2023 319 Application Form - General and Focus Watershed

General Information

Project Name: Upper East Gallatin Floodplain and Wetland Restoration Project

Sponsor Name: Gallatin Watershed Council

Registered with the Secretary of State? Y

Registered with SAM? Y

UEI # C954WMZMC4M7

Does your organization have liability insurance? Y

Primary Contact: Holly Hill

Title: Executive Director

Address: P.O. Box 751

City: Bozeman State: MT Zip Code: 59771

Phone Number: 406-560-4425

Email Address: holly@gallatinwatershedcouncil.org

Signature: Holly Hill

Signatory: Holly Hill

Title: Executive Director

Address: P.O. Box 751

City: Bozeman State: MT Zip Code: 59771

Phone Number: 406-560-4425

Email Address: holly@gallatinwatershedcouncil.org

Signature: Holly Hill

Technical and Administrative Qualifications

Technical and administrative support for this project will be provided by the Gallatin Watershed Council (GWC) and Confluence Consulting. GWC Executive Director, Holly Hill has over 15 years of experience in nonprofit administration and will provide grant administration and project coordination. GWC Restoration Director, Lilly Deford, received her Masters degree in water resource engineering and will provide technical support and partner collaboration. GWC Education and Outreach Coordinator, Heather Priest, received her Masters in Natural Resource Management with a specification in Watershed Management and will manage volunteer contributions to the project. Confluence Consulting specializes in restoring streams and rivers through natural stream design and bioengineering services. Additionally, Confluence has in-depth expertise in wetland restoration, including feasibility assessments, delineations, permitting, and monitoring. Wetland staff at Confluence have worked throughout Montana, the northern Great Plains, and the Rocky Mountains restoring wetland habitat.

Budget Summary: *Fields outlined in **black** on this page will auto-populate from other sections of the application form. Fields outlined in **red** on this page will not auto-populate. You must manually input the information for fields outlined in **red**.*

	319 Funding Request	Non-Federal Match	Other Funding	Total Cost
Education and Outreach Project	$ 4,450	$ 550	$ 0	$ 5,000
Administration	$ 12,000	$ 0	$ 0	$ 12,000
Project 1 Name	Upper East Gallatin Floodplain and Wetland Restoration Project			
Project Planning	$ 25,600	$ 24,200	$ 0	$ 49,800
Landowner Agreements	$ 1,100	$ 0	$ 0	$ 1,100
Project Implementation	$ 197,250	$ 159,550	$ 0	$ 356,800
Project Effectiveness Monitoring	$ 8,550	$ 10,550	$ 0	$ 19,100
Total	$ 232,500	$ 194,300	$ 0	$ 426,800
Project 2 Name				
Project Planning				$ 0
Landowner Agreements				$ 0
Project Implementation Project				$ 0
Effectiveness Monitoring				$ 0
Total	$ 0	$ 0	$ 0	$ 0
Project 3 Name				
Project Planning				$ 0
Landowner Agreements				$ 0
Project Implementation Project				$ 0
Effectiveness Monitoring				$ 0
Total	$ 0	$ 0	$ 0	$ 0
Project 4 Name				
Project Planning				$ 0
Landowner Agreements				$ 0
Project Implementation Project				$ 0
Effectiveness Monitoring				$ 0
Total	$ 0	$ 0	$ 0	$ 0
Grand Total	$ 248,950	$ 194,850	$ 0	$ 443,800

Education and Outreach

Developing good projects often requires a considerable amount of time and effort up front to build relationships and trust with individual landowners and stakeholder groups. It also requires adequate training for project sponsor staff (e.g., technical training, project management, public procurement, technical writing, etc).To promote the development of future projects, DEQ is encouraging project sponsors to use up to $5,000 in 319 funding for education and outreach to develop and capitalize on critical relationships and to improve organizational capacity. DEQ also encourages applicants to incorporate on-the-ground projects into education and outreach efforts through on-site demonstrations and project tours. 319 funding may not be used to pay for food and beverages, or for honorariums and gifts.

Activity (method of delivery)	Feature project in GWC's newsletter, press releases, and social media posts.
Target Audience	General public, GWC contact list, GWC social media followers
Goals	- Elevate awareness of the causes and sources of impairments in the East Gallatin River - Communicate the importance of floodplain and wetland ecosystem services - Share best management practices for restoring and protecting natural river system function - Generate momentum around landowner stewardship and future projects.
Effectiveness Evaluation	Number of times the project is used in combined media outreach. Public engagement with content (i.e.number of clicks, page views on virtual content)

Activity (method of delivery)	Site tours and field trips
Target Audience	Landowners living along the East Gallatin River, MSU students/science depts, General public
Goals	- Generate momentum around landowner stewardship and future projects - Inspire students to incorporate good water resource stewardship into their professional careers - Demonstrate the benefits of natural flood and pollution attenuation in a rapidly developing watershed.
Effectiveness Evaluation	Number of site tours and field trips, number of attendees

Activity (method of delivery)	Direct outreach such as phone calls, coffee meetings, interviews and presentations at City and County Commission meetings.
Target Audience	City of Bozeman and Gallatin County staff and public officials
Goals	Demonstrate to City and County staff and public officials the benefits of natural flood and pollution attenuation in a rapidly developing watershed.
Effectiveness Evaluation	Number of public officials engaged

319 Funding Request	Non-Federal Match	Other Funding*	Total
$ 4,450	$ 550		$ 5,000

Match Source	MSU Professors and Guest Speakers Time - In Kind Match	Secured ☑
Match Source		Secured ☐
Match Source		Secured ☐

***Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Project Administration

Project administration includes book keeping, invoicing, interim/annual/final report preparation, office supplies, rent, communications, etc. 319 funding applied to this task must not exceed 10% of the total amount of 319 funding requested, or $12,000, **whichever is lower**. Like all other tasks, payment is by reimbursement for actual expenses incurred.

319 Funding Request	Non-Federal Match	Other Funding*	Total Cost
$ 12,000	$ 0		$ 12,000

Match Source _____ Secured ☐

Match Source _____ Secured ☐

***Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Project 1

Project Form

A separate Project Form ***(including providing separate attachments)*** must be submitted for each project included in your application. Use the following examples to help determine when to lump and when to split projects. For additional assistance, contact Mark Ockey at mockey@mt.gov or 406-444-5351.

Splitting Examples (fill out multiple Project Forms)

- Stream restoration work occurring on two separate streams, on parcels owned by two separate individuals
- Two projects with significantly different sets of project partners
- Two projects that address substantially different pollution sources (e.g., one project moves a corral off of a streambank, and another removes mine tailings, with both projects being on the same property)

Lumping Examples

- Contiguous stream restoration work spanning multiple land parcels
- 3 projects that address similar sources of pollution on a single land parcel (e.g., moving a corral off a stream, implementing a grazing management plan, and relocating a manure storage facility out of the floodplain, all on the same ranch)

Project 1 Name Upper East Gallatin Floodplain and Wetland Restoration Project

Project 1 - Problem Description

Select the watershed restoration plan (WRP) that your project will help implement.

Lower Gallatin - Greater Gallatin Watershed Council

NA | Letter of support from author entity attached? *(If no, explain why below.)*

GWC is the author of the Lower Gallatin Watershed Restoration Plan and this application has the full support of our staff and Board of Directors.

Waterbody name from the 2020 List of Impaired Waters	East Gallatin River, confluence of Rocky and Bear Creeks to MT HWY No. 411
Probable causes of impairment to be addressed	Total Nitrogen, Total Phosphorus
Waterbody name from the 2020 List of Impaired Waters	
Probable causes of impairment to be addressed	
Name of healthy waterbody to be protected	
Description of identified threat to non-impairment status	
Name of healthy waterbody to be protected	
Description of identified threat to non-impairment status	

Detailed Problem Description

Provide a detailed description of the nonpoint source pollution problem you are attempting to address. Be sure to include the following:

- Identify the primary types of pollution
- Identify the primary sources of the pollution
- Identify the root causes of the pollution
- Describe any previous work done to address the problem (who, what, where, when)
- Describe the impacts of the problem (who, what, where)

Location: The project is located on the upper most reach of the East Gallatin River, just downstream of the confluence of Rocky Creek and Bear Creek. The property is off Frontage Road, approximately 4 miles from downtown Bozeman, at the base of the Bangtail foothills. Gallatin Valley Botanical at Rocky Creek Farm neighbors the property to the east, and the Montana State University's Agricultural Experiment Station to the west.

Types and Source of Pollution: Rocky Creek, Bear Creek, the upper reach of the East Gallatin River are all considered impaired and to be not fully supporting their beneficial use for aquatic life. Bear Creek is impaired for Total Phosphorus, sediment, solids, excess algal growth, and alterations to riparian vegetation. Rocky Creek is impaired for sediment, physical and other anthropogenic substrate alterations, and alterations to riparian vegetation. And the East Gallatin River is impaired for Total Nitrogen and Total Phosphorus.

Cause of Pollution: Along all three reaches, transportation infrastructure and agriculture are sources of non-point source pollution and have confined natural processes such as channel migration, flooding, and beaver activity. Rocky Creek parallels I-90 and the railroad for roughly 7 miles before confluencing with Bear Creek. Over this stretch, it passes under the highway, Frontage Road, and numerous driveways 9 times. During high flood events, each roadbed acts as a levee, and each bridge as a funnel, re-directing and accelerating the floodwater downstream. Bear Creek flows north along a gravel county road for much of its length. Rocky Creek and Bear Creek are both severely lacking in riparian vegetation for approximately 30% of their combined length. Storm water, loaded with gravel fines, transaction sand, hydrocarbons, and nutrients from fertilizer and livestock have easy access to both streams before they become the East Gallatin.

Additionally, the Bozeman Water Reclamation Facility is a significant source of nutrient loading to the lower end of this reach of the East Gallatin. In 2014, the City of Bozeman completed over $50 million in upgrades to the plant. The City is once again updating their Facility Plan, and is anticipating major upgrades to meet water quality standards. The East Gallatin River cannot meet the water quality goals of the TMDL without addressing upstream sources of nonpoint sources of pollution through stream and wetland restoration projects.

Impacts of the Problem: At the project site, cumulative impacts have resulted in a down cut channel with limited natural capacity to mitigate flood risks and attenuate pollutants. The stream channel is showing evidence of unstable rates of bank erosion and channel migration. Any unvegetated outside meander bend is scoured and losing ground rapidly.

Previous Work: This project is a continuation of a restoration completed in 2018 at the Gallatin Valley Botanical property, in partnership with Gallatin Valley Land Trust. The restoration converted a field used for visitor parking into a series of wetlands and a beaver dam complex, and constructed a ford in the shared driveway that bisects the floodplain. A 30' section of driveway was replaced with a lowered concrete slab poured over a bed of large rock to allow for hydraulic connectivity across the floodplain and onto Mr. Zeff's property.

Project 1 - Solution Description

Provide a detailed description of the solution you are proposing to implement to address the nonpoint source pollution problem described in the previous section. Be sure to include the following:

- Describe the range of options available for solving the problem, including a no-action alternative
- Describe the practices you intend to design and/or implement to solve the problem (what, where, when, how much or how many)
- Explain why the chosen alternative is the best alternative
- Describe any pre-project planning that has already taken place (e.g., design work, permitting consultation, Endangered Species Act consultation, wetland delineations, landowner agreements, community outreach)
- Describe the anticipated maintenance needs (what, where, who, how long)

GWC received a 319 grant in 2021 to develop the engineering design and complete the necessary permitting for this project. Confluence Consulting began work in July 2022. To date, 50% designs, pre-construction monitoring, and several educational activities have been completed. Confluence Consulting will develop final designs and secure necessary permits this coming winter and spring. Work proposed in this grant application is for the construction phase of the project.

Design Description: The project proposes to construct a series of off-channel wetlands and re-establish riparian vegetation along a 200 foot section of eroding bank. The wetland design incorporates several channel scars in the floodplain to create a series of oxbow features that might be expected to occur naturally. The ground elevation will be re-contoured to encourage a complex emergent wetland ecosystem with diverse plant communities, habitat structure, and hydrology. Water from the East Gallatin will be directed through the system by a headgate, located at the original point of diversion associated with two existing irrigation water rights. The eroding bank will incorporate a wood and cobble toe treatment with a 10 foot wide bankfull-bench, before rising to the existing ground elevation. The bank treatment will be revegetated with native grasses and willows sourced on-site.

Confluence Consulting will be responsible for construction oversight, as-built surveys and drawings, developing a weed and grazing management plan, and post-construction wetland delineation. GWC will coordinate partners, ensure the project aligns with grant deliverables, manage volunteer activities, and conduct education and outreach tasks. In partnership with the Sacajawea Audubon Society, GWC will deploy Busy Beavers volunteers to assist with construction and monitoring activities throughout the project.

Design Considerations: The design features of our chosen alternative have been chosen to work with the landowner's goals, suit the available site, and maximize ecological benefits to the East Gallatin system. Mr. Zeff is committed to improving migratory bird habitat and the trout fishery, while also continuing to graze sheep and produce hay on the property. The restoration is therefore oriented to maximize agricultural ground while enhancing wetlands and the riparian buffer. A headgate has been included to divert and control the flow of water through the site to align with Mr. Zeff's goals to maintain high quality livestock forage and protect the property's historic water right, as well as GWC's desire to maximize water treatment potential. Features have been strategically oriented to take advantage of existing site conditions.The design works with the upstream restoration and receives ground and surface water inputs from across and under the ford constructed in the shared driveway. Lidar and aerial imagery was used to take advantage of existing channel scars and enhance natural conditions. The design was adjusted to account for results from groundwater well monitoring. Higher and drier conditions on the northern and western portions of the site would likely not naturally support wetlands, but are well suited for an infiltration gallery to return flows to the East Gallatin via groundwater.

The restoration will improve habitat diversity and quality for wildlife. The western half of the property is currently a degraded and weed filled upland hay pasture and the eastern half is a near monoculture of reed canary grass. The design creates a mosaic of wetland habitats to promote diverse native plant communities, planting native sedges and rushes, and willow clusters to incorporate structural diversity. The design promotes water treatment, added flood capacity and natural storage to return cooler, late season flows to the East Gallatin. The wetland features will be supported primarily by natural hydrology, and the headgate will allow for supplemental water to be diverted throughout the summer. In a system heavily impacted by infrastructure, this project aims to return some of the River's natural capacity to slow-the-flow and relieve pent up forces coming from a confined system upstream. Not only does the project directly reduce TN, TP, and sediment loading, it also plays a role in reversing some of the restrictions that are causing the problem in the first place.

Maintenance: The scope of the project includes a weed and grazing management plan. Efforts to protect existing and new riparian vegetation and combat weeds will be ongoing. For the first three years, during the life of the grant, volunteers will assist with needs. Thereafter, Mr. Zeff's property manager will oversee weed and grazing management tasks.

No Action: The no action alternative would mean that the restoration project would not be implemented and degraded conditions are likely to persist. Additionally, the opportunity to guide the landowner to make holistic stewardship decisions would be lost.

Project 1 - Goals and Effectiveness Evaluation

List the specific, measurable nonpoint source goals for your project.

Decrease TN, TP, and sediment concentrations in the East Gallatin River: The project includes wetlands and riparian planting to provide improved treatment of intercepted groundwater, runoff, floodwater, and diverted water. The design also promotes increased floodplain connectivity and natural storage to support late season flows.

Improve river system function: Bear Creek and Rocky Creek are listed as impaired before they join to become the East Gallatin River. The entire length of the East Gallatin River is listed as impaired, not only the upper reach where the project is located, running the full gambit of probable causes: algae, alterations in streamside vegetative cover, flow regime modifications, TN, TP, and pH. The project is designed to promote more natural river hydrology, including floodplain connectivity, wetlands, and re-establishing a robust riparian corridor. The goal is to decrease erosive pressure felt by downstream reaches and help the river system re-stabilize.

Explain how you will determine whether the you have met the goals described above. Identify any data you intend to collect, calculations you'll make, or methods you intend to use.

Photo point monitoring: Record visual changes in hydrology and vegetation to indicate qualitative impacts to wetland habitat, natural storage of water, and water quality.

Pre- and post-construction wetland delineation: Record changes to wetland area, and infer changes to natural storage of water, and water quality. Delineation will be conducted by Confluence Consulting Inc.

Length of stream re-naturalized.

Avian point counts: Record changes in bird population to demonstrate changes in wetland habitat.

Surface water and groundwater quality monitoring:
-Use data collected by Stream Teams, as part of the Gallatin Local Water Quality District surface water monitoring program. The network has a site located approximately 1 river-mile downstream of the proposed project that has been monitored since 2018.

-DEQ, as part of the Wetland Restoration Effectiveness Monitoring Project Plan, is conducting pre- and post-construction groundwater and surface water quality monitoring at the site including 7 groundwater wells and 6 surface water sites. Surface water samples are being taken from the East Gallatin just upstream and downstream of the project, as well as at the two inlets and one outlet of the proposed wetland complex. The monitoring objective is to quantify the sediment and nutrient load reduction effectiveness of floodplain and off channel wetland restoration within the project reach and to receiving waters.

Project 1 - Location

Upstream End	Latitude	45.664786	Longitude	-110.954812
Downstream End	Latitude	45.666217	Longitude	-110.960056
Centerpoint	Latitude	45.666065	Longitude	-110.957109
Upstream End	Latitude		Longitude	
Downstream End	Latitude		Longitude	
Centerpoint	Latitude		Longitude	
Upstream End	Latitude		Longitude	
Downstream End	Latitude		Longitude	
Centerpoint	Latitude		Longitude	

List the 12-digit Hydrologic Unit Code(s) (HUCs) in which the project area is located: 100200080905

☑ **Detailed Project site map(s)** Attach a map or set of maps showing the location and size of proposed activity. The map scale must be between 1:1,000 and 1:12,500. The map(s) must have an aerial photo background (e.g., USDA NAIP photography, Google Earth imagery, etc.). The map(s) must show the latitude, longitude, site name, and landowner for the activity site. The map(s) should also identify waterbodies affected by the pollution that the activity is designed to address.

Other Attachments - *(These documents are not required, but may be submitted to provide more specific details about a project or to demonstrate adequate planning and preparation; please, however, be respectful of the amount of time it will take an application reviewer to find relevant information within a document and use excerpts where appropriate; do not attach WRPs, TMDLs or other large-scale planning documents)*

- ☑ Letters of Support
- ☑ Project Site Map
- ☑ Conceptual Design
- ☑ Project Site Photos
- ☐

Project 1 - Partners

Identify each of the project partners and describe their contribution to the project. Include landowners, land managers, project designers, funders, and your own organization. Indicate whether each partner, other than your organization, has provided a letter of support. (*Note: each landowner must provide a letter of support.*)

Landowner	Contributions to Project	Letter of Support Attached?
David Zeff	Land for the installation of the project, use of surface water rights enabling the ability to divert water into the proposed slough. 40% of estimated project costs.	☑
		☐
		☐
		☐

Project Partner	Contributions to Project	Letter of Support Attached?
Gallatin Watershed Council	Project sponsor, partner coordination, community outreach, develop and administer 319 grant	☐
Confluence Consulting Inc	Engineer and technical consultant, conduct site assessment, surveying, wetland delineation, design and permitting, construction oversight	☐
Sacajawea Audubon Society	Pre-project implementation avian point count monitoring, community outreach	☑
Trout Unlimited	General project support and guidance	☑
City of Bozeman	General project support and guidance	☑

Project 1 - Budget

Use the space below to outline your project budget.

Project Planning This includes costs for surveying, engineering, permitting, procurement, construction oversight, and overall coordination of the proposed project. This does not include things like reporting, book keeping, communications, office space, or utilities, which are all covered in the Project Administration budget.

319 Funding Request	Non-Federal Match	Other Funding*	Total Cost
$ 25,600	$ 24,200		$ 49,800

Match Source	Landowner - David Zeff - Cash Match	Secured	✔
Match Source		Secured	
Match Source		Secured	
Match Source		Secured	

**Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Landowner Agreements This includes costs for developing and managing landowner agreements. The landowner agreement(s) must verify that Contractor and DEQ staff may access the project site, at reasonable times and with prior notification, for the purposes of project planning, implementation, and post-implementation monitoring. The agreement(s) must ensure appropriate operation and maintenance of all structures, vegetation, and management measures for the life of the project. If grazing will be allowed within the project area, the agreement(s) must include a sustainable management plan for livestock grazing, designed to protect and enhance riparian function.

319 Funding Request	Non-Federal Match	Other Funding*	Total Cost
$ 1,100			$ 1,100

Match Source		Secured	
Match Source		Secured	
Match Source		Secured	
Match Source		Secured	

**Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Project Implementation This includes costs for all materials, labor, equipment, and as-built surveys associated with implementing the plans developed under the Project Planning task. If you are requesting funding for design only, leave this task blank.

319 Funding Request	Non-Federal Match	Other Funding*	Total Cost
$ 197,250	$ 159,550		$ 356,800

Match Source	Landowner - David Zeff - Cash Match	Secured	✔
Match Source	Locally sourced materials (root wads and willows) - In Kind Match	Secured	✔
Match Source	Busy Beavers Volunteer Time - In Kind Match - 475 hours	Secured	✔
Match Source		Secured	

**Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Project Effectiveness Monitoring This includes costs for developing and implementing a reasonable method or set of methods for evaluating and reporting on the effectiveness of the project in achieving NPS pollution goals. It includes preparation and implementation of a monitoring plan, and preparation of a monitoring report. If the project goals include reducing sediment, nitrogen and/or phosphorus, this task will also include calculation of annual load reduction estimates. Photo-point monitoring is also a standard requirement for this task. If you are requesting funding for design only, you may either leave this task blank or request funding for plan development and pre-project monitoring.

319 Funding Request	Non-Federal Match	Other Funding*	Total Cost
$ 8,550	$ 10,550		$ 19,100

Match Source	Busy Beavers Volunteer Time - In Kind Match - 282 hours	Secured	✔
Match Source		Secured	
Match Source		Secured	
Match Source		Secured	

**Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Project 1 - Project Timeline

Task Description	3Q 2023	4Q 2023	1Q 2024	2Q 2024	3Q 2024	4Q 2024	1Q 2025	2Q 2025	3Q 2025	4Q 2025	1Q 2026	2Q 2026
Construction		✔	✔									
Weed and grazing management				✔	✔	✔		✔	✔	✔		✔
Pre construction monitoring (not included in this application)	✔											
Post construction monitoring				✔	✔	✔		✔	✔	✔		✔
Education and outreach	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

Project 1 - Bigger Picture Benefits

Environmental Justice

Explain how your project incorporates disadvantaged community populations and priorities, Tribal and community leader engagement, or socioeconomic barriers in the context of equal protection and access to a healthy environment.

The proposed project is upstream of the City of Bozeman's Water Reclamation Facility. In 2014, the facility underwent over $50 million in upgrades. The City is once again updating their Facility Plan, and is anticipating major facility upgrades to meet water quality standards in the East Gallatin River, a burden that will fall on City ratepayers. Upgrades will be extremely expensive with diminishing returns limited by available water treatment technology. This restoration project has the potential to demonstrate a more cost effective approach to improving in-stream water quality. Bozeman is already an expensive place to live, and many folks are being priced out, especially socially disadvantaged populations. There is a need to be creative to make Bozeman livable for a diverse population.

Climate Change/Resilience

How will your project improve climate change resilience for communities, native plants, wildlife, or ecosystems?

It is anticipated that climate change in southwest Montana will result in similar annual precipitation but warmer weather and longer dry periods between precipitation events. These conditions may cause more precipitation to be in the form of rain instead of snow, with more rain-on-snow events, flashier floods, and more drought-like conditions.
The project improves climate change resilience for local wildlife and the East Gallatin River's floodplain ecosystem by enhancing existing wetland habitat and creating additional wetland habitat, and by creating shallow open water areas that will be important for migrating waterfowl. The open water areas will provide refugia for aquatic insects and amphibians, as well as foraging habitat for sensitive bat species, such as the little brown myotis (S3), all of which improves climate change resiliency for these species.
The design will include increased flood conveyance and natural storage. These features will help support riparian vegetation during prolonged drought, decrease the intensity of runoff and flood events, and encourage cooler late season flows in the East Gallatin River. In turn, the project will help to improve climate change resilience for trout and other cold water dependent organisms found downstream of the project area.

Impacts to Downstream Human, Plant and Animal Communities

What sort of an impact will your project have on downstream human, plant or animal communities?

Design elements considered for this project have the potential to not only improve water quality but also fish and wildlife habitat. The fishery will benefit from natural storage features that increase late season flows. Riparian and wetland habitat will provide critical habitat for birds and all of the other Montana animals that depend on these vital ecosystems. Success of this type of project is already evident on the neighboring Rocky Creek Farm restoration where the bird population has noticeably shifted to support migratory waterfowl. Additionally, the project occurs upstream of the Bozeman Water Reclamation Facility. Implementation of this project will increase the assimilative capacity of the East Gallatin River.

[EXTERNAL] Tiny correction on Upper East Gallatin Proposal

HH

Holly Hill <holly@gallatinwatershedcounc

To Ockey, Mark

Cc Lilly Deford

Fri 10/7

You replied to this message on 10/7/2022 5:09 PM.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

Mark,

We noticed one small mistake on our Upper East Gallatin Proposal that we wanted you to be aware of. The Project Effectiveness Monitoring Budget Match Source on page 14 should include Landowner Cash Match in addition to Volunteer In Kind Match. The numbers are correct, we just neglected to include the Landowner match in that section.

Thank you!

--

Holly Hill, Executive Director
Gallatin Watershed Council
www.gallatinwatershedcouncil.org [gallatinwatershedcouncil.org]
Phone: 406.560.4425

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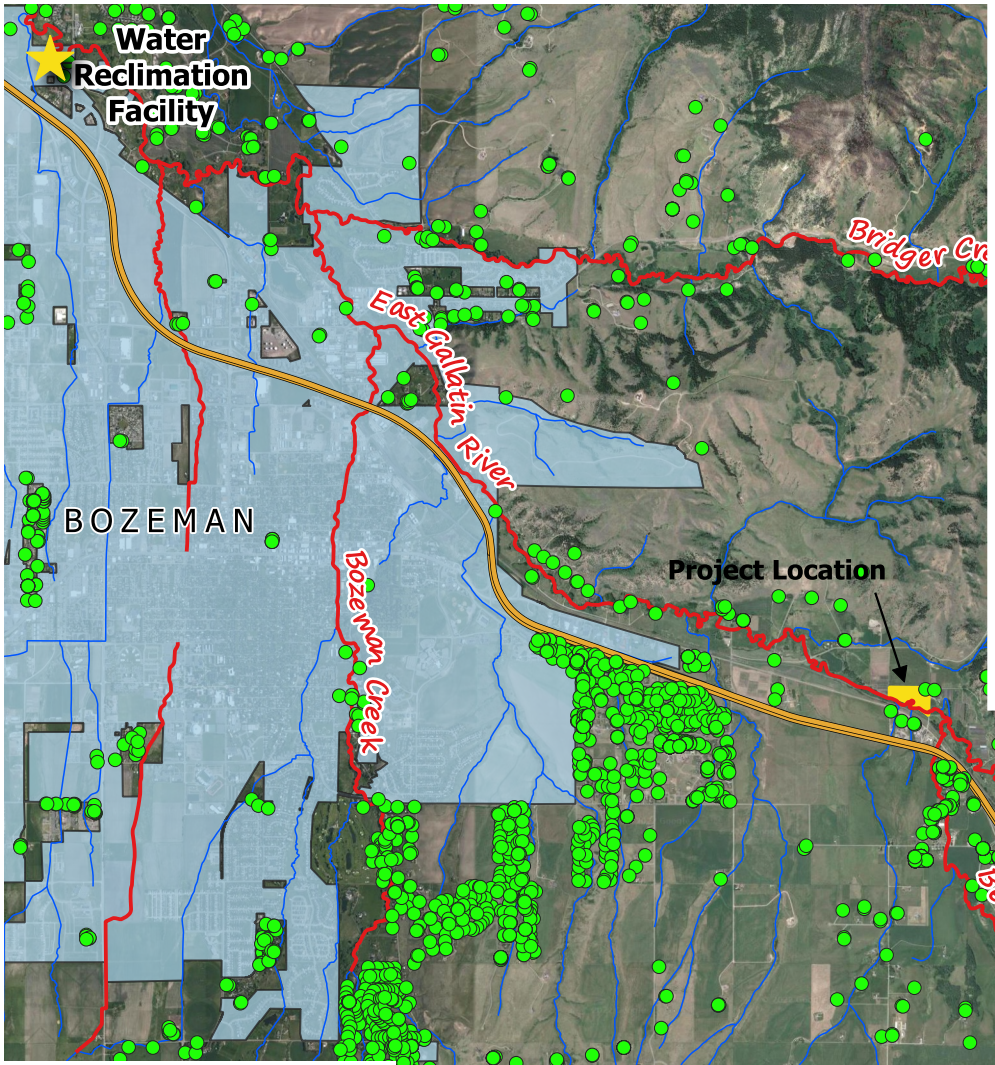
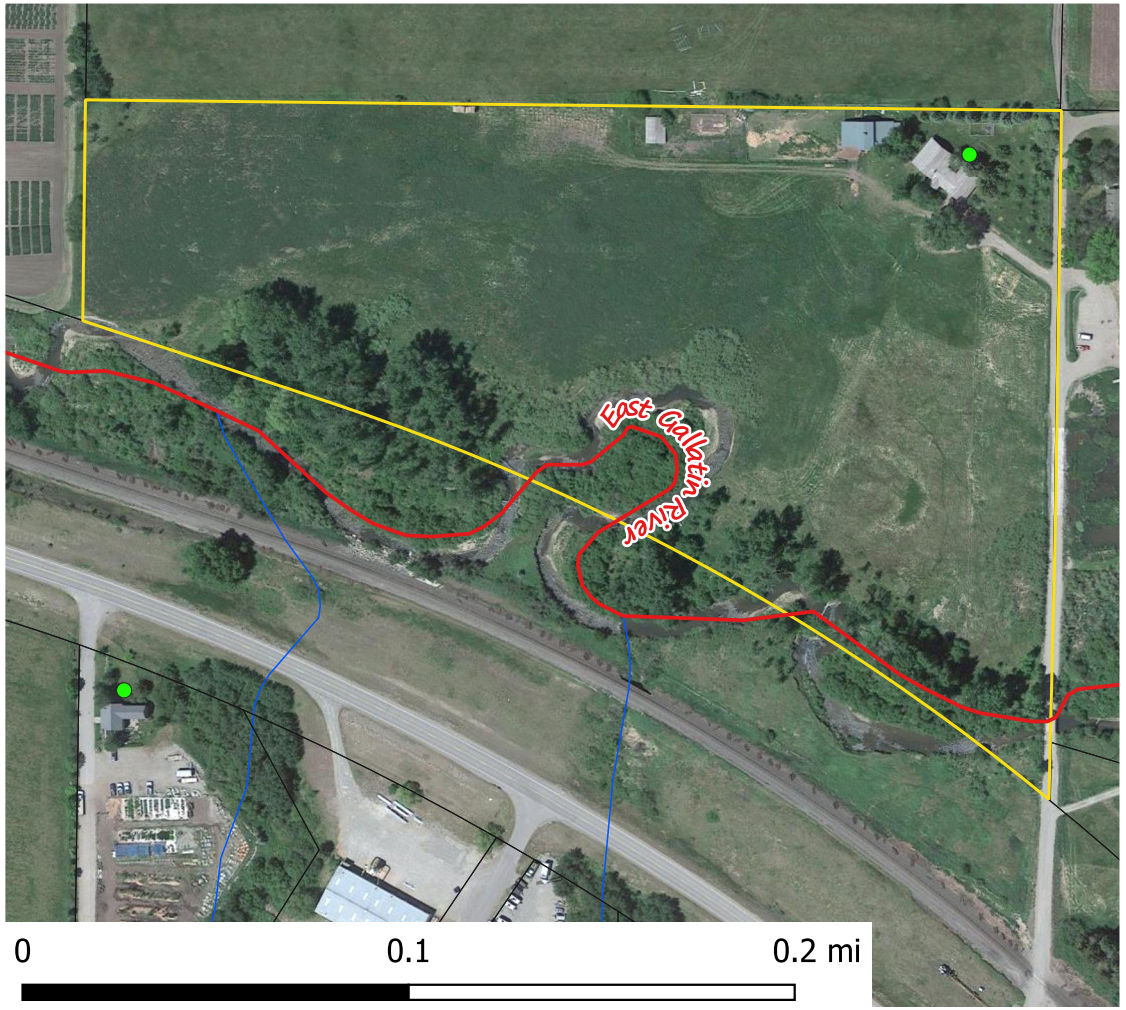
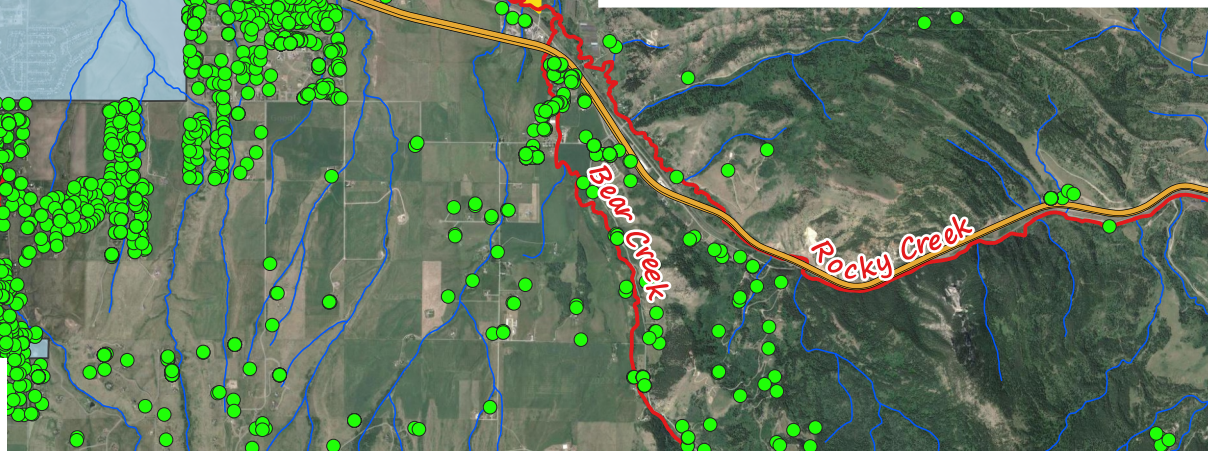
Map

Project Overview Map

Upper East Gallatin Floodplain and Wetland Restoration







Map Legend

- Proposed Project
- Streams
- Impaired Streams
- Septic System
- Bozeman City Limits
- Interstate 90

Project Center Point:
45.666065, -110.957109

Letters of Support

Gallatin Watershed Council

Upper East Gallatin Floodplain and Wetland Restoration

2023 DEQ 319 Application

Attachments

Letters of Support

David Zeff - Landowner
Sacajawea Audubon Society - Project partner
Trout Unlimited - Project partner
City of Bozeman - Project partner

Watershed Protection Section
Montana Department of Environmental Quality
Attn: Mark Ockey
1520 E. Sixth Avenue
Helena, MT 59620

October 3, 2022

Dear Montana Department of Environmental Quality,

I would like to express my support for the Rocky Creek Stream Restoration Project.
This multi-parcel restoration project is an exciting opportunity to partner landowners at the confluence of Kelly Creek and Rocky Creek. Rocky Creek is an important tributary to the East Gallatin River, transferring clean and cold water downstream as well as fostering a rich aquatic habitat. The riparian area surrounding Rocky Creek also provides important habitat in a mosaiced wildlife corridor.

This project aims to improve and protect the existing benefits Rocky Creek provides to the East Gallatin River. While the project consists of a series of improvements on individual parcels, the project has several watershed benefits that reach beyond individual landowner enhancements. Mainly, the project seeks to improve water quality by reducing sediment and nutrient inputs. Other benefits include increasing flood storage, drought resiliency as well as increasing and diversifying habitat. The combination of these watershed benefits offers a solution to current water quality, habitat, and climate resiliency challenges.

I am excited to be a part of a multi-stakeholder effort to protect and restore Rocky Creek, and I am committed to the following match for the project.

- Continued involvement in project development and implementation
- $8,000 in previously expended funds for work completed in 2021
- 40% of the future project costs

I have hired a consultant and we have successfully received a grant to continue planning and look forward to the opportunity to implement the funding for this project.

Finally, I believe strongly in the downstream rewards of the Rocky Creek Stream Restoration Project. Clean water and beautiful habitat are critical to the Gallatin Valley for both humans and animals alike. I hope you will consider supporting this integrated approach to the improvement of Rocky Creek.

Thank you for your consideration.
Sincerely,

David Zeff
6311 E. Vista Drive
Paradise Valley, AZ 85253
415-317-2620
davezeff@gmail.com

Sacajawea Audubon Society

PO Box 1711 • Bozeman, Montana 59771-1711
Sacajaweaaudubon.org

October 6, 2022

Mr. Mark Ockey
Watershed Protection Section
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ockey,

On behalf of Sacajawea Audubon Society, I am delighted to submit this letter of support for the Gallatin Watershed Council (GWC) grant request to secure funding for the Upper East Gallatin Floodplain and Wetland Restoration Project.

Sacajawea Audubon Society (SAS) has partnered with GWC as we create the exciting new Indreland Audubon Wetland Preserve (IAWP). The IAWP was set aside by Sacajawea Audubon Society (SAS) to conserve and enhance a wetland community in an urban setting. The site will serve as an environmental study area offering education about wetland ecology accessible to all ages. SAS aims to document the effect of human influence on wetland communities and inspire the conservation, restoration, and enhancement of wetlands.

The Upper East Gallatin Floodplain and Wetland Restoration Project helps us accomplish the IAWP vision and goals. Design elements considered for this project have the potential to not only improve water quality but also improve fish and other wildlife habitat. The fishery will benefit from natural storage features that increase late season flows. Riparian and wetland habitat will provide critical habitat for birds and other diverse wildlife species that depend on these vital areas.

This project provides an opportunity for the IAWP Busy Beavers, our community outreach group, to patriciate and learn about hydrology, ecology, history, and the need for clean and cool water flows into the East Gallatin River. We look forward to assisting with pre-project monitoring such as bird counts and other wetland assessments.

SAS, approaching 1000 local members, and affiliate of the National Audubon Society, has been serving the Northern Greater Yellowstone Ecosystem of Montana since 1967. SAS provides community-based programming to promote the conservation of our natural environment through enjoyment, education and action.

This project will help protect Montana's wetlands, and support the efforts of SAS to protect wetlands in Bozeman and the Gallatin Valley. Approval of this grant will enhance the capacity, efficiency and quality of local natural resources that are under threat with the current growth of Bozeman/Gallatin Valley. We ask that you give positive consideration to further funding of the Upper East Gallatin Floodplain and Wetland Restoration Project.

Submitted on behalf of the Sacajawea Audubon Society Board of Directors.

Sincerely,

Christopher J. Nixon

Chris Nixon
President, Sacajawea Audubon Society
406-544-4901
pres@sacajaweaaudubon.org

Connor Parrish, Project Manager, Gallatin Home River Initiative

Mr. Mark Oakey
Watershed Protection Section
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Dear Mr. Ockey,

I am contacting you to provide Trout Unlimited's support for the Gallatin Watershed Council's (GWC) application to Department of Environmental Quality's (DEQ) 319 non-point source grant opportunity. The Gallatin watershed faces numerous water quality impairments that jeopardize the health of its fish, wildlife, and growing community. GWC's Upper East Gallatin Floodplain and Wetland Restoration project would improve water quality and restore natural process that enhance fish and wildlife habitat. The project aims to restore floodplain connectivity and wetland conditions adjacent to the East Gallatin River. Surface and groundwater will pass through a series of oxbow like wetland features in order to attenuate nitrogen, phosphorus, and sediment from East Gallatin River as it flows through the project site. Other benefits will include increased wetland habitat and improved natural water storage that will augment late season in-stream flow and reduce flooding risk. Improving water quality above the Bozeman Water Reclamation Facility outfall also helps the East Gallatin River handle this point source loading of nitrogen and phosphorus. The slough and wetland complex will be excavated from historic channel scars and designed to reflect natural, site-appropriate physical and biological conditions.

Trout Unlimited is intimately involved in ongoing conservation efforts in the Gallatin watershed and I believe the Gallatin Watershed Council has the professional capabilities and local contacts that position them well for the project they are proposing. Trout Unlimited is dedicated to protecting and restoring the Gallatin's coldwater fishery and thus very supportive of the Gallatin Watershed Council's grant proposal.

Connor Parrish

Connor Parrish
Project Manager, Gallatin Home River Initiative

BOZEMAN MT
Engineering Division

October 7, 2022

Montana DEQ - Watershed Protection Section
Attn: Mr. Mark Ockey
1520 E. Sixth Ave.
Helena, MT 59620

RE: Letter of Support for GWC 319 Grant Proposal

Dear Mark:

In my capacity as senior water resources engineer for the City of Bozeman, I write in support of the Gallatin Watershed Council's 319 Grant application for restoration of a section of the upper East Gallatin River. The project as proposed should serve to reduce non-point source nutrient and sediment pollutant loads to the river – a positive incremental step towards eventual removal of the upper river assessment unit from the state's 303d impairment list. The proposed project could demonstrate nutrient trading under DEQ Circular 13, a nascent, yet underutilized tool to support water quality standards attainment. I encourage the grant review committee support and fund this 319 project request.

Sincerely,

Brian Heaston, PE
Senior Engineer

A 20 East Olive Street | M P.O. Box 1230 Bozeman, MT 59771-1230 | P 406-582-2280 | F 406-582-2263 | www.bozeman.net

TDD: 406-582-2301

Supplemental Attachment 1

Conceptual Design

Conceptual Design

BABYHEART RANCH LLC.
MONTANA STATE UNIVERSITY
BABYHEART RANCH LLC.
ROSE CREEK
SEPTIC SYSTEM
DAVID ZEFF
GALLATIN VALLEY BOTANICAL INC
SHALLOW WETLAND MEANDER EXCAVATION (TOTAL 1.00 ACRE)
EXCAVATED FILL
WETLAND LONGITUDINAL ALIGNMENT
FLOODPLAIN SLOUGH (TOTAL 0.13 ACRES)
HARDENED OUTLET
EXISTING WETLAND
EXISTING WETLAND
EXCAVATED FILL
BOARDWALK
NATIVE SHRUB PLANTINGS
ROCKY CREEK
EXISTING FORD
EXISTING WETLAND ENHANCEMENT OUFLOW
STREAMBANK TREAMENT
POOL
INLET FOR BASEFLOW HYDROLOGIC SUPPORT
(EXISTING WATER RIGHT)
HEADGATE
RAILROAD TRACKS
RR RIGHT-OF-WAY
FRONTAGE RD
ACCESS RD
ELEANORE M MORRIS
BEAR CREEK /
N
50 0 50 100
SCALE IN FEET

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CONFLUENCE consulting incorporated

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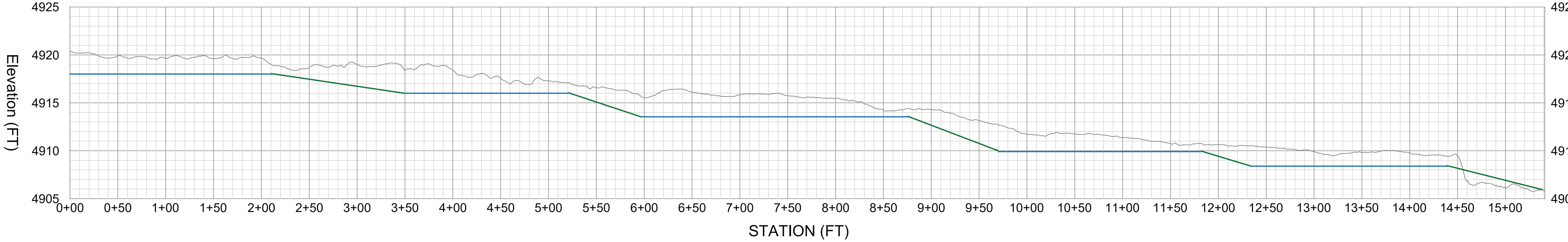
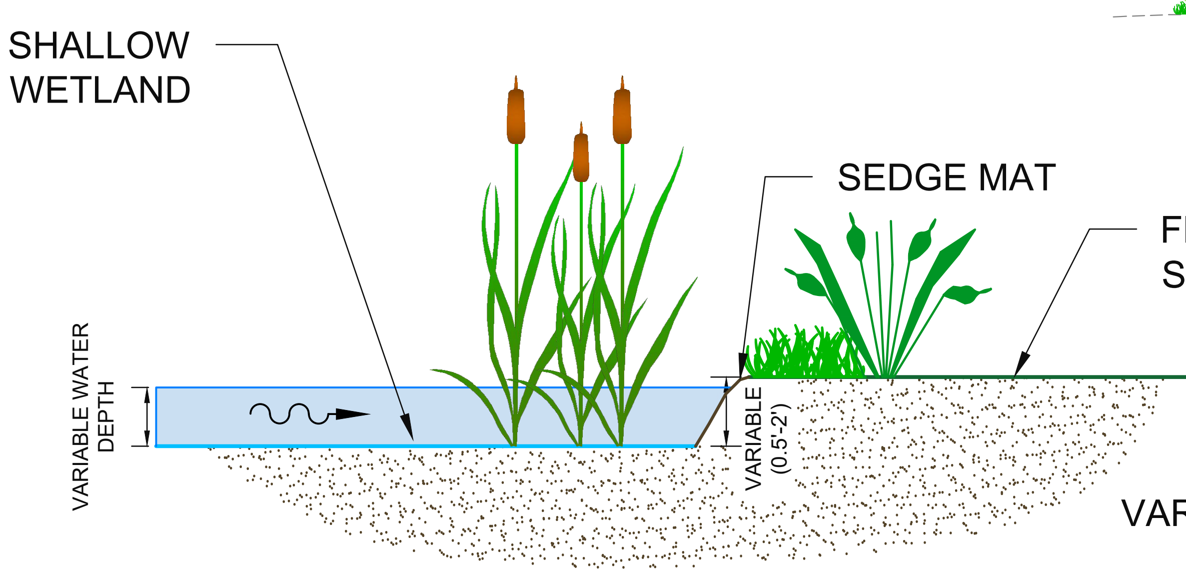
SITE MAP

SHEET: 1

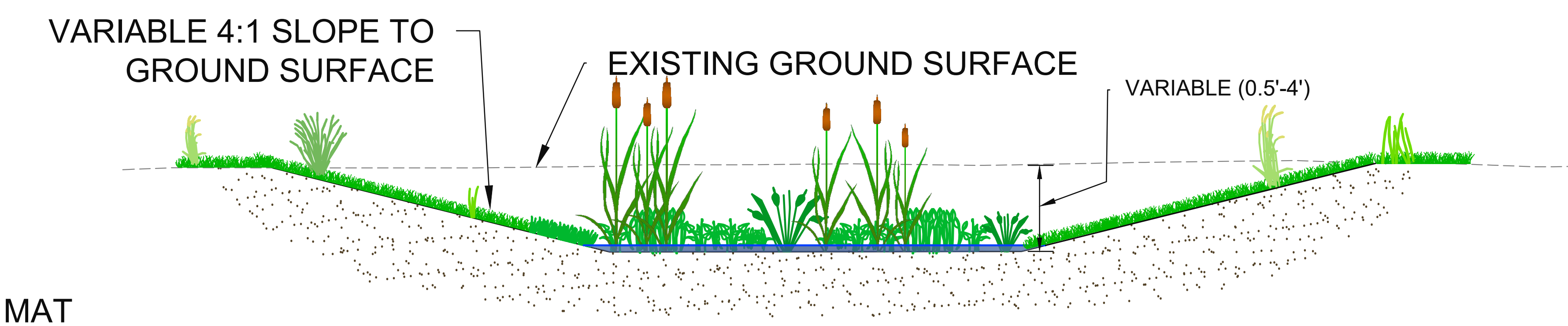
2-1 WETLAND PROFILE ALLIGNMENT
NOT TO SCALE



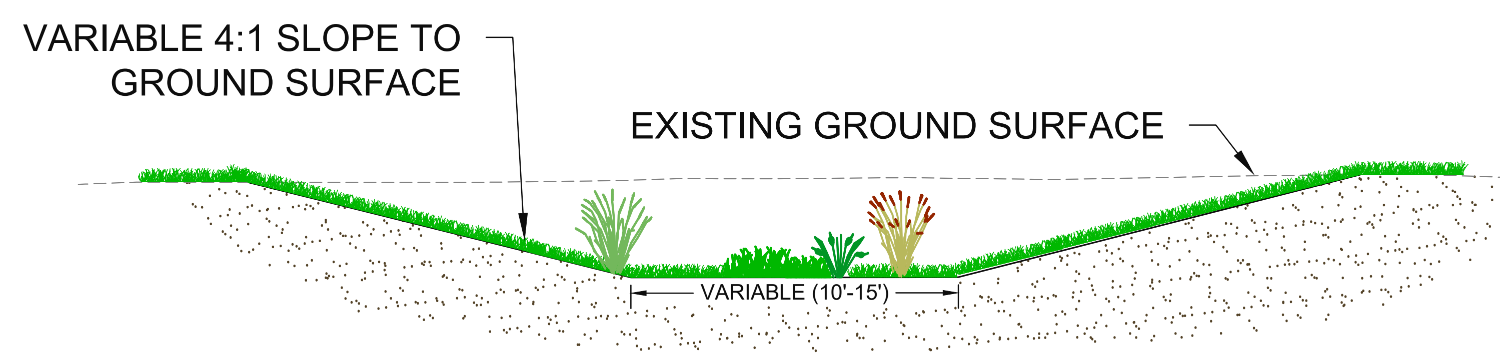
LEGEND
FLOODPLAIN SLOUGH
SHALLOW WETLAND
EXISTING GROUND



2-2 TYPICAL STEP
NOT TO SCALE



2-3 TYPICAL SHALLOW WETLAND
NOT TO SCALE



2-4 TYPICAL FLOODPLAIN SLOUGH
NOT TO SCALE

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CONFLUENCE
consulting incorporated

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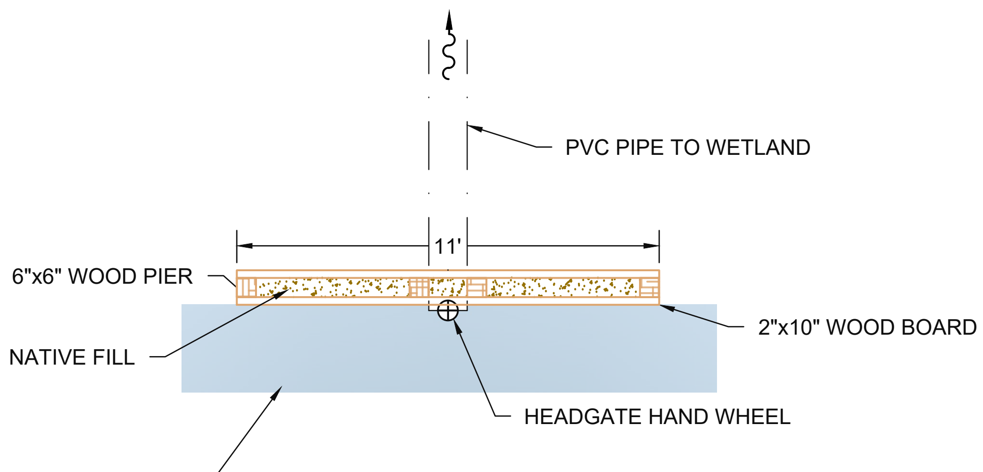
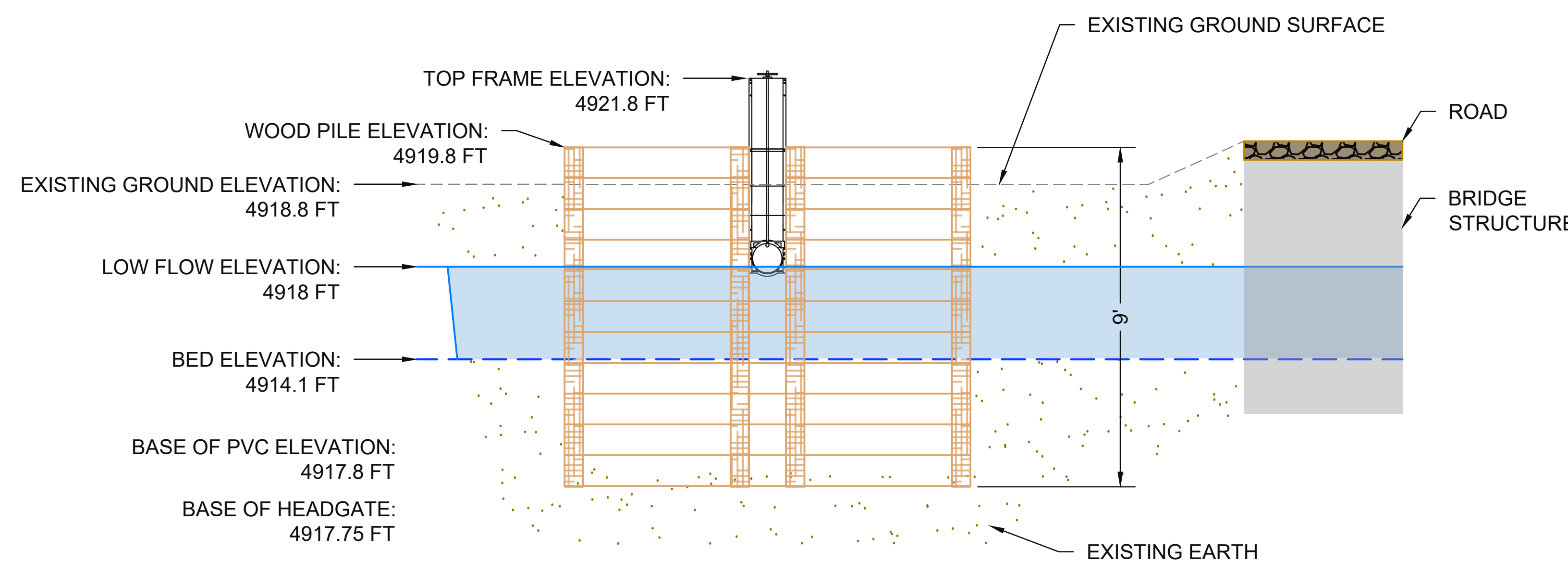
BOZEMAN, MONTANA

WETLAND DETAILS

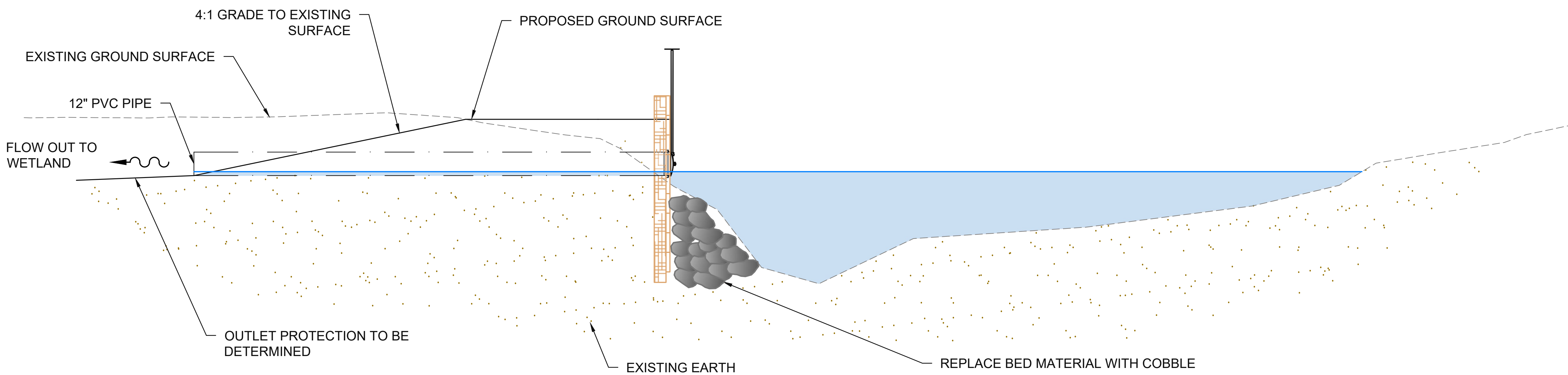
SHEET: 2



3-1 PLAN VIEW
SCALE: 1"=5'



3-2 FRONT VIEW
SCALE: 1"=5'



XS 1 HEADGATE CROSS SECTION
HORIZONTAL SCALE: 1" = 5'
VERTICAL SCALE: 1" = 5'

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CONFLUENCE
consulting incorporated

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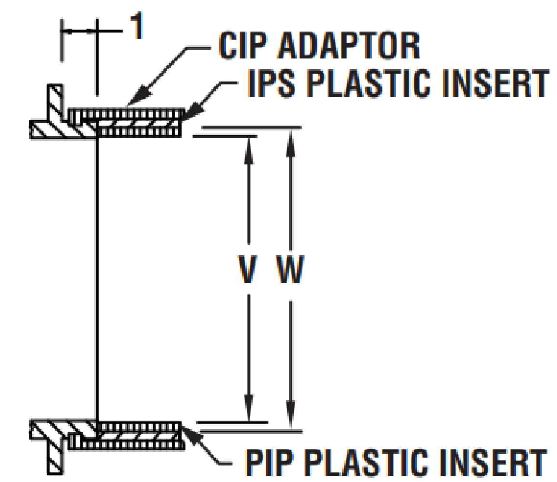
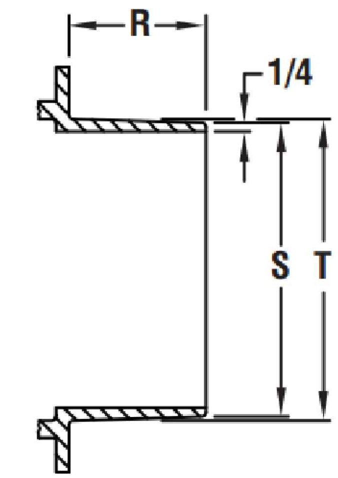
HEAD-GATE DETAILS

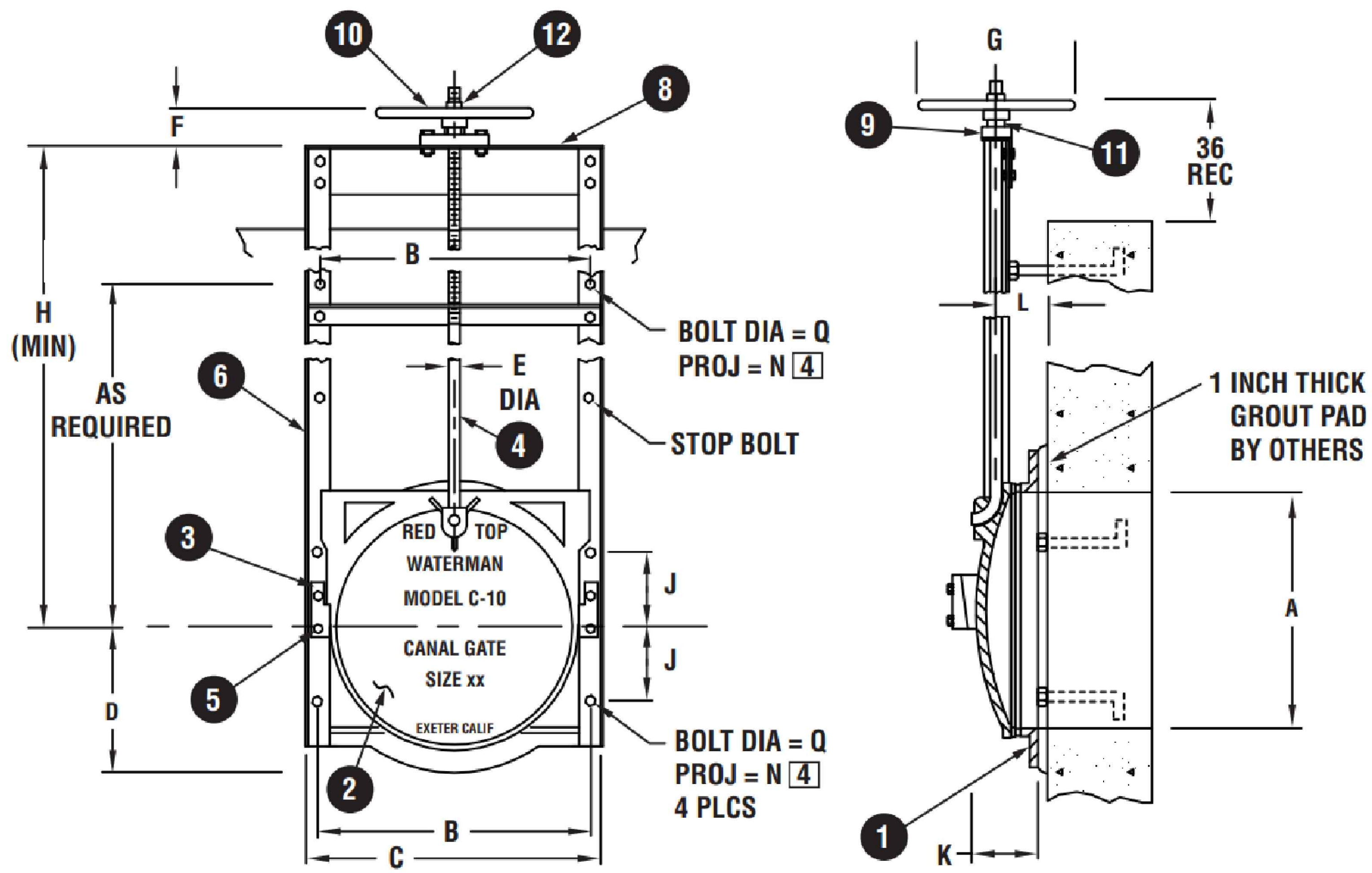
SHEET: 3

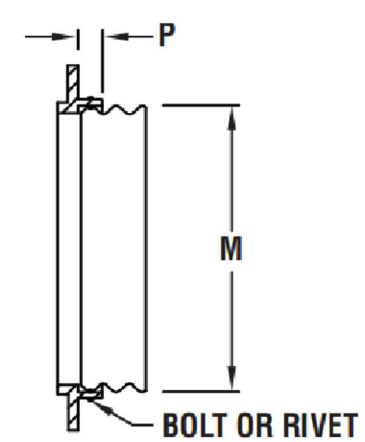


CIP



Type 4 Spigot





Corrugated Pipe Attached to Spigot Back Frame

C-10 CANAL GATE PARTS		
NUMBER	NAME	QUANTITY
1	FRAME	1
2	COVER	1
3	WEDGE (R&L)	2
4	GUIDE RAIL (R&L)	2
5	HEADRAIL	1
6	STEM	1
8	THRUST COLLAR	1
9	LIFT NUT	1
10	WEDGE BOLT	4
11	WEDGE NUT	4
12	FRAME BOLT	4

Dimensions

Units	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	W
in	12.000	14.000	15.875	7.000	0.875	2.875	10.000	59.000	4.000	3.500	3.000	13.000	4.000	2.250	0.500	4.000	11.875	12.000	12.270	12.780
ft	1.00	1.17	1.32	0.58	0.07	0.24	0.83	4.92	0.33	0.29	0.25	1.08	0.33	0.19	0.04	0.33	0.99	1.00	1.02	1.07

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CONFLUENCE
consulting incorporated

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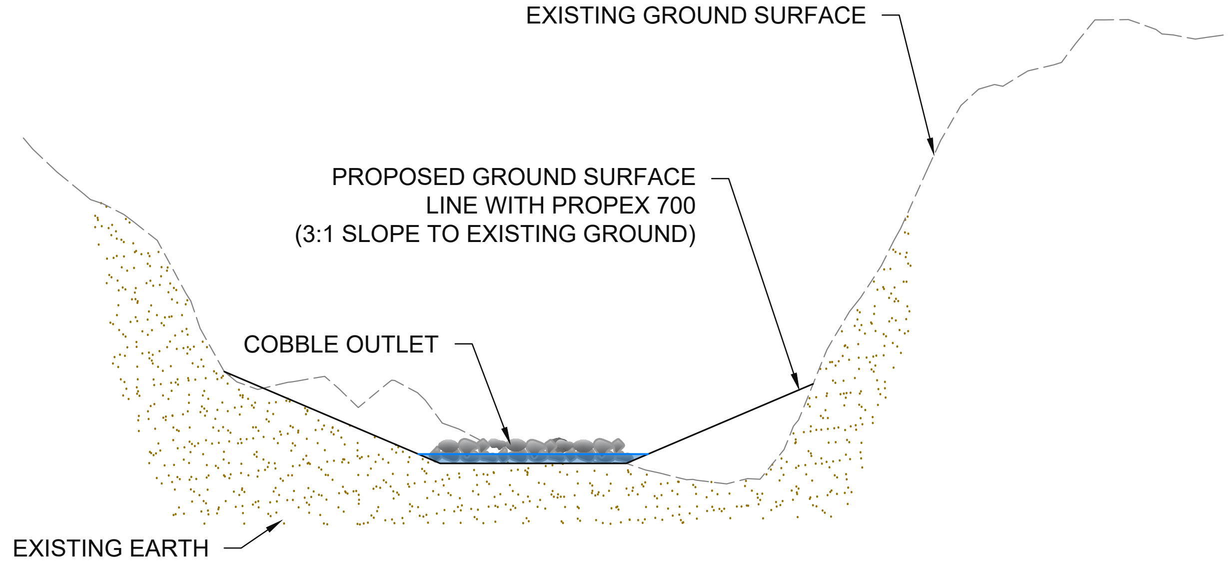
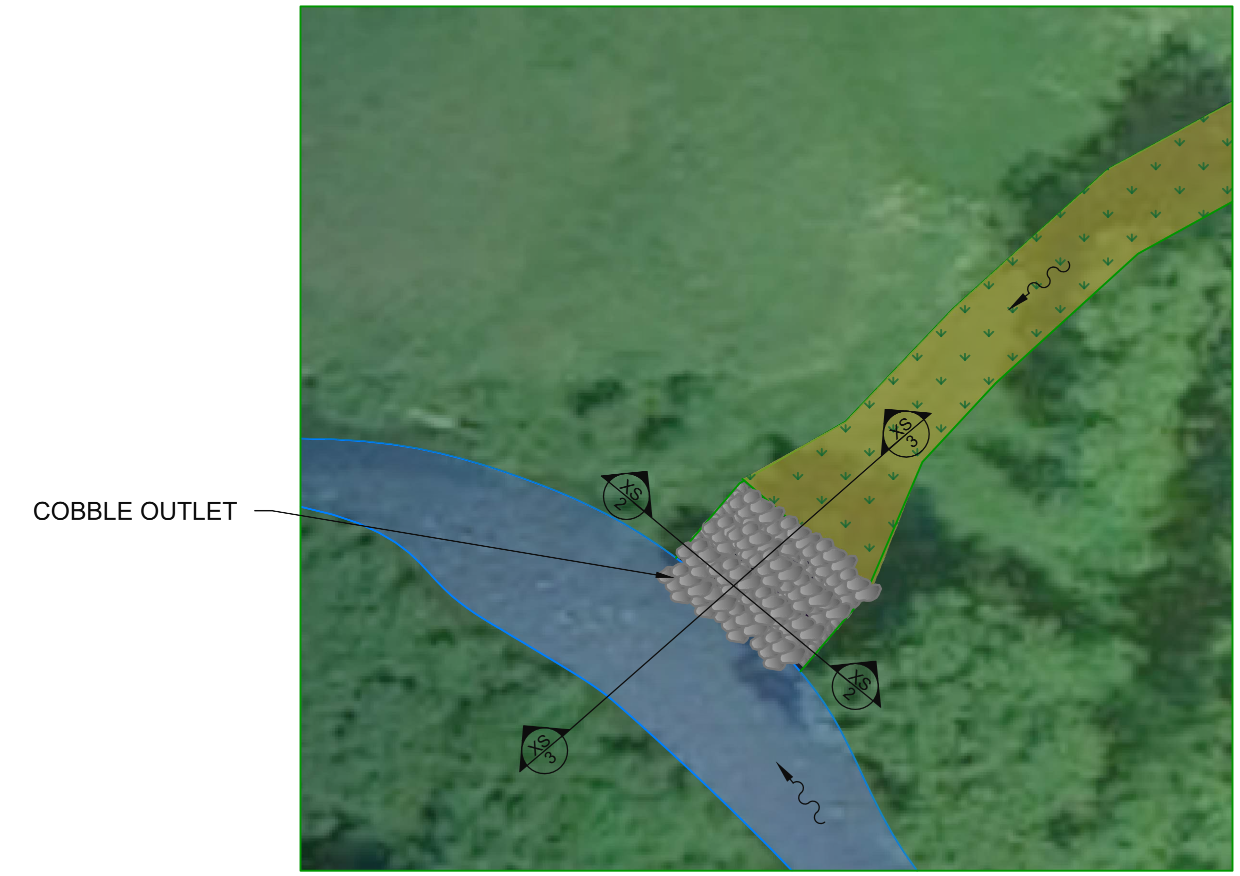
HEAD-GATE DETAILS

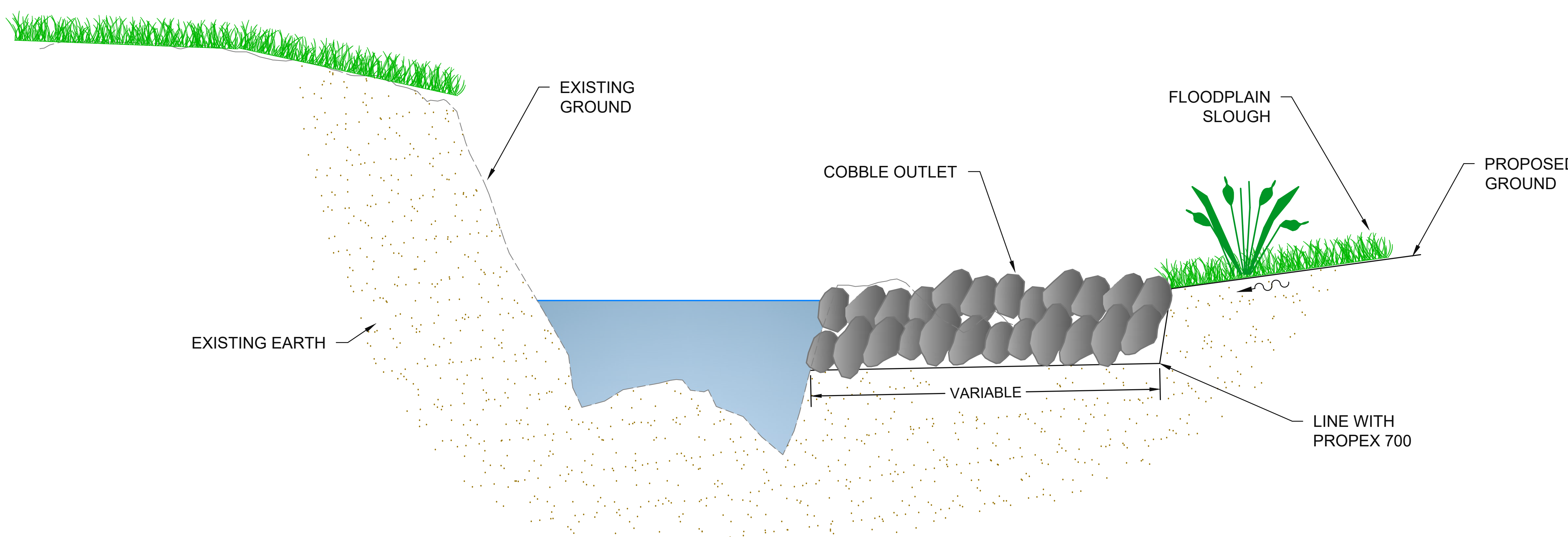
SHEET: 4



XS 2 WETLAND OUTLET LATERAL CROSS SECTION
NOT TO SCALE



5-1 WETLAND OUTLET PLAN VIEW
NOT TO SCALE



XS 3 WETLAND OUTLET HORIZONTAL CROSS SECTION
NOT TO SCALE

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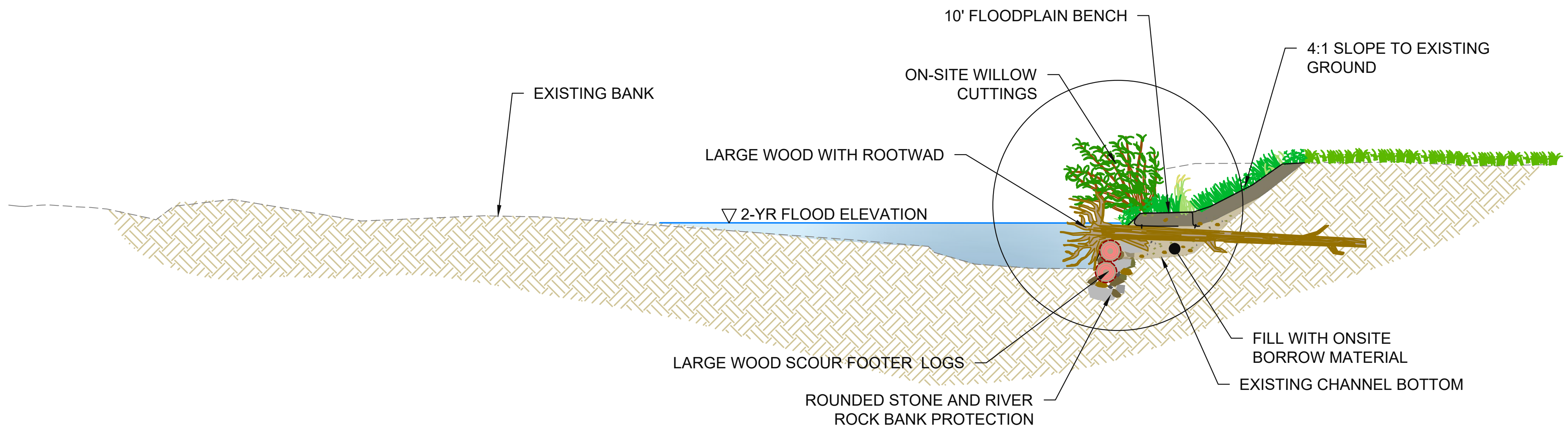
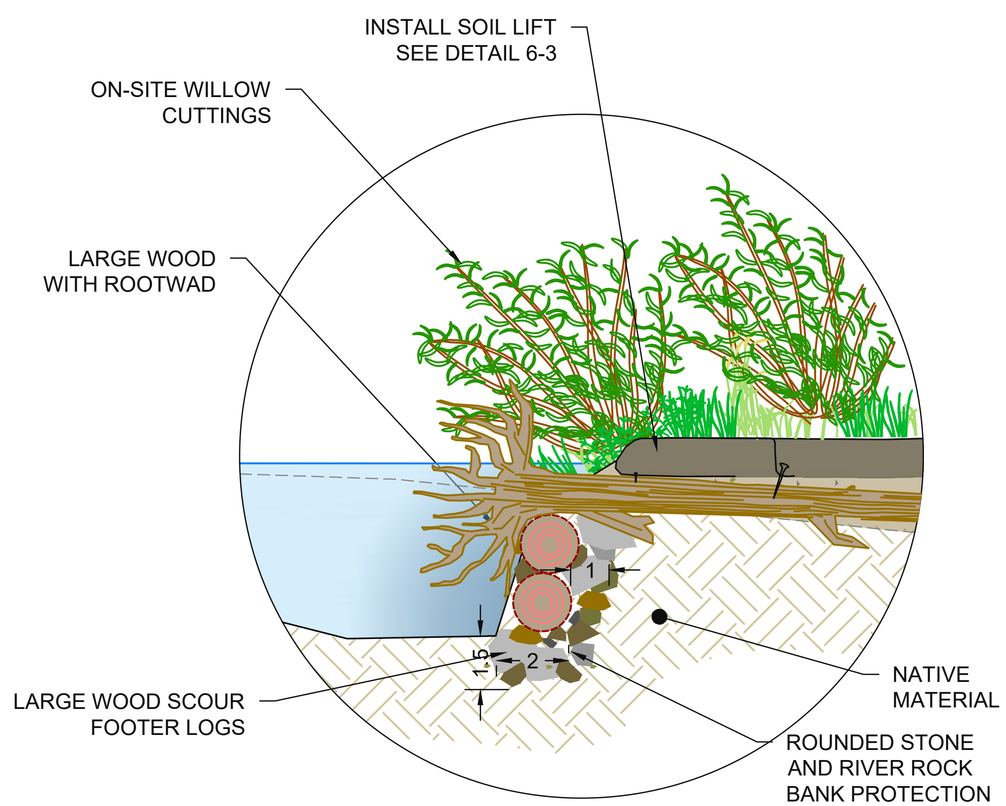
OUTLET DETAIL

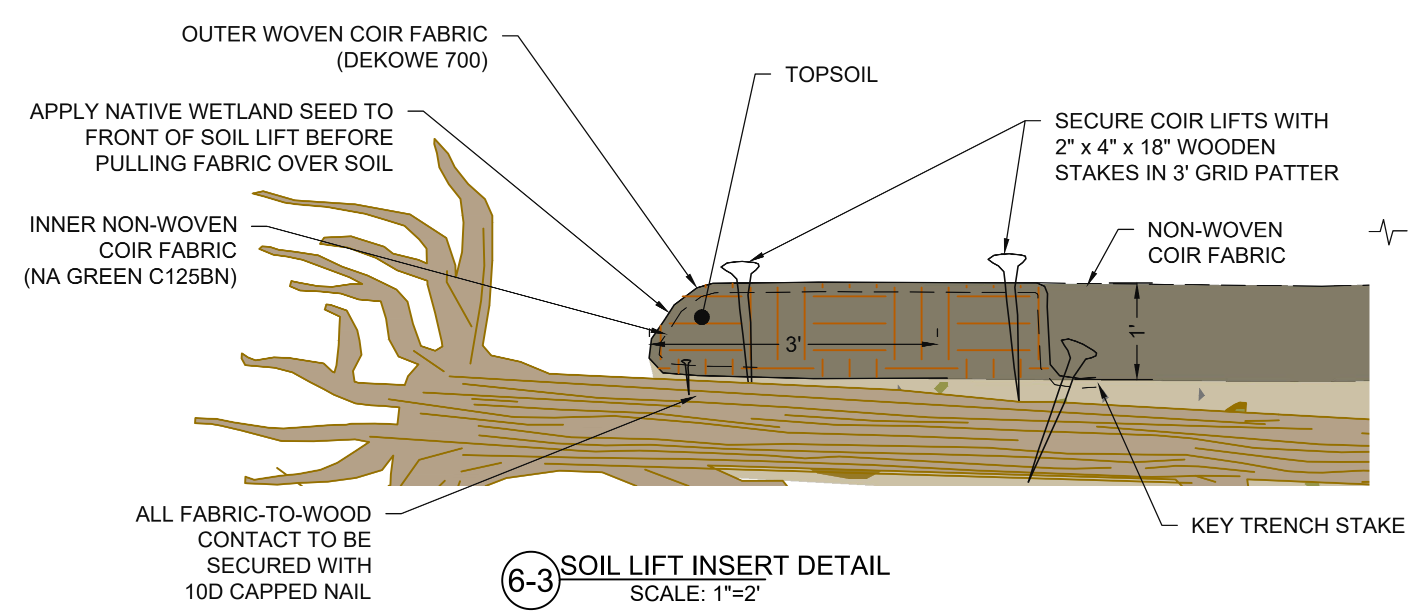
SHEET: 5



6-1 TYPICAL BANK RESTORATION CROSS SECTION
SCALE: 1"=10'



6-2 TYPICAL BANK RESTORATION DETAIL
SCALE: 1"=5'



6-3 SOIL LIFT INSERT DETAIL
SCALE: 1"=2'

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consulting incorporated

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BANK RESTORATION DETAILS

SHEET: **6**

Wetland Seed Mix					
	Common Name	**Species**	**% of Mix**	**# Seeds/lb**	**PLS lbs/acre**
1	Amerian sloughgrass	*Beckmannia syzigachne*	5%	1,150,000	0.227
2	Nebraska sedge	*Carex nebrascensis*	10%	534,100	0.979
3	Slender wheatgrass (var. Primar)	*Elymus trachycaulus*	32%	159,000	10.520
4	American mannagrass	*Glyceria grandis*	20%	1,280,000	0.817
5	Baltic rush	*Juncus balticus*	10%	8,000,000	0.065
6	Fowl bluegrass	*Poa palustris*	20%	3,156,000	0.331
7	Blue vervain	*Verbena hastata*	3%	1,792,800	0.087

Upland Seed Mix					
	Common Name	**Species**	**% of Mix**	**# Seeds/lb**	**PLS lbs/acre**
1	Thickspike wheatgrass (var. Chief)	*Thinopyrum intermedium*	10%	88,000	4.950
2	Slender wheatgrass (var. Primar)	*Elymus trachycaulus*	20%	159,000	5.479
3	Western wheatgrass (var. Rosana)	*Pascopyrum smithii*	20%	110,000	7.920
4	Bluebunch wheatgrass	*Pseudoroegneria spicata*	20%	450,000	10.000
5	Green needle grass	*Nassella Viridula*	15%	181,000	5.000
6	Quickguard	*Triticum aestivum x Secale*	10%	13,000	10.000
7	Rocky mountain beeplant	*Cleome serrulata*	5%	65,900	3.305

Shrub Plantings (1-5 gal)		
Common name	**Species**	**Totals**
Peachlef willow	*Salix amygdaloides*	115
Bebb's willow	*Salix bebbiana*	115
	Total	230

Wetland Sod Mat Slough Plantings		
Common Name	**Species**	**# of Mats**
Water sedge, Beaked sedge, Common spikerush	*Carex aquatilis, Carex utriculata, Eleocharus palustris*	16
Nebraska sedge, Woolly sedge, Arctic rush	*Carex nebrascensis, Carex pellita, Juncus arcticus*	16
	Total	32

Wetland Plug Plantings (10 cu in)		
Common name	**Species**	**Totals**
Nebraska sedge	*Carex nebrascensis*	525
Baltic rush	*Juncus balticus*	525
Wooley sedge	*Carex pellita*	525
Beaked sedge	*Carex utriculata*	2,003
Common spikerush	*Eleocharis palustris*	2,003
Panicled bulrush	*Scirpus microcarpus*	827
Softstem bulrush	*Schoenoplectus acutus*	827
	Total	7,235

Cobble Sizing				
D15 =	0.48	ft	5.80	Inches
D30 =	0.77	ft	9.29	Inches
D50 =	0.97	ft	11.61	Inches
D85 =	1.26	ft	15.09	Inches
D100 =	1.55	ft	18.58	Inches

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CONFLUENCE
consulting incorporated

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BOZEMAN, MONTANA

QUANTITIES

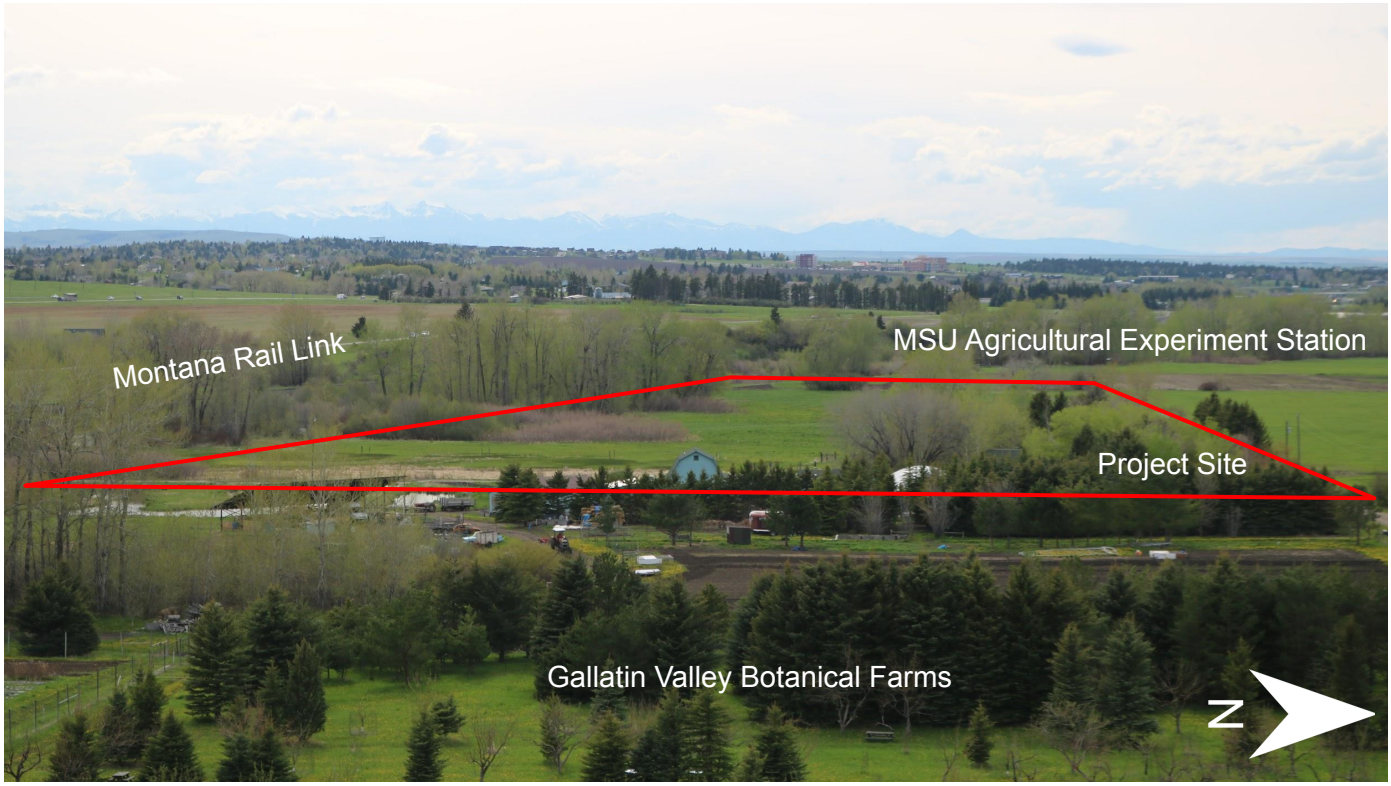
SHEET: 7

Supplemental Attachment 2

Project Site Photos

Project Site Photos

Upper East Gallatin Restoration Implementation
Site Photos



Site overview looking west, downstream towards Bozeman.

Looking east across the farm field where the proposed wetland features will be constructed.

Looking north across the farm field where the proposed wetland features will be constructed.

Standing on the shared driveway, looking west across the farm field where the proposed wetland features will be constructed. Showing water moving across the ford and onto the project site from the 2018 restoration at Gallatin Valley Botanical.

Looking north at the ford, standing on the shared driveway. Photo was taken in June 2022 showing high water conditions where water overtopped the ford. The ford is constructed on a bed of large rock allowing water to move freely over and below the concrete slab.

Looking east, upstream from the bridge that crosses the East Gallatin River to access the project site. There are several river wide beaver dams that back water up into the riparian areas and floodplain on the Gallatin Valley Botanical property.

Looking across the East Gallatin River to the Montana Rail Link property. An example of erosion and downcutting caused by lack of deep rooting riparian vegetation and miles of upstream confinement by transportation infrastructure.

Looking upstream showing the rapidly eroding bank on Mr. Zeff's property which lacks deep rooting riparian vegetation.

Aerial photograph taken by Kestrel Aerial of the 2008 East Gallatin flooding event. Mr. Zeff's property is outlined in red.

Aerial photograph taken by Kestrel Aerial of the 2008 East Gallatin flooding event. Mr. Zeff's property is outlined in red.