

SCHRIEBER MEADOWS MITIGATION SITE

Project Overview

Watershed: Watershed #1 – Kootenai River Basin

Monitoring Year: 2020

Years Monitored: 10th year of monitoring

Corps Permit Number: NWO-2004-90280-MTH

SPA Authorization Number: MDT-R1-88-2010

Monitoring Conducted By: Confluence Consulting Inc.

Dates Monitoring Was Conducted: July 16, 2020

Purpose of the Approved Project:

The site was constructed to provide 17.25 acres of compensatory wetland mitigation credits and 35,551 stream mitigation credits for wetland and stream impacts associated with the US Highway 2 Swamp Creek – East project and highway impacts associated with future transportation project-related wetland and stream impacts in Watershed #1 – Kootenai River Basin. The project was designed to create new wetlands, restore degraded wetlands, and enhance existing wetlands by restoring natural hydrology in the meadow and constructing a series of shallow excavations. The project restored the Coyote Creek channel and added 3,327 linear feet of stream length.

Site Location: The site is approximately 60 acres in size. Lat/Long below is near the middle of the site.

Latitude: 48.110423 **Longitude:** –115.41562

County: Lincoln **Nearest Town:** Libby, MT

Map Included: Yes

Mitigation Site Construction Started: Fall/2007 **Construction Ended:** Fall/2011

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

Activity: Weed Spraying **Date:** May 27-28, 2020

Specific recommendations for any additional corrective actions: Weed treatment will continue in 2021. Treatment efforts should focus on the Canada thistle infestations concentrated north of the site's access road.

Anticipated Wetland Credit Acres: 17.24

Wetland Credit Acres Generated to Date: 26.93

Stream Credits Generated to Date: 35,551

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 US Army Corps of Engineers (USACE).

Performance Standards: A summary of performance standards established for the Schrieber Meadows site and whether or not they are meeting the success criteria 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 the 2010 Regional Supplement.	Y	Areas that were 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.	Y	Areas that were identified as wetland habitat within the mitigation site exhibit soil saturation for a minimum 12.5 percent of growing season.
Hydric Soil	Hydric soil conditions are present or appear to be forming.	Y	Hydric soil characteristics have developed throughout all constructed wetlands.
	Soil is sufficiently stable to prevent erosion.	Y	In 2020, disturbed soil is stable and does not exhibit signs of erosion.
	Soil is able to support plant cover.	Y	Plant cover is well established across disturbed soils.
Hydrophytic Vegetation	Combined absolute cover of facultative or wetter species is 70 percent or greater.	Y	Areas that were identified as wetland habitat within the mitigation site support a prevalence of hydrophytic vegetation (OBL, FACW, and FAC).
	State-listed noxious weeds do not exceed 5 percent absolute cover.	Y	State-listed noxious weeds are estimated below 5 percent absolute cover within wetland areas.
Riparian Buffer Success	Woody and riparian vegetation is established.	N	No woody-dominated communities have formed along the riparian areas associated with Coyote Creek due to unanticipated high groundwater across the site.
	Noxious weeds do not exceed 10 percent cover within the riparian buffer areas.	Y	State-listed noxious weeds are estimated at 1–3 percent absolute cover within riparian buffer.
	Creditable buffer areas must have at least 50 percent aerial cover of non-noxious weed species by the end of the monitoring period.	Y	Non-noxious vegetation consists of nearly 100 percent of the total vegetation cover within the riparian buffer.
	Combined aerial cover of riparian and stream bank vegetation communities is 70 percent or greater.	Y	Riparian and stream bank vegetation communities support nearly 100 percent cover.
	Planted trees and shrubs will be considered successful when they exhibit 50 percent survival after 5 years.	N	Following planting installation, unanticipated high groundwater elevations drowned a majority of plantings by the end of the second growing season. Approximately 3 percent survival was noted in 2020. No replanting efforts have been completed.
Channel-Restoration Success	Revegetation along the new Coyote and Schrieber Creek channel corridors will be considered successful when banks are vegetated with a majority of deep-rooting riparian and wetland herbaceous and woody plant species.	Y	The majority of streambank vegetation along the constructed Coyote and Schrieber Creek channel corridors is dominated by reed canary grass, which has a stability rating of 9.
	The intent of stream restoration is to allow the stream to naturally migrate within the floodplain and to give it enough room to 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 following construction.
Stream Bank Vegetation	Banks are vegetated with a majority of deep-rooting riparian plant species that have root-stability indices of 6 or greater.	Y	Reed canary grass dominates the stream banks. Reed canary grass has a root-stability index of 9.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Open Water	The project will provide open water during the spring and early summer within excavated depressions. As the growing season progresses and the groundwater levels recede, vegetation is anticipated to germinate within the majority of the depressions. Open water with submerged and/or floating vegetation will, therefore, be considered successful and creditable.	Y	Excavated depressions within the very northern portion of the site experience seasonal drawdown, and rooted hydrophytic vegetation development has been observed. The lower depressions appear to support perennial inundation with an established aquatic macrophyte community.
Upland Buffer	Noxious weeds do not exceed 5 percent cover within upland buffer area.	Y	In 2020, noxious weed cover was less than 5 percent within the upland buffer.
	Any area disturbed within the creditable buffer zone must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.	Y	Disturbed areas have established greater than 50 percent cover by non-weed species.
Weed Control	Weed control will be based on annual site monitoring 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 an ongoing weed-control program. Weeds were sprayed at this site on May 27-28, 2020.

Summary Data

Wetland Delineation – The wetland delineations that were conducted in 2004 and 2005, prior to construction of the project, identified four wetland areas that totaled approximately 15.56 acres within the mitigation project area. The pilot project that was constructed in 2007 resulted in an additional 2.38 acres of wetland habitat developing within the project boundary. After the second construction phase was completed, the delineation conducted in 2012 mapped a total of 47.58 acres of wetlands across the 56.95-acre site. A total of 47.52 acres of jurisdictional wetland and waters of the US (WUS) were delineated at the site in 2020 (Table 2; see maps in Appendix A). The total wetland acreage delineated in 2020, was 39.74 acres, which is a decrease of 7.34 acres since 2019. 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 7.44 acres of the mitigation site in 2020 (Table 2). The stream channel represented 0.34 acres in 2020 while uplands accounted for the remaining 9.43 acres of the mitigation site. USACE wetland determination data forms [USACE, 2010a] are provided in Appendix B.

Table 2. Wetland & Waters of the U.S. (WUS) Acreage Delineated in 2019 and 2020 at the Schrieber Meadows Site

Habitat Type	2019 Acreage	2020 Acreage
Wetland ^(a)	47.08	39.74
Stream Channel	0.34	0.34
Open Water	N/A	7.44
Total Wetland & WUS^(b)	47.42	47.52

(a) Wetland acreage includes approximately 8.30 acres of riparian stream buffer

(b) Waters of the U.S. (WUS)

Vegetation – A total of 136 plant species have been identified at the site from 2010 through 2020 (Appendix B). One new native wetland species, arctic burr-reed (*Sparganium natans*), was observed in 2020. Three upland community types and four wetland community types were identified and mapped at the site in 2020 (Figure A-3, Appendix A). Vegetation communities were identified by species composition and dominance. The following three upland and five wetland vegetation community types were identified in 2020:

- Upland Type 8 – *Elymus repens*/*Pascopyrum smithii*
- Upland Type 9 – *Alopecurus* spp./*Bromus inermis*
- Upland Type 14 – *Agrostis capillaris*/*Phleum pratense*
- Wetland Type 3 – *Phalaris arundinacea*
- Wetland Type 5 – Aquatic Macrophytes/Open Water
- Wetland Type 6 – *Alopecurus pratensis*/*Agrostis capillaris*
- Wetland Type 15 – *Typha latifolia*/*Eleocharis palustris*

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 are shown on Figure A-3 (Appendix A).

Vegetation cover was measured along three belt transects (T-1, T-2, and T-3) 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 2010 and 2017 through 2020. T-1 is 318 feet long and intersects community types 3 – *Phalaris arundinacea* and 5 – Aquatic Macrophytes/Open Water. Hydrophytic vegetation community type 3 accounted for 34.3 percent of the transect in 2020, an increase of 14.5% since 2019. Open water accounted for 65.7 percent of the transect. In 2020, community type 5 – Aquatic Macrophytes/Open Water met the recent USACE definition of open water. This transect has not intersected an upland vegetation community since 2010.

Table 3. Data Summary for T-1 From 2010 and 2017 Through 2020 at the Schrieber Meadows Site

Monitoring Year	2010	2017	2018	2019	2020
Transect Length (feet)	318	318	318	318	318
Vegetation Community Transitions Along Transect	7	6	6	6	6
Vegetation Communities Along Transect	3	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	1
Total Vegetative Species	32	8	8	9	10
Total Hydrophytic Species	22	8	8	9	10
Total Upland Species	10	0	0	0	0

Estimated % Total Vegetative Cover	75	75	75	75	45
Estimated % Unvegetated	25	25	25	25	55
% Transect Length Comprising Hydrophytic Vegetation Communities	62	19.8	19.8	19.8	34.3
% Transect Length Comprising Upland Vegetation Communities	13	0	0	0	0
% Transect Length Comprising Open Water With Aquatic Macrophytes	25	80.2	80.2	80.2	65.7

Data collected on T-2 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 4. T-2 is 594 feet long and alternates between wetland community types 3 – *Phalaris arundinacea*, 6 – *Alopecurus pratensis*/*Agrostis capillaris*, and 14 – *Agrostis capillaris*/*Phleum pratense*, 15 – *Typha latifolia*/*Eleocharis palustris*. Hydrophytic vegetation communities comprised 100 percent of the transect during the 2020 survey, an increase of 40% since 2019. A total of 29 species were identified, including 24 hydrophytes and 5 upland species. Community types 5 – Aquatic Macrophytes/Open Water and 13 – *Eleocharis palustris*/Bare Ground were not observed in 2020 and have transitioned along this transect into community type 15. Therefore, Open Water and Mudflat do not represent a percentage of the transect intervals for 2020, as these areas have now shifted into community type 15. The total number of hydrophytic plant species observed along the transect decreased minimally from 2019 to 2020. It is unclear why this occurred number of species decreased in 2020. Annual shifts in species dominance and general presence/absence of species are normal and expected within plant communities. Perhaps the dominant species observed along this transect have outcompeted some of the more infrequently occurring species.

Table 4. Data Summary for T-2 From 2012 and 2017 Through 2020 at the Schrieber Meadows Site

Monitoring Year	2012	2017	2018	2019	2020
Transect Length (feet)	594	594	594	594	594
Vegetation Community Transitions Along Transect	16	15	15	15	8
Vegetation Communities Along Transect	3	4	4	4	4
Hydrophytic Vegetation Communities Along Transect	3	3	3	3	4
Total Vegetative Species	23	35	35	35	29
Total Hydrophytic Species	17	30	30	30	24
Total Upland Species	9	5	5	5	5
Estimated % Total Vegetative Cover	60	70	70	70	65
Estimated % Unvegetated	40	30	30	30	35
% Transect Length Comprising Hydrophytic Vegetation Communities	59.1	58.1	58.1	60	100
% Transect Length Comprising Upland Vegetation Communities	0	0	0	0	0
% Transect Length Comprising Open Water With Aquatic Macrophytes	40.9	7.7	18.7	23	0
% Transect Length Comprising Mudflat	0	34.2	23.2	17	0

T-3 begins near constructed wetland Cell 8 along the Middle Coyote Creek reach and extends east 440 feet to the edge of the former Coyote Creek channel along the eastern site boundary. The data recorded on T-3 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 5. The transect intervals alternated between wetland community types 3 – *Phalaris arundinacea* and 5 – Aquatic macrophytes/Open Water. Hydrophytic vegetation community type 3 accounted for 53.4 percent of the transect in 2020, an increase of 5.4% since 2019. Open water accounted for 46.6 percent of the transect. In 2020, community type 5 – Aquatic Macrophytes/Open Water met the recent USACE definition of open water. Reed canary grass along T-1 and T-3 has aggressively outcompeted most other plant species and is on average 7 feet tall.

Table 5. Data Summary for T-3 From 2012 and 2017 Through 2020 at the Schrieber Meadows Site

Monitoring Year	2012	2017	2018	2019	2020
Transect Length (feet)	440	440	440	440	440
Vegetation Community Transitions Along Transect	4	4	4	4	4
Vegetation Communities Along Transect	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	1
Total Vegetative Species	9	11	12	13	13
Total Hydrophytic Species	7	7	8	9	13
Total Upland Species	2	4	4	4	0
Estimated % Total Vegetative Cover	50	75	75	75	50
Estimated % Unvegetated	50	25	25	25	50
% Transect Length Comprising Hydrophytic Vegetation Communities	53	46	48	48	53.4
% Transect Length Comprising Upland Vegetation Communities	0	0	0	0	0
% Transect Length Comprising Open Water With Aquatic Macrophytes	47	54	52	52	46.6

During the June 2020 monitoring, 18 small infestations of Canada thistle (*Cirsium arvense*), a Priority 2B noxious weed in Montana, were identified in areas less than 0.1-acre in size and located in both wetland and upland habitat (Figure A-3, Appendix A). The infestations included trace (< 1 percent), low (1–5 percent), moderate (6–25 percent), and high (>25 percent) cover classes. Three infestations of oxeye daisy (*Leucanthemum vulgare*), also a Priority 2B noxious weed, were observed in the northern part of the project area, in areas less than 0.1-acre in size with infestations ranging from trace to moderate. Annual weed spraying efforts have been very effective in reducing infestation size and cover of noxious weed populations across the site. The Montana Department of Transportation (MDT) has an ongoing weed-control program, which included weed spraying by contractors on May 27-28, 2020, prior to the July 2020 monitoring event.

A total of 1,000 speckled alders (*Alnus incana*) were planted along the newly constructed stream channel and wetland cells in the northern third of the site. Fewer than 50 live plants were observed throughout the mitigation site in 2020, which indicates 5 percent survival. Fewer than ten willows (*Salix* spp.) were observed near the spring north of the access road. A few of the alder trees were resprouting from the roots while the aboveground portions of the plants were dead. The remaining live alders and willows were not thriving in 2020 due to the aggressive competition from reed canary grass and perennial deep-water conditions. The persistence of reed canary grass and a high-water table are expected to continue to inhibit shrub development across the site. The excavated depressions on the USFS parcel may provide a suitable environment for woody plant establishment, although only a few willows were observed in 2020 that had been previously recorded along T-2 and around the edges of excavated wetland cells. The three volunteer willow saplings observed in 2020 along T-2 have not matured to date and are subject to browse from ungulate species using the site.

Hydrology – During the 2020 investigation, the average depth of surface water across the site was estimated at 2.5 feet with a range of depths from 0 to 5 feet. The deepest standing water is located within many of the excavated cells and within the creek channels. Approximately 80 percent of the project area was inundated during the 2020 site visit. The surface-water depth at the emergent vegetation and open-water boundary was estimated at 2.5 feet. The southern two-thirds of the site was inundated and/or saturated as a result of the reconstructed channel of Coyote Creek and abundant surface- and groundwater flowing through the valley. The high groundwater elevations observed on site are a result of restoration efforts to plug existing drain ditches and channels, the subsidence of histosol soil elevations over time, and perhaps the beaver dam located at the outlet of Schrieber Lake to the

south of this site. The northern third of the site was drier, but still exhibited surface water throughout. Every excavated wetland cell contained surface water, with the lowest water levels observed near the northern monitoring boundary. The intermittent Coyote Creek was dry in July 2020 north of Coyote Creek spring, located upstream of the site's access road. This spring appears to provide a perennial source of hydrology to the site. Direct precipitation also contributes to wetland hydrology, but the high groundwater table is the primary hydrologic driver and source of water within this site. Precipitation accumulation for this area in 2020 reported 14.82 inches from January through November, which is much lower than accumulation reported for 2019 (17.16 inches), and lower than the historic accumulation average of 14.96 inches [NRCS, 2020a].

Soils – Soil test pits were excavated at four locations to evaluate the extent of hydric soil development across the site in 2020 (Appendices A and B). Soil textures within wetland test pits ranged from muck (i.e., organic) to sandy clay. Hydric soil indicators were observed in both wetland test pits and included histosol, hydrogen sulfide, and depleted matrix. Soil textures within upland test pits ranged from sandy loam to clay loam. No hydric soil indicators were observed in either of the upland test pits. Additional field observations for the four data points are provided in the wetland determination data forms in Appendix B.

Photographs – Ten photo points were initially established within the three constructed cells that were monitored in 2010. A total of 20 photo points were established in 2012 in response to the increased project area size, including the reestablishment of photo point 7 from its original 2010 location. In addition to established photo points, photographs were taken at each surveyed stream cross section, sampled data points, and vegetation transect endpoints. The locations of these photographs are illustrated on Figure A-2 (Appendix A) and the photographs in Appendix C. Please refer to previous years' monitoring reports for all previous annual photographs ([https:// www.mdt.mt.gov/publications/brochures/wetland_mitigation.shtml](https://www.mdt.mt.gov/publications/brochures/wetland_mitigation.shtml)).

Functional Assessment – The 2008 MDT Montana Wetland Assessment Method (MWAM) functional assessment results for 2020 are summarized in Table 6. Three separate Assessment Areas (AAs) were used to evaluate the site: Creation AA, Enhancement AA, and Restoration AA. Completed functional assessment forms for all three AAs are provided in Appendix B. All wetlands within the Schrieber Meadows site rate as Category I wetlands. Functional scores and ratings have remained nearly constant since 2015. All AAs received high or exceptional ratings for many assessment parameters, including Listed/Proposed Threatened & Endangered Species Habitat due to the documentation of grizzly bears on the site in recent years. Other functions rated as high and/or exceptional include General Wildlife Habitat, Short- and Long-Term Surface-Water Storage, Sediment/Nutrient/Toxicant Removal, Sediment/Shoreline Stabilization, Production Export/Food Chain Support, and Groundwater Discharge/Recharge.

Table 6. Montana Wetland Assessment Method Summary for Schrieber Meadows Site

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2020 Enhancement AA	2020 Creation AA	2020 Restoration AA
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	High (0.8)	High (0.8)	High (0.8)
Montana Natural Heritage Program Species (MTNHP) Habitat	High (0.9)	High (0.9)	High (0.9)
General Wildlife Habitat	High (0.9)	High (0.9)	Exc (1.0)
General Fish/Aquatic Habitat	Low (0.3)	Mod (0.7)	NA
Flood Attenuation	Mod (0.6)	Mod (0.6)	Mod (0.5)
Short- and Long-Term, Surface-Water Storage	High (1.0)	High (1.0)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (1.0)	High (1.0)	Mod (0.6)

Sediment/Shoreline Stabilization	High (1.0)	High (1.0)	High (1.0)
Production Export/Food Chain Support	Exc (1.0)	Excel (1.0)	Exc (1.0)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.3)	Low (0.3)	Mod (0.4)
Recreation/Education Potential (bonus points)	High (0.2)	High (0.2)	High (0.2)
Actual Points/Possible Points	8.9/10	9.4/11	8.2/10
% of Possible Score Achieved	89%	85%	82%
Overall Category	I	I	I
Total Acreage of Assessed Wetlands Within Site Boundaries	13.22	22.54	3.46
Functional Units (acreage × actual points)	117.66	211.88	28.38

Wildlife – Five bird species were identified in 2020. The two bird boxes installed at the site are functional, although neither were in use during the 2020 site visit. In addition to the five bird species, Columbia spotted frogs (*Rana luteiventris*) were also observed within many of the excavated wetland cells (Appendix B). Few moose tracks, two Columbian ground squirrels (*Urocitellus columbianus*), and three white-tailed deer (*Odocoileus virginianus*) were observed across the site.

Stream Monitoring – The survey results for 11 permanent cross sections that were established along the constructed Coyote and Schrieber Creeks (Figure A-2, Appendix A) are shown in Appendix D. The 2020 data was compared to the previous surveys and discussions to assess stream channel stability. In general, the banks of the constructed channels were well-vegetated and exhibited stable conditions. Consequently, no major channel morphological changes have been observed throughout all of the monitoring years.

Credit Summary – Stream Credits

Completely restoring sinuosity and stream length to both Coyote Creek and Schrieber Creek was intended to create a new channel length of approximately 7,756 linear feet, which is an overall increase of 3,327 linear feet from the previously channelized length of 4,429 linear feet. As part of the Montana Stream Mitigation Procedure [USACE, 2010b], riparian and stream credits are added together to calculate the total stream mitigation credits (Table 7).

Table 7. Determination of Stream Mitigation Credits for the Schrieber Meadows Site

Factors	Upper Coyote Creek (USFS)	Coyote Creek Spring Area	Middle Coyote Creek (MDT)	Perennial Spring Channel	Lower Coyote Creek
Net Improvement	2.50	0.00	2.50	2.50	2.50
Stream Status	0.05	0.05	0.05	0.05	0.05
Type of Protection	0.20	0.20	0.20	0.20	0.20
Mitigation Timing	0.10	0.10	0.10	0.10	0.10
Comparative Stream Order	0.20	0.20	0.20	0.20	0.20
Location	0.10	0.10	0.10	0.10	0.10
Sum of Factors (M)	3.15	0.65	3.15	3.15	3.15
Linear Feet (L)	1,752	190	3,179	400	2,425
Total Stream Credits (M × L)	5,519	123	10,014	1,260	7,639
Total Stream Credits^(a) = 24,555					

Total Mitigation Credits (Riparian + Stream) = 10,996 + 24,555 = 35,551
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(a) Credits were calculated using the Montana Stream Mitigation Procedure [USACE, 2010].

Credit Summary – Wetland Credits

The pilot project, constructed in 2007, generated approximately 3.72 mitigation credit acres, including 2.38 credit acres of wetland creation, 0.75 credit acre for restoration (rehabilitation) of existing wetlands (1.12 acres restored), and 0.59 credit acre of upland buffer (2.96 acres maintained) around the wetlands. The pilot project was engulfed by the larger project constructed by MDT in 2011. Table 8 provides the credits generated at the Schrieber Meadows site for the approximately 57-acre, full-scale project and does not differentiate between the pilot and all-compassing Schrieber Meadows project.

A total of 39.74 acres of wetland habitat were delineated at the Schrieber Meadows site in 2020, including 19.11 acres of creation, 3.46 acres of restoration, 9.34 acres of enhancement, and 8.3 acres of riparian buffer (Table 8). A total of 59.96 acres, including 12.39 acres of upland buffer, -0.08-acre project impacts, and 7.44 acres of open water, were used to calculate the mitigation credited acres. After applying the USACE-approved ratios to these values, a total of 26.93 mitigation credit acres have been estimated in 2020, which is 9.69 credit acres more than the targeted 17.24 credit acres originally planned for this site. The decrease in total mitigation acreage from 2019 to 2020 is the result of the recent change for open water habitat at the request of the USACE.

Table 8. Summary of Wetland Mitigation Credits at the Schrieber Meadows Site from 2013 and 2017 through 2020

Mitigation Type	Total Proposed Acreage	Ratio	Proposed Credit Acres	2013 Delineated Acreage	2013 Credit Acres	2018 Delineated Acreage	2018 Credit Acres	2019 Delineated Acreage	2019 Credit Acres	2020 Delineated Acreage	2020 Credit Acres
Creation – USFS/MDT Property	8.91	1:1	8.91	22.43	22.43	21.90	21.90	21.90	21.90	19.11	19.11
Restoration on USFS/MDT Property	3.46	1.5:1	2.31	3.46	2.31	3.46	2.31	3.46	2.31	3.46	2.31
Enhancement of Wetlands Inside Geotechnical Limits Adjacent to US Highway 2 (MDT/USFS)	13.22	3:1	4.41	13.22	4.41	13.22	4.41	13.22	4.41	9.34	3.11
Riparian Buffer ^(a)		–		8.30	(b)	8.30	(b)	8.30	(b)	8.30	(b)
Upland Buffer	8.50	5:1	1.70	12.39 ^(c)	2.48	12.39 ^(c)	2.48	12.39 ^(c)	2.48	12.39 ^(c)	2.48
Project Impacts	–0.08	None	–0.08	–0.08	–0.08	–0.08	–0.08	–0.08	–0.08	–0.08	–0.08
Open Water	N/A	TBD ^(d)	N/A	--	--	--	--	--	--	7.44	TBD ^(d)
Total Mitigation Acreage	34.01		17.24	59.72	31.54	59.19	31.01	59.19	31.01	59.96	26.93

(a) Riparian buffer areas were used to calculate stream and riparian credits.

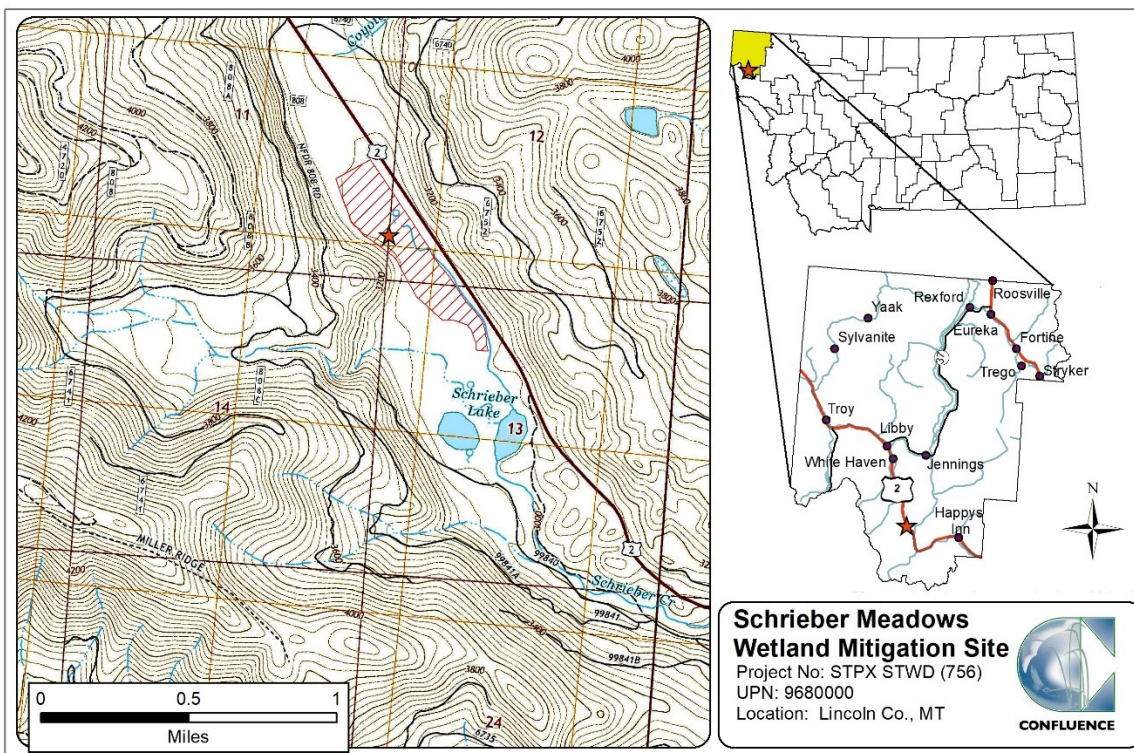
(b) Wetland acreages within riparian buffer were subtracted from wetland credit total; riparian buffer does not include upland buffer acreage.

(c) Acreage includes 50-foot buffer around wetlands within MDT and USFS property and outside of the riparian buffer.

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

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

Plans: See Appendix D of 2012 Monitoring Report

https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2012/schrieber_meadows_final_2012.pdf

Conclusions

Based on the results of the tenth year of monitoring, the mitigation site is continuing to develop into a diverse wetland ecosystem. The site is meeting all performance standards except for the following:

1. Riparian Buffer Success: Woody and riparian vegetation is established.
 - a. Woody vegetation along the reconstructed stream channels has been slow to develop due to perennial deep-water conditions and aggressive competition from reed canary grass.
2. Planted trees and shrubs will be considered successful when they exhibit 50 percent survival after 5 years.
 - a. Woody plantings survival is not trending toward meeting this performance standard.

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.
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APPENDIX A

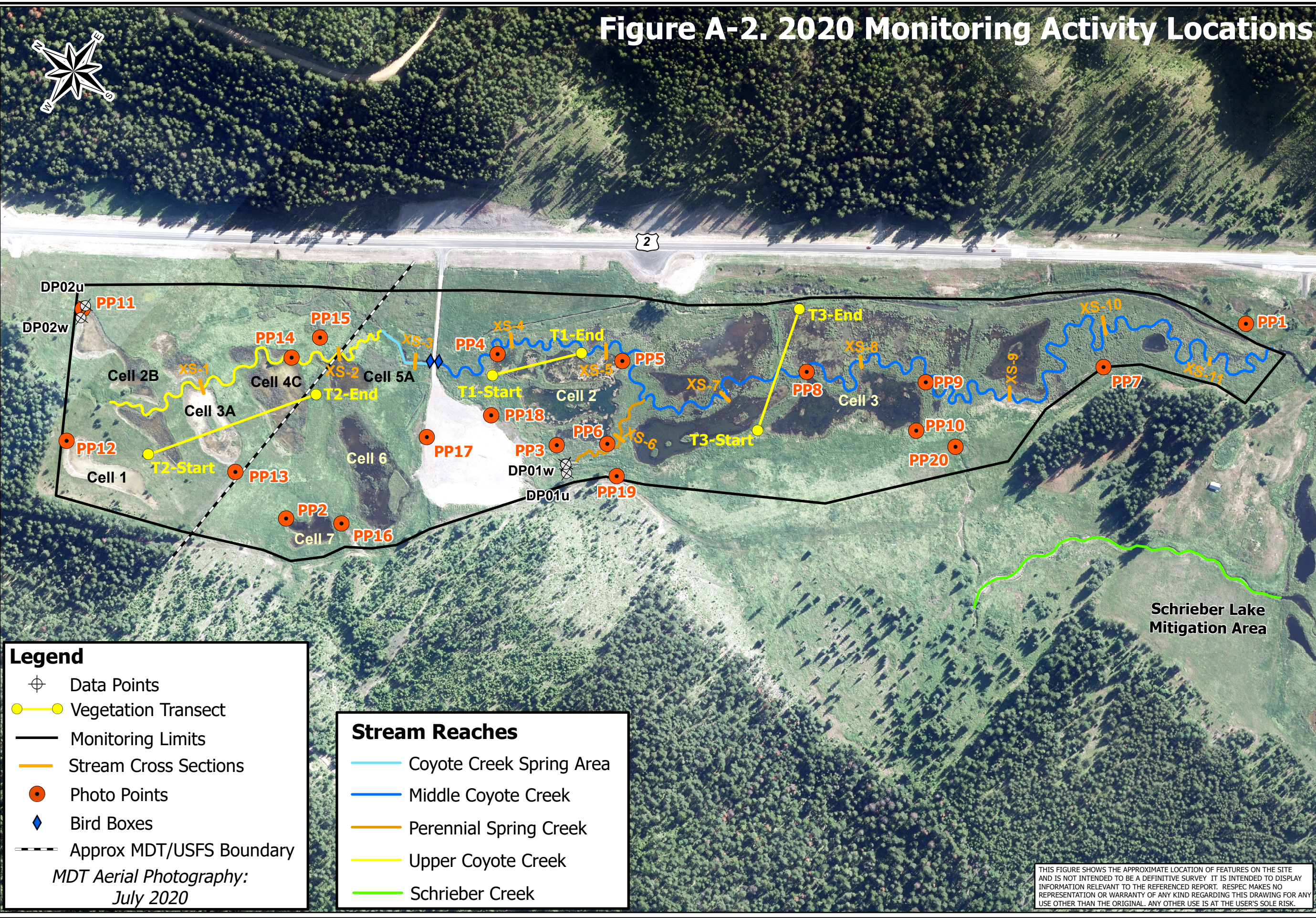
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Schrieber Meadows
Lincoln County, Montana

Figure A-2. 2020 Monitoring Activity Locations



Schrieber Meadows Mitigation Site
2020 Monitoring Activity Locations



Legend

- ⊕ Data Points
- Vegetation Transect
- Monitoring Limits
- Stream Cross Sections
- Photo Points
- ◆ Bird Boxes
- - - Approx MDT/USFS Boundary

MDT Aerial Photography:
July 2020

Stream Reaches

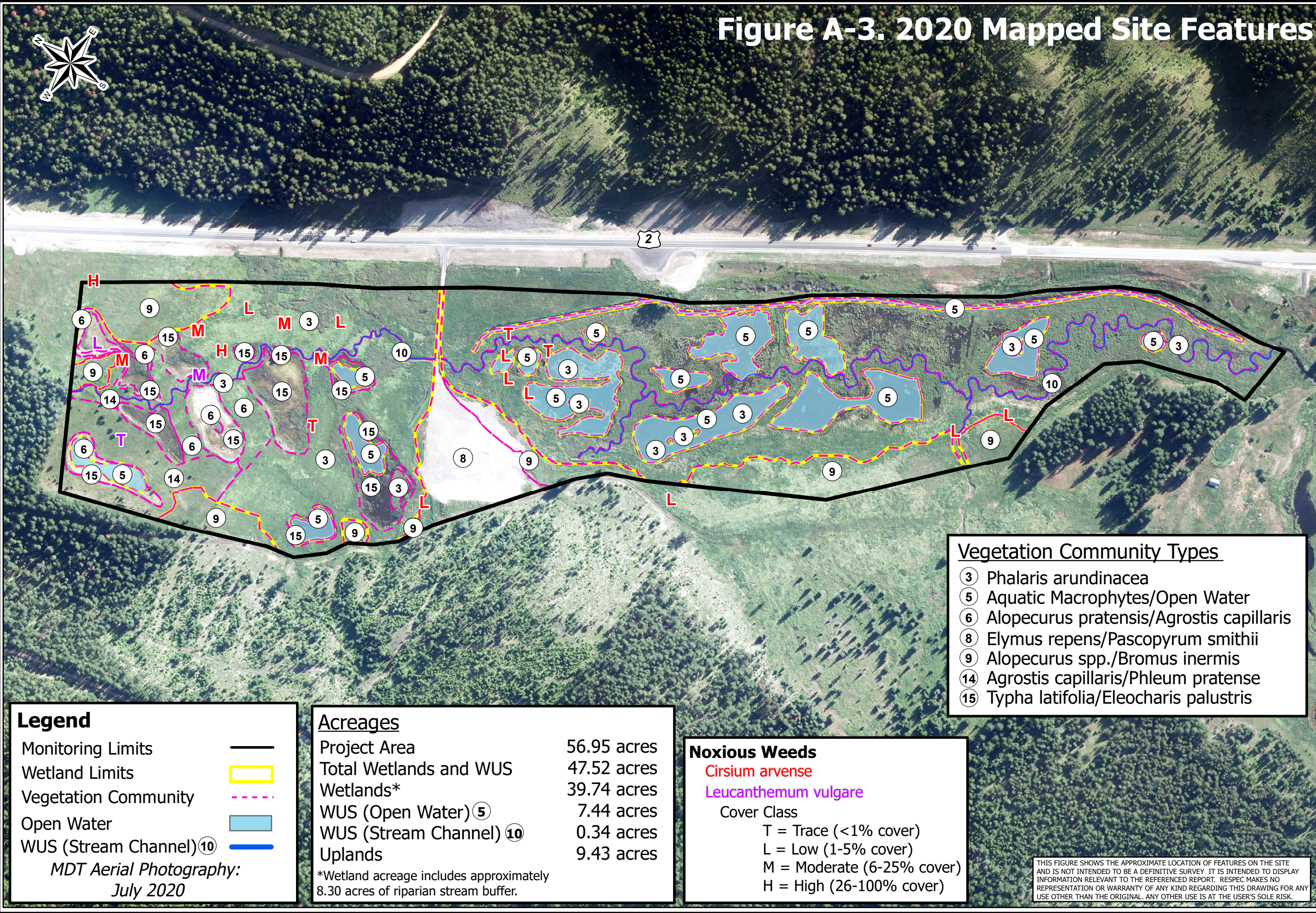
- Coyote Creek Spring Area
- Middle Coyote Creek
- Perennial Spring Creek
- Upper Coyote Creek
- Schrieber Creek

Project: STPX STWD (756)
Location: Lincoln Co., Montana
Date: October 2020
Project Manager: R McEldowney
Drawn By: RQ

Figure A-3. 2020 Mapped Site Features



Schrieber Meadows Mitigation Site
2020 Mapped Site Features



Legend

Monitoring Limits ———

Wetland Limits

Vegetation Community

Open Water

WUS (Stream Channel) ⑩

MDT Aerial Photography:
July 2020

Acreages	
Project Area	56.95 acres
Total Wetlands and WUS	47.52 acres
Wetlands*	39.74 acres
WUS (Open Water) ⑤	7.44 acres
WUS (Stream Channel) ⑩	0.34 acres
Uplands	9.43 acres
*Wetland acreage includes approximately 8.30 acres of riparian stream buffer.	

Noxious Weeds

Cirsium arvense

Leucanthemum vulgare

Cover Class

T = Trace (<1% cover)

L = Low (1-5% cover)

M = Moderate (6-25% cover)

H = High (26-100% cover)

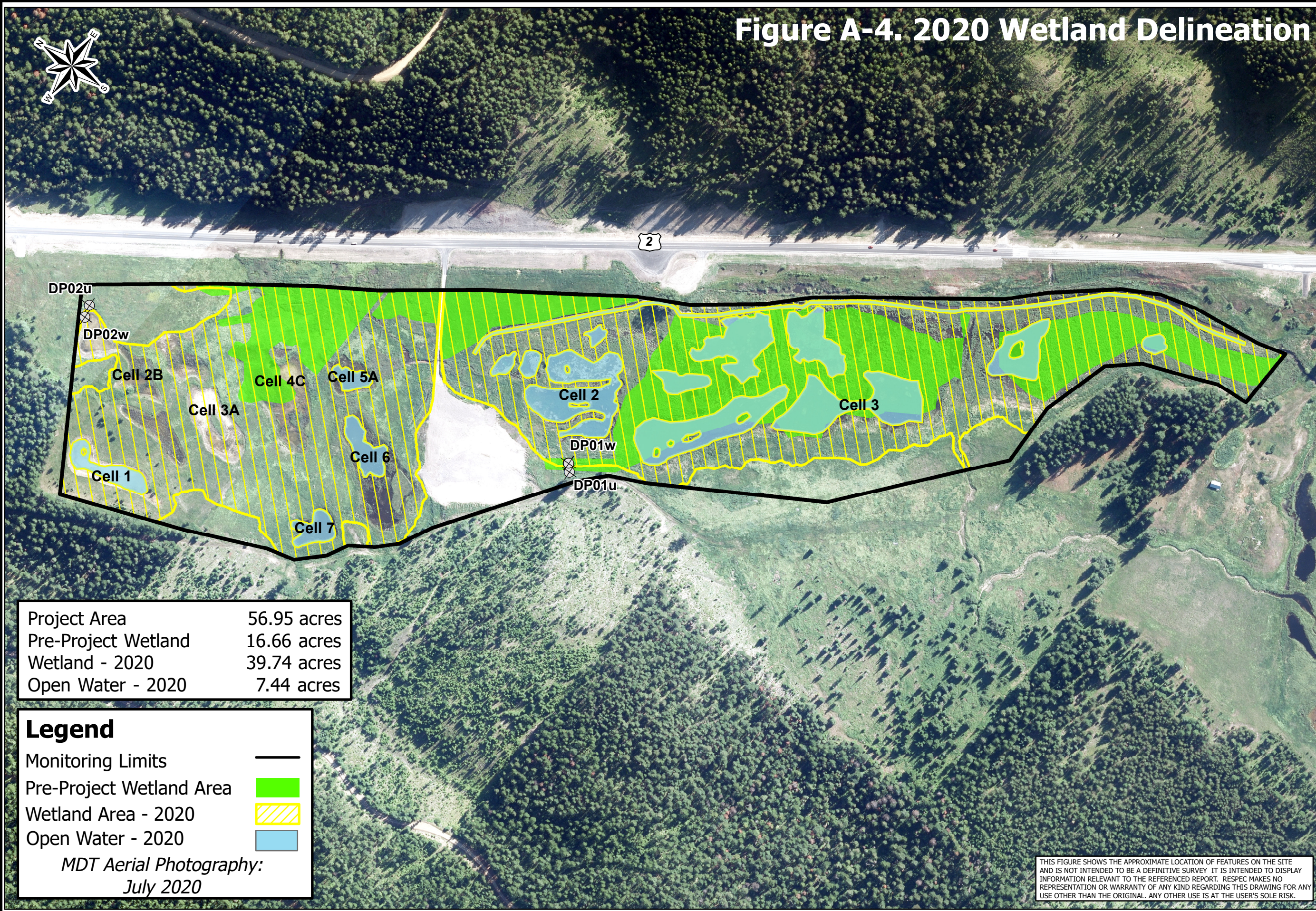
THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY. IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. RESPEC MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL.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

Project: STPX STWD (756)
Location: Lincoln Co., Montana
Date: October 2020
Project Manager: R McEldowney
Drawn By: RQ

Figure A-4. 2020 Wetland Delineation



Schriber Meadows Mitigation Site
2020 Wetland Delineation



Project Area	56.95 acres
Pre-Project Wetland	16.66 acres
Wetland - 2020	39.74 acres
Open Water - 2020	7.44 acres

Legend

Monitoring Limits

Pre-Project Wetland Area

Wetland Area - 2020

Open Water - 2020

MDT Aerial Photography:

July 2020

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

Project: STPX STWD (756)
Location: Lincoln Co., Montana
Date: October 2020
Project Manager: R McElDowney
Drawn By: RQ

APPENDIX B

MONITORING FORMS

MDT Wetland Mitigation Monitoring
Schrieber Meadows
Lincoln County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Schrieber Meadows Assessment Date/Time 7/16/2020

Person(s) conducting the assessment: R Quire, S Weyant, B Trudgeon

Weather: 80 degrees, sunny, clear Location: Highway 2, Swamp Creek East

MDT District: Missoula Milepost: 53.5

Legal Description: T 27N R 30W Section(s) 11, 12, 13

Initial Evaluation Date: 8/29/2010 Monitoring Year: 10 #Visits in Year: 1

Size of Evaluation Area: 57 (acres)

Land use surrounding wetland:

US Highway 2, US Forest Service, forested watershed

HYDROLOGY

Surface Water Source: Coyote Creek spring, Precipitation, Groundwater

Inundation: ☒ Average Depth: 1.5 (ft) Range of Depths: 0-5 (ft)

Percent of assessment area under inundation: 80 %

Depth at emergent vegetation-open water boundary: 2.5 (ft)

If assessment area is not inundated then are the soils saturated within 12 inches of surface: No

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

Surface water, saturation, high water table, hydrogen sulfide odor, iron deposits, geomorphic position, FAC neutral test, inundation visible on aerials.

Groundwater Monitoring Wells

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

Additional Activities Checklist:

- ☒ Map emergent vegetation-open water boundary on aerial photograph.
- ☒ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining, etc.)
- ☐ Use GPS to survey groundwater monitoring well locations, if present.

Hydrology Notes:

Water depths were deeper on average across the site than what was reported in 2019, especially within excavated depressions, Coyote Creek, and southeast of the access road that bisects the property.

VEGETATION COMMUNITIES

Site Schrieber Meadows

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

Community # 3 **Community Type:** Phalaris arundinacea /

Acres: 30.87

Species	Cover class	Species	Cover class
Alnus incana	0	Alopecurus arundinaceus	1
Alopecurus pratensis	1	Carex athrostachya	1
Carex stipata	1	Carex utriculata	1
Cirsium arvense	1	Eleocharis palustris	1
Epilobium ciliatum	1	Glyceria grandis	0
Lemna minor	1	Mimulus guttatus	1
Open Water	4	Persicaria amphibia	1
Phalaris arundinacea	5	Scirpus microcarpus	1

Comments:

Dominant wetland community type located across the site. Reed canary grass has outcompeted most other species and was observed at an average height of 7ft tall. Many areas within this CT inundated with an average of 3 feet of standing water. Very difficult to move through.

Community # 5 **Community Type:** Aquatic macrophytes / Open Water

Acres: 7.44

Species	Cover class	Species	Cover class
Algae, brown	2	Algae, green	2
Alnus incana	0	Aquatic macrophytes	2
Carex athrostachya	0	Carex nebrascensis	0
Carex utriculata	0	Chara sp.	2
Eleocharis palustris	0	Glyceria grandis	0
Lemna minor	0	Mimulus guttatus	1
Open Water	5	Persicaria amphibia	1
Phalaris arundinacea	1	Sparganium natans	1
Typha latifolia	1		

Comments:

Areas dominated by 2-3 feet of standing water, less than 5% emergent wetland vegetation, and a diversity of submergent/floating aquatic macrophytes.

Community # 6 **Community Type:** Alopecurus pratensis / Agrostis capillaris **Acres:** 1.86

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis capillaris	4
Alnus incana	0	Alopecurus arundinaceus	2
Alopecurus pratensis	4	Bromus inermis	2
Carex athrostachya	1	Carex lasiocarpa	0
Carex utriculata	0	Eleocharis palustris	1
Epilobium ciliatum	1	Juncus tenuis	1
Leucanthemum vulgare	1	Open Water	1
Pedicularis groenlandica	1	Phalaris arundinacea	2
Poa pratensis	1	Rosa woodsii	1
Salix bebbiana	1	Symphotrichum spathulatum	1

Comments:

Wetland CT northwest of access road that bisects the property.

Community # 8 **Community Type:** Elymus repens / Pascopyrum smithii **Acres:** 2.72

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Bare Ground	4
Bromus inermis	1	Elymus repens	3
Medicago lupulina	2	Pascopyrum smithii	4
Sisymbrium altissimum	1		

Comments:

Upland community type that runs along the access road that bisects the property.

Community # 9 **Community Type:** Alopecurus spp. / Bromus inermis **Acres:** 6.77

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis capillaris	1
Alopecurus arundinaceus	2	Alopecurus pratensis	5
Arnica chamissonis	1	Bromus inermis	3
Pascopyrum smithii	1	Poa pratensis	1
Senecio hydrophiloides	1	Taraxacum officinale	1

Comments:

Upland community type located along the outer edges of the project area, primarily along the W-SW boundary.

Community # 14 Community Type: Agrostis capillaris / Phleum pratense**Acres:** 2.52

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis capillaris	4
Agrostis gigantea	1	Alopecurus pratensis	1
Bare Ground	2	Bromus inermis	1
Cirsium arvense	0	Fragaria virginiana	0
Hieracium aurantiacum	0	Juncus tenuis	1
Leucanthemum vulgare	0	Phleum pratense	3
Pinus contorta	0	Pinus ponderosa	0
Pseudotsuga menziesii	0	Rosa woodsii	0
Symphyotrichum spathulatum	0		

Comments:

Wetland community type located in northwest corner of site.

Community # 15 Community Type: Typha latifolia / Eleocharis palustris**Acres:** 4.48

Species	Cover class	Species	Cover class
Agrostis capillaris	1	Alopecurus arundinaceus	1
Alopecurus pratensis	1	Bare Ground	1
Beckmannia syzigachne	0	Carex athrostachya	1
Carex pellita	1	Carex stipata	1
Chara sp.	1	Eleocharis palustris	3
Epilobium ciliatum	1	Glyceria grandis	1
Glyceria striata	1	Juncus bufonius	0
Juncus tenuis	0	Leucanthemum vulgare	1
Mentha arvensis	1	Open Water	4
Persicaria amphibia	1	Phalaris arundinacea	1
Salix bebbiana	0	Scirpus microcarpus	1
Suaeda calceoliformis	0	Trifolium pratense	1
Typha latifolia	4		

Comments:

New wetland community type in 2020, replaced CT 13 and portions of CT 5 as a result of an increase in Typha latifolia. Located northwest of access road that bisects the property.

Total Vegetation Community Acreage**56.66***(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)*

VEGETATION TRANSECTS

Site: Schrieber Meadows Date: 7/16/2020

Transect Number: 1 Compass Direction from Start: 112 °

Interval Data:

Ending Station 20 Community Type: Phalaris arundinacea /

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 55 Community Type: Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, green	4	Alnus incana	0
Chara sp.	2	Lemna minor	2
Mimulus guttatus	1	Open Water	5
Persicaria amphibia	1	Phalaris arundinacea	1

Ending Station 80 Community Type: Phalaris arundinacea /

Species	Cover class	Species	Cover class
Cirsium arvense	1	Mimulus guttatus	1
Open Water	4	Phalaris arundinacea	5

Ending Station 155 Community Type: Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, green	3	Aquatic macrophytes	4
Lemna minor	1	Open Water	5
Persicaria amphibia	1		

Ending Station 181 Community Type: Phalaris arundinacea /

Species	Cover class	Species	Cover class
Alnus incana	0	Open Water	3
Persicaria amphibia	1	Phalaris arundinacea	5

Ending Station 280 Community Type: Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, brown	2	Algae, green	1
Aquatic macrophytes	2	Open Water	5
Persicaria amphibia	1	Phalaris arundinacea	1

Ending Station 318 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Glyceria grandis	1	Open Water	2
Phalaris arundinacea	5		

Transect Notes:

More open water observed along transect than observed in 2019. Very difficult to move through. Reed canary grass greater than 7ft tall, water at times greater than 4ft deep, monitoring this transect was hazardous and extreme caution taken by crew. A kayak was necessary for the crew member completing the cross section survey.

Transect Number: 2Compass Direction from Start: 100 °**Interval Data:****Ending Station** 35 **Community Type:** *Agrostis capillaris* / *Phleum pratense*

Species	Cover class	Species	Cover class
<i>Achillea millefolium</i>	0	<i>Agrostis capillaris</i>	4
<i>Agrostis gigantea</i>	2	Bare Ground	3
<i>Bromus inermis</i>	1	<i>Juncus tenuis</i>	0
<i>Leucanthemum vulgare</i>	1	<i>Phleum pratense</i>	1

Ending Station 105 **Community Type:** *Typha latifolia* / *Eleocharis palustris*

Species	Cover class	Species	Cover class
Bare Ground	1	<i>Carex pellita</i>	3
<i>Carex stipata</i>	1	<i>Eleocharis palustris</i>	2
<i>Glyceria grandis</i>	1	<i>Juncus bufonius</i>	0
<i>Juncus tenuis</i>	1	Open Water	3
<i>Phalaris arundinacea</i>	1	<i>Scirpus microcarpus</i>	1
<i>Typha latifolia</i>	4		

Ending Station 168 **Community Type:** *Alopecurus pratensis* / *Agrostis capillaris*

Species	Cover class	Species	Cover class
<i>Agrostis capillaris</i>	3	<i>Alnus incana</i>	0
<i>Alopecurus pratensis</i>	3	<i>Bromus inermis</i>	0
<i>Carex lasiocarpa</i>	4	<i>Eleocharis palustris</i>	1
<i>Epilobium ciliatum</i>	0	<i>Juncus tenuis</i>	0
<i>Phalaris arundinacea</i>	1	<i>Salix bebbiana</i>	0

Ending Station 219 **Community Type:** *Typha latifolia* / *Eleocharis palustris*

Species	Cover class	Species	Cover class
<i>Agrostis capillaris</i>	1	Bare Ground	3
<i>Beckmannia syzigachne</i>	1	<i>Eleocharis palustris</i>	3
<i>Epilobium ciliatum</i>	0	<i>Juncus tenuis</i>	1
Open Water	2	<i>Phalaris arundinacea</i>	1
<i>Trifolium pratense</i>	1	<i>Typha latifolia</i>	4

Ending Station 250 **Community Type:** *Alopecurus pratensis* / *Agrostis capillaris*

Species	Cover class	Species	Cover class
<i>Achillea millefolium</i>	2	<i>Agrostis capillaris</i>	2
<i>Alopecurus pratensis</i>	3	<i>Bromus inermis</i>	4
<i>Symphyotrichum spathulatum</i>	0		

Ending Station 295 **Community Type:** Typha latifolia / Eleocharis palustris

Species	Cover class	Species	Cover class
Agrostis capillaris	0	Bare Ground	3
Beckmannia syzigachne	0	Eleocharis palustris	3
Epilobium ciliatum	1	Glyceria grandis	1
Juncus tenuis	1	Leucanthemum vulgare	1
Open Water	2	Phalaris arundinacea	1
Salix bebbiana	0	Typha latifolia	3

Ending Station 410 **Community Type:** Alopecurus pratensis / Agrostis capillaris

Species	Cover class	Species	Cover class
Agrostis capillaris	1	Alopecurus pratensis	5
Bromus inermis	3	Leucanthemum vulgare	1
Pedicularis groenlandica	0	Rosa woodsii	1

Ending Station 555 **Community Type:** Typha latifolia / Eleocharis palustris

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Carex athrostachya	0
Carex pellita	1	Chara sp.	1
Eleocharis palustris	3	Juncus tenuis	1
Mentha arvensis	0	Open Water	4
Persicaria amphibia	1	Phalaris arundinacea	1
Scirpus microcarpus	1	Typha latifolia	4

Ending Station 594 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Carex athrostachya	0
Carex utriculata	1	Phalaris arundinacea	5
Scirpus microcarpus	1		

Transect Notes:

CT 15, a new community observed in 2020, replaced CT 5 and CT 13 along transect, as more open water and Typha latifolia were observed in 2020.

Transect Number: 3Compass Direction from Start: 45 °

Interval Data:

Ending Station 60 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Lemna minor	1	Open Water	1
Pericaria amphibia	1	Phalaris arundinacea	5

Ending Station 137 **Community Type:** Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, green	1	Aquatic macrophytes	3
Chara sp.	4	Lemna minor	1
Open Water	5	Phalaris arundinacea	1
Sparganium natans	1		

Ending Station 288 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Carex utriculata	1	Eleocharis palustris	0
Epilobium ciliatum	1	Glyceria grandis	0
Lemna minor	2	Open Water	4
Pericaria amphibia	3	Phalaris arundinacea	5

Ending Station 416 **Community Type:** Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, brown	3	Carex nebrascensis	1
Carex utriculata	1	Chara sp.	2
Lemna minor	2	Open Water	5
Pericaria amphibia	1	Phalaris arundinacea	1
Typha latifolia	1		

Ending Station 440 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Lemna minor	2	Open Water	3
Phalaris arundinacea	5		

Transect Notes:

More open water observed along transect than observed in 2019. Very difficult to move through. Reed canary grass greater than 7ft tall, water at times greater than 4ft deep, monitoring this transect was hazardous and extreme caution taken by crew. A kayak was necessary for the crew member completing the cross section survey.

PLANTED WOODY VEGETATION SURVIVAL

Schrieber Meadows

Planting Type	#Planted	#Alive	Notes
Alnus incana	1000	50	obs <50 - too wet and out-competed by reed canary grass
Salix sp.	750	10	too wet and out-competed by reed canary grass

Comments

Planted shrubs are difficult to see at the site due to the dense cover of 7ft tall reed canary grass. It is thought that the majority of woody plantings have died because of perennial deep water conditions and being out competed by reed canary grass.

Schrieber Meadows

WILDLIFE

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Bird boxes

How many? 2

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
Great Blue Heron	1	FO	
Killdeer	3		
Red-winged Blackbird	5	F, FO, L	
Sparrow sp.	3	FO, L	
Tree Swallow	10	FO, L	

Bird Comments

BEHAVIOR CODES

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

HABITAT CODES

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

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

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Columbia Spotted Frog	20	No	No	No	
Ground Squirrel	2	No	No	No	
Moose		Yes	No	No	
White-tailed Deer	3	No	No	No	

Wildlife Comments:

Many small Columbia spotted frogs observed across the site.

Schrieber Meadows

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
DP-1U	48.111984	-115.417667		
DP-1W	48.112044	-115.417579		
DP-2U	48.116341	-115.420054		
DP-2W	48.116304	-115.420218		
PP01	48.10804	-115.410172	270	Photo Point 1 (Pano):
PP02	48.113735	-115.420509	150	Photo Point 2:
PP03	48.112183	-115.417503	90	Photo Point 3 (Pano):
PP04	48.113213	-115.416832	180	Photo Point 4 (Pano):
PP05	48.112614	-115.415977	300	Photo Point 5 (Pano):
PP06	48.11904	-115.417023	0	Photo Point 6 (Pano):
PP07	48.108813	-115.411923	0	Photo Point 7 (Pano):
PP08	48.11121	-115.414238	190	Photo Point 8 (Pano):
PP09	48.109997	-115.413765	280	Photo Point 9 (Pano):
PP10	48.109737	-115.414024	0	Photo Point 10 (Pano):
PP11	48.116409	-115.420021	190	Photo Point 11 (Pano):
PP12	48.115673	-115.421562	180	Photo Point 12 (Pano):
PP13	48.11422	-115.420403	280	Photo Point 13 (Pano):
PP14	48.114655	-115.41893	230	Photo Point 14 (Pano):
PP15	48.114323	-115.418449	180	Photo Point 15 (Pano):
PP16	48.113403	-115.420128	70	Photo Point 16 (Pano):
PP17	48.112938	-115.418388	270	Photo Point 17 (Pano):
PP18	48.1129	-115.417618	90	Photo Point 18:
PP19	48.111553	-115.417084	10	Photo Point 19, Photo 1:
PP-19	48.111553	-115.417084	100	Photo Point 19, Photo 2:
PP-20	48.109493	-115.413918	100	Photo Point 20:

T-1 end	48.112663	-115.41642	295	Transect 1 end:
T-1 start	48.115204	-115.417503	115	Transect 1 start:
T-2 end	48.114197	-115.418991	280	Transect 2 end:
T-2 start	48.115204	-115.421013	100	Transect 2 start:
T-3 end	48.111187	-115.413849	225	Transect 3 end:
T-3 start	48.111134	-115.415642	45	Transect 3 start:

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

A total of 47.52 acres of jurisdictional wetland and waters of the US (WUS) were delineated at the Schrieber Meadows site in 2020. The total wetland acreage delineated in 2020, was 39.74 acres, which is a decrease of 7.34 acres since 2019. WUS (Open Water) was 7.44 acres in 2020 and WUS (Stream Channel) was 0.34 acres. The decrease in total wetland acreage in 2020 is the result of the recent change for open water habitat at the request of the USACE.

Functional Assessments

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

Functional Assessment Comments:

All 3 AA's Category I wetlands.

Maintenance

Were man-made nesting structures installed at this site? Yes

If yes, do they need to be repaired? No

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? No

If yes, are the structures in need of repair

Water level across the site is very high and reed canary grass very dense and over 7ft tall, making this site hazardous and many areas nearly inaccessible for crew to conduct monitoring activities.

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

Project/Site: Schrieber Meadows City/County: Lincoln Sampling Date: 7/16/2020
 Applicant/Owner: MDT State: Montana Sampling Point: DP01u
 Investigator(s): R Quire, S Weyant Section, Township, Range: S 11 T 27N R 30W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): undulating Slope (%): 10
 Subregion (LRR): LRR E Lat: 48.111984 Long: -115.417667 Datum: NAD 83
 Soil Map Unit Name: aquic adfluents, poorly drained NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Remarks: Upland sample point, located upslope of DP01w and wetland boundary.					

VEGETATION - Use scientific names of plants

Tree Stratum	Plot size (30 Foot Radius)	Absolute % Cover:	Dominant Species?	Indicator Status	Dominance Test worksheet Number of Dominant Species that are OBL, FACW or FAC: <input type="text" value="2"/> (A) Total Number of Dominant Species Across All Strata: <input type="text" value="2"/> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <input type="text" value="100"/> % (A/B)														
Sapling/Shrub Stratum Plot size (15 Foot Radius)						Prevalence Index worksheet <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species 0 X 1</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>FACW species 0 X 2</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>FAC species 70 X 3</td> <td><input type="text" value="210"/></td> </tr> <tr> <td>FACU species 15 X 4</td> <td><input type="text" value="60"/></td> </tr> <tr> <td>UPL species 0 X 5</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>Column Totals <input type="text" value="85"/> (A)</td> <td><input type="text" value="270"/> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = 3.17647	Total % Cover of:	Multiply by:	OBL species 0 X 1	<input type="text" value="0"/>	FACW species 0 X 2	<input type="text" value="0"/>	FAC species 70 X 3	<input type="text" value="210"/>	FACU species 15 X 4	<input type="text" value="60"/>	UPL species 0 X 5	<input type="text" value="0"/>	Column Totals <input type="text" value="85"/> (A)
Total % Cover of:	Multiply by:																		
OBL species 0 X 1	<input type="text" value="0"/>																		
FACW species 0 X 2	<input type="text" value="0"/>																		
FAC species 70 X 3	<input type="text" value="210"/>																		
FACU species 15 X 4	<input type="text" value="60"/>																		
UPL species 0 X 5	<input type="text" value="0"/>																		
Column Totals <input type="text" value="85"/> (A)	<input type="text" value="270"/> (B)																		
Herbaceous Stratum Plot size (5 Foot Radius)					Hydrophytic Vegetation Indicators <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is <= 3.0 <input type="checkbox"/> 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet. <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <input type="checkbox"/> Problematic Hydrophytic Vegetation (Explain)														
<table border="1"> <tbody> <tr> <td>Alopecurus pratensis</td> <td>25</td> <td><input checked="" type="checkbox"/></td> <td>FAC</td> </tr> <tr> <td>Elymus repens</td> <td>45</td> <td><input checked="" type="checkbox"/></td> <td>FAC</td> </tr> <tr> <td>Pascopyrum smithii</td> <td>15</td> <td><input type="checkbox"/></td> <td>FACU</td> </tr> </tbody> </table>						Alopecurus pratensis	25	<input checked="" type="checkbox"/>	FAC	Elymus repens	45	<input checked="" type="checkbox"/>	FAC	Pascopyrum smithii	15	<input type="checkbox"/>	FACU	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
Alopecurus pratensis	25	<input checked="" type="checkbox"/>	FAC																
Elymus repens	45	<input checked="" type="checkbox"/>	FAC																
Pascopyrum smithii	15	<input type="checkbox"/>	FACU																
Woody Vine Stratum Plot size (30 Foot Radius)																			
Percent Bare Ground 15																			

Remarks:
 BG/litter=15%. Dominated by non-native, invasive, facultative graminoids, that are opportunistic species occurring approximately 50% of the time in wetlands and 50% in uplands in this MVC region. Data point delineated as upland.

SOIL

Sampling Point: DP01u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR	2/2	100				Sandy Loam	Gravelly.
13+							Cobbles	Cobble bottom

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators observed during site visit.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrologic indicators observed during site visit.

SOIL

Sampling Point: DP01w

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR	2/2	100				Muck	Organic-sapric

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Dark (10YR 2/2), greasy, highly decomposed plant material from 0 to 16 inches indicated the presence of a histosol. Hydrogen sulfide odor also observed during site visit.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 2Water Table Present? Yes ☒ No ☐ Depth (inches): 0Saturation Present? Yes ☒ No ☐ Depth (inches): 0 (includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

2in surface water, sulfidic odor, and iron deposits observed at soil pit.

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

Project/Site: Schrieber Meadows City/County: Lincoln Sampling Date: 7/16/2020
 Applicant/Owner: MDT State: Montana Sampling Point: DP02u
 Investigator(s): R Quire, S Weyant Section, Township, Range: S 11 T 27N R 30W
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): undulating Slope (%): 0
 Subregion (LRR): LRR E Lat: 48.116341 Long: -115.420054 Datum: NAD 83
 Soil Map Unit Name: aquic adfluents, poorly drained NWI classification: Not Mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			

Remarks:

Upland data point, located just upslope of wetland boundary and DP02w.

VEGETATION - Use scientific names of plants

<u>Tree Stratum</u>	Plot size (30 Foot Radius)	Absolute % Cover:	Dominant Species?	Indicator Status
<u>Sapling/Shrub Stratum</u>	Plot size (15 Foot Radius)			
<u>Herbaceous Stratum</u>	Plot size (5 Foot Radius)			
Alopecurus pratensis	25	<input checked="" type="checkbox"/>	FAC	
Bromus inermis	50	<input checked="" type="checkbox"/>	UPL	
Poa pratensis	5	<input type="checkbox"/>	FAC	
<u>Woody Vine Stratum</u>	Plot size (30 Foot Radius)			
Percent Bare Ground 20				

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0 X 1	<input type="text" value="0"/>
FACW species 0 X 2	<input type="text" value="0"/>
FAC species 30 X 3	<input type="text" value="90"/>
FACU species 0 X 4	<input type="text" value="0"/>
UPL species 50 X 5	<input type="text" value="250"/>
Column Totals <input type="text" value="80"/> (A)	<input type="text" value="340"/> (B)

Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators

☐ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☐ 3 - Prevalence Index is <= 3.0

☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.)

☐ 5 - Wetland Non-Vascular Plants

☐ Problematic Hydrophytic Vegetation (Explain)

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

Hydrophytic Vegetation Present?

Yes ☐ NO ☒

Remarks:

BG/litter=20%

SOIL

Sampling Point: DP02u

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

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-10	10YR	4/2	100						Clay Loam	
10-15	10YR	4/2	99	7.5YR	4/6	1	C	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No hydric soil indicators observed during site visit.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____Water Table Present? Yes ☐ No ☒ Depth (inches): _____Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

No hydrologic indicators observed during site visit. Soil dry.

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

Project/Site: Schrieber Meadows City/County: Lincoln Sampling Date: 7/16/2020
 Applicant/Owner: MDT State: Montana Sampling Point: DP02w
 Investigator(s): R Quire, S Weyant Section, Township, Range: S 11 T 27N R 30W
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): LRR E Lat: 48.116304 Long: -115.420218 Datum: NAD 83
 Soil Map Unit Name: aquic adfluvents, poorly drained NWI classification: Not Mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Remarks: PEM depressional wetland located near the northwest project boundary.					

VEGETATION - Use scientific names of plants

<u>Tree Stratum</u>	Plot size (30 Foot Radius)	Absolute % Cover:	Dominant Species?	Indicator Status
<u>Sapling/Shrub Stratum</u>	Plot size (15 Foot Radius)			
<u>Herbaceous Stratum</u>	Plot size (5 Foot Radius)			
Beckmannia syzigachne	3	<input type="checkbox"/>	OBL	
Carex nebrascensis	1	<input type="checkbox"/>	OBL	
Eleocharis palustris	15	<input checked="" type="checkbox"/>	OBL	
Juncus tenuis	3	<input type="checkbox"/>	FAC	
Phalaris arundinacea	3	<input type="checkbox"/>	FACW	
Typha latifolia	35	<input checked="" type="checkbox"/>	OBL	
<u>Woody Vine Stratum</u>	Plot size (30 Foot Radius)			
Percent Bare Ground 40				

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 54 X 1	<input type="text" value="54"/>
FACW species 3 X 2	<input type="text" value="6"/>
FAC species 3 X 3	<input type="text" value="9"/>
FACU species 0 X 4	<input type="text" value="0"/>
UPL species 0 X 5	<input type="text" value="0"/>
Column Totals <input type="text" value="60"/> (A)	<input type="text" value="69"/> (B)

Prevalence Index = B/A = 1.15

Hydrophytic Vegetation Indicators

☒ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is <= 3.0

☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.)

☐ 5 - Wetland Non-Vascular Plants

☐ Problematic Hydrophytic Vegetation (Explain)

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

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:
BG/litter/shallow ponded water=40%. Obligate rooted hydrophytic species dominate sample point.

US Army Corps of Engineers Western Mountains, Valleys, and Coasts - Version 2.0

SOIL

Sampling Point: DP02w

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

Depth (inches)	Matrix		%	Redox Features				Type ¹	Loc ²	Texture	Remarks
	Color (moist)			Color (moist)		%					
0-14	10YR	6/2	92	7.5YR	6/8	3		C	M	Sandy Clay	
0-14	10YR	6/2	92	N	6/0	5		D	M	Sandy Clay	

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

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

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

Indicators for Problematic Hydric Soils³:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Prominent redoximorphic features common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 3Water Table Present? Yes ☒ No ☐ Depth (inches): 12Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

3in of surface water present at soil pit, high water table at 12in within soil pit after 5 minutes, soil saturated to surface.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Schriber Meadows	2. MDT project#	STPP STWD (756)	Control#	9680000
3. Evaluation Date	7/16/2020	4. Evaluators	R Quire, S Weyant, B Trudgeon		
5. Wetland/Site# (s)	Creation				
6. Wetland Location(s):	T	27N	R	30W	Sec1 11,12,13
Approx Stationing or Mileposts	Approximately Milepost 53.5				
Watershed	1 - Kootenai		Watershed/County	Lincoln	
7. Evaluating Agency	CCI for MDT				
Purpose of Evaluation					
<input type="checkbox"/> Wetlands potentially affected by MDT project					
<input type="checkbox"/> Mitigation Wetlands: pre-construction					
<input checked="" type="checkbox"/> Mitigation Wetlands: post construction					
<input type="checkbox"/> Other					
8. Wetland size acres	22.54				
How assessed:	Measured e.g. by GPS				
9. Assessment area (AA) size (acres)	22.54				
How assessed:	Measured e.g. by GPS				

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland	Excavated	Permanent/Perennial	35
Depressional	Aquatic Bed	Excavated	Permanent/Perennial	10
Slope	Emergent Wetland		Seasonal/Intermittent	25
Slope	Emergent Wetland		Permanent/Perennial	30

11. Estimated Relative Abundance Common

12. General Condition of AA

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

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

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

AA includes excavated depressions and adjacent undisturbed wetland habitat created as a result of higher water table. Highway 2 which was under construction in 2019, is adjacent to the AA.

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

Cirsium arvense and Leucanthemum vulgare

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

AA includes constructed wetland depressions and adjacent wetland habitat that has been created by the plugging of existing ditches and channels, creation of a new stream channel and subsidence of the histosol soil elevations over time. The surrounding land is currently managed in a natural state. USFS land surrounds the majority of the site.

13. Structural Diversity: (based on number of "Cowardin" **vegetated** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises >=90% of total cover)	L	NA	NA	NA

Comments: Emergent and aquatic bed classes are present

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

Secondary habitat (list Species)

☒ D ☐ S

Grizzly bear

Incidental habitat (list species)

☐ D ☐ S

No usable habitat

☐ S

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
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use

USFWS database, MNHP database shows site is within year-round range of grizzly bear, reports from FWP, USFWS, and FS on use.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)

☒ D ☐ S

Western toad (S2)

Secondary habitat (list Species)

☐ D ☐ S

Incidental habitat (list species)

☐ D ☐ S

No usable habitat

☐ S

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 Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use

MTNHP and documented breeding on site by MDT and USFS personnel.

14C. General Wildlife Habitat Rating:

- i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Substantial

Substantial (based on any of the following [check]):

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

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

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

- ii. **Wildlife** habitat features (Working from top to bottom, 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: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
Low disturbance at AA (see #12)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

- iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)											
	Exceptional			High			Moderate			Low		
Substantial	1E			.9H			.8H			.7M		
Moderate	.9H			.7M			.5M			.3L		
Minimal	.6M			.4M			.2L			.1L		

Comments

Observed waterfowl and wildlife tracks.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check

- ☐ **NA** here and proceed to 14E.) Cold Water

- i. **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					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? ☐ Y ☒ N ☐ If yes, reduce score in i above by 0.1: **Modified Rating**

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? ☒ Y ☐ N If yes, add 0.1 to the adjusted score in i or iia above:

Modified Rating

iii. Final Score and Rating:

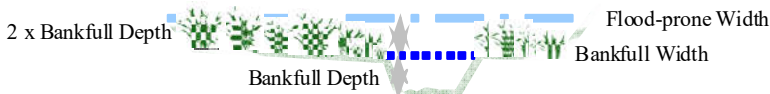
Comments: An upwelling area is located adjacent to Coyote Creek in the north 1/3 of the site. Pumpkinseed and brook trout observed by MDT and monitoring crews in open water in 2019 and previous years.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ NA here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

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



Floodprone width / Bankfull width = Entrenchment ratio

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

Comments: Highway adjacent to the site, minimal trees or shrubs present.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, click ☐ NA here and proceed to 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: Extensive areas of perennial inundation greater than 2 feet deep were observed in 2013-2020.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Wetlands adjacent to excavated cells are 100% vegetated with reed canarygrass and very minimal Carex spp. Depressions with no outlet.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation					
	Permanent / Perennial		Seasonal / Intermittent		Temporary / Ephemeral	
≥ 65%	1H		.9H		.7M	
35-64%	.7M		.6M		.5M	
< 35%	.3L		.2L		.1L	

Comments: Perennial hydrologic regime in estimated 75% of the AA. Species with high stability ratings are established on the perimeters of excavated areas.

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)					
	E/H		M		L	
E/H	H		H		M	
M	H		M		M	
L	M		M		L	
N/A	H		M		L	

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

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.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: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y ☒ N ☐ If yes, add 0.1 to the score in ii above and adjust rating accordingly: **Modified Rating** 1 E

Comments: High level of biological activity, veg component > 5 ac, perennial, has surface and subsurface outlets

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☒ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☒ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☒ Shallow water table and the site is saturated to the surface
- ☒ Other: large spring located near the middle of the AA

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: AA with perennial inundation/saturation to the surface.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance (#11)									
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: Structural diversity not expected to increase with present perennial water regime and high water depth (3ft). Shrub/tree diversity will not thrive in these conditions.

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 ☐ NA here and proceed to the overall summary and rating page)

ii. 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:

Known recreation site

General Site Notes

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	H	.8	1	18.03	<input type="checkbox"/>
B. MT Natural Heritage Program Species Habitat	H	.9	1	20.29	<input type="checkbox"/>
C. General Wildlife Habitat	H	.9	1	20.29	<input checked="" type="checkbox"/>
D. General Fish Habitat	M	.7	1	15.78	<input type="checkbox"/>
E. Flood Attenuation	M	.6	1	13.52	<input type="checkbox"/>
F. Short and Long Term Surface Water Storage	H	1	1	22.54	<input checked="" type="checkbox"/>
G. Sediment/Nutrient/Toxicant Removal	H	1	1	22.54	<input type="checkbox"/>
H. Sediment/Shoreline Stabilization	H	1	1	22.54	<input type="checkbox"/>
I. Production Export/Food Chain Support	E	1	1	22.54	<input checked="" type="checkbox"/>
J. Groundwater Discharge/Recharge	H	1	1	22.54	<input checked="" type="checkbox"/>
K. Uniqueness	L	.3	1	6.76	<input type="checkbox"/>
L. Recreation/Education Potential (bonus points)	H	.2	NA	4.51	<input type="checkbox"/>
Totals:		9.4	11	211.88	
Percent of Possible Score			85.45 %		

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
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MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Schrieber Meadows 2. MDT project# STPP STWD (756) Control# 9680000

3. Evaluation Date 7/16/2020 4. Evaluators R Quire, S Weyant, B Trudgeon 5. Wetland/Site# (s) Enhancement

6. Wetland Location(s): T 27N R 30W Sec1 11,12,13 T R Sec2

Approx Stationing or Mileposts Approximately Milepost 53.5

Watershed 1 - Kootenai Watershed/County Lincoln

7. Evaluating Agency CCI for MDT

8. Wetland size acres 13.22

Purpose of Evaluation

☐ Wetlands potentially affected by MDT project

☐ Mitigation Wetlands: pre-construction

☐ Mitigation Wetlands: post construction

☐ Other

9. Assessment area (AA) size (acres) 13.22

How assessed: Measured e.g. by GPS

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Slope	Emergent Wetland		Permanent/Perennial	60
Slope	Emergent Wetland		Seasonal/Intermittent	30

11. Estimated Relative Abundance Common

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

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

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

Disturbance due to recent road fill between the AA and Hwy 2

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

Cirsium arvense and Leucanthemum vulgare

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

AA includes existing wetlands located between stream mitigation area and US Hwy 2. The wetland is dominated by reed canarygrass and meadow foxtail. Restoration efforts have resulted in increased inundation. Adjacent land use is forest and the highway. Highway 2 under construction during summer of 2020.

13. Structural Diversity: (based on number of "Cowardin" **vegetated** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises >=90% of total cover)	L	NA	NA	NA

Comments: Emergent wetland dominated by primarily reed canary grass, with some cover from meadow foxtail and minimal cover from Carex spp.

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

Secondary habitat (list Species) ☒ D ☐ S

Incidental habitat (list species) ☐ D ☐ S

No usable habitat ☐ S

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
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use USFWS database, MNHP database shows site is within year-round range of grizzly bear, reports of use from FWP, USFS, and USFWS.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ☒ D ☐ S

Secondary habitat (list Species) ☐ D ☐ S

Incidental habitat (list species) ☐ D ☐ S

No usable habitat ☐ S

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 Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP and documented breeding on site by MDT and USFS personnel. Great Blue Heron (S3) observed on site.

14C. General Wildlife Habitat Rating:

- i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Substantial

Substantial (based on any of the following [check]):

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

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

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

- ii. **Wildlife** habitat features (Working from top to bottom, 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: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
Low disturbance at AA (see #12)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

- iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)											
	Exceptional			High			Moderate			Low		
Substantial	1E			.9H			.8H			.7M		
Moderate	.9H			.7M			.5M			.3L		
Minimal	.6M			.4M			.2L			.1L		

Comments

Substantial wildlife use within the AA; however there is moderate traffic use during the day adjacent to the site on the northeast side.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check

- ☐ **NA** here and proceed to 14E.) Cold Water

- i. **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					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? Y ☐ N ☒ If yes, reduce score in i above by 0.1: **Modified Rating** .3L

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? ☐ Y ☒ N If yes, add 0.1 to the adjusted score in i or iia above:

Modified Rating .3L

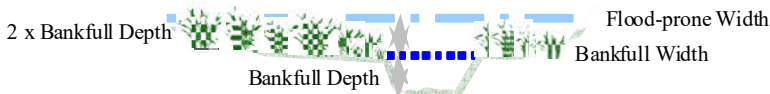
iii. **Final Score and Rating:** .3L **Comments:** Minimal fish habitat present, no fish have been observed in AA.

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ NA here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

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



Floodprone width 35 / Bankfull width 5 = Entrenchment ratio 7

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

Comments: AA inundated from restricted outlet, minimal trees or shrubs present.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, click ☐ NA here and proceed to 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: AA includes constructed wetland depressions and adjacent wetland habitat that has been created by inundation from restoration efforts. These efforts include plugging of existing ditches and channels and creation of a new stream channel.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: AA nearly 100% vegetated with reed canarygrass, presence of flooding/ponding, restricted outlet.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation					
	Permanent / Perennial		Seasonal / Intermittent		Temporary / Ephemeral	
≥ 65%	1H		.9H		.7M	
35-64%	.7M		.6M		.5M	
< 35%	.3L		.2L		.1L	

Open water areas subject to wave action, well vegetated with near monoculture of 7ft tall reed canarygrass

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)					
	E/H		M		L	
E/H	H		H		M	
M	H		M		M	
L	M		M		L	
N/A	H		M		L	

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

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.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: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y ☒ N ☐ If yes, add 0.1 to the score in ii above and adjust rating accordingly: **Modified Rating** .9H

Comments: Low fish habitat rating, vegetation component >5 ac, moderate biological activity, perennial hydrology with restricted outlet

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

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

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: AA with shallow water table and surface water

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: AA with common relative abundance and moderate disturbance due to adjacent road.

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 ☐ **NA** here and proceed to the overall summary and rating page)

ii. 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:

Known recreation at site.

General Site Notes

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	H	.8	1	10.58	<input checked="" type="checkbox"/>
B. MT Natural Heritage Program Species Habitat	H	.9	1	11.90	<input type="checkbox"/>
C. General Wildlife Habitat	H	.9	1	11.90	<input type="checkbox"/>
D. General Fish Habitat	L	.3	0	3.97	<input type="checkbox"/>
E. Flood Attenuation	M	.6	1	7.93	<input type="checkbox"/>
F. Short and Long Term Surface Water Storage	H	1	1	13.22	<input checked="" type="checkbox"/>
G. Sediment/Nutrient/Toxicant Removal	H	1	1	13.22	<input checked="" type="checkbox"/>
H. Sediment/Shoreline Stabilization	H	1	1	13.22	<input type="checkbox"/>
I. Production Export/Food Chain Support	H	.9	1	11.90	<input checked="" type="checkbox"/>
J. Groundwater Discharge/Recharge	H	1	1	13.22	<input type="checkbox"/>
K. Uniqueness	L	.3	1	3.97	<input type="checkbox"/>
L. Recreation/Education Potential (bonus points)	H	.2	NA	2.64	<input type="checkbox"/>
Totals:		8.9	10	117.66	
Percent of Possible Score			89 %		

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
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MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Schrieber Meadows	2. MDT project#	STPP STWD (756)	Control#	9680000
3. Evaluation Date	7/16/2020	4. Evaluators	R Quire, S Weyant, B Trudgeon		
5. Wetland/Site# (s)	Restoration				
6. Wetland Location(s):	T	27N	R	30W	Sec1 11,12,13
					T
Approx Stationing or Mileposts	Approximately Milepost 53.5				
Watershed	1 - Kootenai		Watershed/County	Lincoln	
7. Evaluating Agency	CCI for MDT				
Purpose of Evaluation					
<input type="checkbox"/> Wetlands potentially affected by MDT project					
<input type="checkbox"/> Mitigation Wetlands: pre-construction					
<input checked="" type="checkbox"/> Mitigation Wetlands: post construction					
<input type="checkbox"/> Other					
8. Wetland size acres	3.46				
How assessed:	Measured e.g. by GPS				
9. Assessment area (AA) size (acres)	3.46				
How assessed:	Measured e.g. by GPS				

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Aquatic Bed	Excavated	Permanent/Perennial	35
Depressional	Emergent Wetland	Excavated	Seasonal/Intermittent	30
Depressional	Emergent Wetland	Excavated	Permanent/Perennial	35

11. Estimated Relative Abundance Common

12. General Condition of AA

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

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

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

The adjacent Creation AA encompasses the excavated depressions constructed in 2007 and 2011. Highway 2, under construction in 2019, is close to the AA.

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

Cirsium arvense, Leucanthemum vulgare, isolated Hieracium aurantiacum

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

The AA includes pre-existing wetlands identified within the project area that were modified by excavation to increase the groundwater availability and provide a greater diversity of wetland habitat and hydrophytes.

13. Structural Diversity: (based on number of "Cowardin" **vegetated** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises >=90% of total cover)	L	NA	NA	NA

Comments: Emergent and 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

Secondary habitat (list Species)

☒ D ☐ S

Grizzly bear

Incidental habitat (list species)

☐ D ☐ S

No usable habitat

☐ S

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
Functional Points and Rating	1H	.9H	.8H	.7M	.3L	.1L	0L

Sources for documented use

USFWS database, MNHP database shows site is within year-round range of grizzly bear, reports of use from FWP, USFS, and USFWS.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species)

☒ D ☐ S

Western toad (S2)

Secondary habitat (list Species)

☐ D ☐ S

Incidental habitat (list species)

☐ D ☐ S

No usable habitat

☐ S

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 Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use

MTNHP and documented breeding on site by MDT and USFS personnel

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (check substantial, moderate, or low based on supporting evidence):

Substantial

Substantial (based on any of the following [check]):

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

Minimal (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

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

ii. **Wildlife** habitat features (Working from top to bottom, 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: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
Low disturbance at AA (see #12)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] the functional points and rating)

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)											
	Exceptional			High			Moderate			Low		
Substantial		1E			.9H			.8H			.7M	
Moderate		.9H			.7M			.5M			.3L	
Minimal		.6M			.4M			.2L			.1L	

Comments: Good habitat diversity with substantial wildlife evidence.

14D. **General Fish Habitat Rating:** (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then check

☒ **NA** here and proceed to 14E.)

i. 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					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

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

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see **Appendix E**) occur in fish habitat? Y ☐ N ☒ If yes, reduce score in i above by 0.1: **Modified Rating**

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? ☐ Y ☒ N If yes, add 0.1 to the adjusted score in i or iia above:

Modified Rating

iii. Final Score and Rating:

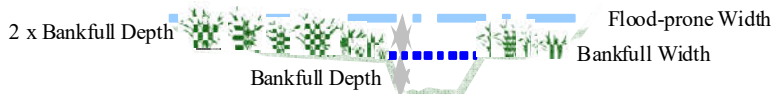
Comments: No fish habitat identified within restoration AA

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, click ☐ NA here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

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



Floodprone width / Bankfull width = Entrenchment ratio

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

Comments:

All wetland cells subject to flooding from Coyote Creek.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, click ☐ NA here and proceed to 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: AA with evidence of frequent flooding.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, click ☐ **NA** here and proceed to 14H.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: AA receives periodic overflow from Coyote Creek

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, click ☐ **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation					
	Permanent / Perennial		Seasonal / Intermittent		Temporary / Ephemeral	
≥ 65%	1H		.9H		.7M	
35-64%	.7M		.6M		.5M	
< 35%	.3L		.2L		.1L	

Vegetation has filled in around excavated areas

Comments:

14I. Production Export/Food Chain Support:

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [check])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)					
	E/H		M		L	
E/H	H		H		M	
M	H		M		M	
L	M		M		L	
N/A	H		M		L	

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

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.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: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y ☒ N ☐ If yes, add 0.1 to the score in ii above and adjust rating accordingly: **Modified Rating** 1 E

Comments: No fish habitat, high biological activity, well-vegetated buffer, unrestricted outlet to creek.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)**i. Discharge Indicators**

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

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments:

14K. Uniqueness:**i. Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance (#11)									
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments:

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 ☐ NA (if 'Yes' continue with the evaluation; if 'No' then click ☐ NA here and proceed to the overall summary and rating page)

ii. 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:

General Site Notes

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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	H	.8	1	2.77	<input type="checkbox"/>
B. MT Natural Heritage Program Species Habitat	H	.9	1	3.11	<input type="checkbox"/>
C. General Wildlife Habitat	E	1	1	3.46	<input checked="" type="checkbox"/>
D. General Fish Habitat	NA	0	0	0.00	<input type="checkbox"/>
E. Flood Attenuation	M	.5	1	1.73	<input type="checkbox"/>
F. Short and Long Term Surface Water Storage	H	.8	1	2.77	<input type="checkbox"/>
G. Sediment/Nutrient/Toxicant Removal	M	.6	1	2.08	<input type="checkbox"/>
H. Sediment/Shoreline Stabilization	H	1	1	3.46	<input checked="" type="checkbox"/>
I. Production Export/Food Chain Support	E	1	1	3.46	<input checked="" type="checkbox"/>
J. Groundwater Discharge/Recharge	H	1	1	3.46	<input checked="" type="checkbox"/>
K. Uniqueness	M	.4	1	1.38	<input type="checkbox"/>
L. Recreation/Education Potential (bonus points)	H	.2	NA	0.69	<input type="checkbox"/>
Totals:		8.2	10	28.37	
Percent of Possible Score			82 %		

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
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Schrieber Meadows Wetland Mitigation Site – 2015 – 2020 Vegetation Species List

Scientific Names	Common Names	WMVC Indicator Status^(a)
<i>Achillea millefolium</i>	Common Yarrow	FACU
<i>Achnatherum nelsonii</i>	Nelson's Rice Grass	UPL
<i>Agastache urticifolia</i>	Nettle-Leaf Giant-Hyssop	FACU
<i>Agropyron cristatum</i>	Crested Wheatgrass	UPL
<i>Agropyron</i> sp.	Wheatgrass	N/A
<i>Agrostis capillaris</i>	Colonial Bent	FAC
<i>Agrostis gigantea</i>	Black Bent	FAC
<i>Agrostis scabra</i>	Rough Bent	FAC
<i>Agrostis stolonifera</i>	Spreading Bent	FACW
Algae, brown	Algae, brown	N/A
Algae, green	Algae, green	N/A
<i>Alisma triviale</i>	Northern Water-Plantain	OBL
<i>Alnus incana</i>	Speckled Alder	FACW
<i>Alopecurus aequalis</i>	Short-Awn Meadow-Foxtail	OBL
<i>Alopecurus arundinaceus</i>	Creeping Meadow-Foxtail	FAC
<i>Alopecurus pratensis</i>	Field Meadow-Foxtail	FAC
<i>Arctium minus</i>	Lesser Burdock	UPL
<i>Arnica chamissonis</i>	Leafy Leopardbane	FACW
<i>Aster</i> sp.	Aster	N/A
<i>Beckmannia syzigachne</i>	American Slough Grass	OBL
<i>Bromus carinatus</i>	California Brome	UPL
<i>Bromus inermis</i>	Smooth Brome	FAC
<i>Carex aquatilis</i>	Leafy Tussock Sedge	OBL
<i>Carex athrostachya</i>	Slender-Beak Sedge	FACW
<i>Carex bebbii</i>	Bebb's Sedge	OBL
<i>Carex lasiocarpa</i>	Woolly-Fruit Sedge	OBL
<i>Carex microptera</i>	Small-Wing Sedge	FACU
<i>Carex nebrascensis</i>	Nebraska Sedge	OBL
<i>Carex pachystachya</i>	Thick-Head Sedge	FAC
<i>Carex pellita</i>	Woolly Sedge	OBL
<i>Carex scoparia</i>	Pointed Broom Sedge	FACW
<i>Carex</i> sp.	Sedge	N/A
<i>Carex stipata</i>	Stalk-Grain Sedge	OBL
<i>Carex utriculata</i>	Northwest Territory Sedge	OBL
<i>Centaurea stoebe</i>	Spotted Knapweed	UPL
<i>Cerastium arvense</i>	Field Mouse-Ear Chickweed	FACU
<i>Cerastium fontanum</i>	Common Mouse-Ear Chickweed	FACU
<i>Ceratophyllum demersum</i>	Coon's-Tail	OBL

Schrieber Meadows Wetland Mitigation Site – 2015 – 2020 Vegetation Species List

Scientific Names	Common Names	WMVC Indicator Status^(a)
<i>Chara</i> sp.	Muskgrass	N/A
<i>Cirsium arvense</i>	Canadian Thistle	FAC
<i>Cirsium vulgare</i>	Bull Thistle	FACU
<i>Collomia linearis</i>	Narrow-Leaf Mountain-Trumpet	FACU
<i>Cynoglossum officinale</i>	Gypsy-Flower	FACU
<i>Deschampsia cespitosa</i>	Tufted Hairgrass	FACW
<i>Eleocharis flavescens</i>	Yellow Spike-Rush	OBL
<i>Eleocharis palustris</i>	Common Spike-Rush	OBL
<i>Eleocharis quinqueflora</i>	Few-Flower Spike-Rush	OBL
<i>Elymus repens</i>	Creeping Wild Rye	FAC
<i>Elymus trachycaulus</i>	Slender Wild Rye	FAC
<i>Epilobium ciliatum</i>	Fringed Willowherb	FACW
<i>Epilobium</i> sp.	Willowherb	N/A
<i>Equisetum arvense</i>	Field Horsetail	FAC
<i>Equisetum hyemale</i>	Tall Scouring-Rush	FACW
<i>Erysimum cheiranthoides</i>	Worm-Seed Wallflower	FACU
<i>Festuca</i> sp.	Fescue	N/A
<i>Fragaria virginiana</i>	Virginia Strawberry	FACU
<i>Galium mexicanum</i>	Mexican Bedstraw	FAC
<i>Galium trifidum</i>	Three-Petal Bedstraw	FACW
<i>Geum macrophyllum</i>	Large-Leaf Avens	FAC
<i>Glyceria elata</i>	Tall Manna Grass	FACW
<i>Glyceria grandis</i>	American Manna Grass	OBL
<i>Glyceria</i> sp.	Manna Grass	N/A
<i>Glyceria striata</i>	Fowl Manna Grass	OBL
<i>Gnaphalium palustre</i>	Western Marsh Cudweed	FACW
<i>Hieracium aurantiacum</i>	Orange Hawkweed	UPL
<i>Hippuris vulgaris</i>	Common Mare's-Tail	OBL
<i>Juncus articulatus</i>	Joint-Leaf Rush	OBL
<i>Juncus bufonius</i>	Toad Rush	FACW
<i>Juncus confusus</i>	Colorado Rush	FAC
<i>Juncus ensifolius</i>	Dagger-Leaf Rush	FACW
<i>Juncus nodosus</i>	Knotted Rush	OBL
<i>Juncus tenuis</i>	Lesser Poverty Rush	FAC
<i>Lemna minor</i>	Common Duckweed	OBL
<i>Lepidium</i> sp.	Pepperwort	N/A
<i>Leucanthemum vulgare</i>	Ox-Eye Daisy	FACU
<i>Marsilea vestita</i>	Hairy Water-Clover	OBL

Schrieber Meadows Wetland Mitigation Site – 2015 – 2020 Vegetation Species List

Scientific Names	Common Names	WMVC Indicator Status^(a)
<i>Matricaria discoidea</i>	Pineapple-Weed	FACU
<i>Medicago lupulina</i>	Black Medick	FACU
<i>Mentha arvensis</i>	American Wild Mint	FACW
<i>Mimulus guttatus</i>	Seep Monkey-Flower	OBL
<i>Pascopyrum smithii</i>	Western-Wheat Grass	FACU
<i>Pedicularis groenlandica</i>	Bull Elephant-Head	OBL
<i>Peritoma serrulata</i>	Rocky Mountain Bee Plant	FACU
<i>Persicaria amphibia</i>	Water Smartweed	OBL
<i>Persicaria lapathifolia</i>	Dock-Leaf Smartweed	FACW
<i>Persicaria maculosa</i>	Spotted Lady's-Thumb	FACW
<i>Phalaris arundinacea</i>	Reed Canary Grass	FACW
<i>Phleum pratense</i>	Common Timothy	FACU
<i>Pinus contorta</i>	Lodgepole Pine	FAC
<i>Pinus ponderosa</i>	Ponderosa Pine	FACU
<i>Plantago major</i>	Great Plantain	FAC
<i>Poa palustris</i>	Fowl Blue Grass	FAC
<i>Poa pratensis</i>	Kentucky Blue Grass	FAC
<i>Poa</i> sp.	Blue Grass	N/A
<i>Polygonum douglasii</i>	Douglas' Knotweed	FACU
<i>Polypogon monspeliensis</i>	Annual Rabbit's-Foot Grass	FACW
<i>Populus balsamifera</i>	Balsam Poplar	FAC
<i>Potamogeton foliosus</i>	Leafy Pondweed	OBL
<i>Potamogeton natans</i>	Broad-Leaf Pondweed	OBL
<i>Potentilla gracilis</i>	Graceful Cinquefoil	FAC
<i>Potentilla norvegica</i>	Norwegian Cinquefoil	FAC
<i>Prunella vulgaris</i>	Common Selfheal	FACU
<i>Pseudotsuga menziesii</i>	Douglas-Fir	FACU
<i>Ranunculus aquatilis</i>	Whitewater Crowfoot	OBL
<i>Ranunculus sceleratus</i>	Cursed Buttercup	OBL
<i>Rosa woodsii</i>	Woods' Rose	FACU
<i>Rumex acetosella</i>	Common Sheep Sorrel	FACU
<i>Rumex crispus</i>	Curly Dock	FAC
<i>Salix bebbiana</i>	Gray Willow	FACW
<i>Salix candida</i>	Sage Willow	OBL
<i>Salix drummondiana</i>	Drummond's Willow	FACW
<i>Scirpus cyperinus</i>	Cottongrass Bulrush	OBL
<i>Scirpus microcarpus</i>	Red-Tinge Bulrush	OBL
<i>Senecio hydrophiloides</i>	Stout Meadow Ragwort	FACW

Schrieber Meadows Wetland Mitigation Site – 2015 – 2020 Vegetation Species List

Scientific Names	Common Names	WMVC Indicator Status ^(a)
<i>Sisymbrium altissimum</i>	Tall Hedge-Mustard	FACU
<i>Solidago canadensis</i>	Canadian Goldenrod	FACU
<i>Sparganium emersum</i>	European Burr-Reed	OBL
<i>Sparganium natans</i>	Arctic Burr-Reed	OBL
<i>Spiranthes romanzoffiana</i>	Hooded Ladies'-Tresses	FACW
<i>Stuckenia pectinata</i>	Sago False Pondweed	OBL
<i>Suaeda calceoliformis</i>	Paiuteweed	FACW
<i>Symphoricarpos albus</i>	Common Snowberry	FACU
<i>Symphyotrichum spathulatum</i>	Mountain American-Aster	FAC
<i>Taraxacum officinale</i>	Common Dandelion	FACU
<i>Thlaspi arvense</i>	Field Pennycress	UPL
<i>Trifolium arvense</i>	Rabbit-foot Clover	UPL
<i>Trifolium hybridum</i>	Alsike Clover	FAC
<i>Trifolium pratense</i>	Red Clover	FACU
<i>Trifolium repens</i>	White Clover	FAC
<i>Triglochin maritima</i>	Seaside Arrow-Grass	OBL
<i>Typha latifolia</i>	Broad-Leaf Cat-Tail	OBL
<i>Verbascum thapsus</i>	Great Mullein	FACU
<i>Veronica americana</i>	American-Brooklime	OBL
<i>Veronica anagallis-aquatica</i>	Blue Water Speedwell	OBL
<i>Veronica peregrina</i>	Neckweed	OBL
<i>Veronica serpyllifolia</i>	Thyme-Leaf Speedwell	FAC

¹ 2018 NWPL (USACE 2018)

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

APPENDIX C

PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Schrieber Meadows
Lincoln County, Montana

Schrieber Meadows: Photo Point Photographs



Photo Point 1 – Panorama; Location: SW Corner of site; Bearing 270 degrees; Year 2012



Photo Point 1 – Panorama; Location: SW Corner of site; Bearing 270 degrees; Year 2020



Photo Point 3; Location: Cell 2 (Constructed in 2007); Bearing 90 degrees; Year 2010



Photo Point 3; Location: Cell 2 (Constructed in 2007); Bearing 90 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 4; Location: Cell 2 (Constructed in 2007); Bearing 180 degrees; Year 2010



Photo Point 4; Location: Cell 2 (Constructed in 2007); Bearing 180 degrees; Year 2020



Photo Point 5; Location: Cell 2 (Constructed in 2007); Bearing 300 degrees; Year 2010



Photo Point 5; Location: Cell 2 (Constructed in 2007); Bearing 300 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 6; Location: Cell 2 (Constructed in 2007); Bearing 40 degrees; Year 2010



Photo Point 6; Location: Cell 2 (Constructed in 2007); Bearing 40 degrees; Year 2020



Photo Point 7; Location: Lower Reach of merged Coyote/Schrieber Creek; Bearing 0 degrees; Year 2012



Photo Point 7; Location: Lower Reach of merged Coyote/Schrieber Creek; Bearing 0 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 10; Location: Cell 3; Bearing 0 degrees; Year 2010



Photo Point 10; Location: Cell 3; Bearing 0 degrees; Year 2020



Photo Point 11; Location: Cell 2B; Bearing 190 degrees; Year 2012



Photo Point 11; Location: Cell 2B; Bearing 190 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 12; Location: Cell 1 (Constructed in 2011); Bearing 180 degrees; Year 2012



Photo Point 12; Location: Cell 1 (Constructed in 2011); Bearing 180 degrees; Year 2020



Photo Point 13; Cell 3A (Constructed in 2011); Bearing 280 degrees; Year 2012



Photo Point 13; Cell 3A (Constructed in 2011); Bearing 280 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 14; Location: Cell 4C (Constructed in 2011); Bearing 230 degrees; Year 2012



Photo Point 14; Location: Cell 4C (Constructed in 2011); Bearing 230 degrees; Year 2020



Photo Point 15; Location: Cell 5A (Constructed in 2011); Bearing 180 degrees; Year 2012



Photo Point 15; Location: Cell 5A (Constructed in 2011); Bearing 180 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 16; Cell 6 (Constructed in 2011); Bearing 70 degrees; Year 2012

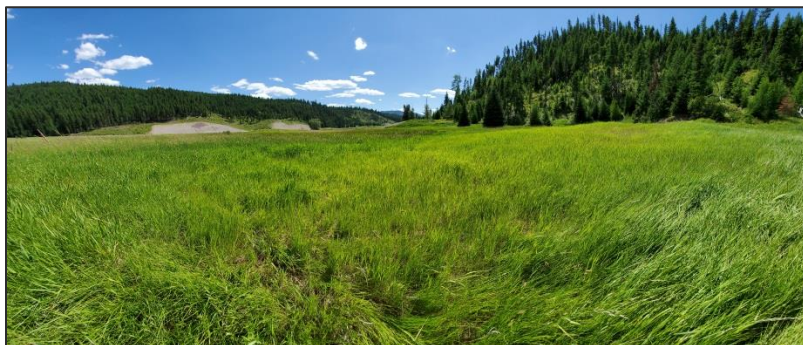


Photo Point 16; Cell 6 (Constructed in 2011); Bearing 70 degrees; Year 2020



Photo Point 17; Location: Cell 6 (Constructed in 2011); Bearing 270 degrees; Year 2012



Photo Point 17; Location: Cell 6 (Constructed in 2011); Bearing 270 degrees; Year 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 2 **Location:** Cell 7 (Created in 2007)
Bearing: 150 degrees **Year:** 2010



Photo Point 2 **Location:** Cell 7 (Created in 2007)
Bearing: 150 degrees **Year:** 2020



Photo Point 8 **Location:** Cell 3 (Constructed in 2007)
Bearing: 190 degrees **Year:** 2010



Photo Point 8 **Location:** Cell 3 (Constructed in 2007)
Bearing: 190 degrees **Year:** 2020



Photo Point 9 **Location:** Cell 3
Bearing: 280 degrees **Year:** 2010



Photo Point 9 **Location:** Cell 3
Bearing: 280 degrees **Year:** 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 16
Bearing: 290 degrees

Location: Cell 5A
Year: 2010



Photo Point 16
Bearing: 290 degrees

Location: Cell 5A
Year: 2020



Photo Point 18
Bearing: 90 degrees

Location: Cell 3 (Constructed 2007)
Year: 2012



Photo Point 18
Bearing: 90 degrees

Location: Cell 3 (Constructed 2007)
Year: 2020



Photo Point 19
Bearing: 10 degrees

Location: West Boundary
Year: 2012



Photo Point 19
Bearing: 10 degrees

Location: West Boundary
Year: 2020

Schrieber Meadows: Photo Point Photographs



Photo Point 19
Bearing: 100 degrees

Location: West Boundary
Year: 2012

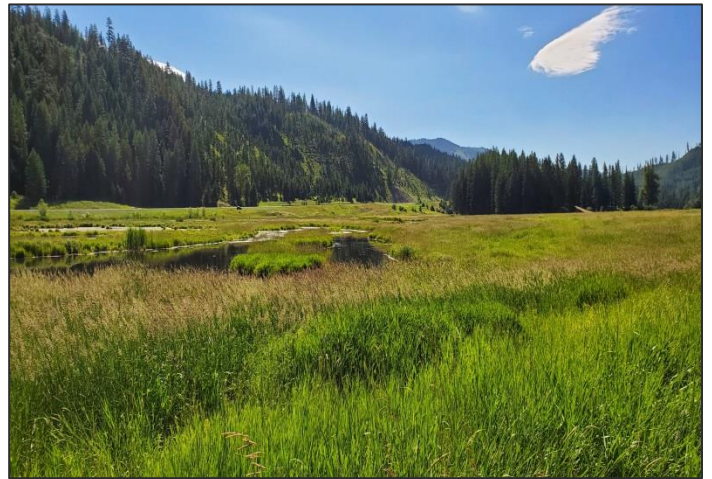


Photo Point 19
Bearing: 100 degrees

Location: West Boundary
Year: 2020



Photo Point 20
Bearing: 100 degrees

Location: Schrieber Creek
Year: 2012



Photo Point 20
Bearing: 100 degrees

Location: Schrieber Creek
Year: 2020

Schrieber Meadows: Vegetation Transect Photographs



Transect 1: Start **Location: T-1**
Bearing: 115 degrees **Year: 2010**



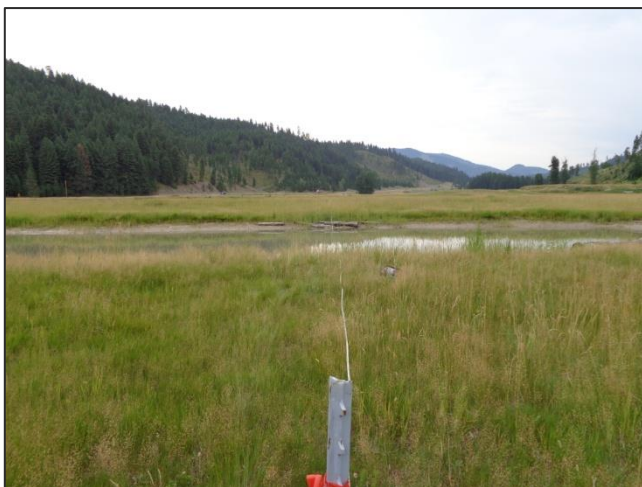
Transect 1: Start **Location: T-1**
Bearing: 115 degrees **Year: 2020**



Transect 1: End **Location: T-1**
Bearing: 295 degrees **Year: 2010**



Transect 1: End **Location: T-1**
Bearing: 295 degrees **Year: 2020**



Transect 2: Start **Location: T-2**
Bearing: 100 degrees **Year: 2013**



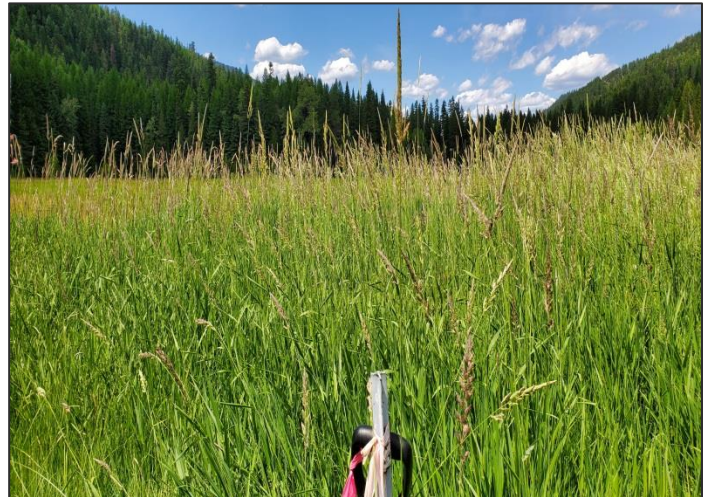
Transect 2: Start **Location: T-2**
Bearing: 100 degrees **Year: 2020**

Schrieber Meadows: Vegetation Transect Photographs



Transect 2: End
Bearing 280: degrees

Location: T-2
Year: 2013



Transect 2: End
Bearing 280: degrees

Location: T-2
Year: 2020



Transect 3: Start
Bearing: 45 degrees

Location: T-3
Year: 2012



Transect 3: Start
Bearing: 45 degrees

Location: T-3
Year: 2020



Transect 3: End
Bearing: 225 degrees

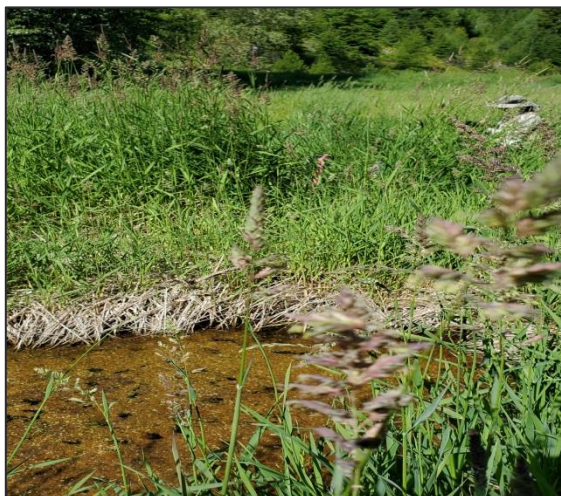
Location: T-3
Year: 2012



Transect 3: End
Bearing: 225 degrees

Location: T-3
Year: 2020

Schrieber Meadows: Data Point Photographs



Data Point: DP01w
Year: 2020

Location: Veg Com 3



Data Point: DP01u
Year: 2020

Location: Vg Com 9



Data Point: DP02w
Year: 2020

Location: Veg Com 3



Data Point: DP02u
Year: 2020

Location: Vg Com 9

Schrieber Meadows: Cross-Section Photographs



Cross-Section: XS-1
Bearing: 280 degrees

Location: Upper Coyote Creek
Year: 2012



Cross-Section: XS-1
Bearing: 280 degrees

Location: Upper Coyote Creek
Year: 2020



Cross-Section: XS-2
Bearing: 320 degrees

Location: Upper Coyote Creek
Year: 2012



Cross-Section: XS-2
Bearing: 320 degrees

Location: Upper Coyote Creek
Year: 2020



Cross-Section: XS-3 **Location: Coyote Creek Spring Area**
Bearing: 320 degrees **Year: 2012**



Cross-Section: XS-3 **Location: Coyote Creek Spring Area**
Bearing: 320 degrees **Year: 2020**

Schrieber Meadows: Cross-Section Photographs



Cross-Section: XS-4
Bearing: 290 degrees

Location: Middle Coyote Creek
Year: 2012



Cross-Section: XS-4
Bearing: 290 degrees

Location: Middle Coyote Creek
Year: 2020



Cross-Section: XS-5
Bearing: 150 degrees

Location: Middle Coyote Creek
Year: 2012



Cross-Section: XS-5
Bearing: 150 degrees

Location: Middle Coyote Creek
Year: 2020



Cross-Section: XS-6
Bearing: 90 degrees

Location: Perennial Spring Creek
Year: 2012



Cross-Section: XS-6
Bearing: 90 degrees

Location: Perennial Spring Creek
Year: 2020

Schrieber Meadows: Cross-Section Photographs



Cross-Section: XS-7
Bearing: 90 degrees

Location: Middle Coyote Creek
Year: 2012



Cross-Section: XS-7
Bearing: 220 degrees

Location: Middle Coyote Creek
Year: 2020



Cross-Section: XS-8
Bearing: 170 degrees

Location: Middle Coyote Creek
Year: 2012



Cross-Section: XS-8
Bearing: 170 degrees

Location: Middle Coyote Creek
Year: 2020



Cross-Section: XS-9 **Location: Coyote/Schrieber Creeks**
Bearing: 130 degrees **Year: 2012**



Cross-Section: XS-9 **Location: Coyote/Schrieber Creeks**
Bearing: 130 degrees **Year: 2020**

Schrieber Meadows: Cross-Section Photographs



Cross-Section: XS-10 Location: Coyote/Schrieber Creeks
Bearing: 140 degrees **Year:** 2012



Cross-Section: XS-10 Location: Coyote/Schrieber Creeks
Bearing: 270 degrees **Year:** 2020



Cross-Section: XS-11 Location: Coyote/Schrieber Creeks
Bearing: 100 degrees **Year:** 2012



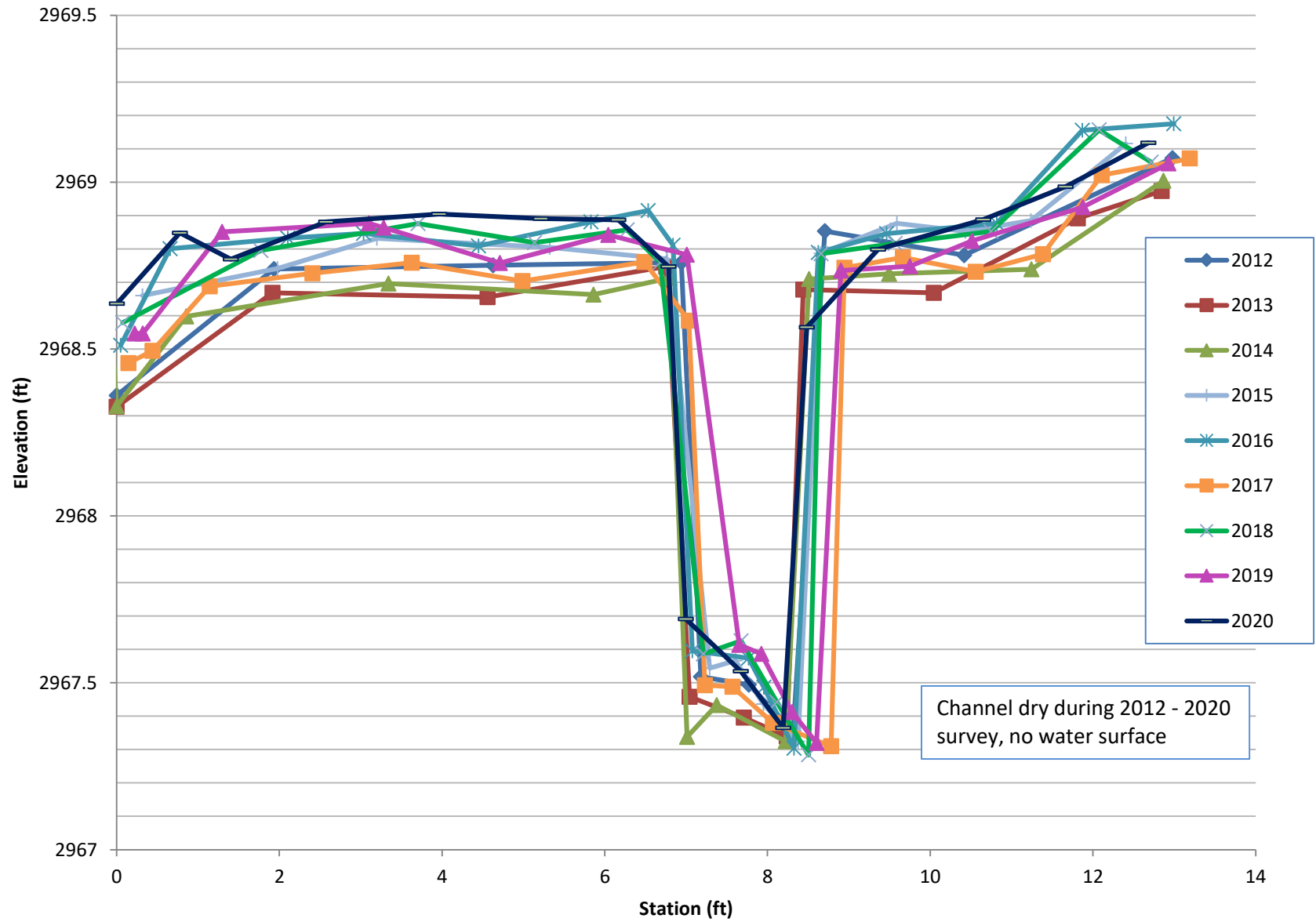
Cross-Section: XS-11 Location: Coyote/Schrieber Creeks
Bearing: 100 degrees **Year:** 2020

APPENDIX D

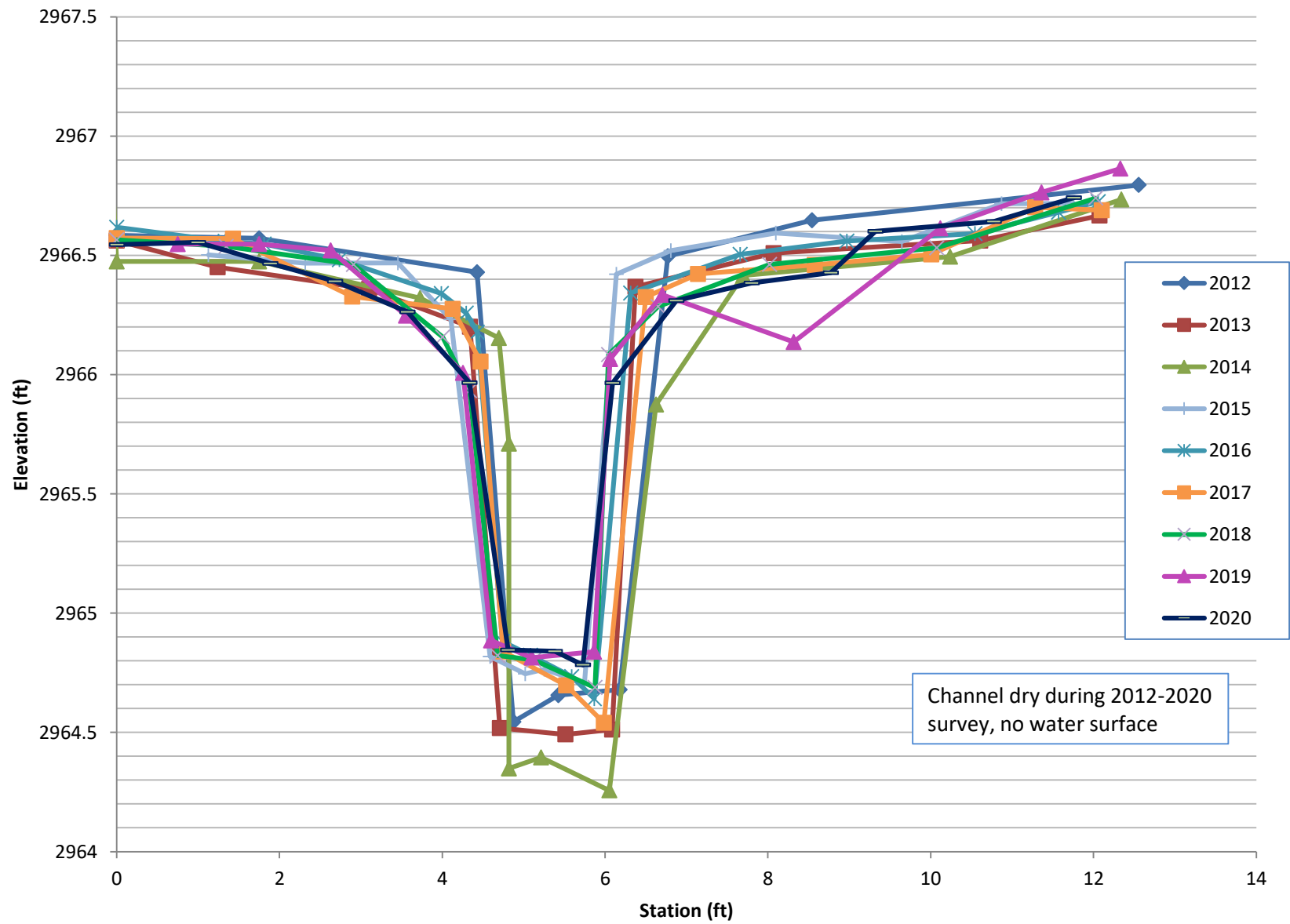
Surveyed Stream Cross Sections

MDT Wetland Mitigation Monitoring
Schrieber Meadows
Lincoln County, Montana

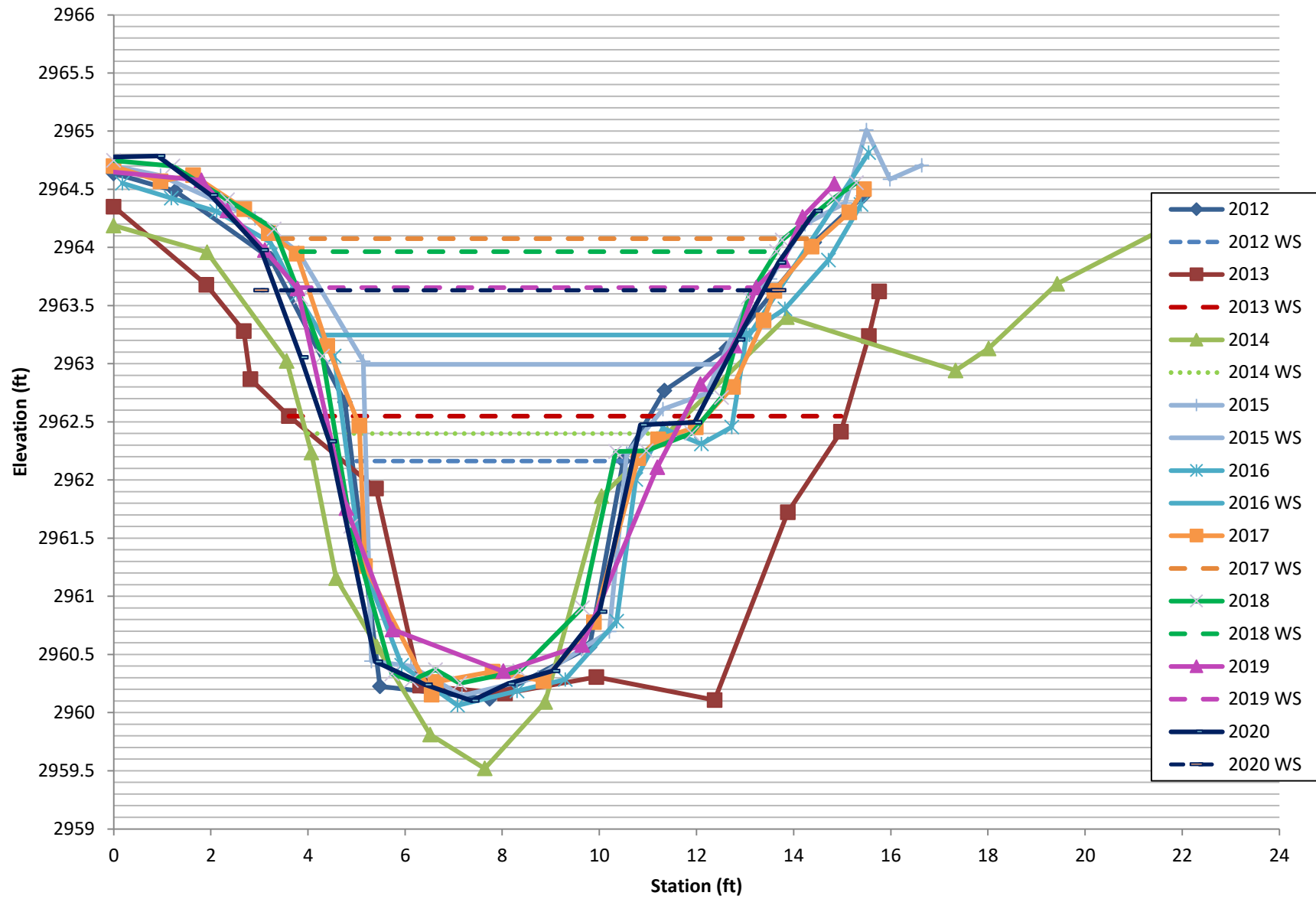
XS 1



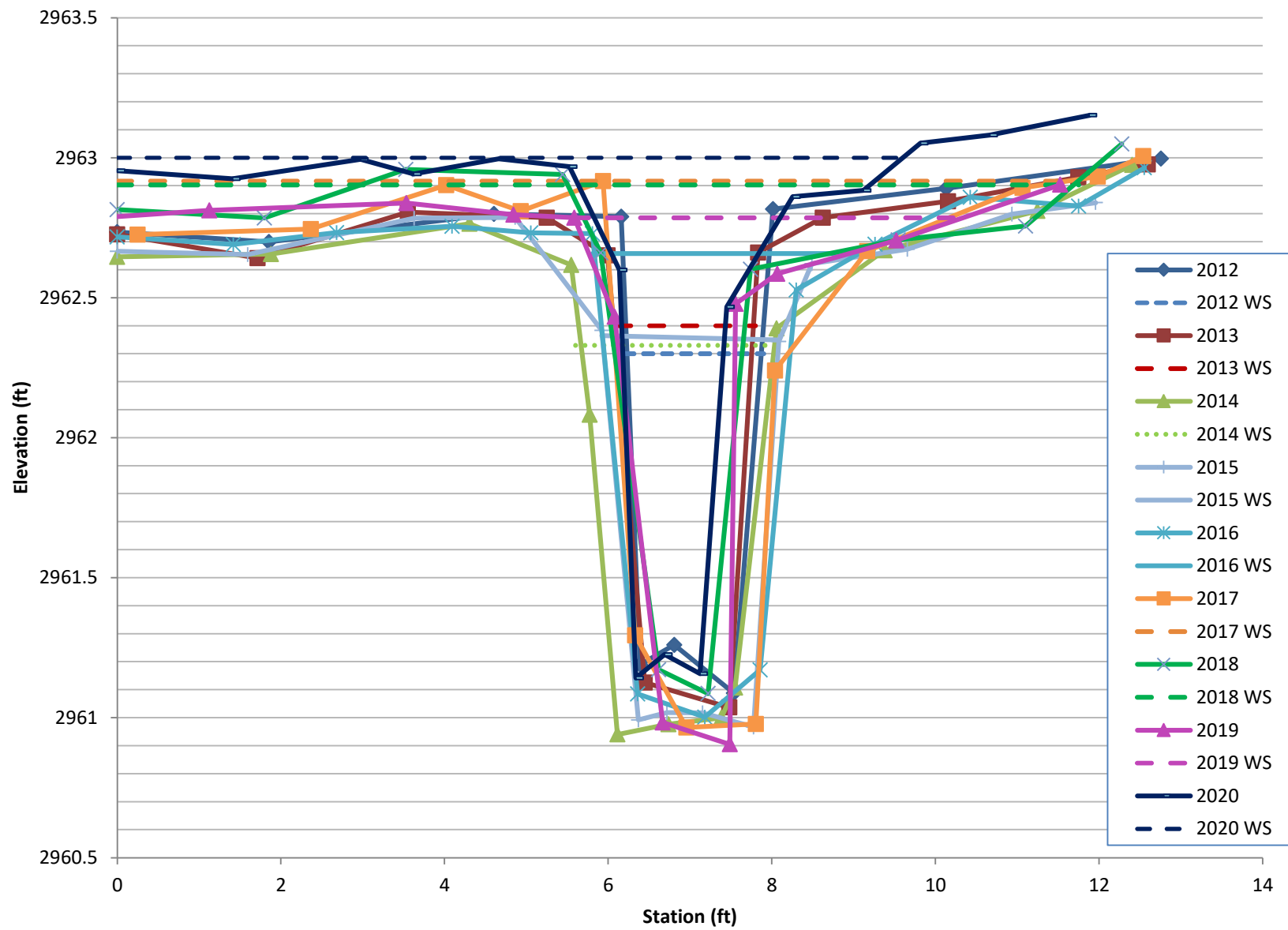
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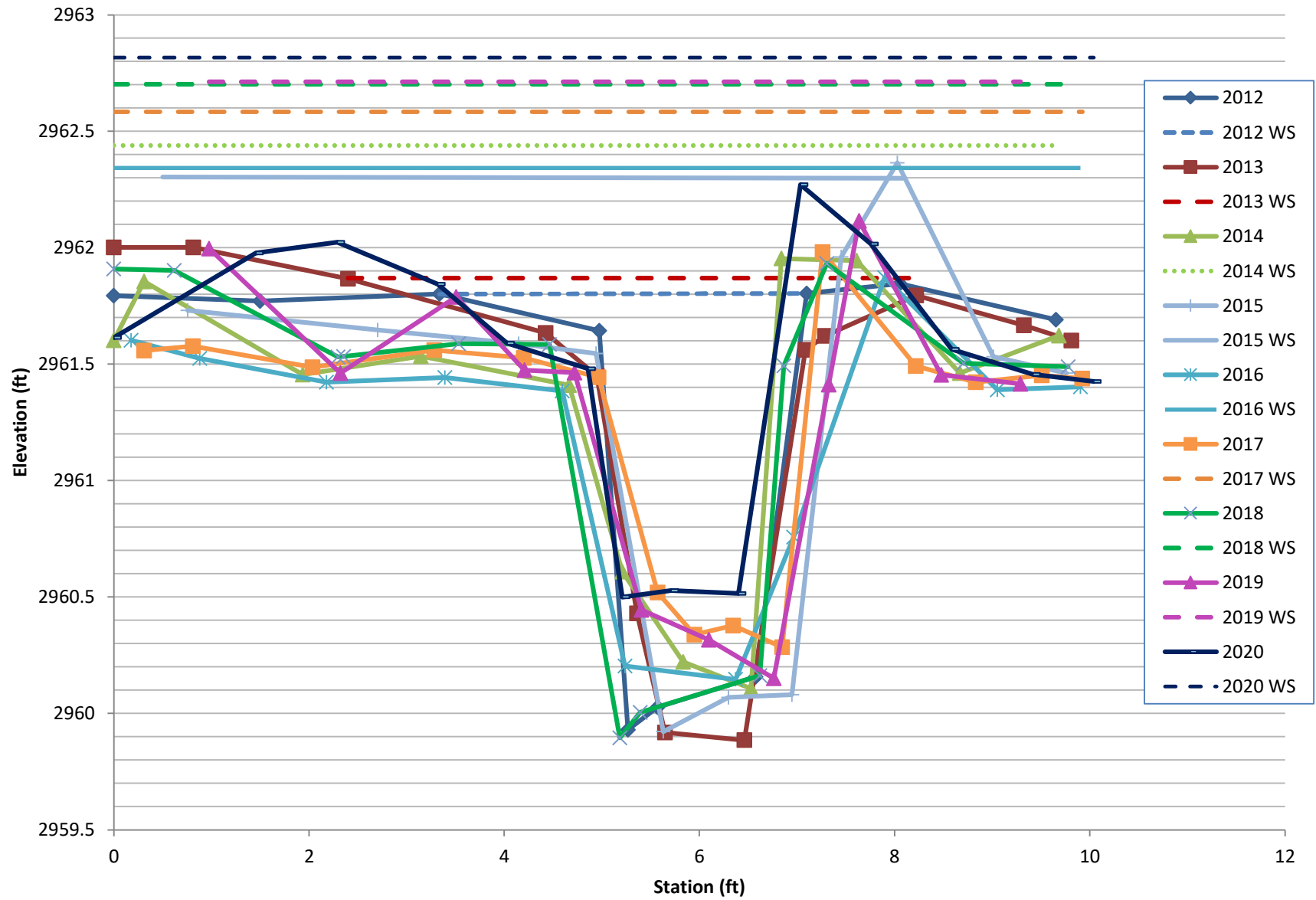
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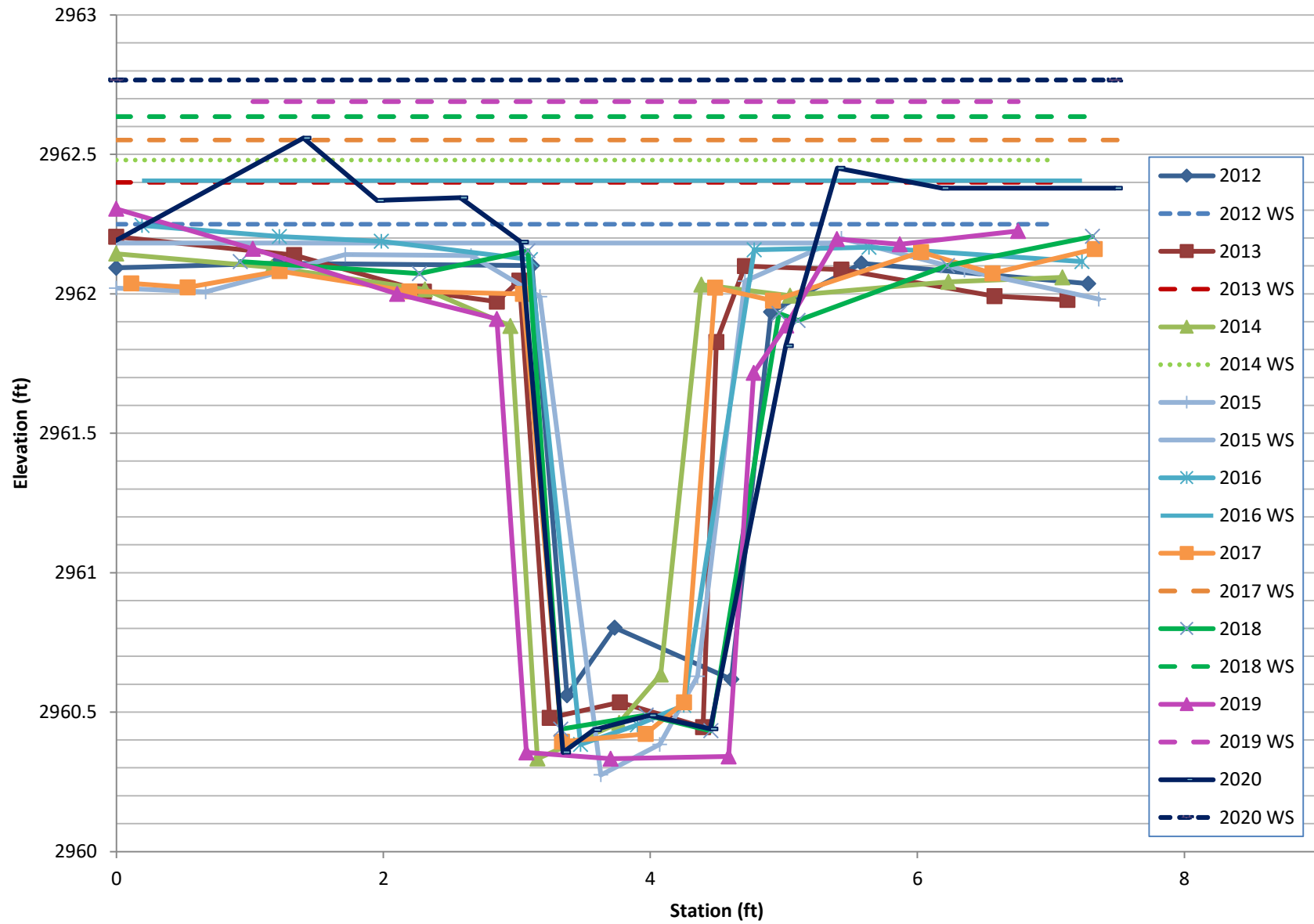
XS 4



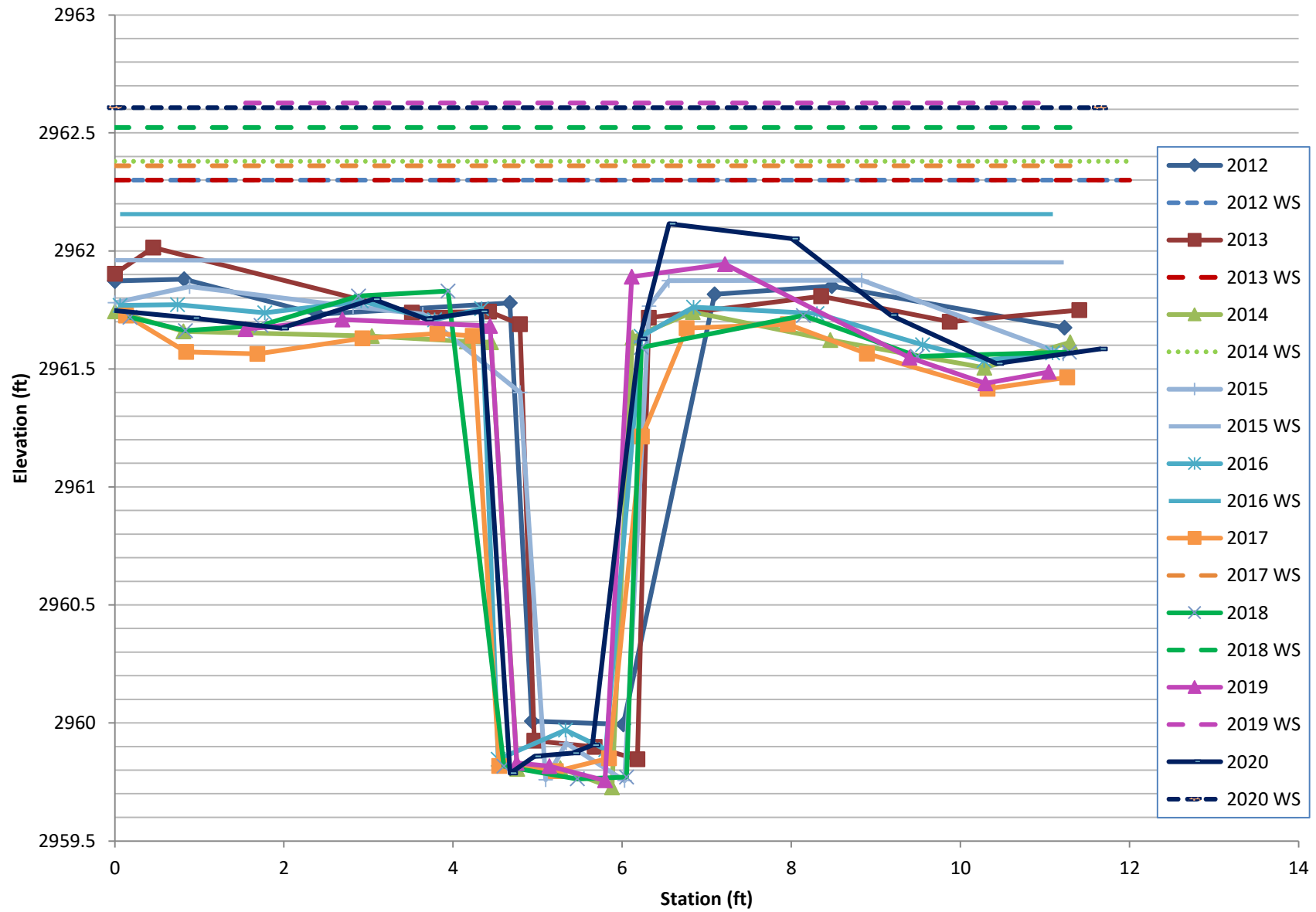
XS 5



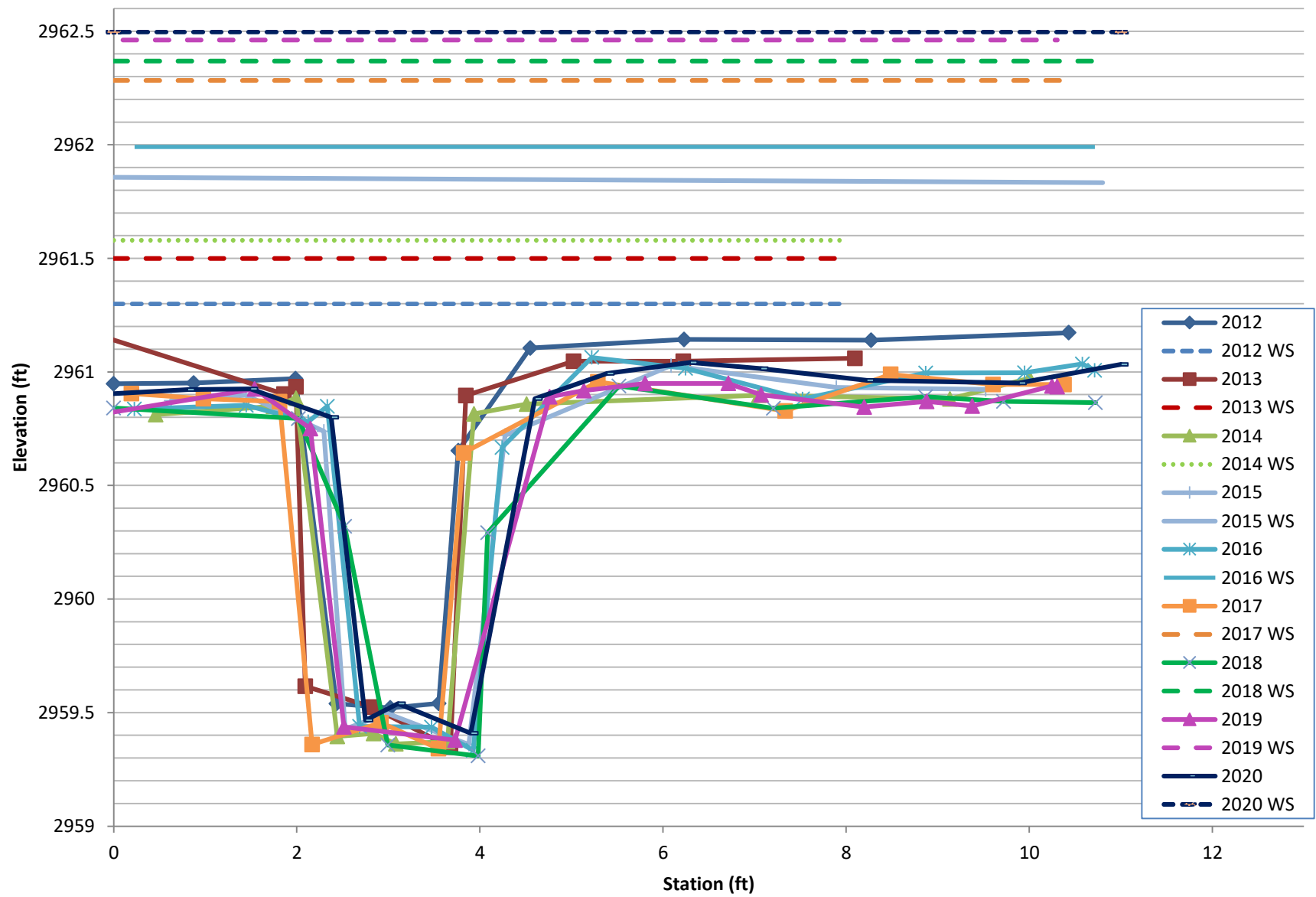
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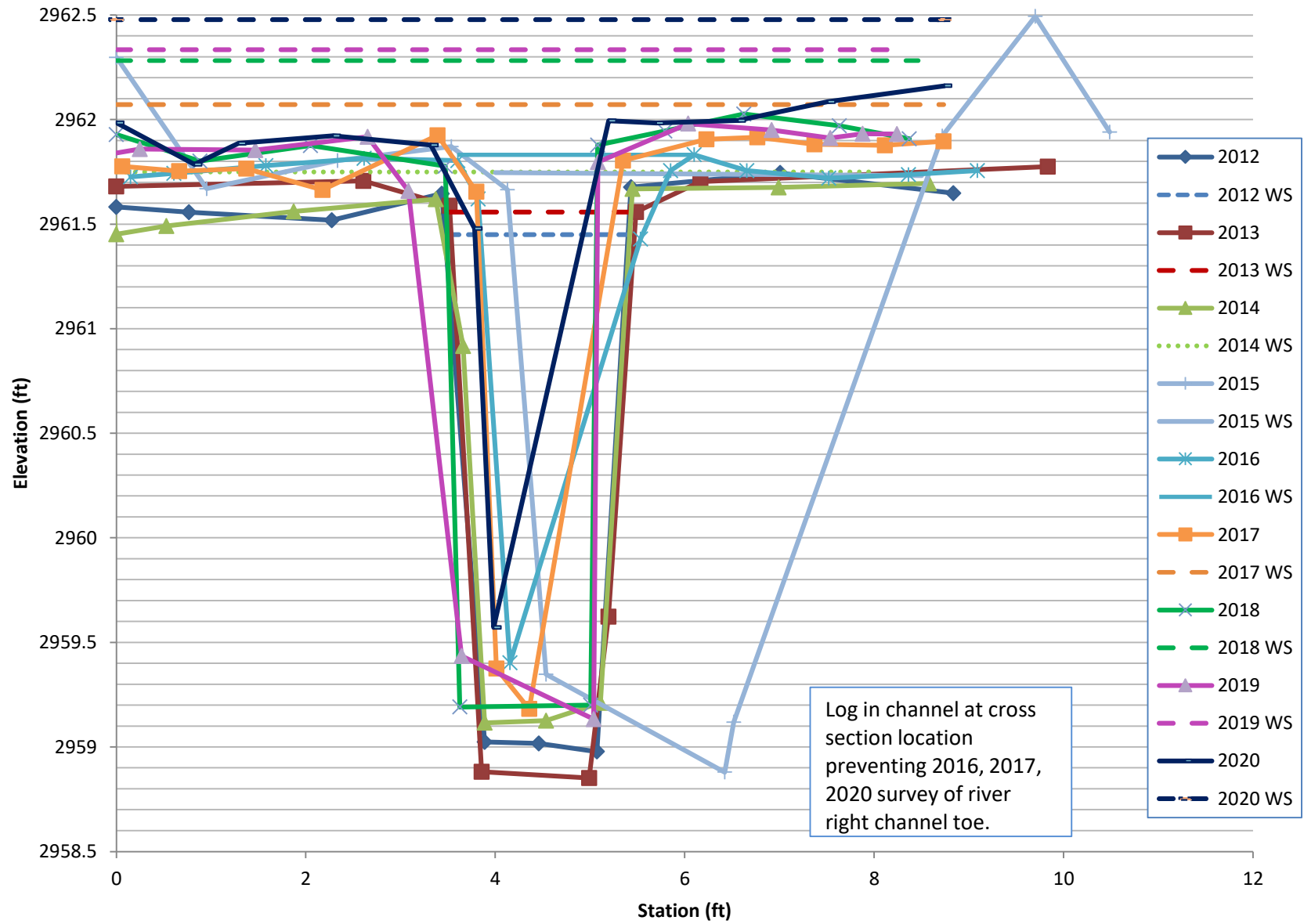
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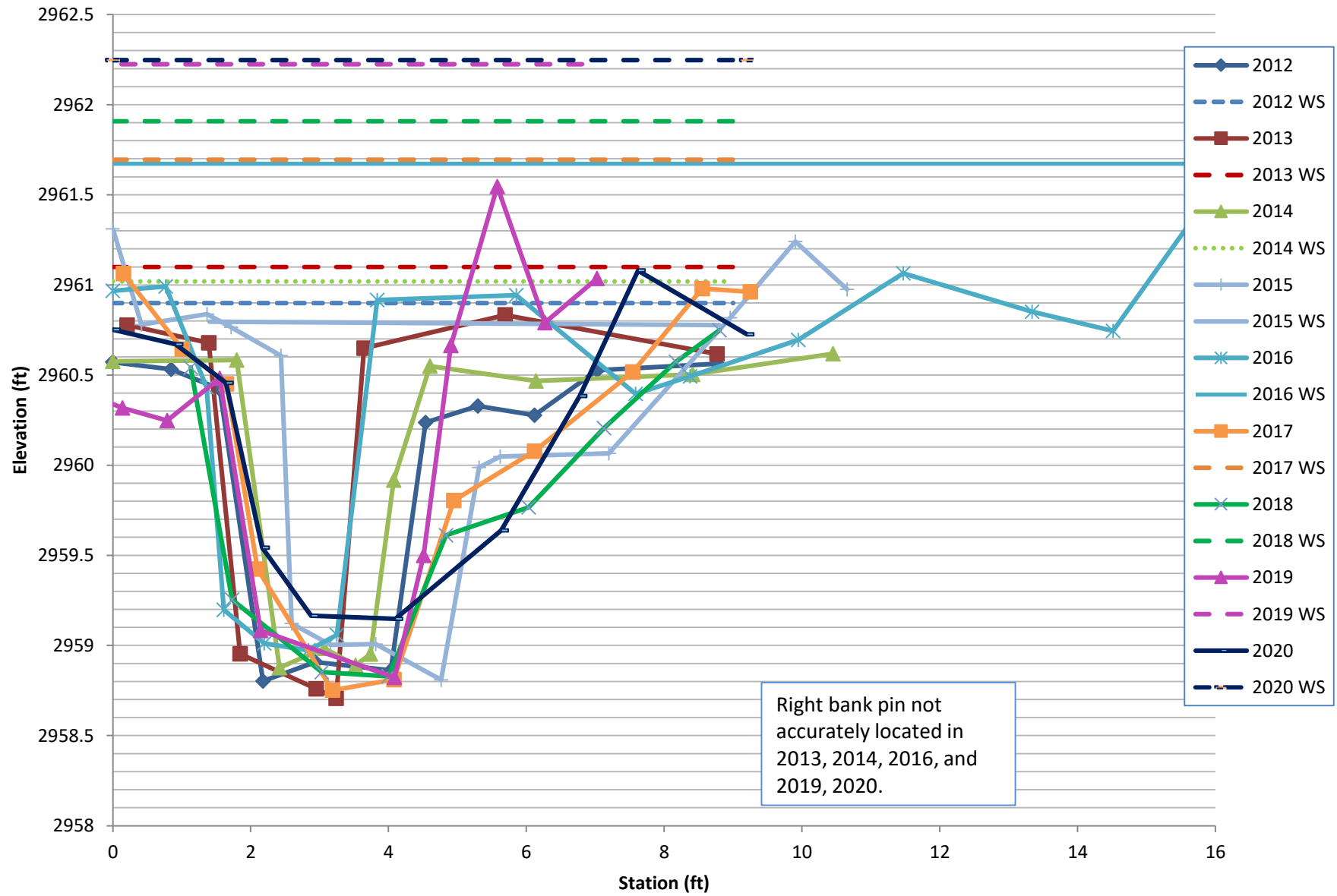
XS 8



XS 9



XS 10



XS 11

