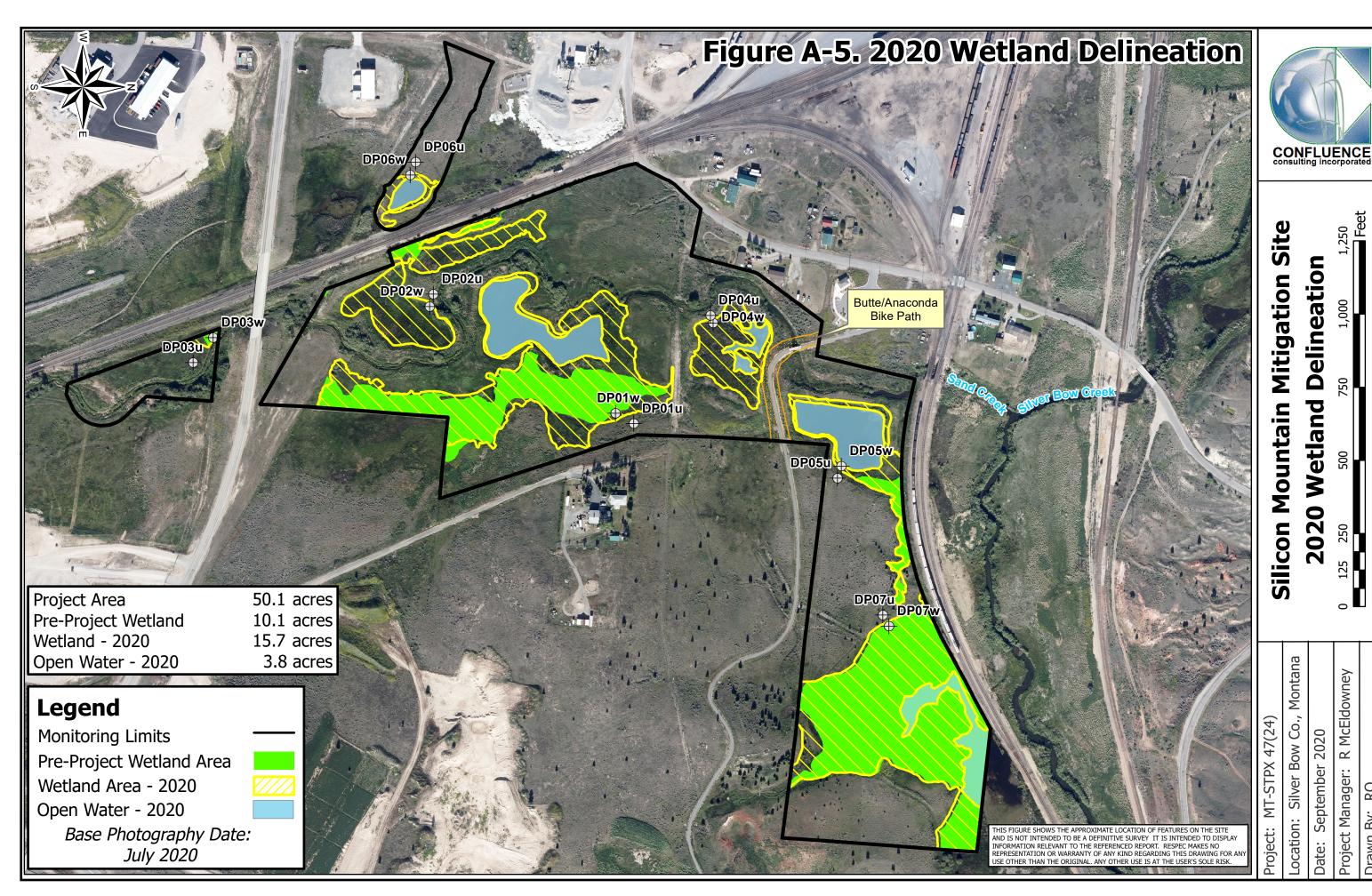
APPENDIX A PROJECT AREA MAPS

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









APPENDIX B MONITORING FORMS

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

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Silicon Mountain	Assessment Date/Time	7/1/2020
Person(s) conducting the assessment:	R Quire, R Jones, S Weyant, B Trudgeon	
Weather: 55 degrees, cloudy, light rai	nLocation: 5 miles west of Butte	
MDT District: Butte	Milepost: MP 119 on I-15	
Legal Description: T <u>3N</u> R <u>9E</u> Sec	ction(s) <u>24</u>	
Initial Evaluation Date: 6/23/2015	Monitoring Year: <u>6</u> #Visits in Year: 1	
Size of Evaluation Area: 50.1 (acre	<u>es)</u>	
Land use surrounding wetland: Mix of commercial (railroad), residen	tial, and park land (bikeway)	
	HYDROLOGY	
Surface Water Source: Sand Creek and a	a well defined spring.	
Inundation: Average Dept	h:1 (ft) Range of Depths:0.3-3	(ft <u>)</u>
Percent of assessment area under inundati		
Depth at emergent vegetation-open water b	oundary:0.3 (ft)	
If assessment area is not inundated then ar	e the soils saturated within 12 inches of surface	: Yes
Other evidence of hydrology on the site (ex	. – drift lines, erosion, stained vegetation, etc <u>:</u>	
Wetland soil pits had surface water, a hi	gh water table and/or were saturated within the morphic position, and saturation visible on ae	
Groundwater Monitoring Wells		_
_	round curface in feet	
Record depth of water surface below g	round surface, in feet.	
Additional Activities Checklist:		
☐ Map emergent vegetation-open water boundary	on aerial photograph.	
Observe extent of surface water during each si	te visit and look for evidence of past surface water	
elevations (drift lines, erosion, vegetation staining, etc		
Use GPS to survey groundwater monitoring we	Il locations, if present.	
Hydrology Notes:		
present >90 percent of wetland Cells 1, percent of Cell 4. Soils were saturated to	nstruction are monitored by USGS. Open wat 5, and 6. Shallow ponded water was present o surface in cells 2 and 3. Flowing water was nnel; with debris and sand deposits noted alo	across ~70 present in

VEGETATION COMMUNITIES

Site Silicon Mountain

(Cover Class Codes $\mathbf{0} = < 1\%$, $\mathbf{1} = 1.5\%$, $\mathbf{2} = 6.10\%$, $\mathbf{3} = 11.20\%$, $\mathbf{4} = 21.50\%$, $\mathbf{5} = >50\%$)

Community # 2 Community Type: Descurainia sophia / Thlaspi arvense Acres: 0.4

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Artemisia tridentata	1
Bassia scoparia	2	Bromus tectorum	2
Camelina microcarpa	2	Descurainia sophia	2
Elymus trachycaulus	1	Lepidium perfoliatum	2
Leymus cinereus	1	Pascopyrum smithii	1
Thlaspi arvense	3		

Comments:

Upland community composed of mostly early successional, non-native species commonly found on disturbed landscapes. In 2018 this community type was mapped in a small upland area south and east small of wetland cell 5. In 2019 and 2020, there was less Descurainia sophia but Thaspi arvense is still present.

Community # 3 Community Type: Bromus inermis / Poa pratensis Acres: 8.4

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis stolonifera	1
Alopecurus arundinaceus	0	Artemisia tridentata	1
Astragalus cicer	1	Bare Ground	1
Bromus inermis	4	Cirsium arvense	0
Deschampsia caespitosa	0	Elymus repens	3
Elymus trachycaulus	2	Koeleria macrantha	1
Leymus cinereus	2	Melilotus officinalis	1
Poa palustris	1	Poa pratensis	3
Poa secunda	1	Potentilla anserina	0
Schedonorus pratensis	1	Solidago gigantea	0
Sonchus arvensis	1	Thlaspi arvense	1
Trifolium hybridum	1		
Comments:			

Community #	4 Community Type:	Carex spp. / Juncus balticus	Acres:	<u> 10.96</u>
-------------	--------------------------	------------------------------	--------	---------------

Species	Cover class	Species	Cover class
Calamagrostis canadensis	1	Carex aquatilis	2
Carex nebrascensis	3	Carex praticola	1
Carex utriculata	2	Cirsium arvense	0
Deschampsia caespitosa	2	Juncus balticus	4
Mentha arvensis	1	Poa palustris	1
Poa pratensis	2	Potentilla anserina	2
Typha latifolia	1		
Commenter			

Comments:

Existing wetland community. In 2020, CT4 and corresponding wetland boundary expanded around Wetland cell 1.

Community #	5	Community Type:	Elymus repens / Bromus inermis	Acres:	1.64
-------------	---	-----------------	--------------------------------	--------	------

Species	Cover class	Species	Cover class
Astragalus cicer	1	Bromus inermis	3
Bromus tectorum	1	Cirsium arvense	0
Descurainia sophia	1	Elymus repens	4
Elymus trachycaulus	1	Juncus balticus	3
Leymus cinereus	1	Pascopyrum smithii	2
Poa pratensis	1	Potentilla anserina	1
Salix exigua	1		
_			

Comments:

Upland community south of the road alignment and overpass.

Cummunity # / Cummunity rybe. Open water / Aquatic macrophytes Acres. J.	Community #	7 Community Type:	Open Water / Aquatic macrophytes	Acres: 5	5.4	.5
--	-------------	-------------------	----------------------------------	----------	-----	----

Species	Cover class	Species	Cover class
Algae, green	3	Beckmannia syzigachne	1
Eleocharis palustris	1	Juncus balticus	1
Lemna minor	1	Open Water	5
Typha latifolia	2		
Comments:			

Within created wetland cells 1, 4, 5 and 6, preserved wetland cell 13 in the NE of portion of project area, and within stream channel.

Community #	8 Community Type:	Salix exigua / Juncus balticus	Acres:	<u>0.44</u>
-------------	-------------------	--------------------------------	--------	-------------

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Calamagrostis canadensis	1	Carex nebrascensis	2
Cicuta douglasii	1	Eleocharis palustris	2
Glyceria striata	1	Hordeum jubatum	1
Juncus balticus	3	Mentha arvensis	1
Salix exigua	4	Scirpus microcarpus	1
Comments:			

Existing wetland west of wetland cell 2. In 2018 - 2020 observed along the northwest and southwest sides of wetland cell 5.

Community # 9 Community Type: Juncus balticus / Elymus repens Acres: 0.07

Species	Cover class	Species	Cover class
Cirsium arvense	0	Elymus repens	3
Epilobium ciliatum	0	Geum macrophyllum	0
Hordeum jubatum	0	Juncus balticus	5
Poa palustris	1	Poa pratensis	2
Potentilla anserina	1	Rumex crispus	0
Solidago gigantea	1	Symphyotrichum lanceolatum	n 1
Thlaspi arvense	1		

Comments:

Small wetland in the corner of the parcel south of the bridge, expanded in 2020.

Community # 10 Community Type: Artemisia tridentata / Poa spp. Acres: 12.05

Species	Cover class	Species	Cover class
Artemisia tridentata	3	Astragalus agrestis	1
Bromus inermis	1	Ericameria nauseosa	1
Hesperostipa comata	1	Juniperus scopulorum	2
Koeleria macrantha	1	Leymus cinereus	1
Pascopyrum smithii	3	Poa pratensis	2
Poa secunda	3	Pseudoroegneria spicata	0
Symphyotrichum falcatum	2		
Comments:			

Upland shrubland

Community # 11 Community Type: Typha latifolia / Acres: 1.47

Species	Cover class	Species	Cover class
Alisma plantago-aquatica	0	Beckmannia syzigachne	1
Calamagrostis canadensis	1	Carex nebrascensis	1
Cyrtorhyncha cymbalaria	1	Deschampsia caespitosa	1
Eleocharis palustris	2	Glyceria grandis	1
Juncus balticus	1	Juncus bufonius	1
Juncus effusus	1	Mentha arvensis	1
Mud Flats	1	Open Water	3
Poa palustris	0	Potentilla anserina	1
Ranunculus sceleratus	0	Salix lutea	1
Schoenoplectus tabernaemor	nta 2	Scirpus microcarpus	1
Typha latifolia	5		

Comments:

In 2018, a portion of wetland cell 4 transitioned to a dominance of Typha latifolia. In 2019 CT 11 increased in size across wetland cell 4, replacing portions of CT14. In 2020, expanded CT11 in existing wetland WL-13 at northeast project boundary.

Community # 13 Community Type: Leymus cinereus / Elymus trachycaulus Acres: 6.52

Species	Cover class	Species	Cover class
Astragalus cicer	1	Bare Ground	1
Bromus inermis	1	Cirsium arvense	1
Elymus repens	1	Elymus trachycaulus	3
Epilobium ciliatum	0	Euphorbia esula	0
Festuca ovina	1	Hordeum jubatum	1
Juncus balticus	1	Leymus cinereus	4
Melilotus officinalis	1	Poa palustris	1
Poa pratensis	2	Poa secunda	1
Potentilla anserina	0	Silene latifolia	0
Thlaspi arvense	1	Trifolium longipes	1
Comments			

Comments:

Community dominated by FAC graminoids, located in upland areas around wetland cells 4 and 5. Also located in area delineated as wetland around cell 6.

Community # 14 Co	ommunity Type:	Eleocharis palustris / Deschampsia	a caespitosa Acres:	<u>0.57</u>
Species	Cover class	Species	Cover class	
Agrostis stolonifera	1	Alopecurus aequalis	1	
Beckmannia syzigachne	1	Deschampsia caespitosa	3	
Eleocharis palustris	3	Epilobium ciliatum	1	
Hordeum jubatum	1	Juncus balticus	2	
Mentha arvensis	1	Open Water	1	
Persicaria amphibia	1	Poa palustris	1	
Potentilla anserina	1	Sonchus arvensis	0	
Typha latifolia	1			
Comments:				
Located in wetland cell 4.				
Community # 15 Co	ommunity Type:	Poa pratensis / Elymus repens	Acres:	0.27
Species	Cover class	Species	Cover class	
Agrostis stolonifera	1	Astragalus cicer	1	
Bare Ground	2	Bromus inermis	2	
Elymus repens	3	Elymus trachycaulus	2	
Epilobium ciliatum	0	Festuca ovina	1	
	U	i estuca ovilla		
Hordeum jubatum	0	Leymus cinereus	2	
•	-		2 1	
Hordeum jubatum	-	Leymus cinereus	2 1 1	
Hordeum jubatum Linum lewisii	0	Leymus cinereus Poa palustris	2 1 1	
Hordeum jubatum Linum lewisii Poa pratensis	0 1 4	Leymus cinereus Poa palustris Puccinellia nuttalliana	1 1	

Community # 16 C	community Type:	Juncus balticus / Eleocharis palustris	Acres:	1.85
------------------	-----------------	--	--------	------

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus aequalis	1
Alopecurus arundinaceus	1	Alopecurus pratensis	1
Bare Ground	1	Beckmannia syzigachne	2
Carex aquatilis	1	Carex nebrascensis	1
Cicuta douglasii	1	Cyrtorhyncha cymbalaria	1
Deschampsia caespitosa	2	Eleocharis palustris	3
Epilobium ciliatum	1	Glyceria grandis	1
Glyceria striata	1	Hordeum jubatum	1
Juncus balticus	4	Juncus bufonius	1
Juncus effusus	1	Mentha arvensis	1
Open Water	2	Phalaris arundinacea	1
Plantago major	0	Poa palustris	1
Poa pratensis	0	Potentilla anserina	1
Salix lasiandra	1	Sonchus arvensis	0
Symphyotrichum ciliatum	1	Trifolium longipes	1
Typha latifolia	1		
Comments:			
Located in wetland cells 2 ar	nd 3.		

A 1/2 1/2 A 1/2 A

Community # 17 Community Type: Salix spp. / Acres: 0.05

Species	Cover class	Species	Cover class
Alnus incana	1	Salix bebbiana	2
Salix boothii	2	Salix exigua	4
Salix geyeriana	2	Salix lutea	2
Comments:			

Added in 2019. In 2020, development of planted/volunteer willows and alder on the edges of wetland cells 1 and 3 has continued.

Total Vegetation Community Acreage

50.14

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

VEGETATION TRANSECTS

Silicon Mountain		Da	te:	7/1/2020	
Transect Number: 1	Compass Direction from Start: 322°				
Interval Data:					
Ending Station	15 c	Community Type:	Leymus cinereus / Elymus to	rachycaulus	
Species	C	Cover class	Species	Cover class	
Astragalus cicer		0	Bare Ground	1	
Cirsium arvense		0	Elymus repens	1	
Elymus trachycaulus		3	Epilobium ciliatum	1	
Festuca ovina		1	Juncus balticus	1	
Leymus cinereus		4	Poa palustris	1	
Poa pratensis		2	Poa secunda	2	
Silene latifolia		0	Thlaspi arvense	0	
Ending Station	31 c	Community Type:	Juncus balticus / Eleocharis	palustris	
Species	C	Cover class	Species	Cover class	
Beckmannia syzigachne		1	Cyrtorhyncha cymbalaria	0	
Deschampsia caespitosa		3	Eleocharis palustris	3	
Epilobium ciliatum		1	Hordeum jubatum	1	
Juncus balticus		3	Juncus bufonius	1	
Juncus effusus		2	Open Water	1	
Poa palustris		2	Potentilla anserina	1	
Sonchus arvensis		1	Typha latifolia	1	
Ending Station	64 c	Community Type:	Typha latifolia /		
Species	C	Cover class	Species	Cover class	
Alisma plantago-aquatica		0	Beckmannia syzigachne	1	
Cyrtorhyncha cymbalaria		1	Deschampsia caespitosa	1	
Eleocharis palustris		3	Glyceria grandis	1	
Juncus balticus		2	Juncus bufonius	1	
Juncus effusus		2	Open Water	2	
Poa palustris		1	Scirpus microcarpus	1	
Typha latifolia		4	•		

Ending Station	264	Community Type:	Juncus balticus / Eleocharis pa	alustris
Species		Cover class	Species	Cover class
Alopecurus aequalis		1	Alopecurus pratensis	1
Bare Ground		2	Beckmannia syzigachne	2
Carex nebrascensis		1	Cicuta douglasii	0
Deschampsia caespitosa		2	Eleocharis palustris	3
Glyceria grandis		1	Hordeum jubatum	1
Juncus balticus		4	Juncus effusus	2
Phalaris arundinacea		2	Plantago major	1
Poa palustris		1	Potentilla anserina	2
Salix lasiandra		0	Trifolium longipes	1
Typha latifolia		1		
Ending Station	300	Community Type:	Leymus cinereus / Elymus trad	chycaulus
Species		Cover class	Species	Cover class
Astragalus cicer		0	Bare Ground	2
Bromus inermis		3	Elymus repens	2
Elymus trachycaulus		2	Euphorbia esula	0
Juncus balticus		1	Leymus cinereus	4
Poa pratensis		2	Potentilla anserina	0
Thlaspi arvense		0	Trifolium longipes	1
Ending Station	535	Community Type:	Juncus balticus / Eleocharis pa	alustris
Species		Cover class	Species	Cover class
Agrostis stolonifera		1	Alopecurus arundinaceus	1
Bare Ground		2	Carex aquatilis	2
Carex nebrascensis		2	Cyrtorhyncha cymbalaria	1
Deschampsia caespitosa		2	Eleocharis palustris	2
Epilobium ciliatum		1	Glyceria striata	1
Hordeum jubatum		1	Juncus balticus	4
Mentha arvensis		1	Phalaris arundinacea	1
Poa palustris		1	Poa pratensis	1
Potentilla anserina		1	Symphyotrichum ciliatum	1
Typha latifolia		1		
Ending Station	564	Community Type:	Bromus inermis / Poa pratensi	s
Species		Cover class	Species	Cover class
Agrostis stolonifera		2	Alopecurus arundinaceus	1
Astragalus cicer		0	Bare Ground	1
Bromus inermis		4	Elymus repens	1
Elymus trachycaulus		1	Poa palustris	1
Poa pratensis		3	Potentilla anserina	1
Sonchus arvensis		1	Trifolium hybridum	2
Transect Notes: To	otal n	umber of hydrophyti	c species has increased s	ince 2019.

Transect Number: 2	Compass Direction from Start: _	288 °

Transect Number: <u>Z</u>		_ Compass D	rection from Start: 20	<u>8</u>
Interval Data:				
Ending Station	10	Community Type:	Poa pratensis / Elymus reper	าร
Species		Cover class	Species	Cover class
Agrostis stolonifera		2	Astragalus cicer	1
Bare Ground		3	Bromus inermis	2
Elymus repens		3	Elymus trachycaulus	2
Festuca ovina		1	Hordeum jubatum	1
Leymus cinereus		1	Linum lewisii	1
Poa palustris		1	Poa pratensis	3
Puccinellia nuttalliana		1	Trifolium hybridum	2
Ending Station	42	Community Type:	Eleocharis palustris / Descha	ımpsia caespitosa
Species		Cover class	Species	Cover class
Agrostis stolonifera		2	Alopecurus aequalis	1
Beckmannia syzigachne		0	Deschampsia caespitosa	3
Eleocharis palustris		3	Epilobium ciliatum	1
Hordeum jubatum		1	Juncus balticus	3
Mentha arvensis		1	Open Water	1
Persicaria amphibia		1	Poa palustris	2
Potentilla anserina		2	Sonchus arvensis	1
Typha latifolia		0		
Ending Station	206	Community Type:	Typha latifolia /	
Species		Cover class	Species	Cover class
Beckmannia syzigachne		1	Calamagrostis canadensis	2
Carex nebrascensis		1	Deschampsia caespitosa	1
Eleocharis palustris		4	Juncus balticus	1
Mentha arvensis		1	Mud Flats	1
Open Water		2	Potentilla anserina	1
Ranunculus sceleratus		1	Salix lutea	1
Schoenoplectus tabernae	em	1	Typha latifolia	4
Ending Station	219	Community Type:	Bromus inermis / Poa praten	sis
Species		Cover class	Species	Cover class
Agrostis stolonifera		2	Artemisia tridentata	0
Bare Ground		3	Bromus inermis	3
Cirsium arvense		1	Deschampsia caespitosa	2
Elymus repens		1	Leymus cinereus	1
Poa pratensis		2	Poa secunda	1
Potentilla anserina		0	Solidago gigantea	0
				_

Transect Notes: Hydrophytic species increased and upland species decreased in 2020.

1

Sonchus arvensis

Thlaspi arvense

1

PLANTED WOODY VEGETATION SURVIVAL

Silicon Mountain

Planting Type	#Planted	#Alive Notes	
Alnus incana		5	
Salix eriocephala		14	
Salix exigua		16	
Salix geyeriana		13	
Sheperdia argentea		10	

Comments

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 and 2020 monitoring events an additional 14 trees and shrubs were counted increasing the total to 58 live containerized plants.

Silicon Mountain

WILDLIFE

Birds

Were man-made nesting structures installed?	No	
If yes, type of structure:		
How many?		
Are the nesting structures being used?	No	
Do the nesting structures need repairs?	No	
Nesting Structure Comments:		

Species	#Observed	Behavior	Habitat
American Coot	16		
American Crow	3		
American Kestrel			
American Robin			
American Widgeon			
Black-billed Magpie			
Blue-winged Teal	4		
Brewer's Blackbird			
Canada Goose	1	L	
Cinnamon Teal	2		
Cliff Swallow			
Common Nighthawk			
Common Yellowthroat	3		
Gadwall	2		
Killdeer	3		
Lesser Scaup			
Mallard	12		
Marsh Wren			
Mourning Dove			
Red-tailed Hawk			
Red-winged Blackbird			
Ruddy Duck	6		
Song Sparrow			B-12

Tree Swallow 2

Unknown duckling 4

Western Raven

White-crowned Sparrow

Wilson's Snipe 2

Yellow-headed Blackbird 30 F, FO, L

Bird Comments

MDT supplemented bird list during their site visit on 7/1/20. The number observed is not provided for their supplemented list.

BEHAVIOR CODES

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

HABITAT CODES

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

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

Mammals and Herptiles

Species	# Observed Tracks Scat	Burrows Comments
Opocioo	" Oboot tod Tracke Coat	Barrows Commission

Frog sp.	1	No	No	No
White-tailed Jack Rabbit	1	No	No	No

Wildlife Comments:

PHOTOGRAPHS

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

Photograph Checklist:

	One photograph for each of the four cardinal directions surrounding the wetland.			
	At least one photograph showing upland use surrounding the wetland. If more than one upland			
exists	then take additional photographs.			
	At least one photograph showing the buffer surrounding the wetland.			
✓	One photograph from each end of the vegetation transect, showing the transect.			

Photo #	Latitude	Longitude	Bearing	Description
DP01u	46.000273	-112.660914		
DP01w	46.000098	-112.661047		
DP02u	45.998347	-112.662547		
DP02w	45.998317	-112.662378		
DP03u	45.996123	-112.661494		
DP03w	45.9963	-112.661845		
DP04u	46.000949	-112.662413		
DP04w	46.000978	-112.66231		
DP05u	46.002202	-112.660291		
DP05w	46.002233	-112.660457		
DP06u	45.99813	-112.664311		
DP06w	45.998085	-112.664138		
DP07u	46.002678	-112.658475		
DP07w	46.002738	-112.65833		
PP01				West side of wetland cell 1
PP02				Outside wetland cell 1
PP03				West side of wetland cell 4
PP04				East side of constructed wetland cell 5
PP05				North end of T-1, constructed wetland cell 3
PP06				South end of T-1, constructed wetland cell 3
PP07				Cell 6, west side of tracks, south of overpass
PP08				Southern edge of cell 6 - upstream end
PP09				Northern edge of cell 6 - downstream end
PP10				West side of wetland cell 3
PP11				Sand Creek
PP12				Sand Creek

PP13 Sand Creek Headcut PP14 PP15 Headcut PP16 Headcut PP17 Northern end of Sand Creek T-1-E West side of cell 2 T-1-S South end of wetland cell 2 T-2-E West side of cell 4 T-2-S East side of wetland cell 4

Comments:

ADDITIONAL ITEMS CHECKLIST

Hydrology
 □ Map emergent vegetation/open water boundary on aerial photos. ☑ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).
Photos
 □ One photo from the wetland toward each of the four cardinal directions □ One photo showing upland use surrounding the wetland. □ One photo showing the buffer around the wetland ☑ One photo from each end of each vegetation transect, toward the transect
Vegetation
✓ Map vegetation community boundaries
✓ Complete Vegetation Transects
Soils
✓ Assess soils
Wetland Delineations
✓ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)
Delineate wetland – upland boundary onto aerial photograph.
Wetland Delineation Comments
The total wetland acreage delineated in 2020, including pre-existing wetland areas, was 15.7 acres, which is a decrease of 2.6 acres since 2019, the decrease in total wetland acreage observed in 2020 is the result of the recent change for open water habitat at the request of the USACE. The open water habitat, which represented a total of 3.75 acres in 2020, is classified as either lacustrine aquatic bed or palustrine aquatic bed under the USFWS classification system.
Functional Assessments
☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.
Functional Assessment Comments:
Created Wetland Cells 1 and 5 and Preservation Wetlands were classified as Category II wetlands. All other wetlands within the site rate as Category III wetlands.

If yes, do they need to be reaired?

Were man-made nesting structures installed at this site?

No

Maintenance

If yes, describe the problems below and indicate if any actions were taken to remedy the problems.
Were man-made structures built or installed to impound water or control waterflow into or out of the wetland? $$^{\rm No}$$
If yes, are the structures in need of repair

Project/Site: Silicon Mountain	City/County: Silver Boy	Sampling Date: 7/1/2020
Applicant/Owner: MDT		State: Montana Sampling Point: DP01u
Investigator(s): R Quire, R Jones, S Weyant		
Landform (hillslope, terrace, etc.): Terrace	Gection, Township, Itali	onvex none) undulating Slone (%) 5
Landform (nillslope, terrace, etc.):	Local relief (concave, concave, c	-112 660914 - NAD 83
Subregion (LRR): LRR E Soil Map Unit Name: 12A: Riverrun, occasionally flood	Lat:	Long:
•		· · · · · · · · · · · · · · · · · · ·
Are climatic / hydrologic conditions on the site typical for this		
Are Vegetation, Soil, or Hydrology s		
Are Vegetation, Soil, or Hydrology r	aturally problematic? (If nee	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes N		
Hydric Soil Present? Yes N	Is the Sampled within a Wetland	
Wetland Hydrology Present? Yes N	o <u>V</u>	ur res <u> </u>
Remarks: Upland sample point upslope of DP01w.		
Opiand sample point upslope of DP01w.		
VEGETATION - Use scientific names of plar	<u></u>	
Absolute		<u> </u>
Tree Stratum Plot size (30 Foot Radius) % Cover		Dominance Test worksheet
		Number of Dominant Species that are OBL, FACW or FAC: 1 (A)
		Total Number of Dominant Species Across All Strata: 5 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC: 20 % (A/B)
Artemisia tridentata 5	√ UPL	Prevalence Index worksheet
Arternisia trideritata 5	V UPL	Total % Cover of: Multiply by:
		OBL species 0 X1 0
		FACW species 0 X 2 0 FAC species 20 X 3 60
		FACU species 25 X 4 100
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 20 X 5 100
Bromus inermis 3	□ UPL	Column Totals 65 (A) 260 (B)
Bromus tectorum 1	UPL	
Elymus trachycaulus 5	FAC	Prevalence Index = B/A = 4
Festuca ovina 10	✓ UPL	Hydrophytic Vegetation Indicators 1 - Rapid Test for Hydrophytic Vegetation
Leymus cinereus 15	✓ FAC	
Pascopyrum smithii 10	✓ FACU	2 - Dominance Test is >50%
Poa secunda 15	▼ FACU	☐ 3 - Prevalence Index is <= 3.0
Thlaspi arvense 1	☐ UPL	 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
		☐ 5 - Wetland Non-Vascular Plants
		☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Perc Ground 40		Hydrophytic Vegetation Present? NO ✓
Percent Bare Ground 40 Remarks:		
BG/litter=40%. Upland plant community.		
100		
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL								Sampling Point: DP01u
Profile Desc	ription: (Desc	ribe to the dept	h needed to docu	ment the indic	ator or	confirm	the absence of	
Depth	Mati			ox Features	1	. 2		
(inches)	Color (mois		Color (moist)	%Ty	/pe ¹	Loc ²	Texture	Remarks
0-13	10YR 3/2	100				Sand	y Clay Loam	
			Reduced Matrix, C		Coated	Sand Gra		on: PL=Pore Lining, M=Matrix.
		plicable to all L	RRs, unless othe	-				for Problematic Hydric Soils ³ :
Histosol	(A1) ipedon (A2)	-	Sandy Redox (Stripped Matrix					uck (A10) rent Material (TF2)
Black His		-		x (36) Mineral (F1) (e :	xcent M	IRA 1)	_	nallow Dark Surface (TF12)
	n Sulfide (A4)	-	Loamy Gleyed		xccpt iii		_	Explain in Remarks)
	Below Dark Su	ırface (A11)	Depleted Matri				(
Thick Da	rk Surface (A12	2)	Redox Dark Su	urface (F6)			³ Indicators of	of hydrophytic vegetation and
	ucky Mineral (S		Depleted Dark	` ,				hydrology must be present,
	leyed Matrix (S		Redox Depres	sions (F8)			unless d	isturbed or problematic.
	ayer (if preser	-						
Depth (inc	hes):						Hydric Soil Pro	esent? Yes 🔲 No 💆
HYDROLO								
=	Irology Indicat							
		of one required	check all that app					ry Indicators (2 or more required
	Nater (A1)			ained Leaves (E		ept		er-Stained Leaves (B9) (MLRA 1
☐ High Wa	ter Table (A2)			. 1, 2, 4A, and 4	4B)			A, and 4B)
_	` '		Salt Crust	t (B11) nvertebrates (B1	12)			nage Patterns (B10) Season Water Table (C2)
Water M	t Deposits (B2)			ivertebrates (в i Sulfide Odor (б				ration Visible on Aerial Imagery
_	osits (B3)			Rhizospheres a		ina Root		morphic Position (D2)
	t or Crust (B4)			of Reduced Iro	-	ing ixoot	` ' =	low Aquitard (D3)
_ •	osits (B5)		=	on Reduction in	` '	oils (C6)		-Neutral Test (D5)
	Soil Cracks (B6))		r Stressed Plan				ed Ant Mounds (D6) (LRR A)
		rial Imagery (B7		plain in Remark	, ,	(,		t-Heave Hummocks (D7)
		cave Surface (B		•	•			,
Field Observ	ations:							
Surface Water	r Present?	Yes 🔲 N	lo <u> </u>	nches):				
Water Table	Present?	Yes 🔲 N	lo <u> </u>	nches):				
Saturation Pr		Yes N	lo <u> </u>	nches):		Wetla	nd Hydrology P	resent? Yes 🔲 No 📐
Describe Rec	orded Data (str	eam gauge, moi	nitoring well, aerial	photos, previou	us inspe	ctions), i	f available:	
Remarks:	ic indicators o	bserved during	n site visit					
ino flydrolog	c indicators o	pserved daring	g site visit.					

Project/Site: Silicon Mountain	City/C	ounty: Silver Bov	V Sampling Date:7/1/2020
Applicant/Owner: MDT		•	State: Montana Sampling Point: DP01w
Investigator(s): R Quire, R Jones, S Weyant	Section	on, Township, Rang	
Investigator(s): R Quire, R Jones, S Weyant Landform (hillslope, terrace, etc.): Depression	- Local	relief (concave, co	onvex. none); concave Slope (%);
Subregion (LRR): LRR E Lat:	_	46.000098	Long: -112.661047 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionally flooded-Manni	ixlee, f	requently flooded	d compl NWI classification:PEM1A
Are climatic / hydrologic conditions on the site typical for this time of y			· · · · · · · · · · · · · · · · · · ·
Are Vegetation, Soil, or Hydrology significantly			
Are Vegetation, Soil, or Hydrology naturally pr			
SUMMARY OF FINDINGS – Attach site map showing			
Hydrophytic Vegetation Present? Yes <u>✓</u> No _			
Hydric Soil Present? Yes No	-	Is the Sampled A	
Wetland Hydrology Present? Yes No		within a Welland	1: 165 <u>E</u> 100 <u>E</u>
Remarks: PEM depressional wetland within preserved wetland cell 5.			
VEGETATION - Use scientific names of plants			
Absolute Domiar		ndicator	Dominance Test worksheet
Iree Stratum Plot size (30 Foot Radius) % Cover: Specie	s? S	tatus	Number of Dominant Species
			that are OBL, FACW or FAC:
			Total Number of Dominant Species Across All Strata: 1 (B)
			Percent of Dominant Species
Sapling/Shrub Stratum Plot size (15 Foot Radius)			That Are OBL, FACW, or FAC:
, , ,			Prevalence Index worksheet
			Total % Cover of: Multiply by: OBL species 74 X 1 74
			FACW species 1 X2 2
			FAC species 0 X 3 0
Harbanana Stratura Plataira / F. Foot Padius)			FACU species 0 X 4 0 UPL species 0 X 5 0
Herbaceous Stratum Plot size (5 Foot Radius)	OB		
Carex nebrascensis 60 Carex pellita 14	OBI OBI		Column Totals 75 (A) 76 (B
Deschampsia caespitosa 1	FAC		Prevalence Index = B/A = 1.01333
			Hydrophytic Vegetation Indicators
			✓ 1 - Rapid Test for Hydrophytic Vegetation
			✓ 2 - Dominance Test is >50%
			✓ 3 - Prevalence Index is <= 3.0
			 4 - Morphological Adaptations (Provide supporting data in remarks or on separate
			sheet.
			5 - Wetland Non-Vascular Plants
			Problematic Hydrophytic Vegetation (Explain
Woody Vine Stratum Plot size (30 Foot Radius)			Indicators of hydric sil and wetland hydrology must be
Woody vine Stratum 1 lot size (50 1 oot (adius)			present, unless disturbed or problematic for #3, 4, 5.
			Hydrophytic
Percent Bare Ground 25			Vegetation Yes ✓ NO ☐ Present?
Remarks:			
BG/litter=25%. Sample point domianted by Nebraska sedge.			
US Army Corps of Engineers			Western Mountains, Valleys, and Coasts - Version 2.
) - 1			.,

SOIL											Sampling Point: DP01w
Profile Desc	ription: (Describe	to the de	pth neede	d to docur	nent the ir	ndicato	r or con	firm the	absence	of indicators.)
Depth	Calan	Matrix	0/	Color		x Features		12			Demondo
(inches)	Color	(moist)	%	Color	(moist)	%	_Type ¹	Loc ²		exture	Remarks
0-05	10)(5	= /0			1/0					/ Peat	Organic- hemic
05-09	10YR	5/2	95	7.5YR	4/6	5	С	М	Silty	Clay	
09-12	10YR	3/1	100	<u> </u>					Silty	Clay	
								_			
¹ Type: C=Co	ncentratio	n. D=De	oletion. RM	l=Reduced	I Matrix. CS	S=Covered	or Coa	ed Sand	— — d Grains.	 ² Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil I											rs for Problematic Hydric Soils ³ :
Histosol	(A1)			Sand	dy Redox (S5)					n Muck (A10)
Histic Ep	ipedon (A	2)		Strip	ped Matrix	(S6)				Red	Parent Material (TF2)
Black His	stic (A3)			Loar	ny Mucky N	/lineral (F1) (exce _l	ot MLRA	\ 1)		Shallow Dark Surface (TF12)
	n Sulfide (ny Gleyed					Othe	er (Explain in Remarks)
	Below Da		ce (A11)		eted Matrix					2	
_	rk Surface	,		_	ox Dark Su	, ,	- \				rs of hydrophytic vegetation and
	ucky Mine				eted Dark		()				nd hydrology must be present,
Restrictive L	leyed Mat			Read	ox Depress	ions (F8)				unies	s disturbed or problematic.
		resentj.									
Type:											Duran 10 Mar M. Na 🗆
Depth (inc	nes):								H)	aric Soii	Present? Yes <u>V</u> No <u> </u>
HYDROLOG											
Wetland Hyd	==					,				•	
Primary Indic			one require								dary Indicators (2 or more required)
	/Vater (A1				Water-Sta			except		W	/ater-Stained Leaves (B9) (MLRA 1, 2,
	ter Table ((A2)				1, 2, 4A, aı	nd 4B)				4A, and 4B)
<u>✓</u> Saturatio				늗	Salt Crust						rainage Patterns (B10)
Water Ma					Aquatic In						ry-Season Water Table (C2)
_	t Deposits	. ,			Hydrogen		, ,				aturation Visible on Aerial Imagery (C9
	osits (B3)				Oxidized F	•		-	Roots (C	′ —	eomorphic Position (D2)
_ `	t or Crust	(B4)			Presence			,	:		hallow Aquitard (D3)
	osits (B5)				Recent Iro				, ,		AC-Neutral Test (D5)
	Soil Crack				Stunted or			01) (LR F	R A)		aised Ant Mounds (D6) (LRR A)
			Imagery (E		Other (Exp	olain in Rer	narks)			Fr	ost-Heave Hummocks (D7)
		d Concav	e Surface	(86)							
Field Observ		^ \	, 	N	D 11- (" -	-1 >					
Surface Wate			∕ es	No		ches):					
Water Table I			/es	_	Depth (in			_			
Saturation Pro (includes cap			es 🔽	No	Depth (in	ches):		<u>0 </u>	Vetland I	Hydrology	/ Present? Yes 🔽 No 🔲
Describe Rec			n gauge, m	onitoring v	vell, aerial ¡	ohotos, pre	vious in	spection	ns), if ava	ailable:	
Remarks:											
Soil saturate	a to surfa	ace.									

Project/Site: Silicon Mountain	Citv/County: Silver Boy	Sampling Date: 7/1/2020
Applicant/Owner: MDT		State: Montana Sampling Point: DP02u
Investigator(s): R Quire, R Jones, S Weyant	Coation Toumship Ban	
Terrace	Section, rownship, Ran	onvey page): undulating Slage (%): 1
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, concave, c	Slope (%):
		Long:
Soil Map Unit Name: 12A: Riverrun, occasionally floode		
Are climatic / hydrologic conditions on the site typical for this	s time of year? Yes 🔽 No 🔟	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology s	ignificantly disturbed? Are "N	Normal Circumstances" present? Yes 🔽 No 🔲
Are Vegetation, Soil, or Hydrology n	aturally problematic? (If nee	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes N	o V	
Hydric Soil Present? Yes N	o ✓ Is the Sampled A	
Wetland Hydrology Present? Yes N	within a Wetland	d? Yes No <u>V</u>
Remarks:	·	
Upland sample point upslope of DP02w.		
VEGETATION - Use scientific names of plan		_
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover:		Dominance Test worksheet
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Cposice. Clarac	Number of Dominant Species that are OBL, FACW or FAC: 0 (A)
		Total Number of Dominant Species Across All Strata: 2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)
<u>Japinigroni ub Otratum</u> 1 lot 3/20 (15 1 oot readius)		Prevalence Index worksheet
		Total % Cover of: Multiply by:
		OBL species 0 X 1 0
		FACW species 0 X 2 0 FAC species 12 X 3 36
		FAC species 12 X 3 36 FACU species 25 X 4 100
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 43 X 5 215
Bromus inermis 5	□ UPL	
Descurainia sophia 1	□ UPL	Column Totals 80 (A) 351 (B)
Elymus trachycaulus 5	FAC	Prevalence Index = B/A = 4.3875
Festuca ovina 30	✓ UPL	Hydrophytic Vegetation Indicators
Koeleria macrantha 5	UPL	1 - Rapid Test for Hydrophytic Vegetation
Leymus cinereus 7	FAC	2 - Dominance Test is >50%
Pascopyrum smithii 25	✓ FACU	☐ 3 - Prevalence Index is <= 3.0
Thlaspi arvense 2	UPL	4 - Morphological Adaptations (Provide supporting data in remarks or on separate
		sheet.
		☐ 5 - Wetland Non-Vascular Plants
		☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Developed Developed 205		Hydrophytic Vegetation Present? NO ✓
Percent Bare Ground 25 Remarks:		
BG/litter=20%. Upland plant community.		
110.1		
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL									Sampling Point: DP02u
Profile Desc	ription: (Describe	to the dep	th needed to docu	ment the i	ndicator	or confirn	n the absence o	of indicators.)
Depth		Matrix			ox Features				
(inches)	Color	(moist)	%	Color (moist)	%	Type ¹	_Loc ² _	Texture	Remarks
0-02.5	10YR	2/2	100				San	dy Clay Loam	
02.5-04.5	10YR	4/2	100				(Clay Loam	
04.5-13	10YR	3/2	100				S	andy Clay	Gravelly.
			· <u> </u>						
				Reduced Matrix, C			d Sand G		ation: PL=Pore Lining, M=Matrix. s for Problematic Hydric Soils³:
Histosol		. (Applic	abic to air	Sandy Redox		.ч.,			Muck (A10)
_	oipedon (A	2)		Stripped Matri	. ,			_	Parent Material (TF2)
Black His		2)		Loamy Mucky	. ,) (except	MI DA 1)	_	Shallow Dark Surface (TF12)
	n Sulfide ((A4)		Loamy Gleyed	•		WILIXA I)		(Explain in Remarks)
	Below Da		e (A11)	Depleted Matr					
_	rk Surface			Redox Dark S					s of hydrophytic vegetation and
	lucky Mine			Depleted Dark	,	7)			d hydrology must be present,
Restrictive L	leyed Mat			Redox Depres	sions (F8)			uniess	disturbed or problematic.
Type:	-ayer (ii p	resenty.							
Depth (inc	ches).							Hydric Soil F	Present? Yes No 🔽
Remarks:								Tryuno com	100 <u> </u>
No hydric so	oil indicat	ors obse	rved durin	g site visit.					
ı									
HYDROLO	GY								
Wetland Hyd		dicators:							
Primary Indic	ators (min	imum of o	ne required	; check all that app	oly)			Second	dary Indicators (2 or more required)
Surface \	Water (A1))		Water-Sta	ained Leave	es (B9) (e x	cept	Wa	ater-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ter Table ((A2)		MLRA	1, 2, 4A, a	nd 4B)			4A, and 4B)
Saturatio				Salt Crus				Dra	ainage Patterns (B10)
Water Ma	arks (B1)			Aquatic Ir	nvertebrates	s (B13)			y-Season Water Table (C2)
Sedimen	ıt Deposits	(B2)		Hydroger	Sulfide Od	or (C1)		Sa	turation Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)				Rhizospher	_	-	ots (C3) 🖳 Ge	omorphic Position (D2)
	t or Crust	(B4)			of Reduce				allow Aquitard (D3)
	osits (B5)				on Reduction				C-Neutral Test (D5)
Surface :					r Stressed	•	1) (LRR A		ised Ant Mounds (D6) (LRR A)
Inundation				. —	plain in Re	marks)		Fro	st-Heave Hummocks (D7)
		d Concave	Surface (E	38)			1		
Field Observ		•	п.						
Surface Wate				No Depth (ii					
Water Table				No Depth (ii					
Saturation Pr (includes cap			es <u> </u>	No <u> </u>	nches):		_ Wetl	and Hydrology	Present? Yes No
Describe Rec	corded Dat	ta (stream	gauge, mo	nitoring well, aerial	photos, pre	evious ins	pections),	if available:	
Remarks:									
No hydrolog	ic indicat	ors obse	rved durin	g site visit.					
,9				•					

Project/Site: Silicon Mountain		City/County: Silver Bo	DW Sampling Date:7/1/2020
Applicant/Owner: MDT		_ , ,	State: Montana Sampling Point: DP02w
Investigator(s): R Quire, R Jones, S Weya	nt	Section Township Ra	
Landform (hillsland, torrang, etc.): Depression	 n	Cocion, rownship, rea	convey none): Concave Sione (%): 1
Culturation (LDD) LRR F	1 -4	Local relief (concave, 45 998317	convex, none): concave Slope (%): 1 Long: -112.662378 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occas	Lat ionally flooded-Man	nixlee, frequently flood	ed compl NWI classification PEM1A
Are climatic / hydrologic conditions on the site			
-			"Normal Circumstances" present? Yes 🔽 No 🗌
Are Vegetation, Soil, or Hydro			
			ocations, transects, important features, etc.
	es 🔽 No 🗌		The state of the s
	es V No U	Is the Sampled	
	es V No 🗌	within a Wetlar	nd? Yes <u>V</u> No
Remarks:			
PEM/PSS depressional wetland within o	onstructed wetland	cell 2.	
VEGETATION - Use scientific nan	·		_
Tree Stratum Plot size (30 Foot Radius	Absolute Domi s) % Cover: Spec		Dominance Test worksheet
	,		Number of Dominant Species that are OBL, FACW or FAC: 3 (A)
			Total Number of Dominant
			Species Across All Strata: 3 (B)
			Percent of Dominant Species 100 oc. (AIR)
Sapling/Shrub Stratum Plot size (15	Foot Radius)		That Are OBL, FACW, or FAC: 100 % (A/B)
Salix exigua	10	FACW	Prevalence Index worksheet
			Total % Cover of: Multiply by: OBL species 12 X 1 12
			OBL species 12 X 1 12 FACW species 18 X 2 36
			FAC species 51 X 3 153
			FACU species 4 X 4 16
Herbaceous Stratum Plot size (5	Foot Radius)		UPL species 0 X 5 0
Alopecurus arundinaceus	25	FAC	Column Totals 85 (A) 217 (B)
Carex nebrascensis	2	OBL	Prevalence Index = B/A = 2.55294
Elymus repens	25	FAC	Hydrophytic Vegetation Indicators
Juncus balticus	5 <u> </u>	FACW	1 - Rapid Test for Hydrophytic Vegetation
Phalaris arundinacea Potentilla anserina	3 <u> </u>	FACW OBL	✓ 2 - Dominance Test is >50%
Sonchus arvensis	4 🗆	FACU	✓ 3 - Prevalence Index is <= 3.0
Trifolium longipes	1 🗆	FAC	4 - Morphological Adaptations (Provide
			supporting data in remarks or on separate
			sheet.
			5 - Wetland Non-Vascular Plants
			Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30	Foot Radius)		Indicators of hydric sil and wetland hydrology must be
Woody vine Stratum	1 oot readius)		present, unless disturbed or problematic for #3, 4, 5.
			Hydrophytic
			Vegetation Yes ✓ NO ☐ Present?
Percent Bare Ground 25 Remarks:			Fiesent:
Shallow ponded water/litter=25%. Hydro	ophytic plant comm	unity.	
US Army Corps of Engineers			Western Mountains, Valleys, and Coasts - Version 2.0

SOIL											Sampling Point: DP02	2w
Profile Desc	ription: ([Describe	to the de	pth neede	ed to docum	ent the i	ndicator	or co	nfirm t	he absence o	of indicators.)	
Depth (inches)	Calar	Matrix	%	Color		Features		Lo	2	Texture	Domarko	
(inches) 0-04	Color (4/1	100		(moist)	%	_Type ¹				Remarks Roots throughout.	
	19111				_						Roots tilloughout.	
04-14	10YR	3/6	15						Si	Ity Clay		
04-14	10YR	3/1	20	10YR					Si	Ity Clay		
04-14	10YR	4/1	60	10YR	5/2	5	D	М	Si	Ity Clay		
¹Type: C=Co								ed Sa	nd Grai		ation: PL=Pore Lining, M=Matr	
Hydric Soil		: (Applio	able to al				ed.)				s for Problematic Hydric Soil	s³:
Histosol				$\overline{}$	dy Redox (S	-					Muck (A10)	
	pipedon (A2	2)			oped Matrix						Parent Material (TF2)	
Black Hi					my Mucky M	-		ot MLF	RA 1)		Shallow Dark Surface (TF12)	
= -	n Sulfide (my Gleyed N)			Other	(Explain in Remarks)	
	d Below Da		e (A11)		leted Matrix					3		
_	ark Surface	,		_	lox Dark Sur	` '					s of hydrophytic vegetation and	ı
	lucky Mine			_ :	leted Dark S		7)				d hydrology must be present,	
	leyed Matr			Red	lox Depressi	ons (F8)				unless	disturbed or problematic.	
Restrictive I	_ayer (if pi	resent):										
Туре:												
Depth (inc	ches):									Hydric Soil F	Present? Yes 🔽 No	
HYDROLO	GY											
Wetland Hyd	= =											
Primary India			one require	ed; check	all that apply)				Second	<u>lary Indicators (2 or more requi</u>	red)
_ ⊻ Surface	Water (A1))			Water-Stair	ned Leave	es (B9) (excep	t	Wa	iter-Stained Leaves (B9) (MLR	A 1, 2,
L High Wa	ter Table (A2)			MLRA 1	, 2, 4A, a	nd 4B)			_	4A, and 4B)	
✓ Saturation	on (A3)			L	Salt Crust (B11)				_L_l Dra	ainage Patterns (B10)	
Water M	arks (B1)				Aquatic Inv	ertebrates	s (B13)			Dry	y-Season Water Table (C2)	
Sedimer	nt Deposits	(B2)		<u> </u>	Hydrogen S	Sulfide Od	lor (C1)			_L Sa	turation Visible on Aerial Image	ry (C9)
Drift Dep	osits (B3)				Oxidized R	hizospher	es along	, Living	Roots	(C3) <u>V</u> Ge	omorphic Position (D2)	
Algal Ma	it or Crust ((B4)			Presence o	f Reduce	d Iron (C	(4)		Sh	allow Aquitard (D3)	
Iron Dep	osits (B5)				Recent Iror	Reduction	on in Tille	ed Soil	s (C6)	_ ✓ FA	C-Neutral Test (D5)	
Surface	Soil Cracks	s (B6)			Stunted or	Stressed	Plants ([01) (LI	RR A)	Ra	ised Ant Mounds (D6) (LRR A)	
	on Visible o		Imagery (E	37)	Other (Exp						ost-Heave Hummocks (D7)	
_	Vegetated						,				,	
Field Observ								T				
Surface Wate	er Present?	? \	es 🔽	No 🗆	Depth (inc	hes):		2				
Water Table			′es 🗌		Depth (inc							
Saturation Pr	esent?	Y	es 🔽		Depth (inc			_	Wetlan	d Hydrology	Present? Yes <u>V</u> No	
(includes cap Describe Red			n gauge, m	onitoring	well, aerial p	hotos, pre	evious in	spection	ons), if	available:		
				J	·							
Remarks:												
2 in standing	g water ar	nd sulfid	ic odor ol	oserved a	at soil pit.							

Project/Site: Silicon Mountain	City/County: Silver Boy	V Sampling Date:7/1/2020
Applicant/Owner: MDT		State: Montana Sampling Point: DP03u
Investigator(s): R Quire, R Jones, S Weyant		
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, co	
Subregion (LRR): LRR E	Lat: 45.996123	Long: -112.661494 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionally flood	ed-Mannixlee, frequently floode	d compl NWI classification:PEM1A
Are climatic / hydrologic conditions on the site typical for th	s time of year? Yes 🗹 No [(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology	significantly disturbed? Are "N	Jormal Circumstances" present? Yes <u>✔</u> No
Are Vegetation, Soil, or Hydrology		
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Yes N	lo <u>V</u> Is the Sampled A	Area
Wetland Hydrology Present?	<u> </u>	
Remarks:		
Upland sample point upslope of DP03w.		
VEGETATION - Use scientific names of pla		T
<u>Tree Stratum</u> Plot size (30 Foot Radius) Absolute % Cove		Dominance Test worksheet
		Number of Dominant Species that are OBL, FACW or FAC: 1 (A)
		Total Number of Dominant Species Across All Strata: 2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius		Percent of Dominant Species That Are OBL, FACW, or FAC: 50 % (A/B)
Sapring/Silitib Stratum 1 lot size (15 1 oot readius		Prevalence Index worksheet
		Total % Cover of: Multiply by:
		OBL species 0 X 1 0 FACW species 5 X 2 10
		FAC species 20 X 3 60
		FACU species 5 X 4 20
Herbaceous Stratum Plot size (5 Foot Radius		UPL species 30 X 5 150
Bromus inermis 20	✓ UPL	Column Totals 60 (A) 240 (B)
Descurainia sophia 3		Prevalence Index = B/A = 4
Juncus balticus 5		Hydrophytic Vegetation Indicators
Lepidium densiflorum 5 Poa pratensis 20		1 - Rapid Test for Hydrophytic Vegetation
Thlaspi arvense		☐ 2 - Dominance Test is >50%
Thiadpi di vondo	012	☐ 3 - Prevalence Index is <= 3.0
		4 - Morphological Adaptations (Provide supporting data in remarks or on separate
		sheet. 5 - Wetland Non-Vascular Plants
		Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 40		Hydrophytic Vegetation Present? NO ✓
Remarks:		
BG/litter=40%. Upland plant community.		
UO Anno Company of Francisco		Western Members Welley
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL								Sampling	Point: DP03u
Profile Desc	cription: (Descr	ibe to the depth	needed to docu	ment the indica	ator or co	onfirm th	ne absence o		
Depth	Matri			ox Features	1 .		_	_	
(inches)	Color (moist)		Color (moist)	%Tyj	pe' Lo	oc²	Texture	Rer	narks
0-15	10YR 3/2	100				Sandy	Clay Loam		
									
			teduced Matrix, C		Coated Sa	ınd Grain		ion: PL=Pore Li	
		plicable to all LF	RRs, unless othe	-				for Problemati	: Hydric Soils*:
Histosol		Ļ	Sandy Redox (Muck (A10)	=0)
	pipedon (A2) istic (A3)	<u> </u>	Stripped Matrix	୯ (S6) Mineral (F1) (ex	raama MI I	3 A 4 \	_	arent Material (T Shallow Dark Sur	
	en Sulfide (A4)	F	_ Loamy Mucky _ Loamy Gleyed		(cept with	XA 1)		Explain in Rema	· ·
	d Below Dark Sui	face (A11)	Depleted Matri					(Explain in Nome	arks)
	ark Surface (A12)		 ☑ Redox Dark Sι				3Indicators	of hydrophytic v	egetation and
Sandy N	Mucky Mineral (S	1) <u> </u>	Depleted Dark	Surface (F7)			wetland	l hydrology must	be present,
	Sleyed Matrix (S4		Redox Depres	sions (F8)			unless	disturbed or prob	lematic.
	Layer (if present								
			_						
Depth (in	ches):						Hydric Soil P	resent? Yes _	No <u></u>
IYDROLO									
=	drology Indicato		-1111-414	L A			0	(O	D
	·	ot one requirea;	check all that app		0) (•	or more required)
	Water (A1)			nined Leaves (B		τ			es (B9) (MLRA 1, 2,
Saturation	ater Table (A2)		Salt Crust	1, 2, 4A, and 4	.в)			IA, and 4B) inage Patterns (E	210)
_	larks (B1)			ı (БТТ) ıvertebrates (B1	3)			-Season Water T	(2)
	nt Deposits (B2)			Sulfide Odor (C					Abrial Imagery (C9)
	posits (B3)			Rhizospheres al		a Roots (morphic Position	
	at or Crust (B4)			of Reduced Iron	-	g . (00.0)	` ' —	llow Aquitard (D	
	posits (B5)		_	on Reduction in	` ,	Is (C6)		C-Neutral Test (D	
	Soil Cracks (B6)			r Stressed Plant				sed Ant Mounds	
	on Visible on Aer	ial Imagery (B7)	Other (Ex	plain in Remark	(s)			st-Heave Hummo	
Sparsely	y Vegetated Cond	cave Surface (B8)						
Field Obser	vations:								
Surface Wat	er Present?	Yes 🔲 No	o <u> </u>	iches):					
Water Table	Present?	Yes No	Depth (ir	iches):					
Saturation P	resent?	Yes No	Depth (in	iches):		Wetland	d Hydrology I	Present? Yes	No <u></u>
(includes cap	oillary fringe)	am gauge moni	toring well, aerial	photos proviou	ıs inspecti	one) if a	vailable:		
Describe Re	colucu Dala (SIFE	am yauye, moni	toring well, aerial	priotos, previou	is ilispecti	υπο <i>)</i> , π a	valiable.		
Remarks:									
	gic indicators of	served during	site visit.						
, -3	- "	3							

Project/Site: Silicon Mountain			City/C	ounty: Silver Bo	w Sampling Date: 7/1/2020
Applicant/Owner: MDT			,		State: Montana Sampling Point: DP03w
Investigator(s): R Quire, R Jones, S Weyant			Section	on. Township. Ran	nge: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Depression			Local	relief (concave. c	convex. none); concave Slope (%);
Subregion (LRR): LRR E		 Lat:		45.9963	Long: -112.661845 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionally flo	ooded	-Mannix	xlee, fi	requently floode	d compl NWI classification PEM1A
Are climatic / hydrologic conditions on the site typical fo					
					Normal Circumstances" present? Yes 🔽 No 🗌
Are Vegetation, Soil, or Hydrology					
					ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes <u>✓</u>	 _ No _		_		
Hydric Soil Present? Yes		$\overline{}$		Is the Sampled within a Wetlan	
Wetland Hydrology Present? Yes	_ No _			within a vvetian	ur res <u>u</u> No <u>u</u>
Remarks: PEM riverine wetland adjacent to Sand Creek ch	nannel	in sout	tharn i	portion of projec	rt area
T ENTITY CHITC Wettarid adjacent to Gand Greek of	iaiiici	III 3001	шстт	portion of projec	t arca.
VEGETATION - Use scientific names of p	olants	•			
Ahso		Domian	it In	ndicator	Dominance Test worksheet
Tree Stratum Plot size (30 Foot Radius) % Co	over:	Species	s? S	tatus	Number of Dominant Species
					that are OBL, FACW or FAC:
					Total Number of Dominant Species Across All Strata: 1 (B)
Sapling/Shrub Stratum Plot size (15 Foot Rad	lius)				That Are OBL, FACW, or FAC: 100 % (A/B)
	,				Prevalence Index worksheet
					Total % Cover of: Multiply by: OBL species 5 X 1 5
					FACW species 53 X 2 106
					FAC species 27 X 3 81
					FACU species 0 X 4 0
Herbaceous Stratum Plot size (5 Foot Rad	lius)				UPL species 5 X 5 25
Alopecurus arundinaceus	12		FAC		Column Totals 90 (A) 217 (B)
Iris missouriensis	3		FAC		Prevalence Index = B/A = 2.41111
Juncus balticus	50	✓	FAC		Hydrophytic Vegetation Indicators
Poa pratensis Potentilla anserina	15 5		FAC OBI		✓ 1 - Rapid Test for Hydrophytic Vegetation
Thlaspi arvense	5		UPL		✓ 2 - Dominance Test is >50%
- Thideprairvenes			01 1		✓ 3 - Prevalence Index is <= 3.0
					4 - Morphological Adaptations (Provide
					supporting data in remarks or on separate
					sheet.
					☐ 5 - Wetland Non-Vascular Plants
					Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Rad	lius)				Indicators of hydric sil and wetland hydrology must be
(00 +	,				present, unless disturbed or problematic for #3, 4, 5.
					Hydrophytic
Percent Bare Ground 10					Vegetation Yes ✓ NO ☐ Present?
Remarks:					1
Site is dominated by Baltic rush.					
US Army Corps of Engineers					Western Mountains, Valleys, and Coasts - Version 2.0

SOIL											Sampling Point: DP03w
Profile Desc	cription: (I	Describe	to the de	pth neede	d to docum	nent the i	ndicato	r or con	firm t	the absence	of indicators.)
Depth		Matrix				K Features			2	- .	B I
(inches)	Color (%	Color	(moist)	%	_Type ¹	Loc		Texture	Remarks
0-04	10YR	3/1	100		-					Loam	
04-06	10YR	2/1	100						Sar	ndy Loam	
06-12	N	2.5/0	30						Sar	ndy Loam	Gleyed.
06-12	10YR	4/1	60	10YR	3/6	10	С	М	Sar	ndy Loam	
¹ Type: C=C								ed San	d Grai		ation: PL=Pore Lining, M=Matrix.
Hydric Soil		: (Applic	able to al				ed.)				rs for Problematic Hydric Soils ³ :
Histosol					dy Redox (S						Muck (A10)
	pipedon (A2	2)		_ :	ped Matrix	. ,	\		A 4\	_	Parent Material (TF2)
_	istic (A3) en Sulfide (۸۸)			my Mucky M my Gleyed N			ot MLRA	A 1)		r Shallow Dark Surface (TF12) er (Explain in Remarks)
	d Below Da		e (A11)		leted Matrix		,			Out	(Explain in Kemarks)
	ark Surface		- ()		ox Dark Sur					3Indicato	rs of hydrophytic vegetation and
Sandy N	/lucky Mine	ral (S1)		Dep	leted Dark S	Surface (F	7)			wetlar	nd hydrology must be present,
	Sleyed Matı			Red	ox Depressi	ons (F8)				unles	s disturbed or problematic.
Restrictive	Layer (if p	resent):									
Туре:											
Depth (in	ches):									Hydric Soil	Present? Yes <u>V</u> No <u> </u>
HYDROLO											
Wetland Hy				بالممام بامر	باسم مدادا	Δ.				C	dan Hadiaataaa (2 aa maana na suinad)
Primary India	·		ne require	ea; cneck a		•	(D0) (dary Indicators (2 or more required)
	Water (A1)				Water-Stair			except			fater-Stained Leaves (B9) (MLRA 1, 2,
✓ Saturation	ater Table (.	A2)			Salt Crust (l, 2, 4A, a	na 4B)				4A, and 4B) rainage Patterns (B10)
	larks (B1)			H	Aquatic Inv		(R13)				ry-Season Water Table (C2)
	nt Deposits	(B2)		一	Hydrogen S						aturation Visible on Aerial Imagery (C9)
	posits (B3)	(52)			Oxidized R		, ,	Livina	Roots		eomorphic Position (D2)
	at or Crust	(B4)			Presence of	-		-		` ' —	nallow Aquitard (D3)
Iron Dep	oosits (B5)				Recent Iron			,	(C6)		AC-Neutral Test (D5)
Surface	Soil Cracks	s (B6)			Stunted or	Stressed	Plants ([01) (LR	R A)	Ra	aised Ant Mounds (D6) (LRR A)
Inundati	on Visible o	on Aerial I	magery (E	37)	Other (Exp	lain in Rei	marks)			Fr	ost-Heave Hummocks (D7)
Sparsely	y Vegetated	d Concave	Surface	(B8)							
Field Obser	vations:				1						
Surface Wat	er Present?	? Y	es _ <u></u>	No	- ' '						
Water Table	Present?		es	No	Depth (inc	hes):		_			
Saturation P (includes cap			es 🔽	No	Depth (inc	hes):		<u>0 </u>	Vetlar	nd Hydrology	Present? Yes <u>V</u> No
Describe Re			gauge, m	onitoring v	vell, aerial p	hotos, pre	evious in	spection	ns), if	available:	
Dames											
Remarks: Soil saturate	ed to surfa	ace									
Jon Galardi	- a . o oui ic										

Project/Site: Silicon Mountain	City/County: Silver Bov	Sampling Date: 7/1/2020
Applicant/Owner: MDT		State: Montana Sampling Point: DP04u
	Section, Township, Ran	
Landform (hillslope, terrace, etc.): Terrace		
Subregion (LRR): LRR E	Lat: 46.000949	Long: -112.662413 Datum: NAD 83
Subregion (LRR): LRR E Soil Map Unit Name: 12A: Riverrun, occasionally floode	d-Mannixlee, frequently floode	d compl NWI classification:Not Mapped
Are climatic / hydrologic conditions on the site typical for this		
Are Vegetation, Soil, or Hydrology s	gnificantly disturbed? Are "N	Normal Circumstances" present? Yes 🗹 No 🗌
Are Vegetation, Soil, or Hydrology n	aturally problematic? (If nee	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydric Soil Present? Wetland Hydrology Present? Yes N	Is the Sampled within a Wetland	
Remarks: Upland sample point upslope of DP04w.		
VEGETATION - Use scientific names of plan	ts	
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover:	Domiant Indicator Species? Status	Dominance Test worksheet
,	oposios. Otalas	Number of Dominant Species that are OBL, FACW or FAC:
		Total Number of Dominant Species Across All Strata: 4 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC: 25 % (A/B)
Artemisia tridentata 5	✓ UPL	Prevalence Index worksheet
Alternisia traemata 5	▼ Of E	Total % Cover of: Multiply by:
		OBL species 0 X 1 0 FACW species 0 X 2 0
		FAC species 30 X 3 90
		FACU species 10 X 4 40
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 25 X 5 125
Acroptilon repens 5	UPL	Column Totals 65 (A) 255 (B)
Astragalus cicer 10	✓ UPL	Prevalence Index = B/A = 3.92308
Bromus inermis 5 Elymus trachycaulus 5	☐ UPL FAC	Hydrophytic Vegetation Indicators
Leymus cinereus 25	FAC FAC	1 - Rapid Test for Hydrophytic Vegetation
Pascopyrum smithii 10	✓ FACU	☐ 2 - Dominance Test is >50%
1 deepyrum erimaini	17.00	☐ 3 - Prevalence Index is <= 3.0
		4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
		5 - Wetland Non-Vascular Plants
		☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 40		Hydrophytic Vegetation Present? NO ✓
Remarks:		<u> </u>
BG/litter=40%, dominated by upland, facultative upl	and, and facultative species.	
LIS Army Corps of Essingers		Western Mountains, Valleys, and Coasts - Version 2.0
US Army Corps of Engineers		vvestern iviountains, valleys, and Coasts - version 2.0

SOIL											Sar	mpling Point: DP04u
Profile Desc	cription: (Describe	to the dep	oth neede	d to docun	nent the ir	ndicato	r or cor	nfirm	the absence		
Depth		Matrix				x Features			2			_
(inches)		(moist)	%	Color	(moist)	%	_Type ¹	Loc		Texture		Remarks
0-8	7.5YR	3/1	100					5	Sand	y Clay Loam		
8-14	10YR	4/4	99	7.5YR	4/6	1	С	PL	Sa	indy Clay		
			_,	-								
				-								
	·											
								_				
¹ Type: C=C								ted San	d Gra			ore Lining, M=Matrix. ematic Hydric Soils ³ :
Hydric Soil Histosol		: (Appli	cable to all		dy Redox (S		:a.)				Muck (A10)	=
_	pipedon (A:	2)		$\overline{}$	ped Matrix	-					Parent Mate	
	istic (A3)	_,		$\overline{}$	ny Mucky N) (exce _l	pt MLR.	A 1)			rk Surface (TF12)
	en Sulfide (Loar	ny Gleyed I	Matrix (F2)				Othe	r (Explain in	Remarks)
	d Below Da		ce (A11)		eted Matrix					3		
	ark Surface /lucky Mine			=	ox Dark Sui leted Dark \$	` '	7)					ytic vegetation and must be present,
	Sleyed Mat				ox Depress	•	')					r problematic.
Restrictive						,						
Туре:												
Depth (in	ches):									Hydric Soil	Present?	Yes 🔲 No 🔽
HYDROLO	CV											
Wetland Hy		dicators										
Primary India	= =			d: check a	all that apply	v)				Secon	dary Indicato	ors (2 or more required)
	Water (A1)		ono roquiro	_	Water-Stai		s (B9) (except				Leaves (B9) (MLRA 1,
	ater Table (1, 2, 4A, aı					4A, and 4B	
Saturation					Salt Crust		,			Dr	ainage Patte	•
Water M	larks (B1)				Aquatic Inv	ertebrates/	(B13)				-	ater Table (C2)
	nt Deposits	. ,			Hydrogen		, ,					ble on Aerial Imagery (C
	posits (B3)				Oxidized R			-	Root	` ' —	eomorphic P	
	at or Crust	(B4)			Presence of		,	,	(06)		allow Aquita	
	oosits (B5) Soil Crack	s (B6)			Recent Iron Stunted or						C-Neutral T	est (D5) unds (D6) (LRR A)
			Imagery (B	_	Other (Exp			DI) (LIV	.IX A)			ummocks (D7)
			e Surface (- tille (=/q-							
Field Obser												
Surface Wat	er Present'	? `	Yes	No	Depth (ind	ches):						
Water Table	Present?	`	Yes	No	Depth (inc	ches):						
Saturation P (includes cap			Yes	No	Depth (inc	ches):		'	Vetla	nd Hydrology	Present?	Yes No _
Describe Re	corded Dat	ta (strear	n gauge, m	onitoring v	vell, aerial p	hotos, pre	vious in	spectio	ns), if	available:		
Damasilisi												
Remarks: No hydrolog	ic indicat	ors obse	erved durii	ng site vi	sit.							
	,											

Project/Site: Silicon Mountain	C	citv/County: Silver Bo	W Sampling Date: 7/1/2020
Applicant/Owner: MDT		, ,	State: Montana Sampling Point: DP04w
Investigator(s): R Quire, S Weyant			
Investigator(s).		section, rownship, Kar	concave 2
Landform (hillslope, terrace, etc.): Depression		Local relief (concave, c	onvex, none): Goricave Slope (%):
Subregion (LRR): LRR E	_ Lat:	46.000978	Long: 112.66231 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionally flood			
Are climatic / hydrologic conditions on the site typical for this	s time of yea	r? Yes 🔽 No 🔝	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology s	ignificantly o	listurbed? Are "l	Normal Circumstances" present? Yes 🗹 No 🔲
Are Vegetation, Soil, or Hydrology r			
SUMMARY OF FINDINGS - Attach site map	showing	sampling point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes V	o		
	o	Is the Sampled	
Wetland Hydrology Present? Yes N	o	within a Wetlan	d? Yes <u>♥</u> No <u>□</u>
Remarks:			
PEM depressional wetland within constructed wetlan	nd cell 4.		
VEGETATION - Use scientific names of plan	ıts		
<u>Tree Stratum</u> Plot size (30 Foot Radius) Absolute % Cover		Indicator Status	Dominance Test worksheet
, % Cover	Species?	Status	Number of Dominant Species that are OBL, FACW or FAC: 2 (A)
			Total Number of Dominant Species Across All Strata: 2 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)			Prevalence Index worksheet
			Total % Cover of: Multiply by:
			OBL species 33 X 1 33
			FACW species 28 X 2 56
			FAC species 4 X 3 12
			FACU species 0 X 4 0
<u>Herbaceous Stratum</u> Plot size (5 Foot Radius)			UPL species 0 X 5 0
Alopecurus aequalis 3		OBL	Column Totals 65 (A) 101 (B)
Alopecurus arundinaceus 2		FAC	Prevalence Index = B/A = 1.55385
Carex nebrascensis 5		OBL	
Deschampsia caespitosa 5		FACW	Hydrophytic Vegetation Indicators 1 - Rapid Test for Hydrophytic Vegetation
Eleocharis palustris 5		OBL	
Epilobium ciliatum 3		FACW	✓ 2 - Dominance Test is >50%
Juncus balticus 20		FACW	✓ 3 - Prevalence Index is <= 3.0
Poa palustris 2		FAC	4 - Morphological Adaptations (Provide
Potentilla anserina 2		OBL	supporting data in remarks or on separate sheet.
Scirpus microcarpus 3		OBL	5 - Wetland Non-Vascular Plants
Typha latifolia 15	✓	OBL	
			☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)			Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 35			Hydrophytic Vegetation Present? Ves ✓ NO
Remarks:			<u> </u>
BG/shallow ponded water/litter/moss=35%. Herbace	eous hydro	phytic species domi	nate sample point.
US Army Corps of Engineers			Western Mountains, Valleys, and Coasts - Version 2.0

SOIL											Sampling Point: DP04w
Profile Desc	ription: (Describe	to the de	pth nee	ded to docui	ment the	indicator	or co	nfirm	n the absence	e of indicators.)
Depth	0-1	Matrix				x Feature			_2	T 4	Damada
(inches)		(moist)	<u>%</u>		or (moist)	%	_Type ¹ _	Lo	<u> </u>	Texture	Remarks
0-3	10YR	2/2	100							Peat	Organic-fibric
3-16	10YR	2/2	100						M	lucky Peat	Organic-hemic
								_			
¹Type: C=Co Hydric Soil II	ndicators	: (Applio		I LRRs,		rwise not S5)		ed Sar	nd Gr	Indicat 2 c	ocation: PL=Pore Lining, M=Matrix. ors for Problematic Hydric Soils ³ : m Muck (A10) d Parent Material (TF2)
Black His Hydroger Depleted	stic (A3) n Sulfide (Below Da	(A4) ark Surfac	ce (A11)		oamy Mucky Noamy Gleyed epleted Matrix	Mineral (F Matrix (F2 k (F3)	2)	t MLR	(A 1)	☐ Vei	ry Shallow Dark Surface (TF12) ner (Explain in Remarks)
Sandy M	rk Surface ucky Mine leyed Mat	eral (S1)			edox Dark Su epleted Dark edox Depress	Surface (l	=7)			wetla	ors of hydrophytic vegetation and and and hydrology must be present, as disturbed or problematic.
Restrictive L					edox Depress	510115 (1 0)				T unite	ss disturbed of problematic.
Type:											
Depth (inc										Hydric Soi	il Present? Yes <u>✔</u> No _
	27/										
HYDROLOG Wetland Hyd		dicators									
Primary Indic	==			d aboa	k all that anal)				Sono	ondary Indicators (2 or more required)
✓ Surface \			one require	iu, chec	<u>K ali tilat appi</u> Water-Sta		(BQ) (A	vcont			Water-Stained Leaves (B9) (MLRA 1 ,
✓ High Wat				_		1, 2, 4A,		xcepi		<u> </u>	4A, and 4B)
Saturatio	,	,,		[Salt Crust		uu +2,				Orainage Patterns (B10)
Water Ma				[Aquatic In		es (B13)				Dry-Season Water Table (C2)
	t Deposits	(B2)			 ✓ Hydrogen						Saturation Visible on Aerial Imagery (
Drift Dep	osits (B3)				Oxidized F	Rhizosphe	res along	Living	Roo	ots (C3) 🔽 (Geomorphic Position (D2)
Algal Ma	t or Crust	(B4)			Presence	of Reduce	ed Iron (C4	4)		9	Shallow Aquitard (D3)
	osits (B5)			_	Recent Iro						FAC-Neutral Test (D5)
	Soil Crack			_	Stunted or			1) (LF	RR A		Raised Ant Mounds (D6) (LRR A)
			Imagery (E e Surface		Other (Exp	olain in Re	emarks)			_ <u></u> _ F	Frost-Heave Hummocks (D7)
Field Observ							4	,			
Surface Wate			′es 🔽	No	Depth (in		_	<u>'</u> -			
Water Table I	esent?	, \	res 🔽 res 🔽		Depth (in Depth (in			-	Wetla	and Hydrolog	gy Present? Yes 🔽 No 🗔
(includes cap Describe Rec			n gauge, m	onitorin	g well, aerial	photos, pi	evious ins	spection	ons),	if available:	
Remarks:											
1in surface v	vater and	d hydrog	en sulfide	odor o	bserved at	soil pit.					

Applicant/Owner_MOT	Project/Site: Silicon Mountain	City/County: Silver Box	Sampling Date: 7/1/2020
Investigator(s) R Quirle, R Jones, S Weyant Section, Township, Range S 24 T 3N R 9W	Applicant/Owner: MDT		State: Montana Sampling Point: DP05u
Landform (rillslope), terrace, etc.): Terrace Lat:	• •		
Surveyand (LRR)_LRRE Lat			
Soll Map Unit Name. 1148. Varney loam, O-4% slopes, moderately impacted Are climatic hydrologic conditions on the site biptical for this time of year? Yes	Subregion (LRR): LRR E	Lat:46.002202	Long:112.660291 Datum: NAD 83
Are climatic? hydrologic conditions on the site hypical for this time of year? Yes	Soil Map Unit Name: 114B: Varney loam, 0-4% slopes,	moderately impacted	NWI classification: Not Mapped
Are Vegetation			<u></u>
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present?	Are Vegetation, Soil, or Hydrology si	gnificantly disturbed? Are "N	Normal Circumstances" present? Yes 🗹 No 🔲
Hydrophytic Vegetation Present?			
Is the Sampled Area within a Wetland? Yes No No No No No No No N	SUMMARY OF FINDINGS - Attach site map s	showing sampling point lo	cations, transects, important features, etc.
Upland sample point upslope of DP05w. VEGETATION - Use scientific names of plants	Hydric Soil Present? Wetland Hydrology Present? Yes No.	Is the Sampled	
Dominance Test worksheet Number of Dominant Species Status	2 may		
Dominance Test worksheet Number of Dominant Species Status			
Tree Stratum	VEGETATION - Use scientific names of plant	ts	
Number of Dominant Species that are OBL, FACW or FAC:	Tree Ctreature Diet size (20 Foot Podius)		Dominance Test worksheet
Sapiling/Shrub Stratum	,, 55151.	Cposico. Clarico	
Artemisia tridentata 3			
Artemisia tridentata 3	Sapling/Shrub Stratum Plot size (15 Foot Radius)		
Ericameria nauseosa 5		✓ UPL	
Herbaceous Stratum Plot size (5 Foot Radius) Camelina microcarpa	Ericameria nauseosa 5		
Herbaceous Stratum		_	
Herbaceous Stratum			
Camelina microcarpa 2	Harbassus Chrahima Districts (F. Foot Bodius)		
Descurainia sophia National Stratum	,	EACH.	
Prevalence Index = B/A = 4.29310			Column Totals 58 (A) 249 (B)
Poa pratensis 2 ☐ FACU Thlaspi arvense 3 ☐ UPL Woody Vine Stratum			Prevalence Index = B/A = 4.29310
Poa pratensis Poa secunda Thlaspi arvense 20	Pascopyrum smithii 15	✓ FACU	
Thlaspi arvense 3	Poa pratensis 2	FAC	
Woody Vine Stratum Plot size (30 Foot Radius) Woody Vine Stratum Plot size (30 Foot Radius) Percent Bare Ground 45 Remarks: BG/litter=45%. Upland plant community. 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet. □ 5 - Wetland Non-Vascular Plants □ Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes □ NO ✓ Present?	 		
woody Vine Stratum Plot size (30 Foot Radius) Percent Bare Ground 45 Remarks: BG/litter=45%. Upland plant community. S - Wetland Non-Vascular Plants Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes □ NO ✓ Present?	Thlaspi arvense 3	UPL	☐ 3 - Prevalence Index is <= 3.0
Woody Vine Stratum Plot size (30 Foot Radius) Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes □ NO ✔ Present? Remarks: BG/litter=45%. Upland plant community.			supporting data in remarks or on separate
Woody Vine Stratum Plot size (30 Foot Radius) Percent Bare Ground 45 Remarks: BG/litter=45%. Upland plant community. Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes NO Present?			5 - Wetland Non-Vascular Plants
Plot size (30 Foot Radius) Present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes NO Present? Remarks: BG/litter=45%. Upland plant community.			Problematic Hydrophytic Vegetation (Explain)
Hydrophytic Vegetation Percent Bare Ground 45 Remarks: BG/litter=45%. Upland plant community.	Woody Vine Stratum Plot size (30 Foot Radius)		
Percent Bare Ground 45 Remarks: BG/litter=45%. Upland plant community.			, , , , , , , , , , , , , , , , , , , ,
Remarks: BG/litter=45%. Upland plant community.	Percent Bare Ground 45		Vegetation Yes □ NO ✓
	Remarks:		
US Army Corps of Engineers Western Mountains, Valleys, and Coasts - Version 2.0	BG/litter=45%. Upland plant community.		
Vocation Modification Value Volation Value	US Army Corps of Engineers		Western Mountains Valleys and Coasts - Version 2.0

SOIL									į	Sampling Point:	DP05u
Profile Des	cription: (I	Describe	to the depth	needed to docum	nent the i	indicator	or confir	rm the absenc			
Depth	0.1	Matrix			x Feature		12	- T t		Danasala	
(inches)	Color (%	Color (moist)	%	_Type ¹	Loc ²	Texture		Remarks	
0-04	10YR	3/2	100					ndy Clay Loa	m		
04-12	7.5YR	4/3	100				,	Sandy Clay			
12+						. ——			Rock	bottom	
								-	-		
 1Type: C=C	oncentratio	n. D=De		educed Matrix, CS	=Covere	d or Coate	d Sand 0	 Grains. ² Lo	cation: PL	=Pore Lining, M=	-Matrix.
				RRs, unless other						blematic Hydric	
Histosol	(A1)			Sandy Redox (S5)			2 0	m Muck (A	10)	
Histic E	pipedon (A	2)		Stripped Matrix	(S6)					aterial (TF2)	
	istic (A3) en Sulfide (A4)		Loamy Mucky N Loamy Gleyed I			MLRA 1	_	-	Dark Surface (TF n in Remarks)	12)
Deplete	d Below Da	ark Surfa	ce (A11)	Depleted Matrix	(F3)						
_	ark Surface	,		Redox Dark Su	, ,				-	ophytic vegetatio	
	Mucky Mine		L	Depleted Dark	•	7)			-	ogy must be pres	
	Sleyed Mati			Redox Depress	ions (F8)			unle	ess disturbe	d or problematic.	
Restrictive		resent):									
										\Box	🗖
Depth (in Remarks:	cnes):			_				Hydric So	il Present?	Yes	No 🔽
HYDROLO Wetland Hy		dicators									
=	= =			check all that apply	٨			Sacr	andanı İndic	ators (2 or more	required)
			one required, o			aa (DO) (a)				•	
	Water (A1)			Water-Stai			хсерт			ned Leaves (B9) ((WILRA 1, 2,
Saturati	ater Table (A2)			1, 2, 4A, a	ana 4B)			4A, and	•	
_	` '			Salt Crust Aquatic In∖		a (D12)			-	atterns (B10) ı Water Table (C2	2)
	larks (B1) nt Deposits	(P2)		Aquatic int					-	/isible on Aerial I	
	posits (B3)	(BZ)		Hydrogen		, ,	Livina Da			c Position (D2)	magery (C9)
	at or Crust ((B4)		Presence		•	_	` ' —	Shallow Aq		
_ `	posits (B5)	(04)		Recent Iro		,	,		FAC-Neutra		
	Soil Cracks	s (B6)		Stunted or			-			Mounds (D6) (LF	PR A)
			Imagery (B7)	Other (Exp		•	i) (Little			e Hummocks (D7	
			e Surface (B8		idiii iii iko	markoj			1100111001	o mammooko (B7	,
Field Obser			(,	<u>′</u>							
Surface Wat		? ,	Yes □ No	Depth (inc	ches):						
Water Table			Yes 🗌 No								
Saturation P	resent?	,	Yes No					tland Hydrolo	gy Present	? Yes	No 🔽
Describe Re	corded Dat	a (strear	n gauge, moni	oring well, aerial p	hotos, pr	evious ins	pections)), if available:			
Donceri											
Remarks:	nic indicate	ors obs	erved during	site visit							
. to Trydroid	jio maioali	J.J JD31	s. voa aanng	CILO VIOIL.							

Project/Site: Silicon Mountain	City/County: Silver Boy	V Sampling Date:7/1/2020
Applicant/Owner: MDT		State: Montana Sampling Point: DP05w
Investigator(s): R Quire, R Jones, S Weyant		
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, co	onvex. none); concave Slope (%); 5
Subregion (I RR): LRR E	Lat: 46.002233	-112.660457 Datum NAD 83
Subregion (LRR): LRR E Soil Map Unit Name: 11A: Mannixlee-Bonebasin comple	ex, 0-4% slopes, frequently floo	oded NW classification Not Mapped
Are climatic / hydrologic conditions on the site typical for this		
Are Vegetation, Soil, or Hydrology sin		
Are Vegetation, Soil, or Hydrology na		
SUMMARY OF FINDINGS – Attach site map s		
Hydric Soil Present? Yes No	Is the Sampled within a Wetland	
	within a Wetland	
Remarks: PSS depressional wetland within constructed wetland	d cell 5.	
'	-	
VEGETATION - Use scientific names of plant	ts	
Absolute	Domiant Indicator	Dominance Test worksheet
<u>Iree Stratum</u> Plot size (30 Foot Radius) % Cover:	Species? Status	Number of Dominant Species that are OBL, FACW or FAC: 4 (A)
		Total Number of Dominant
		Species Across All Strata: 4 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)
Salix exigua 10	✓ FACW	Prevalence Index worksheet
Salix lutea 15	✓ OBL	Total % Cover of: Multiply by: OBL species 41 X 1 41
Salix sp. 4	NL	FACW species 40 X 2 80
Shepherdia argentea 1	FACU	FAC species 0 X 3 0
		FACU species 1 X 4 4
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 4 X 5 20
Calamagrostis canadensis 10	FACW	Column Totals 86 (A) 145 (B)
Carex bebbii 5	OBL OBL	Prevalence Index = B/A = 1.68605
Eleocharis palustris 15 Juncus balticus 15	✓ OBL ✓ FACW	Hydrophytic Vegetation Indicators
Mentha arvensis 5	FACW	✓ 1 - Rapid Test for Hydrophytic Vegetation
Potentilla anserina 5	OBL	✓ 2 - Dominance Test is >50%
Ranunculus sceleratus 1	OBL	✓ 3 - Prevalence Index is <= 3.0
	3.	4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
		5 - Wetland Non-Vascular Plants
		Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 30		Hydrophytic Vegetation Present?
Remarks:		<u> </u>
BG/litter/moss=30%. Dominated by hydrophytic herb	paceous and woody species.	
US Army Corps of Essineers		Western Mountains Valleys and Casata Vassian Co.
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL											Sampling Point: DP05w
Profile Desc	ription: (I	Describe	to the de	pth neede	ed to docun	nent the i	ndicato	r or c	onfirm	the absence	of indicators.)
Depth	Calan	Matrix	<u></u> %	Colo		x Features		1	oc ²	T	Domonto
(inches) 0-02	Color (3/2	100		(moist)	%	_Type ¹			Texture	Remarks 2" moss on surface.
_											_
02-09	10YR	4/2	95	10GY	4/1	3	D	M	Sand	y Clay Loam	Gleyed depletions.
02-09	10YR	4/2	95	10YR	2/1	2	С	M	Sand	y Clay Loam	
09-15	10GY	4/1	80	10YR	5/1	20	D	M	Sa	andy Clay	Gleyed.
			_								
			_								
¹ Type: C=Co	oncentratio	n, D=De	pletion, RM	l=Reduce	d Matrix, CS	=Covered	or Coat	ed S	and Gra	ins. ² Loc	ation: PL=Pore Lining, M=Matrix.
Hydric Soil											rs for Problematic Hydric Soils ³ :
Histosol	(A1)			San	dy Redox (S	S5)					n Muck (A10)
Histic Ep	oipedon (A	2)		Strip	oped Matrix	(S6)				Red	Parent Material (TF2)
Black Hi	istic (A3)			Loa	my Mucky N	/lineral (F1) (excep	ot ML	.RA 1)	Very	Shallow Dark Surface (TF12)
Hydroge	en Sulfide (A4)		✓ Loa	my Gleyed I	Matrix (F2))			Othe	er (Explain in Remarks)
Depleted	d Below Da	ark Surfa	ce (A11)	✓ Dep	leted Matrix	(F3)					
Thick Da	ark Surface	e (A12)		Rec	lox Dark Sui	rface (F6)				³ Indicato	rs of hydrophytic vegetation and
Sandy M	lucky Mine	eral (S1)		Dep	leted Dark S	Surface (F	7)			wetla	nd hydrology must be present,
	Bleyed Matı			Rec	lox Depress	ions (F8)				unles	s disturbed or problematic.
Restrictive I	Layer (if p	resent):									
Type:											
Depth (ind	ches):									Hydric Soil	Present? Yes V No No
Remarks:											
HYDROLO	GY										
Wetland Hyd	drology In	dicators	:								
Primary Indic	cators (mini	imum of	one require	d; check	all that apply	/)				Secor	dary Indicators (2 or more required)
Surface	Water (A1))			Water-Stai	ned Leave	es (B9) (exce	pt	W	/ater-Stained Leaves (B9) (MLRA 1, 2,
High Wa	ater Table ((A2)			MLRA 1	1, 2, 4A, a	nd 4B)				4A, and 4B)
✓ Saturation	on (A3)				Salt Crust	(B11)				D	rainage Patterns (B10)
Water M	larks (B1)				Aquatic Inv	ertebrates	s (B13)			D	ry-Season Water Table (C2)
Sedimen	nt Deposits	(B2)			Hydrogen :	Sulfide Od	or (C1)			□ s	aturation Visible on Aerial Imagery (C9)
	oosits (B3)	,			Oxidized R	hizospher	es along	ı Livir	ng Root		eomorphic Position (D2)
	at or Crust	(B4)			Presence of	-			J		hallow Aquitard (D3)
	osits (B5)	()			Recent Iro		,	,	nils (C6)		AC-Neutral Test (D5)
	Soil Cracks	c (B6)		F	Stunted or				, ,		aised Ant Mounds (D6) (LRR A)
	on Visible		Imagan, (E	27)	Other (Exp) (I	-IXIX A)	_	rost-Heave Hummocks (D7)
_	/ Vegetated			· —	Jourer (Exp	nani ili Kei	iiaiks)				ost-neave nutilitiocks (DT)
Field Observ		u Concav	e Suriace	(00)							
		, ,	/aa 🖂	No 🔽	Donth (inc	ah a a\.					
Surface Wate			/es		_						
Water Table					Depth (ind						
Saturation Pr			∕es <u></u>	No	Depth (inc	ches):		0_	Wetla	nd Hydrology	/ Present? Yes 🔽 No 🔲
(includes cap Describe Red			n gauge, m	onitorina	well. aerial r	hotos, pre	vious in	spec:	tions). if	available:	
		, 21	5 -5-, 11	9	,	, P.,		,. , ,	,,		
Remarks:											
Water bega	n to fill ho	le after	~5 minute	es, soil sa	aturated to	surface.					
J				, -							

Project/Site: Silicon Mountain City/County: Silver Bow Sampling Date: 7	1/2020
Applicant/Owner: MDT State: Montana Sampling Point: DP06	, ,
Investigator(s): R Quire, R Jones, S Weyant Section, Township, Range: S 24 T 3N R 9W	
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): undulating Slope (%):10
Subregion (LRR): LRR E Lat: 45.99813 Long: -112.664311 Datum: NA	D 83
Soil Map Unit Name: 12A: Riverrun, occasionally flooded-Mannixlee, frequently flooded compl NWI classification: Not Mapped	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes Von No (If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes	۷٥
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)	
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important featur	es, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No V No V Is the Sampled Area within a Wetland? Yes No V No V	
Remarks: Upland sample point upslope of DP06w.	
VEGETATION - Use scientific names of plants	
Tree Stratum Plot size (30 Foot Radius) Absolute Domiant Indicator Species? Status Dominance Test worksheet	
Number of Dominant Species that are OBL, FACW or FAC:)
Total Number of Dominant Species Across All Strata:)
Sapling/Shrub Stratum Plot size (15 Foot Radius) Percent of Dominant Species That Are OBL, FACW, or FAC: %	(A/B)
Artemisia tridentata 3 🗾 LIPI Prevalence Index worksheet	
Ericameria nauseosa 5 ✓ UPL Total % Cover of: Multiply OBL species 0 X 1 0	by:
FACW species 0 X2 0	
FAC species 0 X 3 0	
Herbaceous Stratum Plot size (5 Foot Radius) FACU species 20 X 4 80 UPL species 43 X 5 215	
Festuca ovina 30 🗾 UPI	(B)
Filago arvensis 2 UPL Prevalence Index = B/A = 4.68254	
Poa secunda 20 ▼ FACU Hydrophytic Vegetation Indicators □ 1 - Rapid Test for Hydrophytic Vegetation FACU	tation
2 - Dominance Test is >50%	allon
3 - Prevalence Index is <= 3.0	
☐ 4 - Morphological Adaptations (Prov supporting data in remarks or on se sheet.	
☐ 5 - Wetland Non-Vascular Plants	
Problematic Hydrophytic Vegetation	(Explain)
Woody Vine Stratum Plot size (30 Foot Radius) Indicators of hydric sil and wetland hydrology present, unless disturbed or problematic for #	
Hydrophytic Vegetation Percent Bare Ground 45 Hydrophytic Vegetation Present? Vegetation Present?	
Remarks:	
BG/litter=45%. Upland plant community.	
US Army Corps of Engineers Western Mountains, Valleys, and Coasts - Ve	rsion 2 0

SOIL								Sampling Point: DP06u
Profile Desc	ription: (Describe	to the depti	n needed to docum	ent the indicato	r or confi	rm the absence	
Depth		Matrix		Redox	Features		_	
(inches)	Color	(moist)	%	Color (moist)	%Type ¹	Loc ² _	Texture	Remarks
0-04	10YR	2/1	100			1	Loamy Sand	
04-09	10YR	4/2	100				Sandy Clay	
09-16	10YR	4/2	100				Sandy Clay	Cobbly.
Hydric Soil I Histosol Histic Ep Black Hi Hydroge Depleted Thick Da Sandy M	Indicators (A1) Dipedon (A Stic (A3) In Sulfide (Id Below Da Ark Surface Iucky Mine Bleyed Mat	(Applic 2) (A4) (ark Surfac (A12) (eral (S1) (rix (S4)	able to all L [[_ _ _ _	Reduced Matrix, CS RRs, unless other Sandy Redox (S Stripped Matrix (Loamy Mucky M Loamy Gleyed M Depleted Matrix Redox Dark Sur Depleted Dark S Redox Depressi	wise noted.) (5) (56) ineral (F1) (exce Matrix (F2) (F3) face (F6) surface (F7)		Indicato 2 cm Red Very Othe	ration: PL=Pore Lining, M=Matrix. rs for Problematic Hydric Soils ³ : n Muck (A10) Parent Material (TF2) y Shallow Dark Surface (TF12) er (Explain in Remarks) rs of hydrophytic vegetation and end hydrology must be present, s disturbed or problematic.
Type: Depth (ind Remarks: No hydric so		ors obse	rved during	g site visit.			Hydric Soil	Present? Yes No
HYDROLO Wetland Hyd		dicators:						
-	==			check all that apply)		Secon	dary Indicators (2 or more required)
High Wa Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface Inundatic	arks (B1) at Deposits cosits (B3) at or Crust cosits (B5) Soil Crack on Visible	(A2) (B2) (B4) s (B6) on Aerial I	magery (B7) e Surface (B	MLRA 1 Salt Crust (Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Stunted or	ned Leaves (B9) (, 2, 4A, and 4B) B11) ertebrates (B13) Sulfide Odor (C1) hizospheres alon f Reduced Iron (0 n Reduction in Till Stressed Plants (g Living Ro C4) led Soils (G	Dr Dr Sa poots (C3) Go St C6) FA A) Ra	Vater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) rainage Patterns (B10) ry-Season Water Table (C2) aturation Visible on Aerial Imagery (C9) eomorphic Position (D2) hallow Aquitard (D3) AC-Neutral Test (D5) aised Ant Mounds (D6) (LRR A) rost-Heave Hummocks (D7)
Field Observ								
Surface Water Water Table Saturation Pr (includes cap	Present? resent? pillary fring	Y Y e)	es 🔲 N	o V Depth (inc	hes): hes): hes):	 We		y Present? Yes <u></u> No <u>✓</u>
Describe Red	corded Dai	ıa (stream	gauge, mor	itoring well, aerial p	notos, previous ir	ispections), it avallable:	
Remarks: No hydrolog	ic indicat	ors obse	rved during	site visit.				

Applicant/Cwner_MOT	Project/Site: Silicon Mountain	City/County: Silver Boy	V Sampling Date:7/1/2020
Investigator(s): R Quirte, R Jones, S Weyant Section, Township, Range: S 24 T 3N R 9 W	Applicant/Owner: MDT	, ,	State: Montana Sampling Point: DP06w
Landform (fillslope, terrace, etc.): Pepression		Section, Township, Ran	
Subregion (LRR)-LRRE Lat	Landform (hillslope, terrace, etc.): Depression	Local relief (concave, c	onvex, none): concave Slope (%): 5
Sol Map Unit Name: 12A. Riverrun, occasionally flooded-Mannixide, frequently flooded compl. NWI desertation. Not Mapped Are climatic: hydrologic conditions on the site typical for this time of year? Yes	Subregion (LRR): LRR E	Lat: 45.998085	Long:112.664138 Datum: NAD 83
Are Vegetation	Soil Map Unit Name: 12A: Riverrun, occasionally floode	ed-Mannixlee, frequently floode	d compl NWI classification. Not Mapped
Are Vegetation	Are climatic / hydrologic conditions on the site typical for this	time of year? Yes 🗹 No 🧵	(If no, explain in Remarks.)
Are Vegetation	Are Vegetation, Soil, or Hydrology s	ignificantly disturbed? Are "N	Iormal Circumstances" present? Yes 🗹 No 🔲
Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland Pydrotogy Present? Yes No Is the Sampled Area within a Wetland? Yes No No Wetland Pydrotogy Present? Yes No No No Wetland Pydrotogy Present? Yes No No Wetland Pydrotogy Present? Yes No No No No No Wetland Pydrotogy Present? Yes No No No No No No No No			
Hydroc Sall Present? Yes	SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydroc Sall Present? Yes	Hydrophytic Vegetation Present? Yes V	o _ 🗆	
Percent Bare Ground 45 Remarks: Page Stream Plot size (30 Foot Radius) Percent Bare Ground 45 Remarks: Page Stream Plot size (30 Foot Radius) Remarks: Page Stream Plot size (30 Foot Radius) Remarks: Page Stream Plot size (30 Foot Radius) Percent Bare Ground 45 Remarks: Percent Radius Percent Present? P	Hydric Soil Present? Yes Ves N	7 <u>——</u> 1	Area
PEM depressional wetland within constructed wetland cell 6. VEGETATION - Use scientific names of plants		o Within a vvetiand	tes <u> </u>
VEGETATION - Use scientific names of plants		nd cell 6.	
Tree Stratum	'		
Tree Stratum Plot size (30 Foot Radius) % Cover. Species? Status Status Stratum Plot size (15 Foot Radius) Sapling/Shrub Stratum Plot size (15 Foot Radius) Percent of Dominant Species Across All Strata: 2 (B) Percent of Dominant Species Radius Percent of Dominant Species That Are OBL. FACW or FAC: 100 % (A/B)	VEGETATION - Use scientific names of plan	ts	
Number of Dominant Species that are OBL, FACW or FAC:			Dominance Test worksheet
Sapling/Shrub Stratum Plot size (15 Foot Radius) Herbaceous Stratum Plot size (5 Foot Radius) Elymus repens Elymus repens Plot size (5 Foot Radius) Elymus repens Plot size (6 Foot Radius) Elymus repens Plot size (7 Foot Radius) Elymus repens Plot size (8 Foot Radius) FAC Epilobium clilatum Plot size (8 Foot Radius) Frevalence Index = BIA = 2.96364 Hydrophytic Vegetation Indicators 1 Rapid Test for Hydrophytic Vegetation Prevalence Index = BIA = 2.96364 Hydrophytic Vegetation Indicators 1 Rapid Test for Hydrophytic Vegetation Indicators 1 Rapid Test for Hydrophytic Vegetation (Ervoide speed sheet.) 5 - Wetland Non-Vascular Plants Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Present? Percent Bare Ground 45 Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.	% Cover:	Species? Status	
That Are OBL, FACW, or FAC:			
Herbaceous Stratum Plot size (5 Foot Radius) Elymus repens 23 ▼ FAC Epilobium ciliatum 1 FACW Leymus cinereus 25 ▼ FAC Mentha arvensis 1 FACW Poa pratensis 5 FAC Woody Vine Stratum Plot size (30 Foot Radius) Woody Vine Stratum Plot size (30 Foot Radius) Woody Vine Stratum Plot size (30 Foot Radius) Woody Vine Stratum Plot size (30 Foot Radius) Wegetation Present? Percent Bare Ground 45 Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.	Sanling/Shrub Stratum Plot size (15 Foot Radius)		
Herbaceous Stratum Plot size (5 Foot Radius) Elymus repens 23	Supring Circulation 180 Size (18 1 Sect Addiso)		
Herbaceous Stratum Plot size (5 Foot Radius) Elymus repens 23			
Herbaceous Stratum Plot size (5 Foot Radius) Elymus repens 23			
Herbaceous Stratum			
Elymus repens Epilobium ciliatum Leymus cinereus 25 FAC Mentha arvensis 1 FACW Poa pratensis 5 FAC Woody Vine Stratum Plot size (30 Foot Radius) Percent Bare Ground 45 Column Totals 55 (A) 163 (B) Prevalence Index = B/A = 2.96364 Hydrophytic Vegetation Indicators 1			
Epilobium ciliatum Leymus cinereus 25			UPL species 0 X 5 0
Leymus cinereus 25			Column Totals 55 (A) 163 (B)
Mentha arvensis			Prevalence Index = B/A = 2.96364
Poa pratensis 5			Hydrophytic Vegetation Indicators
Woody Vine Stratum Plot size (30 Foot Radius) Woody Vine Stratum Percent Bare Ground 45 Percent Bare Ground 45 ■ 3 - Prevalence Index is <= 3.0 □ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet. □ 5 - Wetland Non-Vascular Plants □ Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes ✓ NO □ Present? Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			
Woody Vine Stratum Plot size (30 Foot Radius) Woody Vine Stratum Plot size (30 Foot Radius) Percent Bare Ground 45 Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			✓ 2 - Dominance Test is >50%
woody Vine Stratum Plot size (30 Foot Radius) Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes ✓ NO □ Percent Bare Ground 45 Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			✓ 3 - Prevalence Index is <= 3.0
Woody Vine Stratum Plot size (30 Foot Radius) Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes ✓ NO □ Present? Remarks: BG/ litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			supporting data in remarks or on separate
Woody Vine Stratum Plot size (30 Foot Radius) Problematic Hydrophytic Vegetation (Explain) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes ✓ NO □ Present? Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			
Woody Vine Stratum Plot size (30 Foot Radius) Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Yes ✓ NO □ Present? Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			
Plot size (30 Foot Radius) Present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Present? Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.			
Percent Bare Ground 45 Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.	Woody Vine Stratum Plot size (30 Foot Radius)		
Remarks: BG/litter/shallow ponded water=45%. Wetland plant community dominated by facultative grasses.	Porcent Raro Ground 45		Vegetation Yes ✓ NO
			1
US Army Corps of Engineers Western Mountains, Valleys, and Coasts - Version 2.0	BG/litter/shallow ponded water=45%. Wetland plant	community dominated by facu	Itative grasses.
	LIS Army Corps of Engineers		Western Mountains Valleys and Coasts - Varsion 2.0

SOIL											Sa	ampling Point:	DP06w
Profile Desci	ription: (Describe	to the de	pth neede	d to docur	nent the ir	ndicato	r or c	onfirm	the absence			
Depth		Matrix				x Features						_	
(inches)		(moist)	%	Color	(moist)	%	_Type ¹		.oc²	Texture		Remarks	
0-05	10YR	4/1	100							andy Clay	_		
05-12	10YR	5/2	97	10YR	5/6	2	С	M	Sand	y Clay Loai	m		
05-12	10YR	5/2	97	10YR	2/1	1	С	M	Sand	y Clay Loai	m		
¹ Type: C=Co	ncontratio	n D-Don	lotion DN		d Matrix CS		Lor Con		and Cra	nine ² l e	ection: PI =	Pore Lining, M	-Matrix
Hydric Soil I								ieu o	and Gra			lematic Hydr	
Histosol					dy Redox (S		•				m Muck (A10	=	
_	ipedon (A	2)		_	ped Matrix	,					d Parent Mat	•	
Black His		,		_ :	my Mucky N	. ,) (exce	pt ML	RA 1)			ark Surface (T	F12)
_	n Sulfide ((A4)			my Gleyed I				,		ner (Explain i		,
		ark Surfac	e (A11)		leted Matrix								
_	rk Surface			=	ox Dark Su	` ,						ohytic vegetati	
	ucky Mine			_ :	leted Dark S	•	7)					y must be pre	
	leyed Mat			L Red	ox Depress	ions (F8)				unle	ss disturbed	or problemation).
Restrictive L		resent):											
Type:													\Box
Depth (inc	hes):									Hydric So	il Present?	Yes	No <u> </u>
IYDROLOG													
Wetland Hyd	==			والممام والمرا	.	۸				Cana	ممالي مرابع		
Primary Indica	•		ne require	ed; cneck a			(50)				,	tors (2 or more	
✓ Surface \		-			Water-Stai			exce	pt	'		d Leaves (B9)	(MLRA 1, 2,
<u>✓</u> High Wat		(A2)				1, 2, 4A, a	nd 4B)				4A, and 4	•	
<u>✓</u> Saturatio				<u> </u>	Salt Crust		(D40)				Orainage Pat		.0)
Water Ma	. ,	(DO)		<u> </u>	Aquatic Inv						-	Nater Table (C	
_	t Deposits	. ,		+	Hydrogen			- 1 is di	D4			sible on Aerial	imagery (C9
	osits (B3)			-	Oxidized F			_	ng Root	` ' —	•	Position (D2)	
	t or Crust	(64)		+	Presence			,	::I- (CC)		Shallow Aqui		
	osits (B5)	a (DG)		+	Recent Iro						FAC-Neutral		DD A\
	Soil Crack	s (60) on Aerial I	magan, (D7) —	Stunted or Other (Exp			ו) (ו	LKK A)			lounds (D6) (L Hummocks (D	
		d Concav		. —	Other (Exp	naiii iii Kei	iiaiks)				-10St-Heave	Hullillocks (D	()
Field Observ		u oonday	- Carrace	(50)									
Surface Wate		2 V	es 🔽	No \square	Denth (inc	ches):		6					
Water Table F			es 🔽			ches):		0					
Saturation Pro	esent?	Y	es <u>V</u>			ches):		0	Wetla	nd Hydrolog	gy Present?	Yes 🔽	No
(includes cap Describe Rec			gauge, m	onitoring v	well, aerial p	ohotos, pre	evious ir	spec	tions), if	f available:			
Remarks:													
6in surface v	vater obs	served at	soil pit.										

US Army Corps of Engineers

B-43

Project/Site: Silicon Mountain		City/C	County: Silver Bo	Sampling Date: 7/1/2020
Applicant/Owner: MDT				State: Montana Sampling Point: DP07u
Investigator(s): R Quire, R Jones, S Weyant Landform (hillslope, terrace, etc.): Terrace		Section	on, Township, Rai	nge: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Terrace		Loca	ıl relief (concave, o	convex, none): undulating Slope (%):5
Subregion (LRR): LRR E Soil Map Unit Name: 114B: Varney loam, 0-4% slopes,	_ Lat:		46.002678	Long:112.658475 Datum: NAD 83
Soil Map Unit Name: 114B: Varney loam, 0-4% slopes,	moderate	ely im	npacted	NWI classification. Not Mapped
Are climatic / hydrologic conditions on the site typical for this	time of ye	ar? Y	∕es V No	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology s				
Are Vegetation, Soil, or Hydrology n				
SUMMARY OF FINDINGS - Attach site map	-		·	
			Is the Sampled within a Wetlar	
Wetland Hydrology Present? Yes No	<u> </u>			
Upland sample point upslope of DP07w.				
VEGETATION - Use scientific names of plan	ts			
Tree Stratum Plot size (30 Foot Radius) Absolute			ndicator	Dominance Test worksheet
ree Stratum Piot size (30 Poot Radius) % Cover:	Species	? \$	Status	Number of Dominant Species that are OBL, FACW or FAC:
				Total Number of Dominant Species Across All Strata: 3 (B)
				Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)				Prevalence Index worksheet
Ericameria nauseosa 5	✓	UF	<u></u>	Total % Cover of: Multiply by:
				OBL species 0 X 1 0
				FACW species 10 X 2 20 FAC species 3 X 3 9
				FAC species 3 X 3 9 FACU species 35 X 4 140
Herbaceous Stratum Plot size (5 Foot Radius)				UPL species 32 X 5 160
Carex filifolia 2		UP	L	Column Totals 80 (A) 329 (B)
Juncus balticus 10		FA	CW	
Koeleria macrantha 25	~	UP	L	Prevalence Index = B/A = 4.1125
Pascopyrum smithii 10		FA		Hydrophytic Vegetation Indicators 1 - Rapid Test for Hydrophytic Vegetation
Poa pratensis 3		FA		2 - Dominance Test is >50%
Poa secunda 25	✓	FA	CU	3 - Prevalence Index is <= 3.0
				4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
				5 - Wetland Non-Vascular Plants
				Problematic Hydrophytic Vegetation (Explain
Woody Vine Stratum Plot size (30 Foot Radius)				Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
				Hydrophytic Vegetation Yes □ NO ✓
Percent Bare Ground 25				Present?
Remarks: BG/litter=25%. Upland plant community.				
US Army Corps of Engineers				Western Mountains, Valleys, and Coasts - Version 2.0

SOIL										Sampling Point: DP07u
Profile Desc	cription: (Describe	to the depth	needed to docun	nent the	indicator	or confi	irm the ab	sence c	
Depth		Matrix			x Feature		. 2			
(inches)		(moist)	%	Color (moist)	%	Type ¹	Loc ²	Text		Remarks
0-04	10YR	3/2	100				Sa	andy Clay	Loam	Roots throughout.
04-12	10YR	3/1	20					Clay		
04-12	10YR	4/3	80					Clay		
				educed Matrix, CS			d Sand			ation: PL=Pore Lining, M=Matrix.
		: (Appli	cable to all LF	RRs, unless other		ea.)		In		s for Problematic Hydric Soils ³ :
Histosol		2)		Sandy Redox (S	•			+		Muck (A10)
	pipedon (A	2)	<u></u>	Stripped Matrix	. ,	4) (MIDA	<u>,</u>	=	Parent Material (TF2)
Black Hi Hydroge	istic (A3) en Sulfide ((A4)	<u></u>	$rac{1}{2}$ Loamy Mucky N $rac{1}{2}$ Loamy Gleyed I			MLKA	1)	_	Shallow Dark Surface (TF12) r (Explain in Remarks)
Depleted	d Below Da	ark Surfa	ce (A11)	Depleted Matrix	(F3)					
=	ark Surface	, ,	<u> </u>	Redox Dark Su	` '			³ lr		s of hydrophytic vegetation and
	lucky Mine		Ļ	Depleted Dark		- 7)				d hydrology must be present,
	Sleyed Mat		<u>_</u>	Redox Depress	ions (F8)				unless	disturbed or problematic.
Restrictive I		resent):								
Type:				_						
Depth (in	ches):			_				Hydri	ic Soil F	Present? Yes No
HYDROLO Wetland Hyd		dicators								
=				check all that apply	٨				Secono	dary Indicators (2 or more required)
	,		one required, c	Water-Stai	•	os (PO) (o	voont			ater-Stained Leaves (B9) (MLRA 1, 2 ,
	Water (A1 ater Table (1, 2, 4A, a		xcept			4A, and 4B)
Saturation		(^2)		Salt Crust		ana 40)				ainage Patterns (B10)
_	larks (B1)			Gait Grust		se (B13)				y-Season Water Table (C2)
	nt Deposits	: (B2)		Aquatic int						turation Visible on Aerial Imagery (C9
	oosits (B3)			Oxidized R		, ,	Livina R	nots (C3)		omorphic Position (D2)
	at or Crust			Presence		-	-	(00)		allow Aquitard (D3)
_ `	osits (B5)	(5.)		Recent Iro		,	,	C6)	_	C-Neutral Test (D5)
	Soil Crack	s (B6)		Stunted or			-		_	ised Ant Mounds (D6) (LRR A)
			Imagery (B7)	Other (Exp		,	., (=			ost-Heave Hummocks (D7)
			e Surface (B8)							(2.7)
Field Obser				<u> </u>						
Surface Water	er Present	? `	res 🔲 No	Depth (inc	ches):		_			
Water Table	Present?	`	res No							
Saturation Projection (includes cap			es No					etland Hyd	Irology	Present? Yes No
Describe Re	corded Da	ta (strean	n gauge, monit	oring well, aerial p	hotos, pr	evious ins	pections	s), if availal	ole:	
Remarks:	nic indicat	ore obse	erved during	eite vieit						
ivo riyurolog	jio mulcal	OIS ODSE	a veu uuring	SILE VISIL.						

Project/Site: Silicon Mountain	City/County: Silver Bov	V Sampling Date:7/1/2020
Applicant/Owner: MDT		State: Montana Sampling Point: DP07w
Investigator(s): R Quire, R Jones, S Weyant		
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, co	onvex, none): concave Slope (%): 1
Subregion (LRR): LRR E	_ Lat: 46.002738	Long: -112.65833 Datum: NAD 83
Soil Map Unit Name: 114B: Varney loam, 0-4% slopes,	moderately impacted	NWI classification.PEM1A
Are climatic / hydrologic conditions on the site typical for this		
Are Vegetation, Soil, or Hydrology s	ignificantly disturbed? Are "N	lormal Circumstances" present? Yes 🗹 No 🔲
Are Vegetation, Soil, or Hydrology n		ded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes V	o	
	Is the Sampled within a Wetland	
	o within a Wetland	1: 1es <u> </u>
Remarks: PEM depressional wetland within preserved wetland	cell 13.	
VEGETATION - Use scientific names of plan	its	
Tree Stratum Plot size (30 Foot Radius) Absolute		Dominance Test worksheet
ree Stratum Plot size (30 Poot Radius) % Covers	Species? Status	Number of Dominant Species that are OBL, FACW or FAC: 1 (A)
		Total Number of Dominant Species Across All Strata: 1 (B)
Continue (Charache Charache and District A.C. Foot Dadius)		Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Prevalence Index worksheet
		Total % Cover of: Multiply by:
		OBL species 7 X1 7
		FACW species 57 X 2 114 FAC species 5 X 3 15
		FACU species 1 X 4 4
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 0 X 5 0
Carex nebrascensis 5	OBL	Column Totals 70 (A) 140 (B)
Juncus balticus 55	✓ FACW	Prevalence Index = B/A = 2
Phalaris arundinacea 2	FACW	Hydrophytic Vegetation Indicators
Poa pratensis 5 Potentilla anserina 1	☐ FAC OBL	1 - Rapid Test for Hydrophytic Vegetation
Sisymbrium altissimum 1	FACU	✓ 2 - Dominance Test is >50%
Typha latifolia 1	OBL	✓ 3 - Prevalence Index is <= 3.0
		4 - Morphological Adaptations (Provide supporting data in remarks or on separate
		sheet.
		☐ 5 - Wetland Non-Vascular Plants
		☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 30		Hydrophytic Vegetation Yes ✓ NO □ Present?
Remarks:		
moss/litter/bg=30%. Sample point dominated by Ba	ltic rush.	
LIC Army Corns of Frankroom		Western Meuritaine Valleur and Oceate Varia CO
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL											Sampling Point: DP07W
Profile Desc	ription: (Describe t	o the de	pth need	ed to docun	nent the in	dicato	r or c	onfirm	the absence	of indicators.)
Depth		Matrix				x Features	- 1				
(inches)	Color	(moist)	%	Colo	r (moist)	%	Type ¹		_oc ²	<u>Texture</u>	Remarks
0-02									Mı	ucky Peat	Organic-hemic.
02-06	10YR	5/1	80	10Y	5/1	20	D	M	S	Silty Clay	Gleyed depletions.
06-11	N	2.5/0	20						Silty	Clay Loam	
06-11	10Y	4/1	80						Silty	Clay Loam	Gleyed matrix.
					ed Matrix, CS			ted S	and Gra		ation: PL=Pore Lining, M=Matrix.
Hydric Soil		: (Applica	ible to al				d.)				rs for Problematic Hydric Soils ³ :
Histosol		_,		$\overline{}$	ndy Redox (S	•					Muck (A10)
	oipedon (A	2)			ipped Matrix		(-4 841	D (4)	_	Parent Material (TF2)
Black Hi		(A 4)		_	amy Mucky M amy Gleyed I	, ,	(exce	ot IVIL	_RA 1)		Shallow Dark Surface (TF12) er (Explain in Remarks)
✓ Hydroge		(A4) ark Surface	(Δ11)	_	amy Gleyed i pleted Matrix						er (Explain in Remarks)
	ark Surface		; (A11)		dox Dark Sur					3Indicato	rs of hydrophytic vegetation and
_	lucky Mine			$\overline{}$	pleted Dark S	, ,	·)				nd hydrology must be present,
	Bleyed Mat			_	dox Depress		,				s disturbed or problematic.
Restrictive I	-					(- /					
Type:	, , ,	,									
Depth (inc	chas).									Hydric Soil	Present? Yes <u>V</u> No
Remarks:										Tiyano con	11c3ciii. 1c3 <u>= 10 </u>
Prominent of	gleyed de	pletions r	nany wit	hin the o	depleted ma	atrix. Loan	ny gley	yed r	matrix o	observed in 2	2nd soil horizon.
HYDROLO											
Wetland Hyd										_	
Primary Indic	`		ne require	ed; check	_	•					dary Indicators (2 or more required)
Surface	Water (A1)			_ Water-Stai			exce	pt	w	ater-Stained Leaves (B9) (MLRA 1, 2,
	iter Table ((A2)		_	MLRA 1	I, 2, 4A, an	nd 4B)				4A, and 4B)
✓ Saturation	on (A3)				Salt Crust	(B11)				Dr	rainage Patterns (B10)
Water M	arks (B1)				Aquatic Inv	ertebrates	(B13)			Dr	y-Season Water Table (C2)
Sedimer	nt Deposits	s (B2)		<u> </u>	🗹 Hydrogen 🤄	Sulfide Odd	or (C1)			Sa	aturation Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)				Oxidized R	hizosphere	s alon	g Livi	ng Root	s (C3) 🔽 G	eomorphic Position (D2)
Algal Ma	t or Crust	(B4)			Presence o	of Reduced	Iron (C	24)		sr	nallow Aquitard (D3)
Iron Dep	osits (B5)				Recent Iro	n Reduction	n in Till	ed So	oils (C6)	_ _ FA	AC-Neutral Test (D5)
Surface	Soil Crack	s (B6)			Stunted or	Stressed P	Plants (l	D1) (LRR A)	Ra	aised Ant Mounds (D6) (LRR A)
Inundation	on Visible	on Aerial Ir	magery (E	37)	Other (Exp	lain in Rem	narks)			Fr	ost-Heave Hummocks (D7)
Sparsely	v Vegetate	d Concave	Surface	(B8)							
Field Observ	vations:										
Surface Wate	er Present	? Ye	es 🔲	No	Depth (inc	:hes):					
Water Table	Present?	Ye	es 🔲	No	Depth (inc	:hes):					
Saturation Pr			es 🔽	_	_	ches):		0	Wetla	nd Hydrology	Present? Yes V No
Describe Red			gauge, m	onitoring	well, aerial p	hotos, prev	vious in	spec	tions), it	f available:	
Remarks:											
Soil saturate	ed to surfa	ace and h	ydroger	sulfide	odor obser	ved.					

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Silico	on Mountain		2. MDT project#	ST	PP STWD (756	6)	Contr	ol# 9	680000
3. Evaluation Date 7/1				Wetl	and/Site# (s)	Created	Cell 6		
6. Wetland Location(s):			nt, B Trudgeon Sec1 24	т	R		Sec2		
Approx Stationing or Miles		V V	Jec 1 24		K		3602		
Watershed 2 - Upper 0		torcho	ed/County Silver	Row					
		1013110	ea/county onver	DOW					
7. Evaluating Agency	CCI for MDT				8. Wetland s	size acres			0.44
Purpose of Evaluation					How assesse	ed:	Measured	e.g. by	GPS
	affected by MDT project				9. Assesssn (AA) size (ac				0.44
☐ Mitigation Wetlands: p	ore-construction				How assesse	•	Measured	e a by	GPS
✓ Mitigation Wetlands:	oost construction				11011 400000		mododrod	o.g. by	0. 0
Other									
40. Classification of Moth	and and America Habitata	: A A							
10. Classification of Wetla	•	III AA						,	
HGM Class (Brinson)	Class (Cowardin)		Modifier (Coward	in)	Water Re			% of AA	40
Depressional	Aquatic Bed		Excavated		Seasonal/Int	ermittent			43
Depressional	Emergent Wetland		Excavated		Seasonal/Int	ermittent			57
] [
]						
11. Estimated Relative Abu	undance Abundant								
12. General Condition of A i. Disturbance: (use matrix aquatic nuisance vegetatio	x below to determine [circle] ap	opropria	ate response – see ins	truction	ns for Montana-li	sted noxiou	s weed and		
			Predo	minant	conditions adjacent	to (within 500	feet of) AA		
Conditions \(\)	within AA	natural hayed, conver roads o	ged in predominantly al state; is not grazed, I, logged, or otherwise rted; does not contain or buildings; and noxious or ANVS cover is <=15%.	mode select subject few r	I not cultivated, but erately grazed or ha ctively logged; or ha ect to minor clearing roads or buildings; not or ANVS cover is	yed or s been ; contains oxious	or logged; placement hydrologic building de	subject to , grading, o al alteratio	avily grazed substantial fill clearing, or n; high road or oxious weed 30%.
AA occurs and is managed in predor grazed, hayed, logged, or otherwise roads or occupied buildings; and nov <=15%.	converted; does not contain	lov	w disturbance		low disturba	nce	mode	ate dis	turbance
AA not cultivated, but may be moder selectively logged; or has been subje placement, or hydrological alteration noxious weed or ANVS cover is <=30	ect to relatively minor clearing, fill ; contains few roads or buildings;		moderate disturbance	mo	oderate distu	bance	high	n distur	bance
AA cultivated or heavily grazed or log substantial fill placement, grading, cl high road or building density; or nox >=30%.	learing, or hydrological alteration;	hig	gh disturbance		high disturba	nce	high	n distur	bance
Comments: (types of distu 2018 was the first year that v open water to 2 feet deep wa the cell included excavation, perennial grasses and forbs, ii. Prominent noxious, aqua Cirsium arvense iii. Provide brief descriptiv	vater was observed within the sobserved during the 2020 regrading and revegetation along with an expansion of atic nuisance, other exoting the solution of the	he exc 0 moni n. The s f native	itoring event. Wetlar surrounding upland/ e, existing desirable cies:	nd Cel wetlar speci	l 6 is within the nd area is stabl	old road	alignment,	the con	struction in
The AA consists of a depress	sional wetland and upland b	buffer a	at the bottom of a go		nillslope. Land	use surrol	ınding the	AA inclu	ıdes
commercial developments ar	nd transportation (railroad to	racks a	and highway).						

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Modified Is current management preventing (passive) existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA L Comments: Palustrine emergent, Palustrine Aquatic Bed SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS, MTNHP Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating **MTNHP** Sources for documented use

AD. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the A could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not estorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check NA here and proceed to 14E.) Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating) Duration of surface water in AA Permanent / Perennial Seasonal / Intermittent Temporary / Ephemeral Aquatic hiding / resting / escape cover	** * /h-205	~~~	- 15-0	· · · · · · · · · · · · · · · · · · ·	- 54	-,						- Timi	• 0	ء د		د ما		-ال-		Low				
abundant wildlife sign such as cost, tracks, neet shoutures, game trails, etc. presence of extremely limiting habitate features not available in the surrounding area presence of extremely limiting habitate features not available in the surrounding area presence of extremely limiting habitate features not available in the surrounding area presence of extremely limiting habitate features (assed on any of the following [check]): deservations of scaliflered wildlife groups or indiviouslate or relatively few species during peak periods common occurrence of wildlife signs such as sout, tracks, neet structures, game balls, etc. adequate adjacent upand food sources interviews with local biologists with knowledge of the AA Wildliff habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: PP = wildliff habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water furnishing the internations are as follows: PP = wildliff habitate features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other prevalent vegetated classes must be within 20% of each other prevalent (with a prevalent vegetated classes must be within 20% of each other prevalent vegetated classes must be withi	,		•		• •		-15.00	/di		770	.,				-			-						
presence of extremely limiting habitat features not available in the surrounding area sparse adjacent upland food sources interviews with local biologists with introvieting of the AA otherwitines of the following (check): otherwitines of the following (check): otherwitines of scalinered widiffic groups or individuals or relatively few species during peak periods occurrent or widific groups or individuals or relatively few species during peak periods occurrent or widific groups or individuals or relatively few species during peak periods occurrent or widific groups or individuals or relatively few species during peak periods occurrent or widific groups or individuals or relatively few species during peak periods occurrent or widific groups or widific spin such as sout, tracks, nest structures, game trails, etc. occurrent or widific groups or wide spin such as sout, tracks, nest structures, game trails, etc. occurrent or widific spin such as south	_							• (•		i)	=					during	, peak u	ise peri	íods				
interviews with local biologists with knowledge of the AA	_	Ŭ													Ŭ									
Comments Considerate (based on any of the following (check):	∹ '	,	,	Ü					e sund	Junainy a	area			-					. 4 41	• •				
common occurrence of wildlife agroups or individuals or relatively few species during peak periods common occurrence of wildlife agroups as a sea, tracks, next structures, game trails, etc. adequate adjournt upland food sources interviews with local biologists with knowledge of the AA	interviews with	ı local bı	iologists	s with K	inowled	dge of tr	1е АА					ini	terviev	vs with	local bid	ologists	with Kr	ıowleaç	ge of tn	ıe AA				
Trom #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows, P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms]) **Trick of the Property of t	observations of common occu	of scatter urrence o acent upl	ered wild of wildlif	Idlife gro	oups or such as	or individu as scat, t	tracks, r		•	•	•		∍riods											
Class cover a distribution (all leven leve	from #13. For o other in terms o permanent/pere terms])	class co	cover to	o be co ent comp	onside npositio	ered evolion of the	venly di the AA	distribu A (see #	uted, th #10).	the most Abbrev	st and le	least pr is for su	revale urface	ent veg e water	getateo r duratio	d class	ses mu re as fo	ust be ollows:	within E: P/P =	n 20% of =	of each			
### Distribution (a) #### Distribution (a) ##### Distribution (a) ####################################	diversity (see #13)				Hiç	gh							Mod	erate					Lo	ow				
Duration of surface water 12 PIP SII TIE A	distribution (all vegetated classes)		Eve	en			Une	ven			Eve	en			Une	ven			Ev	ven				
Additional and the process of the pr	Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	A	P/P	S/I	T/E	А			
disturbance at AA H H H H H H H H H H H H H H H H H H	at AA (see #12i)	Е	Е	Е	Н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	M	М			
iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating) Evidence of wil dilife use (i) Wildlife habitat features rating (ii)	disturbance at AA (see #12i)			-	Н				М		Н	М	М		M	М		Н	М	L	L			
iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating) Evidence of wildlife use (i) Exceptional High Moderate Low Substantial 1E .9H .8H .7M .5M .3L Minimal .6M .4M .2L .1L Comments Small wetland with limited value to wildlife. 4D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the Activated by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not astorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check NA here and proceed to 14E.) Duration of surface water in AA Permanent / Perennial Permanent / Perennial Adequate Poor Optimal Adequate		М	M	M	L	М	М	L	L	М	М	L		М	L	L			L	L	L			
Moderate .9H .7M .5M .3L Minimal .6M .4M .2L .1L Comments Small wetland with limited value to wildlife. 4D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the A ould be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not astorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check NA here and proceed to 14E.) Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating) Duration of surface water In AA Permanent / Perennial Seasonal / Intermittent Temporary / Ephemeral Adequate Poor Optimal Adequate Poor Optimal Adequate Thermal cover optimal A dequate Suboptimal O S O S O S O S O S O S O S O S O S O									and	the ma								ional	points	s and ı	rating)			_
Moderate 9H 7M 5M 3L Minimal 6M AM 2L 1L AD. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the Activate of the substance of the existing situation is "correctable" such that the Activate of the existing situation is "correctable" such that the Activate of the existing situation is "correctable" such that the Activate of the existing situation is "correctable" such that the Activate of the existing situation is "correctable" such that the Activate of the existing situation is "correctable" such that the Activate of the existing situation is "correctable" such that the Activate of the Ac	- tantial			4	F	Except	ional		4					1		Mod	derate	e		4		Low		_
Minimal .6M .4M .2L .1L .1L .1L .3M .6M .4M .2L .1L .1L .1L .1L .1L .1L .1L							-		4_		.91	Н					.8H						4	
Small wetland with limited value to wildlife. 4D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the A ould be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not estorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check NA here and proceed to 14E.) Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating) Duration of surface water in AA Permanent / Perennial Seasonal / Intermittent Temporary / Ephemeral Aquatic hiding / resting / escape cover Thermal cover optimal Adequate Poor Optimal O				+			_		\bot														4	_
4D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the Aould be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not estorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check NA here and proceed to 14E.) Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating) Duration of surface water in AA Permanent / Perennial Seasonal / Intermittent Temporary / Ephemeral Aquatic hiding / resting / escape cover Thermal cover optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate						.610				'	.41	M					.2L					.1L		
estorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check NA here and proceed to 14E.) Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating) Duration of surface water in AA Permanent / Perennial Seasonal / Intermittent Temporary / Ephemeral Aquatic hiding / resting / escape cover Thermal cover optimal / suboptimal O S O S O S O S O S O S O S O S O S O		Fish Ha	Habitat	at Rati	ing: ((Asses	ss this	s funct	ction if	if the A		-	•			_							ne AA	_
in AA Permanent / Perennial Seasonal / Intermittent Temporary / Ephemeral Aquatic hiding / resting / escape cover Adequate Poor Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Thermal cover optimal O S O S O S O S O S O S O S O S O S O	estorable due t NA here a	to habi and pro	bitat co roceed	onstra d to 14	aints, 4E.)	or is n	not de	esired	l from	n a man	nagem	nent pe	erspe	ective	[such	n as fis	sh ent	trappe	ed in a					_
Aquatic hiding / resting / escape cover Optimal Adequate Poor Optimal Poor Optimal Adequate Poor Optimal Poor Op					P	ermaner	nt / Per	ennial			Ĺ.		Seas	onal / I	n <u>termitt</u> e	ent	_			Ten	nporary	/ Epheme	ral	Ì
suboptimal 0 5 0				_	_						<i>~</i>		_1			T	<u> </u>		Onti	mal	Ade	aguate	Po	À
FWPTier I fish species 1E .9H .8H .7M .6M .5M .9H .8H .7M .6M .5M .4M .7M .7M .6M .7M .7M .6M .7M .7M .7M .7M .7M .7M .7M .7M .7M .7	escape cover			Optim	nal	A	dequat	9	Pc	or	O _i	otimal	\bot	Adec	uate	\perp	Poor	4	Ори	IIIai	Aue	quate		-00
FWP Tigrill or Nation	escape cover Thermal cover opti			0	S	0) ;	S	0	S	0	S	+	0	S	0	S	+	0	S	0	S	0	-oc

Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Opt	timal	Adeq	luate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	Adeo	quate	Po	oor
0	S	0	S	0	S	0	S	0	s	0	S	0	S	0	S	0	S
1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
.8Н	.7M	.6М	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L
	O 1E .9H	Optimal O S 1E 9H 8H 8H 8H 8H	Optimal Adec O S O 1E 9H 8H .9H .8H .7M	Optimal Adequate O S O S 1E .9H .8H .7M .6M .9H .8H .7M .6M .5M	Optimal Adequate Po O S O S O 1E .9H .8H .7M .6M .5M .9H .8H .7M .6M .5M .5M .8H .7M .6M .5M .5M	Optimal Adequate Poor O S O S O S 1E .9H .8H .7M .6M .5M .5M .9H .8H .7M .6M .5M .5M .4M .8H .7M .6M .5M .5M .4M	Optimal Adequate Poor Optimal O S O S O 1E .9H .8H .7M .6M .5M .5M .9H .9H .8H .7M .6M .5M .5M .5M .8H .8H .7M .6M .5M .5M .4M .7M	Optimal Adequate Port Optimal O S O S O S 1E .9H .8H .7M .6M .5M .9H .8H .9H .8H .7M .6M .5M .5M .8H .7M .8H .7M .6M .5M .5M .4M .7M .6M	Optimal Adequate Poor Optimal Adequate O S O S O S O 1E .9H .8H .7M .6M .5M .9H .8H .7M .6M .9H .8H .7M .6M .5M .5M .8H .7M .6M .8H .7M .6M .5M .5M .4M .7M .6M .5M	Optimal Adequate Poor Optimal Adequate O S O S O S O S 1E .9H .8H .7M .6M .5M .9H .8H .7M .6M .9H .8H .7M .6M .5M .5M .8H .7M .6M .5M .8H .7M .6M .5M .5M .4M .7M .6M .5M .4M	Optimal Adequate Poor Optimal Adequate Poor O S	Optimal Adequate Poor Optimal Adequate Poor O S O S O S O S O S 1E .9H .8H .7M .6M .5M .9H .8H .7M .6M .5M .4M .9H .8H .7M .6M .5M .5M .8H .7M .6M .5M .4M .4M .8H .7M .6M .5M .5M .4M .7M .6M .5M .4M .3L	Optimal Adequate Poor Optimal Adequate Poor Optimal O S O	Optimal Adequate Port Optimal Adequate Adequate Port Optimal Adequate Adequat	Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate O S <td>Optimal Adequate Port Optimal Adequate Port Optimal Adequate Port Optimal Adequate O S<td>Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor O S O</td></td>	Optimal Adequate Port Optimal Adequate Port Optimal Adequate Port Optimal Adequate O S <td>Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor O S O</td>	Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor Optimal Adequate Poor O S O

Sources used for I	identifying fish sp.	potentially four	nd in AA:									
ii. Modified Ratir a) Is fish use of th current final MDEG fishery or aquatic yes, reduce score	e AA significantly Q list of waterbodi life support or do	reduced by a c es in need of T aquatic nuisan	ulvert, dik MDL deve	e, or other melopment with	nan-made . h listed "Pr	structure o obable Im	paired Uses	" including	g cold or v	varm water		
b) Does the AA co comments) for nat			_	er critical hal			the adjusted				n	
iii. Final Score a	nd Rating: 0 NA		Commen	ts: No fish	habitat	within AA	٨.					
14E. Flood Atte	enuation: (Applies eank flow, click	only to wetland			via in-chan	nel or ove	bank flow.	If wetland	ls in AA a	re not flood	ed from in-	
	ng from top to bott Iculated Entrenchr		Slightly	v to arrive at entrenched stream types	- C, D, E	Modera	Il points and tely entrench stream type	ned – B	Entrend	ched-A, F, G	S stream	
	tland classified as ub	forested	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no	outlet or restricte	d outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
7 V Germanie um			.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	1L	
	Slightly Entrench ER = >2.2			Moderately ER = 1.	41 – 2.2			ER	ntrenched 2 = 1.0 - 1.4			
C stream type	D stream type	E stream ty	/pe	B strea	m type	A	stream type	f	F stream ty	pe G	S stream type	
Flordman	2 x	Bankfull Dept		Bankfull D	Chertalana da a	No.	W. Ab.	l∞d-pror full Widt	h			
Floodprone width ii. Are ≥10 acres	of wetland in the A	AA subject to flo	/ Bankf width poding AN		nade featu	res which	may be sign	Entrend ratio hificantly of		by floods lo	cated	
Comments:	wnstream of the A A subject to flo ward the railroa	oding is les	y ⊜ s than 1	N ● 0 acres. D	Depressi	onal wet	land restr	icts disc	charge o	or draina	ge to the	east
upland surface 14G.) i. Rating (Wo	nd Long Term Se flow, or ground	waterflow. If o bottom, use	no wetla	nds in the <i>i</i>	AA are su arrive at	bject to fl [check] th	looding or p	oonding, al points	dick (NA her	e and prod viations fo	ceed to
further definition Estimated maximum	s are as follows: ons of these term macre feet of water co	ns].) ontained in	n ent/pere		= seasona	ıl/intermit			nporary/e	phemeral		
flooding or ponding	AA that are subject to			>5 acre feet			1.1 to 5	acre feet			≤1 acre foo	л

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.:	1 to 5 acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8Н	.8Н	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9Н	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

This wetland is subject to ponding from precipitation, upland surface flow, but primarily from seasonal high groundwater (USGS, 2020)

i. Rating (working from top to bott	om, use tł	ne matrix b	elow to arr	ive at [check] th	e functional	points and ra	ing [H = hig	NA here and p h, M = modera	
= low]) Sediment, nutrient, and toxicant input levels within AA	to de compour not sub sourc	eliver levels onds at levels stantially imposes of nutrien eutroph	of sediments such that ot paired. Mino		develor nutrients with pote compound	opment for "prob , or toxicants or ntial to deliver h ls such that othe imentation, soul of eutro	able causes" I AA receives o igh levels of s ir functions are		ent, nd us e nts, or npaired.
% cover of wetland vegetation in AA Evidence of flooding / ponding in AA		70%	.,	< 70%		≥ 70%		< 70%	
AA contains no or restricted outlet	Yes	No OLL	Yes	No	Yes	No.			No 1
AA contains unrestricted outlet	1H	.8H	.7M	.5M	.5M	.41		3L .2	2L
AA contains unrestricted outer	.9H	.7M	.6M	.4M	.4M	.31	2	2L .1	IL
14H Sediment/Shoreline Stabilization drainage, or on the shoreline of a standi proceed to 14I.) i. Rating (working from top to bottom, top to bottom)	ng water bo	ody which is	subject to w	vave action. If 14h	H does not ap	ply, click	ural or man-m		
% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings				surface water adjacen	t to rooted vege	etation			
of ≥6 (see Appendix F).	Permane	ent / Perennial		Seasonal / Intermit	ttent	Temporary /	Ephemeral		
≥ 65%	<u>.</u>	1H		.9H		.7	M		
35-64%	_	.7M		.6M		.5	5M		
		.3L		.2L					
This small wetland is 14l. Production Export/Food Chair i. Level of Biological Activity (synth General Fish Habitat Ge	n Support:		ı habitat ratiı	ngs [check])	е ог ропиес	water is pres	ent.		
Rating (14D.iii.)	rierai vviid	М	Rating (14	L L					
E/H H		Н		М					
М		М		М					
	1	М		L					
L	_								
L M H		М		L					
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B subsurface outlet; the final three rows pe [see instructions for further definitions of	= level of bi ertain to dur f these term	atrix below t iological acti ration of sur	ivity rating fi face water i	check] the functior rom above (14I.i.); n the AA, where P	Factor C = w	hether or not th E are as previo	e AA contains ously defined,	s a surface or and A = "absen	ıt"
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B subsurface outlet; the final three rows pe [see instructions for further definitions of A Vegetated component >5 at B High Moderate	= level of bi ertain to dur f these term cres Low	atrix below t iological acti ration of sur	ivity rating fi face water in Vegetate	check] the function rom above (14l.i.); n the AA, where Pode component 1-5 acres Moderate	Factor C = w /P, S/I, and T	hether or not the /E are as previo	busly defined, tated component Moderate	s a surface or and A = "absen <1 acre	
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B subsurface outlet; the final three rows pe [see instructions for further definitions of A Vegetated component > 5 ar B High Moderate C Yes No Yes No	= level of bi ertain to dur f these term cres Low Yes N	atrix below t iological actiration of surface.	ivity rating fi	check] the function rom above (14I.i.); n the AA, where P, ad component 1-5 acres Moderate Yes No Ye	Factor C = w /P, S/I, and T	vhether or not the /E are as previous Vege High Yes No	tated component Moderate Yes No	s a surface or and A = "absen <1 acre Low Yes No	
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B subsurface outlet; the final three rows pe [see instructions for further definitions of A Vegetated component >5 ac B High Moderate C Yes No Yes No P/P 1E .7H .8H .5M	= level of biertain to during these term cres Low Yes N .6M .4	atrix below t iological acti ration of surl ns].) H lo Yes M 9H	Vegetate	check] the function rom above (14I.i.); n the AA, where P, ad component 1-5 acres Moderate Yes No Ye .7H .4M .5	Factor C = w /P, S/I, and T Low SM 3L	rhether or not the /E are as previous Vege High Yes No	e AA contains pusly defined, tated component Moderate Yes No .6M .4M	s a surface or and A = "absen <1 acre Low yes <a href="mailto:No No J. Low yes <a href="mailto:No No J. Low J.	
ii. Rating (Working from top to bottom, wetland component in the AA; Factor B subsurface outlet; the final three rows pe [see instructions for further definitions of A Vegetated component > 5 ar B High Moderate C Yes No Yes No	= level of biertain to durif these termores Low Yes N .6M .4 .5M .3	atrix below t iological actiration of surface.	ivity rating fiface water ii Vegetate ligh No .6M .5M .5M	check] the function rom above (14I.i.); n the AA, where Produced component 1-5 acres Moderate Yes No Yes No Yes AM J.	Factor C = w /P, S/I, and T	vhether or not the /E are as previous Vege High Yes No	tated component Moderate Yes No	s a surface or and A = "absen 	

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) i. Discharge Indicators ii. Recharge Indicators The AA is a slope wetland Permeable substrate present without underlying impeding layer Springs or seeps are known or observed Wetland contains inlet but no outlet Vegetation growing during domant season/drought 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: Seasonally high groundwater iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM Criteria P/P S/I None Groundwater Discharge or Recharge 1H .1L .7M .4M 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 arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant common abundant commo rare common rare rare abundance (#11) Low disturbance at AA 1H .9H .8H .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: Wetlands of this type are abundant in the area but have low disturbance in comparison to others impacted by land managem 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) i. Is the AA a known or potential rec./ed. site: (check) Y N 💿 (if 'Yes' continue with the evaluation; if 'No' then click **V** NA here and proceed to the overall summary and rating page) Check categories that apply to the AA: Educational/scientific study; Consumptive rec.; Non-consumptive rec.; **✓** Other iii. Rating (use the matrix below to arrive at [check] the functional points and rating) Known or Potential Recreation or Education Area Known Potential Public ownership or public easement with general public access (no permission required) .2H 15H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .1M .05L Comments: 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 **General Site Notes** It will be interesting to see the continued development of created cell 6 with time and the continued improvement of wildlife and wetland habitat.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Created Cell 6

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	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	М	.5	1	0.22	✓
C. General Wildlife Habitat	М	.4	1	0.18	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	L	.3	1	0.13	
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	0.31	✓
H. Sediment/Shoreline Stabilization	L	.2	1	0.09	
Production Export/Food Chain Support	М	.4	1	0.18	
J. Groundwater Discharge/Recharge	М	.7	1	0.31	✓
K. Uniqueness	L	.3	1	0.13	
L. Recreation/Education Potential (bonus points)	М	.1	NA	0.04	
Totals:		3.6	9	1.58	
Percent of Possible Score			40 %		

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

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

I II III IV

MDT Montana Wetland Assessment Form (revised March 2008)

									•			•			
1. Project name	Silicon Mour	on Mountain				2. MDT project#			PP STWD (756)			Con	Control# 9680000		
3. Evaluation Date	7/1/2020				re, R Jones, S nt, B Trudged			Wet	and/Site# (s)		Created	Cells 1 a	nd 5		
6. Wetland Location(s): T	3N	R	9W	Sec1	_		Т		R		Sec2			
Approx Stationing or	Mileposts	N/A													
Watershed 2 - U	pper Clark Fo	rk	W	atersh	ed/Cour	nty	Silver	Bow							
7. Evaluating Agency	CCI f	or MDT							8. Wetl	and s	size acres	s .		4.86	
Purpose of Evaluation					How assessed: Mea						Measur	ed e.g.	by GPS		
$\hfill \Box$ Wetlands potentially affected by MDT project									9. Assesssment area (AA) size (acres)				4.86		
☐ Mitigation Wetla	nds: pre-con	struction							How as:	•	•	Measure	nd e n	hy GPS	
✓ Mitigation Wetla	nds: post co	nstruction							now as	3633	eu.	Measure	u e.g.	by Gi G	
☐ Other															
40 Classification of	: Watland and		_ - !4_4												
10. Classification of		-		S III A						_			0/ 5		
HGM Class (Brinson	<u> </u>	Class (Cowardin)			Modifier (Cowardin								% of <i>i</i>		
Depressional	Aqua	atic Bed		Excavated				Permanent/Perennial				51			
Depressional Emergent Wetland				Excavated				Season	termittent			49			
] [
11. Estimated Relativ	e Abundanc	e Cor	nmon												
12. General Condition i. Disturbance: (use		o determine [circle] a	appropr	iate respo	nse –	see ins	tructio	ns for Mont	ana-li	sted noxiou	ıs weed ar	ıd		
aquatic nuisance ve	getation specie	s (ANVS) lists	s)	1			Directi		t conditions ac	dia a a su	t to (within EO	0 fact of 11			
n				Mana					d not cultivate	•	-	Land cultivated or heavily grazed			
					natural state; is not grazed, hayed, logged, or otherwise				moderately grazed or hayed or selectively logged; or has been				or logged; subject to substantial fill placement, grading, clearing, or		
Con	iditions within AA			conve	erted; does	not con	ntain	sub	ject to minor o	learing	g; contains	hydrolog	ical alter	ration; high road or noxious weed	
					or ANVS co				d or ANVS co				cover is		
AA occurs and is managed in															
grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <=15%.				lo	low disturbance				low disturbance				moderate disturbance		
AA not cultivated, but may be															
selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings;					moderate disturbance				moderate disturbance				high disturbance		
noxious weed or ANVS cove		oot to rolative!:		_	นเรเนเชล	ance									
AA cultivated or heavily graz	eu or roygea; subj	ect to relatively						1			_				

Comments: (types of disturbance, intensity, season, etc)

substantial fill placement, grading, clearing, or hydrological alteration;

high road or building density; or noxious weed or ANVS cover is

This is year 6 (2020) following construction; wetland cells 1 and 5 have established desirable perennial grass and forb cover, with minimal annual and perennial weeds present. The level of disturbance has declined, the site has stabilized with increasing cover by perennial grasses/forbs. Rills and gullies noted in 2020 between the bike path and wetland cell 5 are still present but perennial grasses are establishing on these erosive features.

high disturbance

high disturbance

high disturbance

ii. Prominent noxious, aquatic nuisance, other exotic species:

Linaria vulgaris, Euphorbia esula, Cirsium arvense

iii. Provide brief descriptive summary of AA and surrounding land use/habitat

The site is a mitigation site composed 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 drains into Sand Creek, but is outside of Sand Creek's active floodplain area, and so is not subject to overbank flooding. The AA also includes the emergent wetland that has developed surrounding the constructed cells 1 and 5.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Modified Initial Is current management preventing (passive) existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> 1 class, monoculture (1 species comprises>=90% of total cover) NΑ NΑ NA L Comments: Palustrine Aquatic Bed, Palustrine emergent SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS, MTNHP Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) □ D □ S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating **MTNHP** Sources for documented use

																			Mod	erate			
Ibstantial (based	-			-		a dissan	aitu (dun	rina an		1/				-		_	[check])		iada				
observations of abundant wild							• •	•	•	1)	\equiv		o wildli o wildli		vations	auring	peak u	se peri	ioas				
presence of e	-						-			area	\equiv			•	food s	ources							
interviews with	-								3		_		-				nowledg	e of th	e AA				
_		•													•								
oderate (based o				-																			
observations			-					-				riods											
common occu			-		s scat,	tracks,	nest str	ucture	s, game	trails, e	tc.												
adequate adjate interviews with					dge of t	he AA																	
_		3			3																		
ii. Wildlife habi																							
from #13. For o other in terms o						•							-							ı eacn			
permanent/pere							•	,												of thes	е		
terms]) Structural																							
diversity (see #13) Class cover				Hi	gh							Mode	erate					Lo	ow				
distribution (all vegetated classes)		Eve	n			Une	ven			Eve	n			Une	ven			Ev	ren				
Duration of surface water in ≥ 10% of AA	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			
Low disturbance at AA (see #12i)	Е	Е	Е	Н	Е	Е	Н	н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М			
Moderate disturbance at AA (see #12i)	н	н	н	н	Н	н	Н	м	Н	Н	М	М	н	М	М	L	н	М	L	L			
			М	L	М	м	L	L	м	М	L		М	L	-				1				
High disturbance	M	M															_	_	_				
	М	M	<u> </u>							IVI													
	M	М		_								_					_		-				
at AA (see #12i)	use the	e conc	_	ns fro	om i a	nd ii a	above	and t	the ma	atrix be							ional p	ooints	s and	rating)			
at AA (see #12i)	use the	e conc	_					and t	the ma	atrix be	/ildlife				rating	g (ii)		ooints	s and	rating)	1		_
at AA (see #12i) iii. Rating (u	use the	e conc	_		Except	tional		and t	the ma	atrix be W High	/ildlife				rating Mod	g (ii) derat		ooints	s and	rating)	Low	1	
iii. Rating (u Evidence of w Substantial	use the	e conc	_		Except 1E	tional		and t	the ma	atrix be W High .9F	/ildlife				Mod Mod	g (ii) derat 8H		points	s and	rating)	.7M		
iii. Rating (L Evidence of w Substantial	use the	e conc	_		Except	tional		and t	the ma	atrix be W High	/ildlife				Mod Mod	g (ii) derat		points	s and	rating)			
ii. Rating (UEVidence of W	use the	e conc	_		Except 1E	tional		and t	the ma	atrix be W High .9F	rildlife				Mod	g (ii) derat 8H		points	s and	rating)	.7M		
iii. Rating (u Evidence of w Substantial Moderate Minimal	use the	e cond use (i	<i>i</i>)	E	1E .9H	tional				High .9F	/ildlife	habi	tat fea	atures	Mod	g (ii) derat 8H 5M		points	s and	rating)	.7M .3L		
iii. Rating (u Evidence of w Substantial Moderate Minimal	use the	e cond use (i	<i>i</i>)	E	1E .9H	tional				High .9F	/ildlife	habi	tat fea	atures	Mod	g (ii) derat 8H 5M		points	s and	rating)	.7M .3L		
iii. Rating (u Evidence of w Substantial Moderate Minimal	use the	e cond use (i	<i>i</i>)	E	1E .9H	tional				High .9F	/ildlife	habi	tat fea	atures	Mod	g (ii) derat 8H 5M		points	s and	rating)	.7M .3L		
iii. Rating (u Evidence of w Substantial Moderate Minimal	use the	e cond use (i	<i>i</i>)	E	1E .9H	tional				High .9F	/ildlife	habi	tat fea	atures	Mod	g (ii) derat 8H 5M		ooints	s and	rating)	.7M .3L		
iii. Rating (UEvidence of Washinmal Moderate Minimal omments	use the	e concuse (i	wildlife	e use	1E .9I .6M e but e	tional	tional a	and o	diverse	atrix be // // // // // // // // // // // // /	fe hal	habi	featur	es.	Moo	g (ii) derat 8H 5M 2L	e on is "c	corre	ctable	" such	.7M .3L .1L	ie AA	
iii. Rating (u Evidence of w Substantial Moderate Minimal omments	use the vil dlife Mode	e concuse (i	wildlife	e use	1E 9H 6M e but e	tional	tional a	and o	the A	A is usert or o	fildlife If the half	bitat y fisharrie	featur featur r, etc.	es.	Moo	g (ii) derat 8H 5M 2L tuation is no	e on is "o	corred by f	ctable	" such	.7M .3L .1L		
iii. Rating (u Evidence of w Substantial Moderate Minimal Comments 4D. General Fould be used I	Mode Fish H by fish to hab	e concuse (i	wildlife t Rati fish u	e use	1E 9H 6M e but e	tional	tional a	and o	the A	A is usert or o	fildlife If the half	bitat y fisharrie	featur featur r, etc.	es.	Moo	g (ii) derat 8H 5M 2L tuation is no	e on is "o	corred by f	ctable	" such	.7M .3L .1L		
iii. Rating (u Evidence of w Substantial Moderate Minimal Comments 4D. General Fould be used I	Mode Fish H by fish to hab	e concuse (i	wildlife t Rati fish u	e use	1E 9H 6M e but e	tional	tional a	and o	the A	A is usert or o	fildlife If the half	bitat y fisharrie	featur featur r, etc.	es.	Moo	g (ii) derat 8H 5M 2L tuation is no	e on is "o	corred by f	ctable	" such	.7M .3L .1L		
iii. Rating (UEvidence of Winimal Moderate Minimal omments 4D. General Fould be used lestorable due of Winimal	Mode Fish H by fish to hab	econcuse (i	wildlife	ng: (se is ints,	1E .9H .6N Asses precili	H 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	tional a	and o	the Ad culve a mar	A is usert or onagem	fidife	bitat y fish	featur or the	es. e exis	Model	d (ii) derat 8H 5M 2L tuation is no	on is "o	correction of the state of the	ctable	" such	.7M .3L .1L		
iii. Rating (UEvidence of Manimal Substantial Moderate Minimal Comments 4D. General Fould be used lestorable due Manimal Manimal Lateral Foundation of Surface	Mode Fish H by fish to hab and pro	econcuse (i	wildlife	ng: (see is ints, its.)	1E .9H .6M Asses precion is r	H	tional a	and o	the Ad culve a mar	A is usert or onagem	fidife	pitat y fish arrie erspe	or the	es. e exis	Moderating sites and as fissestional programmers.	d (ii) derat 8H 5M 2L tuation is no	on is "o	correction of the state of the	ctable ish, fis	" such sh use I], the	.7M .3L .1L	<	
iii. Rating (UEvidence of Managements Substantial Moderate Minimal Comments 4D. General Fould be used lestorable due Managements NA here at Management AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	Mode Fish H by fish to hab and pro- ality an	econcuse (i	wildlife	ng: (se is ints,	1E .9h .6M Assess precilion or is r	H	s funct by per esired	and o	the Ad culve a mar	A is usert or onagem	fidife	pitat y fish arrie erspe	or the	es. e exis	rating Mod	d (ii) derat 8H 5M 2L tuation is no	on is "o	correction of the state of the	ctable ish, fish a cana	" such sh use I], then	.7M .3L .1L	ral	000000
iii. Rating (UEvidence of Minimal Moderate Minimal omments 4D. General Fould be used I storable due NA here a Habitat Que Duration of surfac- in AA	Mode Fish H by fish to hab and pro ality and e water sting /	abital	i) wildlife	ng: (se is ints,	1E .9h .6M Assess precilion or is r	tional H Except ss this uded not determine the recent to the recent the re	s funct by per esired	and continued in AA	the Ad culve a mar	A is usert or onagem	fe hal	pitat y fish arrie erspe	featur or the cective	es. e exis	rating Mod	g (ii) derat 8H 5M 2L tuation is not hent	on is "ot used rappe	correct dispersion of the second seco	ctable ish, fish a cana	" such sh use I], then	.7M .3L .1L	ral	

in AA		Pei	manent /	Perennial				Se	easonal /	Intermitten	t			Tem	porary/	Epheme	eral	
Aquatic hiding / resting / escape cover	Opt	timal	Adeq	uate	Po	or	Opti	mal	Ade	quate	Po	or	Opti	mal	Adeo	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	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8Н	.7M	.6М	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially i	ound in AA:									
ii. Modified Rating (NOTE: Modified score of a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuis yes, reduce score in i above by 0.1: Modified	a culvert, dik f TMDL deve sance plant d	ke, or other m elopment with	an-made s listed "Pro	bable Imp	aired Úses"	including	g cold or w	arm water	ne If	
b) Does the AA contain a documented spawning comments) for native fish or introduced game fis	sh? \(\) \(\) \(\)	′	If yes, a	dd 0.1 to t	he adjusted Rating	score in	i or iia ab	ove:		
iii. Final Score and Rating: 0 NA	Commen	ts: While w			ins into Sa the chan					
14E. Flood Attenuation: (Applies only to wet channel or overbank flow, click NA her	ands subjec e and proce		ria in-chanr	nel or over	bank flow. It	f wetland	s in AA ar	e not floode	ed from in-	
i. Rating (working from top to bottom, use the										
Estimated or Calculated Entrenchment (Rosge 1994, 1996)	Slightly	entrenched - stream types			ely entrench stream type	iea – B	Entrenci	ned-A, F, G types	stream	
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	1H	.9Н	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
L										
Slightly Entrenched		Moderately I					ntrenched			
ER = >2.2 C stream type	n type	ER = 1.4 B strear		А	stream type		= 1.0 - 1.4 stream typ		stream type	
	==-					F			₩	
2 x Bankfull D		Bankfull De		14	Banki	∞d-pror full Widt	h			
Floodprone 75 width	/ Bank width				32 =	ratio	nment	2.3437	5	
ii. Are ≥10 acres of wetland in the AA subject to within 0.5 mile downstream of the AA (check)?	o flooding AN Y	ND are man-n N	nade featu	res which i	may be signi	ificantly d	amaged b	y floods loo	cated	
Comments: AA is <10 acres. Wetland 75 and entrenchment ratio			r restricti	ng retur	n to Sand	Creek.	Floodp	rone widt	h is grea	ter than
14F. Short and Long Term Surface Waupland surface flow, or groundwater flow. 14G.)	If no wetla	ands in the A	VA are su	bject to fl	ooding or p	onding,	dick [NA here	e and proc	eed to
i. Rating (Working from top to bottom, usater durations are as follows: P/P = peri										
further definitions of these terms].)		·					. ,			
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic		>5 acre feet			1.1 to 5 a	acre feet			≤1 acre foc	ot

laterer definitions of these terms.)									
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.1	1 to 5 acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8Н	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or nond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: (2.47 acres created acres of perennial depressional aquatic bed) x (average 1 ft. ponding/flow at high water) = 2.47 acre feet

	gh influ																	ortoxica and proce	
i. Ra	. • `	vorking	from to	op to bot	tom, us	se the r	natrix b	elow to	o arrive a	at [chec	k] the f	unctiona	al points	s and ra	ting [H	I = high,	M = m	oderate,	or L
Sedim		ient, and A	toxicar	nt input	com	to delive pounds substar	r levels of at levels ntially imp of nutrier	of sedim such th paired. I	nents, nut nat otherf Minorsed	with poter rients, or functions limentation r signs of	are n,	deve nutrient with po compour	lopment s, or toxi tential to nds such	for "problem to ants or deliver by that other strongs or the stron	AA rechigh lever functions	auses" rel eives or s els of sec ions are s	ated to s surround diments, substanti or toxica	d of TMDL sediment, ing land us nutrients, o ally impair ants, or sig	se or ed.
		land veg oding/p				≥ 70%			< 70)%			≥ 70	%			< 70	1%	=
		or rest			Yes	+	No I	Ye	es	No	1	Yes		No	1	Yes	3	No	\dashv
					11	<u> </u>	8H	7	М	.5M		.5N	1	.41	М	.3L	-	.2L	Щ
AA co	ntains u i	nrestrict	ed outl	et	.91	┥ .	7M	.61	м	.4M		.41	1	.3	L	.2L	-	.1L	
	ments			nding land														ater.	
draina procee	ge, or or ed to 141 ting (wo	n the sho .) rking fro	oreline o	bilizatio n of a standi o bottom,	ing wat	er body	which is	subject arrive	t to wave at [check	action. I	f 14H d tional p	oes not a	ipply, cli d rating)			man-ma	ue		
shorelii	ne by spe	and strear cies with s			Dam	manant /	Doronnial	Duratio		e water ad			<u>-</u>	man aram /	/ Enham	oral			
	see Appe	ndix F).			Peli		Perennial		<u> </u>	asonal / In	1	ıı	16	emporary	M	erai	1		
≥ 65%	,					1H	_			_	_								
35-64% < 35%	0					.7N .3L	_			.6N .2L					5M 1L				
	Produ	nebra	port/F	with a ratis, which cod Chair ivity (synt)	surrou n Supp	unds ac	uatic b	eds as	emerge	ent wetla		Danicus	, Eleoci	тапѕ ра	iiustris	, and Ca	nex		
Gei		sh Habit				Wildlife			(14C.iii.										
	E/			Н	1		н			м									
	IV			Н			М			М									
	iv			М		_	М			L									
	N/			Н			М			L									
wetlan subsu [see ir	nd compo rface ou	onent in t tlet; the f ns for fur	the AA; inal thr ther de	to bottom ; Factor B ee rows p finitions o	= level ertain to f these	of biologo duration	gical act on of sur	ivity rat face wa	ing from a ter in the	above (14 AA, whe	4I.i.); Fa ere P/P,	ctor C =	whether	or not the	he AA d ously d	contains a efined, a	a surface nd A = "a	e or	
A B C	H Yes	igh		mponent >5 a derate No	L	ow No		ligh	Mod	ponent 1-5 derate No	L	.ow	Hi		Mo	mponent <1 derate No		ow No	
P/P	1E	No .7H	.8H	.5M	Yes .6M	.4M	Yes .9H	.6M	Yes .7H	.4M	Yes .5M	No .3L	Yes .8H	.6M	Yes .6M	.4M	.3L	.2L	
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.9H	.5M	./H	.4W	.3M	.3L	.7H	.5M	.5M	.4W		.2L	
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7Н	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.3L	.3L	.1L	
plant co control). a) Is the to the s	ver, ≤ 18 ere an av core in 1	5% noxio verage ≥ ii above	ous wee 50 foot and adj	Modified and Modified or ANV to the wide veginust rating	S cover etated accord	r, and th upland b ingly:	at is not ouffer are	subject ound ≥ d Rati	ted to per 75% of th ng 1	riodic me ne AA ciro E	chanica cumfere	l mowing			ess for		.1		
Comm	ents:	Vegeta	ated co	omponer	nt may	increas	e as th	e site	continue	s to dev	elop.								

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) ii. Recharge Indicators i. Discharge Indicators Permeable substrate present without underlying impeding layer The AA is a slope wetland Springs or seeps are known or observed Wetland contains inlet but no outlet Vegetation growing during domant season/drought 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 arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM Criteria P/P S/I None Groundwater Discharge or Recharge .1L 1H .7M .4M 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 arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant abundant commo rare common rare common rare abundance (#11) Low disturbance at AA .6M 1H .9H .8H .8H .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: AA does not contain rare types and structural diversity is moderate. 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) i. Is the AA a known or potential rec./ed. site: (check) Y $N\bigcirc$ (if 'Yes' continue with the evaluation; if 'No' then click NA here and proceed to the overall summary and rating page) Check categories that apply to the AA: 🗸 Educational/scientific study; 🗌 Consumptive rec.; 🗸 Non-consumptive rec.; Other iii. Rating (use the matrix below to arrive at [check] the functional points and rating) Known or Potential Recreation or Education Area Known Potential Public ownership or public easement with general public access (no permission required) .2H 15H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .05L .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. **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	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	М	.5	1	2.43	
C. General Wildlife Habitat	Н	.9	1	4.37	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	М	.6	1	2.92	
F. Short and Long Term Surface Water Storage	Н	.8	1	3.89	~
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	3.40	
H. Sediment/Shoreline Stabilization	М	.7	1	3.40	
Production Export/Food Chain Support	Е	1	1	4.86	~
J. Groundwater Discharge/Recharge	Н	1	1	4.86	~
K. Uniqueness	М	.4	1	1.94	
L. Recreation/Education Potential (bonus points)	М	.1	NA	0.49	
Totals:		6.7	10	32.56	
Percent of Possible Score	•		67 %		

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

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

I II III IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Silicon	n Mountain		2. MDT p	roject#	ST	PP STWD (756	6)	Con	trol#	9680000
3. Evaluation Date 7/1/2			e, R Jones nt, B Trudg		Wetl	and/Site# (s)	Created	Cells 2, 3	3, 4	
6. Wetland Location(s): T		W Gyai		24	Т	R		Sec2		
Approx Stationing or Milepo	osts N/A									
Watershed 2 - Upper Cla	ark Fork Wa	tersh	ed/County	Silver	Bow					
7. Evaluating Agency	CCI for MDT					8. Wetland s	size acres			3.4
Purpose of Evaluation						How assesse		Measure	ed e.a. l	
☐ Wetlands potentially aff	fected by MDT project					9. Assesssn				3.4
☐ Mitigation Wetlands: pr	e-construction					(AA) size (ac	•			0.00
✓ Mitigation Wetlands: po	ost construction					How assesse	ea:	Measure	ea e.g. c	y GPS
Other										
40.01 15 11 1111										
10. Classification of Wetlar	•	іп АА		(0)	· ·) =			0/ 5 -	
HGM Class (Brinson)	Class (Cowardin)		Modifier	•	in)	Water Re			% of A	
Depressional	Emergent Wetland		Excavate			Seasonal/Int				92
Depressional	Aquatic Bed		Excavate	d		Permanent/F	Perennial			8
11. Estimated Relative Abun	ndance Abundant		1							
General Condition of A. i. Disturbance: (use matrix baquatic nuisance vegetation)	A pelow to determine [circle] a	opropria	ate response	e – see ins	truction	ns for Montana-li	sted noxiou	s weed ar	nd	
	. , ,					conditions adjacent		-		
Conditions wit.	ihin AA	natura hayed conver	ged in predominal state; is not good, longged, or other ted; does not or buildings; a or ANVS cover	grazed, herwise contain and noxious	mode selec subje few r	I not cultivated, but erately grazed or ha ctively logged; or ha ect to minor clearing oads or buildings; not or ANVS cover is	yed or is been i; contains noxious	or logge placeme hydrolog building	d; subject ent, grading gical altera	heavily grazed to substantial fill g, clearing, or tion; high road or noxious weed =30%.
AA occurs and is managed in predomir grazed, hayed, logged, or otherwise co	-									4
roads or occupied buildings; and noxio	-	lo	w disturba	ance		low disturba	nce	mod	erate d	isturbance
AA not cultivated, but may be moderate selectively logged; or has been subject placement, or hydrological alteration; c noxious weed or ANVS cover is <=30%	t to relatively minor clearing, fill contains few roads or buildings;		moderate disturban		mo	oderate distu	rbance	hi	gh dist	urbance
AA cultivated or heavily grazed or logg- substantial fill placement, grading, clea high road or building density; or noxiou >=30%.	aring, or hydrological alteration;	hig	gh disturb	ance		high disturba	ince	hig	gh dist	urbance
Comments: (types of disturb There has been a high level of and is considered stable. The	disturbance due to site o	onstru								
ii. Prominent noxious, aquat		ic spe	cies:							
Euphorbia esula and Cirsium										
iii. Provide brief descriptive	summary of AA and su	rround	ding land	use/habi	tat					

The AA consists of wetland cells constructed to intercept groundwater. It's composed of the wetland cells 2, 3, and 4 that have a more seasonal/intermittent water regime, with the exception of some perennial open water present within cell 4. Sand Creek is not included in this AA because the berms surrounding the cells do not allow the creek to access these areas. The surrounding area comprises low rolling hills dominated by sagebrush and graminoids.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture Μ <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NΑ NΑ NA L Comments: Cells 2, 3 and 4 are palustrine emergent wetlands with a diversity of herbaceous vegetation including Juncus balticus, Deschampsia caespitosa, Typha latifolia, Eleocharis palustris and Cytorhyncha cymbalaria. SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS, MTNHP Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) □ D □ S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) sus/primary Highest Habitat Level doc/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

D-0.0

MTNHP

Sources for documented use

																			Mod	erate		
bstantial (base	d on any	of the f	ollowin	ıg [che	ck]):						Minir	nal (b	ased o	n any of	the foll	owing	[check]):				
observations							• •	-	•	d)					vations	durino	g peak ι	use per	iods			
abundant wild	_						-				=		no wildli									
presence of e	xtremely	imiting	habita	at featu	ıres not	availal	ble in th	e surro	ounding	area	s	oarse	adjacer	t uplan	d food s	ources	6					
interviews wit	h local bio	logists	s with k	nowle	dge of t	he AA					in	tervie	ws with	local bi	ologists	with k	nowled	ge of th	ie AA			
derate (based of observations common occi- adequate adji- interviews with	of scatter urrence of acent upla	ed wild wildlif	llife gro e sign	oups or such a	individ	tracks,		-		_		eriods										
. Wildlife hab rom #13. For ther in terms of ermanent/per erms])	class co of their p	ver to ercen	be con	onside positi	ered ev	enly on the AA	distribu . (see #	ted, tł #10).	ne mos Abbre	t and l	east p	revale urface	ent veç water	getate durati	d class ons ar	es m e as f	ust be ollows	within : P/P =	20% o =	f each	e	
tructural iversity (see 13)				Hi	gh							Mod	erate					Lo	ow			
lass cover istribution (all egetated lasses)		Eve	n			Une	ven			Eve	en			Une	ven			Ev	/en			
uration of urface water in ≥ 0% of AA	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	S/I T/E A P/P S/I T/E A					P/P	S/I	T/E	А			
ow disturbance t AA (see #12i)	Е	E	Е	н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	н	М	м		
loderate isturbance at AA see #12i)	Н	Н	Н	Н	Н	Н	Н	М	Н	Н	М	М	Н	М	М	L	Н	М	L			
l igh disturbance t AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L	М	L	L	L	L	L	L	L		
ii. Rating (Evidence of v			_		omia Except			and t	the ma		Vildlife				ratin			points	s and	rating)	Low	
Substantial					1E					.91	1					8H					.7M	
/loderate					.9⊦	1				.71	М					5M					.3L	
Minimal					.6N	1				.41	И					.2L					.1L	
omments	Mode	rate v	vildlif	e use	e and	high v	wildlife	habi	itat fea	atures												
D. General uld be used storable due NA here	by fish to habit and pro	i.e., t at co ceed	fish u nstra to 14	ise is ints, 1E.)	preclor is r	uded not de	by pe esired	rche of from	d culve a mar	ert or d nagem	other b	oarrie ersp	er, etc. ective]. Ift [such	he AA as fis	is no shen	ot use trappe	d by f ed in a	ish, fis	sh use	is not	
Duration of surfac n AA	e water			Pe	ermanei	nt / Per	ennial					Seas	onal / Iı	ntermitte	nt				Tem	porary /	/ Epheme	ral
lquatichiding / re scape cover	sting /		Optim	al	А	dequat	e	Po	or	Op	otimal		Adeq	uate		Poor		Optir	mal	Ade	quate	Po
Thermal cover op suboptimal	timal/	C		S	0		S	0	S	0	S	┸	0	S	0		s	0	S	0	S	0

Aquatic hiding / resting / escape cover	Opt	timal	Adeq	uate	Po	oor	Opti	mal	Ade	quate	Po	or	Opti	mal	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	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6М	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially	found in A	IA:									
ii. Modified Rating (NOTE: Modified score of a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need fishery or aquatic life support, or do aquatic nuryes, reduce score in i above by 0.1: Modifie	a culvert, of TMDL of isance pla	dike level nt or	e, or other m opment with	nan-made s h listed "Pro	obable Imp	aired Ús	es" includin	g cold or	warm water		
b) Does the AA contain a documented spawnin comments) for native fish or introduced game fi		_	r critical hab			he adjust	ol, upwellin ed score in			n	
iii. Final Score and Rating: 0 NA	Comm	nents	s: No fish	habitat w	vithin AA						
14E. Flood Attenuation: (Applies only to we channel or overbank flow, click ✓ NA he	tlands sub ere and pro			via in-chanı	nel or over	bank flow	/. If wetland	ds in AA a	re not flood	ed from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosgi			to arrive at				nd rating) nched – B	Entran	ched-A, F, G	atroom	
1994, 1996)	en Silgi	•	tream types			tream ty		Entrend	types	Siream	
% 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	_11	1	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9	н	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2			Moderately ER = 1.4					intrenched			\neg
	m type		B strea		A	stream typ		F stream ty		3 stream type	
	·==•					—					
2 x Bankfull I	Depth 🙀		Bankfull D	Cherking Co.	14	₩ Ba	Fl∞d-pro ınkfull Wid	ne Width th			
Floodprone		nkfu	ıll					chment			
width ii. Are ≥10 acres of wetland in the AA subject	to flooding	dth AN[nade featu	res which i	may be s	ratio ignificantly	damaged	by floods lo	cated	
within 0.5 mile downstream of the AA (check)? Comments: AA is less than 10 acres a	and all c				oding via	in-cha	nnel or o	verbank	flow. Ce	lls 2 and 3	3 are at
times subject to flooding f	rom adja	acei	nt Sand C	Creek.							
14F. Short and Long Term Surface W upland surface flow, or groundwater flow 14G.)	ater Stor	rage etlar	: (Applies nds in the <i>i</i>	to wetlan AA are su	ds that flo bject to flo	od or po ooding o	ond from o or ponding	verbank , dick		nel flow, pr e and proc	
 i. Rating (Working from top to bottom, water durations are as follows: P/P = per further definitions of these terms].) 											
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		;	>5 acre feet			1.1 to	5 acre feet			≤1 acre foo	ot
Duration of surface water at wetlands within the AA	P/P		S/I	T/E	P/F)	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H		.9H	.8H	.8	н	.6M	.5M	.4M	.3L	.2L
	CLI		011	71.4		, 1	5M	454	21		1 41

Comments: Wetland cells intercept groundwater seasonally and are less than 5 acres.

14G. Sediment/Nutrient/Toxica through influx of surface or ground to 14H.)												ortoxicants and proceed
i. Rating (working from top to be	ottom, use the r	natrix belo	w to arrive	at [check	() the fu	unctiona	ıl points	and ra	ting [H	= high,	M = mo	derate, or L
= low]) Sediment, nutrient, and toxicant input levels within AA	compounds not substar	r levels of se at levels such tially impair of nutrients of	ing land use ediments, nu ch that other ed. Minor se or toxicants, tion present.	trients, or functions a dimentatio	are n,	deve nutrient with por compour	lopment s, or toxi tential to ids such	for "prob cants or deliver h that other tion, sou	pable cau AA rece nigh leve er function rces of n	uses" relatives or so Is of sed ons are s	ated to s urroundi iments, i ubstantia or toxica	l of TMDL ediment, ng land us e nutrients, or ally impaired. nts, or signs
% cover of wetland vegetation in AA Evidence of flooding / ponding in AA	≥ 70%			0%			≥ 70'				< 70	%
AA contains no or restricted outlet		No	Yes	No	1	Yes		No	1	Yes		No
AA contains unrestricted outlet	1H ,	.8H	.7M	.5M		.5N	1	.41	VI .	.3L	4	.2L
70 CONCLUSIO UNICOLITATO CON CONCLUSION CONC	.9H .	7M	.6M	.4M		.4N	1	.3	_	.2L		.1L
Comments: Cells have the pote flooding from Sand		compoun	ds through	groundw	ater in _l	puts, an	d may	receive	hydrolo	ogy via :	storm e	vent
14H Sediment/Shoreline Stabilization drainage, or on the shoreline of a star proceed to 14l.) i. Rating (working from top to bottom)	iding water body	which is sul	oject to wave	e action. I	14H do	oes not a	pply, cli		ural or r NA he		le	
% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings	D 11		ration of surfa	-								
of ≥6 (see Appendix F).	Permanent /	1	S	easonal / Int	1	t .	Те	mporary /	1	ral		
≥ 65% 35-64%	1H	_		.9F.					M M			
< 35%	.7N			.2L				_	1L			
Comments: Wave action is like and Eleocharis pal 14I. Production Export/Food Chai. Level of Biological Activity (sy	ustris with ratin	g of 6 or g	reater.		mes. V	/egetati	on inclu	ides Ju	ncus ba	alticus, î	Typha I	atifolia
General Fish Habitat Rating (14D.iii.)	General Wildlife	Habitat Ra M	ting (14C.ii	i.) L								
E/H H		н		М								
м		М		м								
L		М		L								
N/A H		М		L								
ii. Rating (Working from top to botto wetland component in the AA; Factor subsurface outlet; the final three rows [see instructions for further definitions] A Vegetated component >	B = level of biolo pertain to duration of these terms].)	gical activity on of surface	/ rating from e water in th	above (14 e AA, whe	l.i.); Fa re P/P,	ctor C =	whether	or not thas previous	ne AA co ously de	ontains a fined, ar	surface d A = "a	or
A Vegetated component > B High Moderate C Yes No Yes No	Low Yes No	High Yes	Vegetated co	oderate No		ow No	Hi Yes		Mode Yes	ponent <1 a erate No	Lo Yes	w No
P/P 1E .7H .8H .5M	.6M .4M	1	6M .7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I .9H .6M .7H .4M	.5M .3L	.8H .	5M .6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A .8H .5M .6M .3L	.4M .2L	.7H .	4M .5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L
 iii. Modified Rating (NOTE: Modifier plant cover, ≤ 15% noxious weed or AN control). a) Is there an average ≥ 50 foot-wide veto the score in ii above and adjust ratin Comments: Cells contain a substitution. 	VS cover, and the egetated upland to a coordingly:	at is not sub ouffer aroun Modified F	ojected to pe d ≥ 75% of t Rating	eriodic med the AA circ	hanical	mowing			ess for w		1	

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) i. Discharge Indicators ii. Recharge Indicators The AA is a slope wetland Permeable substrate present without underlying impeding layer Springs or seeps are known or observed Wetland contains inlet but no outlet Vegetation growing during domant season/drought 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 arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM Criteria P/P S/I None Groundwater Discharge or Recharge 1H .4M .1L .7M Insufficient Data/Information Comments: Mitigation cells designed to intercept shallow groundwater aquifer. 14K. Uniqueness: i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative commo abundant abundant common abundant rare rare common rare abundance (#11) Low disturbance at AA 1H .9H .8H .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H .7M H8. .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: AA doesn't contain rare types and structural diversity is moderate. 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) i. Is the AA a known or potential rec./ed. site: (check) Y $N\bigcirc$ (if 'Yes' continue with the evaluation; if 'No' then click NA here and proceed to the overall summary and rating page) Check categories that apply to the AA: 🗸 Educational/scientific study; 🗌 Consumptive rec.; 🗸 Non-consumptive rec.; Other iii. Rating (use the matrix below to arrive at [check] the functional points and rating) Known or Potential Recreation or Education Area Known Potential Public ownership or public easement with general public access (no permission required) .2H 15H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .05L .1M Comments: Site is a mitigation area 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. **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	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	М	.5	1	1.70	
C. General Wildlife Habitat	М	.7	1	2.38	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	М	.6	1	2.04	
G. Sediment/Nutrient/Toxicant Removal	Н	1	1	3.40	~
H. Sediment/Shoreline Stabilization	М	.6	1	2.04	
Production Export/Food Chain Support	М	.7	1	2.38	>
J. Groundwater Discharge/Recharge	М	.7	1	2.38	✓
K. Uniqueness	L	.3	1	1.02	
L. Recreation/Education Potential (bonus points)	М	.1	NA	0.34	
Totals:		5.2	9	17.68	
Percent of Possible Score			57.78 %		

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

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

I II III IV

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Silicon Moun	tain	2	2. I	MDT projec	:t#	ST	TPP STWD (75	56)	Cor	ntrol#	9680000
3. Evaluation Date	7/1/2020				R Jones, S B Trudgeon	5.	Wet	land/Site# (s)	Preserva	ition		
6. Wetland Location(s	s): T		w	<u> </u>	Sec1 24		Т	R		Sec2		
Approx Stationing or	Mileposts	N/A										
Watershed 2 - Up	pper Clark Fo	rk W a	itershe	ed/C	County S	ilver l	Bow					
7. Evaluating Agency	CCI fo	or MDT			_			8. Wetland	size acres	;		10.8
Purpose of Evaluation	on							How assess	sed:	Measu	red e.g.	by GPS
☐ Wetlands potenti	ally affected	by MDT project						9. Assesss	ment area			10.8
☐ Mitigation Wetlan	nds: pre-cons	struction						(AA) size (a	•			
✓ Mitigation Wetlan	•							How assess	sed:	Measur	ed e.g.	by GPS
Other	· ·											
10. Classification of	Wetland and	Aquatic Habitats	in AA									
HGM Class (Brinson)) Cla	ss (Cowardin)		М	odifier (Co	wardi	in)	Water R	egime		% of <i>i</i>	AA
Depressional	Aqua	tic Bed						Permanent/	Perennial (8
Depressional	Emer	gent Wetland						Seasonal/In	termittent			34
Depressional	Scrul	o-Shrub Wetland						Seasonal/In	ntermittent			2
Depressional	Emer	gent Wetland						Permanent/	Perennial			56
12. General Conditio i. Disturbance: (use aquatic nuisance veg	matrix below to				•	Predo	minant	t conditions adjacer	nt to (within 50	0 feet of) A	4	
Conc	ditions within AA		natural hayed, conver	l state logg ted; e or bu	n predominantly te; is not grazed ged, or otherwis does not contai uildings; and no NVS cover is <=	l, se in xious	mod sele subj few	d not cultivated, but derately grazed or he ectively logged; or he ject to minor clearin roads or buildings; ad or ANVS cover is	nayed or nas been ng; contains noxious	or logge placem hydrolo building	ed; subjec ent, gradir gical alter	r heavily grazed t to substantial fill ng, clearing, or ation; high road or or noxious weed >=30%.
AA occurs and is managed in grazed, hayed, logged, or oth roads or occupied buildings; a <=15%.	erwise converted;	does not contain	lov	w d	listurbance	•		low disturba	ance	mod	lerate d	disturbance
AA not cultivated, but may be selectively logged; or has bee placement, or hydrological alt noxious weed or ANVS cover	en subject to relati eration; contains t	vely minor clearing, fill			oderate turbance		m	oderate distu	ırbance	hi	igh dis	turbance
AA cultivated or heavily graze substantial fill placement, grachigh road or building density; >=30%.	ding, clearing, or I	nydrological alteration;	hig	ıh d	listurbance	е		high disturb	ance	hi	igh dis	turbance
Comments: (types of or The wetland mitigation alignment/restoration. In previously disturbed are desirable species.	site was cons n 2016 the are eas were stab	structed in 2014 whea surrounding the le and well vegetat	nich co existin ted with	ng w n se	vetlands wa eeded perer	s dis	turbe	d as a result o	f the new t	rail and l	bridge. I	n 2020,
ii. Prominent noxious, Centaurea stoebe, Circ	•											
iii. Provide brief desc						habit	at					
The AA consists of pre- the AA includes comme	existing depre	essional wetlands l	ocated	ad	jacent to Sa	and C	reek					

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Modified Is current management preventing (passive) existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> 1 class, monoculture (1 species comprises>=90% of total cover) NΑ NΑ NA Comments: Palustrine Emergent, Palustrine Scrub/Shrub, Palustrine Aquatic Bed SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS, MTNHP Sources for documented use 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above) i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) □ D □ S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

MTNHP

Sources for documented use

																			Mod	erate		
bstantial (base	d on any o	of the f	ollowin	ng [che	ck]):						Minir	nal (b	ased o	n any of	the foll	owing	[check]):				
observations					•		• •	-		d)					rvations	durino	g peak ι	use per	iods			
abundant wild	_						-				=		no wildl	•								
presence of e	extremely	imiting	g habita	at featu	ires not	availal	ble in th	e surro	ounding	area	s	oarse	adjacer	it uplan	d food s	ources	6					
interviews wit	h local bio	ologists	s with I	knowle	dge of t	he AA					in	tervie	ws with	local bi	ologists	with k	nowled	ge of th	ie AA			
derate (based observations common occi	of scatter urrence of acent upla	ed wild wildlif	dlife gro e sign od sour	oups or such a	individ	tracks,		-				eriods										
interviews wit	h local bio	ologists	s with k	knowle	dge of t	he AA																
i. Wildlife hab rom #13. For other in terms of permanent/pen erms])	class co of their p	ver to ercen	be control	onside ipositi	ered ev	enly on the AA	distribu (see ‡	ted, tł #10).	ne mos Abbrev	t and l	east p	revale urface	ent veç e wateı	getate durati	d class ons ar	es m e as f	ust be ollows	within : P/P =	20% o =	f each	e	
tructural iversity (see 13)				Hi	gh							Mod	erate					Lo	ow			
lass cover istribution (all egetated lasses)		Eve	n			Une	ven			Eve	en			Une	ven			Εν	/en			
uration of urface water in ≥ 0% of AA	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А		
ow disturbance t AA (see #12i)	Е	Е	Е	н	E	Е	Н	н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М.	м		
loderate isturbance at AA see #12i)	Н	Н	Н	Н	Н	Н	Н	М	Н	Н	М	М	Н	М	М	L	Н	M	L	L		
ligh disturbance t AA (see #12i)	м	м	М	L	М	м	L	L	М	м	L	L	М	L	L	L	L	L	L	L		
ii. Rating (Evidence of v			_		om i a Excep			and t	the ma		Vildlife			•	ratin			point	s and	rating)	Low	
Substantial					1E					.91	1					8H	1				.7M	
/loderate					.91	1				.71	И					5M					.3L	
Viinimal					.6N	1				.41	И					.2L					.1L	
omments	Mode	rate v	wildlif	e use	but a	a dive	rsity c	f wild	llife ha	ibitat f	eature	es.										
D. General uld be used storable due NA here	by fish∣ to habii and pro	i.e., tat co ceed	fish u onstra I to 14	ise is ints, 4E.)	precl or is i	uded not de	by pe sired	rche of from	d culve a mar	ert or d nagem	other b	oarrie ersp	er, etc ective]. Ift [such	he AA as fis	is no shen	ot use trappe	d by f ed in a	ish, fis	h use	is not	
Duration of surfact n AA	e water			Pe	ermane	nt / Per	ennial					Seas	onal / li	ntermitte	ent				Tem	porary /	/ Epheme	ral
quatic hiding / re scape cover			Optim			dequat		Po	or	Ор	otimal		Adeq			Poor		Optir			quate	Po
Thermal cover op	timal/	c	,	S			s	0	S	0	s		0	s	0		s	0	S	0	s	0
uboptimal			_												<u> </u>	_						

Aquatic hiding / resting / escape cover	Opt	imal	Adeq	uate	Po	or	Opti	mal	Ade	quate	Po	or	Opti	mal	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	1E	.9Н	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9Н	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6М	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

	identifying fish sp.										
Is fish use of thur and the street final MDE shery or aquatic	ng (NOTE: Modine AA significantly Q list of waterbodi life support, or doe in i above by 0.1:	reduced by a dies in need of To	culvert, dike MDL deve	e, or other m	an-made s In listed "Pr	structure or obable Imp	paired Úses'	including	a cold or v	varm water	
	ontain a document tive fish or introdu		_	er critical hab			the adjusted				1
Final Score a	and Rating: 0 NA		Comment	s: No fish	habitat v	within AA	۸.				
channel or overb	enuation: (Applies pank flow, click ing from top to bott	✓ NA here	and procee	ed to 14F.)					s in AA ar	re not floode	ed from in-
Estimated or Ca 1994, 1996)	lculated Entrenchr	nent (Rosgen		entrenched stream types		l	tely entrench	ned – B	Entrenc	hed-A, F, G types	stream
% of flooded we and/or scrub/shi	tland classified as rub	forested	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no	outlet or restricte	ed outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains un	restricted outlet		.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L
	Slightly Entrench ER = >2.2	ied		Moderately ER = 1.4					ntrenched = 1.0 - 1.4	<u> </u>	
C stream type	D stream type	E stream t	уре	B strea		A	stream type		F stream ty		stream type
	****		5					ŧ			<u> </u>
	2 x	x Bankfull Dep		Bankfull D	Indiana.	14	Fl W Bank	∞d-pror full Widt	ne Width h		
			/ Bankfo	ull			=	Entreno ratio	chment		
•				D	nade featu	res which i	may be sign	ificantly d	lamaged b	by floods loo	cated
vidth i. Are ≥10 acres vithin 0.5 mile do	of wetland in the A		looding AN	N •							
vithin 0.5 mile do		AA (check)?	Y ()	N •		low.					

14G.)

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

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.	1 to 5 acre feet			≤1 acre foot	
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

~65% of preservation wetlands have permanent/perennial water regime (10.8 acre x 0.65=7.02 acres), average 1 foot standing/flowing water during high water events (7.02 acresx 1 foot= 7.02 acre feet).

	gh influ																	, ortoxica and proce	
i. Ra	•	working	from t	op to bott	tom, us	se the n	natrix b	elow to	o arrive a	at [chec	k] the f	unctiona	al points	s and ra	ting [H	I = high,	M = m	oderate,	or L
Sedim		ient, and A	toxica	ntinput	com	to delive pounds substar	r levels o at levels atially imp of nutrien	of sedim such th paired. I	ients, nut iat otherf Minorsed	with poter rients, or functions limentation or signs of	are on,	deve nutrient with po compour	lopment s, or toxi tential to nds such	for "problem to ants or deliver by that other strongs or the stron	oable ca AA rec nigh lever er funct rces of	auses" releives or sels of sedions are s	ated to surround liments, substant or toxic	d of TMDL sediment, ling land us nutrients, o ially impaire ants, or sig	se or ed.
		land veg oding/p				≥ 70%			< 70)%			≥ 70	%			< 70)%	\exists
		or rest			Yes		No I	Ye	es	No	1	Yes		No		Yes		No	\dashv
ΛΛ 00	nt oine III	nrestrict	od out	Lot	11	1 .	8H	_ .7	M	.5M		.5N	1	.41	M	.3L		.2L	
AA CO	ntains ui	irestrict	ea out	iet	.91	┥.	7M	.61	М	.4M		.41	1	.3	L	.2L		.1L	
				f flooding							ks or a	river stre	eam or	other na	tural or	man-mac	de		
draina procee	ge, or or ed to 14I	n the sho	oreline	of a standi	ing wat	er body	which is	subject	to wave	action. I	f 14H d	oes not a	ipply, cli			man-madere and	ue		
		and strear						Duratio		e water ad			<u>-</u>						
	see Appe	ndix F).			Pen	manent / I	1		Se	asonal / In	1	it	Te	emporary	Ť	eral			
≥ 65%	,					1H	_			.91	_				M				
35-64% < 35%	0					.7N .3L				.6N .2L					5M				
	Produ	mix o	f Typh	on wetland na latifolia cood Chair ivity (synth	n, Care	x utricu	lata and	d Junc	us baltic	cus.			with Ste		water.	vogotati			
Ge		sh Habit				Wildlife			(14C.iii.										
<u>'</u>				H	1		н			м									
	E/ N			Н			М			М									
	iv			M			М		_	L									
	N/			Н			М			L									
wetlar subsu [see ir	nd compo rface ou	onent in tlet; the f ns for fur	the AA inal thi ther de	to bottom ; Factor B ree rows po efinitions of	= level ertain to f these	of biolog duration	gical acti	ivity rati face wa	ing from a iter in the	above (14 AA, whe	4I.i.); Fa ere P/P,	ctor C =	whether	or not the	ne AA d ously d	contains a efined, ar	a surfac nd A = "	e or	
A B		igh	Mo	mponent >5 a	L	OW No		igh	Mod	ponent 1-5 derate	L	.ow	Hi	gh	Mo	mponent <1 derate	L	.ow	
C P/P	Yes 1E	No .7H	Yes .8H	No .5M	Yes .6M	No .4M	Yes .9H	.6M	Yes .7H	No .4M	Yes .5M	No .3L	Yes .8H	.6M	Yes .6M	No .4M	Yes .3L	No .2L	
S/I	.9H	.6M	.7H	.5W				.5M											
T/E/A	.8H	.5M	.6M	1-1	.5M .4M	.3L .2L	.7H	.4M	.6M	.3L .2L	.4M	.1L	.6M	.5M	.5M .4M	.3L	.3L .2L	.1L	
plant co control) a) Is the to the s	ver, ≤ 18 ere an av core in 1	5% noxid verage ≥ ii above	ous wee	Modified sed or ANVS	S cover etated accord	r, and the	at is not ouffer arc	subject ound ≥ d Ratii	red to per 75% of th ng .6	riodic me ne AA ciro	chanica cumfere	I mowing	or clea		ess for		.1		
Comm	ents:	Well-v	egeta	ted uplan	d buffe	er arour	nd great	ter thai	n 75 per	cent of t	the AA	's perim	eter.						

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) i. Discharge Indicators ii. Recharge Indicators The AA is a slope wetland Permeable substrate present without underlying impeding layer Springs or seeps are known or observed Wetland contains inlet but no outlet ✓ Vegetation growing during dormant season/drought 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 arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM Criteria P/P S/I None Groundwater Discharge or Recharge .1L 1H .7M .4M 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 arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant common abundant commo rare common rare rare abundance (#11) Low disturbance at AA 1H .9H .8H .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: Wetlands of this type are common in the area but have low disturbance in comparison to others impacted by land mgmt. 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) i. Is the AA a known or potential rec./ed. site: (check) Y $N\bigcirc$ (if 'Yes' continue with the evaluation; if 'No' then click NA here and proceed to the overall summary and rating page) Check categories that apply to the AA: 🗸 Educational/scientific study; 🗌 Consumptive rec.; 🗸 Non-consumptive rec.; Other iii. Rating (use the matrix below to arrive at [check] the functional points and rating) Known or Potential Recreation or Education Area Known Potential Public ownership or public easement with general public access (no permission required) .2H 15H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .1M .05L Comments: 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. **General Site Notes** Overall improved hydrology across the preservation wetlands in 2020 due to higher groundwater, precipitation and runoff.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Preservation

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	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	М	.5	1	5.40	
C. General Wildlife Habitat	Н	.9	1	9.72	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	Н	1	1	10.80	V
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	7.56	✓
H. Sediment/Shoreline Stabilization	М	.7	1	7.56	
Production Export/Food Chain Support	М	.6	1	6.48	
J. Groundwater Discharge/Recharge	Н	1	1	10.80	✓
K. Uniqueness	М	.4	1	4.32	
L. Recreation/Education Potential (bonus points)	М	.1	NA	1.08	
Totals:		5.9	9	63.72	
Percent of Possible Score			65.56 %		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II) Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or Score of 1 functional point for Uniqueness; or Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or Percent of possible score > 80% (round to nearest whole #).	
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to 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 #).	1
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)	
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III) "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).	

OVERALL ANALYSIS AREA RATING: (check appropriate category based on the criteria outlined above)

ı	II	III	IV

Scientific Name	Common Name	WMVC Indicator Status ⁽¹⁾
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	N/A
Alisma plantago-aquatica	Eurpean Water-Plantain	OBL
Alllium cernuum	Nodding Onion	FACU
Alnus incana	Speckled Alder	FACW
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
Bassia scoparia (Kochia scoparia)	Mexican-Fireweed	FAC
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 praticola	Northern Meadow Sedge	FACW
Carex simulata	Analogue Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Catabrosa aquatica	Water Whorl Grass	OBL

Scientific Name	Common Name	WMVC Indicator Status ⁽¹⁾
Centaurea stoebe	Spotted Knapweed	UPL
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	N/A
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

Scientific Name	Common Name	WMVC Indicator Status ⁽¹⁾
Hyoscyamus niger	Black Henbane	UPL
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
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 Plantain	FACW
Plantago major	Great Plantain	FAC

Scientific Name	Common Name	WMVC Indicator Status ⁽¹⁾
Poa ampla	Big Bluegrass	FACU
Poa compressa	Flat-stem Bluegrass	FACU
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Poa secunda	Curly Blue Grass	FACU
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	N/A
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 lasiandra	Pacific 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

Silicon Mountain Wetland Mitigation Site – 2015 – 2020 Vegetation Species List

Scientific Name	Common Name	WMVC Indicator Status ⁽¹⁾
Sonchus arvensis	Field Sow-Thistle	FACU
Sphaeralcea coccinea	Scarlet Globemallow	UPL
Stachys pilosa	Hairy Hedge-Nettle	FACW
Stellaria longipes	Long-Stalk Starwort	FACW
Symphyotrichum ascendens	Western American-Aster	FACU
Symphyotrichum ciliatum	Alkali American-Aster	FACW
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

¹ 2018 NWPL (USACE 2018)

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

APPENDIX C PROJECT AREA PHOTOGRAPHS

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



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: 2020



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: 2020



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: 2020



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: 2020



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: 2020



Photo Point: 2. looking NE.

Photo 1: View of Sand Creek channel Bearing: 40 degrees Year: 2015



Photo Point: 2. looking NE.

Photo 1: View of Sand Creek channel Bearing: 40 degrees Year: 2020



Photo Point: 2. east.

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



east.

Photo Point: 2. Photo 2: View outside cell 1 looking Year: 2020 Bearing: 86 degrees



Photo Point: 2. 1 looking SE.

Photo 3: View of eastern portion of cell Bearing: 113 degrees Year: 2015



Photo Point: 2. 1 looking SE.

Photo 3: View of eastern portion of cell Bearing: 113 degrees Year: 2020



Photo Point: 3. looking NW.

Photo 1: View of western edge of cell 4 Bearing: 314 degrees Year: 2015



Photo Point: 3. looking NW.

Photo 1: View of western edge of cell 4 Bearing: 314 degrees Year: 2020



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: 2020



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: 2020

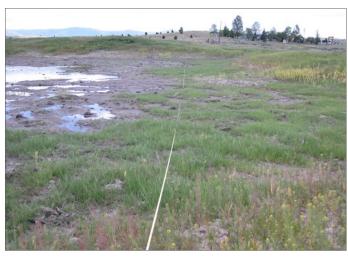


Photo Point: 3. looking SE.

Photo 4: View of southern side of cell 4
Bearing: 114 degrees Year: 2015



Photo Point: 3. looking SE.

Photo 4: View of southern side of cell 4
Bearing: 114 degrees Year: 2020



Photo Point: 4. looking SW.

Photo 1: View of southern side of cell 5 Bearing: 220 degrees Year: 2015



Photo Point: 4. looking SW.

Photo 1: View of southern side of cell 5 Bearing: 220 degrees Year: 2020



Photo Point: 4. 5 looking W.

Photo 2: View across SE portion of cell Bearing: 268 degrees Year: 2015



Photo Point: 4. 5 looking W.

Photo 2: View across SE portion of cell Bearing: 268 degrees Year: 2020



Photo Point: 4. looking NW.

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



Photo Point: 4. looking NW.

Photo 3: View across center of cell 5 Bearing: 321 degrees Year: 2020



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: 2020



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: 2020



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: 2020



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: 2020



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: 2020



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: 2020

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: 2020



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: 2020



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: 2020

Silicon Mountain: Stream Point Photographs



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: 2020



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: 2020



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: 2020

Silicon Mountain: Stream Point Photographs



Photo Point: 10. NE

Photo 2: View of Sand Creek looking Bearing: 66 degrees Year: 2015



Photo Point: 10. Photo 2: View of Sand Creek looking NE Bearing: 66 degrees Year: 2020



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: 2020



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: 2020



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: 2020



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: 2020



Photo Point: 12. section 4.

Photo 2: View W across stream x-Bearing: 284 degrees Year: 2015



Photo Point: 12. section 4

Photo 2: View W across stream x-Bearing: 284 degrees Year: 2020



Photo Point: 12. Creek channel.

Photo 3: View west across Sand Bearing: 270 degrees Year: 2015



Photo Point: 12. channel.

Photo 3: View west across Sand Creek Bearing: 270 degrees Year: 2020



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: 2020



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: 2020



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: 2020



Photo Point: 14. looking south.

Photo 1: View of middle headcut Bearing: 178 degrees Year: 2015



Photo Point: 14. Photo 1: View of middle headcut looking south. Bearing: 178 degrees Year: 2020



Photo Point: 15. looking S.

Photo 1: View of the eastern headcut Bearing: 189 degrees Year: 2015



Photo Point: 15. looking S.

Photo 1: View of the eastern headcut Bearing: 189 degrees Year: 2020



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: 2020



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: 2020



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: 2020

Silicon Mountain: Transect Photographs



Transect 1: Start Bearing: 305 degrees



Location: South end cell 2 T Year: 2015 B

Transect 1: Start Bearing: 305 degrees

Location: South end cell 2 Year: 2020



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: 2020

Silicon Mountain: Transect Photographs



Transect 2: Start look west Bearing: 285 degrees



Transect 2: Start look west Bearing: 285 degrees

Location: East side of cell 4,

Year: 2020



Transect 2: End look east Bearing:106 degrees

Location: SW side of cell 4,

Location: E side of cell 4,

Year: 2015

Year: 2015 Be



Transect 2: End look E Bearing: 106 degrees

Location of old of our i,

Silicon Mountain: Data Points



Data Point: DP01W wetland 5.



Data Point: DP01U wetland 5.

Location: East side of preserved Year 2020



Data Point: DP02W cell 2.



Location: North end of created Year: 2020



Data Point: DP02U cell 2.

Location: North end of created Year: 2020



Data Point: DP03W road alignment.

Location: South of new Year: 2020



Data Point: DP03U alignment.

Location: South of new road Year: 2020

Silicon Mountain: Data Points



Data Point: DP04W cell 4.



Location: SW side of created Data Point: DP04U

Location: SW side of created cell Year: 2020



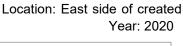
Data Point: DP05W cell 5.



Location: East side of created Year: 2020



Data Point: DP05U cell 5.





Data Point: DP06W created cell 6.



Year: 2020



Location: West side of Data Point: DP06U created cell 6.

Location: West side of Year: 2020

Silicon Mountain: Data Points



Data Point: DP07W preserved cell 13.



Location: West side of Data Point: DP07U Year: 2020 cell 13.

Location: West side of preserved Year: 2020



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



Cross-section 1: At center looking upstream. Year: 2020



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



Cross-section 1: At center looking downstream. Year: 2020



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



Cross-section 2: At center looking upstream. Year: 2020



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



Cross-section 2: At center looking downstream. Year: 2020



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



Cross-section 3: At center looking upstream. Year: 2020



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



Cross-section 3: At center looking downstream.



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



Cross-section 4: At center looking upstream. Year: 2020



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



Cross-section 4: At center looking downstream. Year: 2020



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



Cross-section 5: At center looking upstream. Year: 2020



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



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



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



Cross-section 5: At center looking downstream. Year: 2020



Cross-section 6: At center looking upstream. Year: 2020



Cross-section 6: At center looking downstream.



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



Cross-section 7: At center looking upstream. Year: 2020



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



Cross-section 7: At center looking downstream. Year: 2020



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



Cross-section 8: At center looking upstream. Year: 2020



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



Cross-section 8: At center looking downstream. Year: 2020

APPENDIX D Surveyed Stream Cross Sections

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

