2022 319 Application Form - General and Focus Watershed

**********REVISED 10/22/2021**********

General Information

Project Name: Nevada Creek Restoration Project Phase 5

Sponsor Name: Big Blackfoot Chapter of Trout Unlimited

Registered with the Secretary of State? Y

Registered with SAM? Y

Duns # 610096153

Does your organization have liability insurance? Y

Primary Contact: Ryen Neudecker	Signatory: Jim Stutzman
Title: Restoration Coordinator	Title: Board President
Address: PO Box 1	Address: PO Box 1
City: Ovando State: MT Zip Code: 59854	City: Ovando State: MT Zip Code: 59854
Phone Number: 406.240.4824	Phone Number: 406-799-4393
Email Address: ryen@montanatu.org	Email Address: stutz292@hotmail.com
Signature:	Signature:

Technical and Administrative Qualifications

The mission of BBCTU is to restore and preserve the cold-water fishery of the Blackfoot River and its tributaries. Our organization works closely with the Blackfoot Challenge whose mission is to coordinate efforts that will enhance, conserve and protect the natural resources and rural lifestyle of the Blackfoot River Valley for present and future generations. Through our collaborative efforts, in partnership with several local, state, federal agencies, other non-profits, and private landowners (Blackfoot Restoration Partners) we work towards a shared vision of resource conservation and management. Ryen Neudecker is the Restoration Coordinator for BBCTU and has 19 years' experience coordinating and implementing habitat restoration projects in the Blackfoot River Watershed and has managed over 100 different grants and partnership agreements with state, private and federal partners.

Past Projects

Project Name	Grant or Contract Amount	Funding Entity *(entity name/program, contact person, phone, email)*	Completion Date
Poorman Creek Restoration Project Phase 2	$ 58,000.00	MTFWP Future Fisheries Ms. Michelle McGree 406.444.2432; MMcGree@mt.gov	October 2021
Nevada Creek Restoration Project Phase 4	$ 66,000.00	MTFWP Future Fisheries Ms. Michelle McGree 406.444.2432; MMcGree@mt.gov	November 2020
Morrell Creek Restoration Projects	$ 300,000.00	USFS Lolo National Forest Mr. Shane Hendrickson 406.544.7216; shendrickson@fs.fed.us	October 2020

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**.*

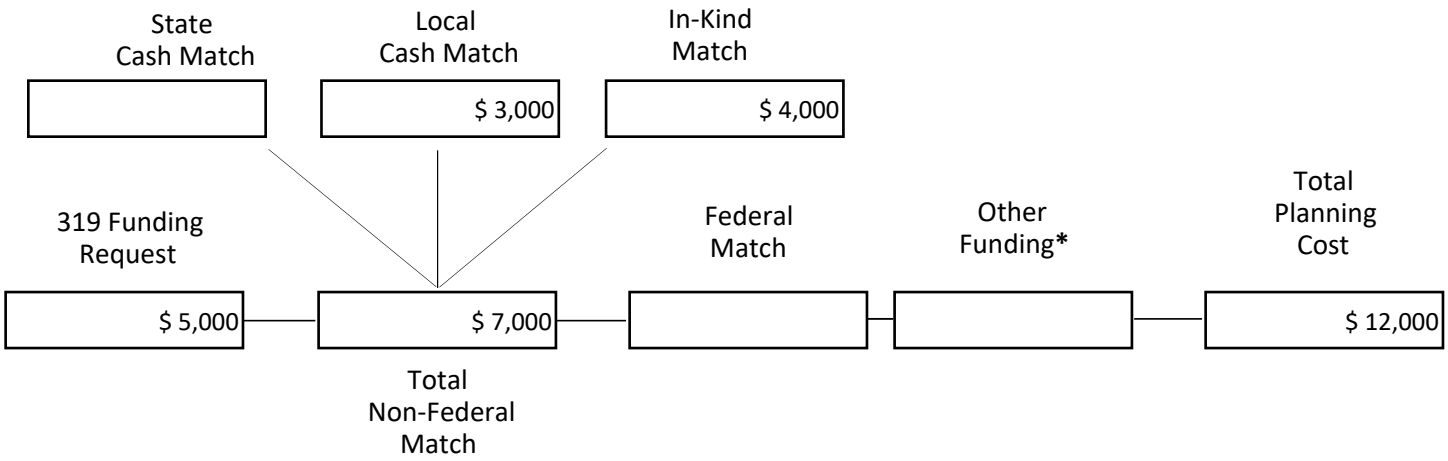
	319 Funding Request	Non-Federal Match	Federal Match	Other Funding	Total Cost
Education and Outreach Project	$ 5,000	$ 7,000	$ 0	$ 0	$ 12,000
Administration	$ 5,700	$ 9,000	$ 0	$ 0	$ 14,700
Project 1 Name					
Project Planning & Oversight	$ 1,000	$ 31,500	$ 0	$ 0	$ 32,500
Landowner Agreements, O & M	$ 0	$ 2,500	$ 500	$ 0	$ 3,000
Project Implementation	$ 81,000	$ 119,780	$ 50,000	$ 0	$ 250,780
Other Activities	$ 0	$ 0	$ 0	$ 0	$ 0
Project Effectiveness Monitoring	$ 7,000	$ 8,000	$ 0	$ 0	$ 15,000
Total	$ 89,000	$ 161,780	$ 50,500	$ 0	$ 301,280
Project 2 Name					
Project Planning & Oversight					$ 0
Landowner Agreements, O & M					$ 0
Project Implementation					$ 0
Other Activities					$ 0
Project Effectiveness Monitoring					$ 0
Total	$ 0	$ 0	$ 0	$ 0	$ 0
Project 3 Name					
Project Planning & Oversight					$ 0
Landowner Agreements, O & M					$ 0
Project Implementation					$ 0
Other Activities					$ 0
Project Effectiveness Monitoring					$ 0
Total	$ 0	$ 0	$ 0	$ 0	$ 0
Project 4 Name					
Project Planning & Oversight					$ 0
Landowner Agreements, O & M					$ 0
Project Implementation					$ 0
Other Activities					$ 0
Project Effectiveness Monitoring					$ 0
Total	$ 0	$ 0	$ 0	$ 0	$ 0
Grand Total	$ 99,700	$ 177,780	$ 50,500	$ 0	$ 327,980

Education and Outreach

DEQ recognizes that 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. 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 these critical relationships. DEQ 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. Education and outreach activities funded by 319 or used as match for 319 funding must adhere to all of the eligibility requirements outlined in the annual Call for Applications document.

Education and Outreach Deliverables *(Identify the education and outreach activities you will engage in and methods you will use to document their completion.)*

Big Blackfoot Chapter of Trout Unlimited will host at least three project tours to highlight project progress with conservation groups, agency partners and community members. BBCTU will also coordinate at least two service days for volunteers and students to collect and install willow cuttings. In addition, the partners will host at least one youth field day for local schools, working with students to measure stream flows, turbidity, and temperature, while also teaching them about native trout and macro-invertebrates and to assess riparian and in-stream habitat health. The benefit of this project and information about the Blackfoot Restoration program aimed at improving water quality and fisheries habitat needs will also be promoted through the BBCTU and Blackfoot Challenge's web site, social media and print and electronic newsletters. Activities will be documented by reporting on the number of attendees, submitting photos and providing links/screenshots to published articles.



Match Source	BBCTU	Secured	✔
Match Source	Blackfoot Challenge	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

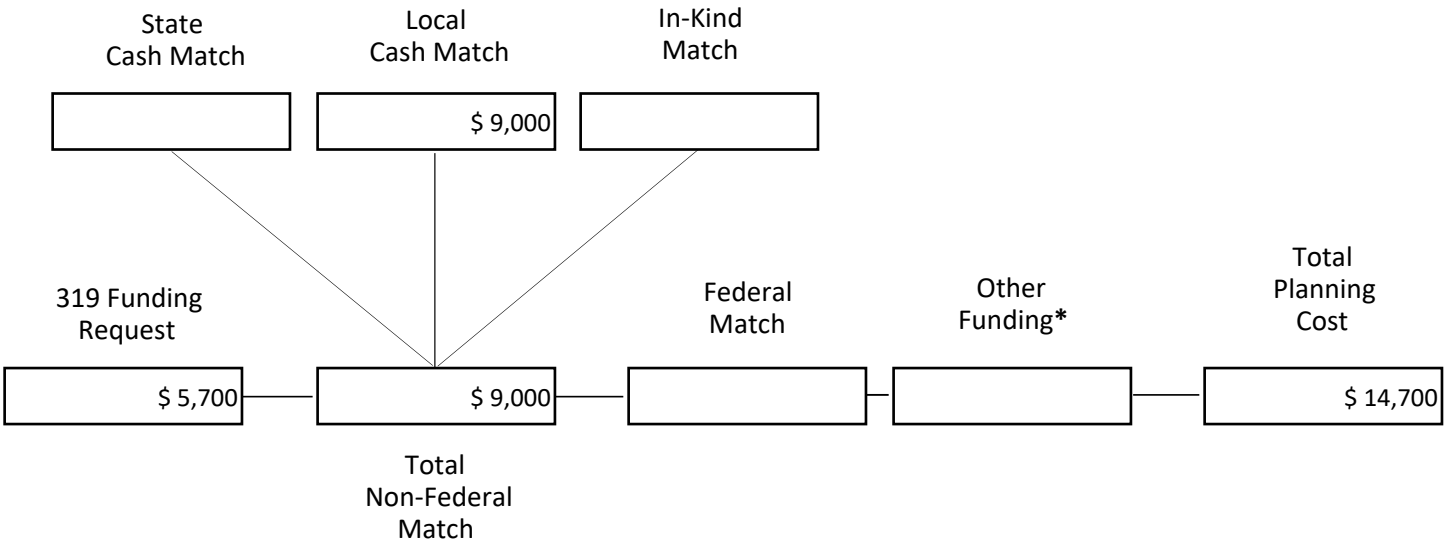
Project administration includes book keeping, invoicing, interim/annual/final report preparation, office supplies, rent, communications, etc. Up to 10% of the total requested 319 funds for your entire application can be used to pay for project administration. However, like all other tasks, payment is by reimbursement for actual expenses incurred.

Project Administration Deliverables *(Include interim/mid-year, annual, and final reports, as well as invoicing and office necessities.)*

Big Blackfoot Chapter of Trout Unlimited will provide contract accounting, record keeping and administration for this project ensuring that all activities remain on time and within budget. Administrative duties will include preparing and submitting billing statements, providing status reports and annual reports, and fulfilling the final report requirements. Project staff will remain in regular contact with the DEQ project manager.

1. Quarterly status and financial reports submitted to DEQ.
2. Annual progress reports submitted to DEQ.
3. Final project report including all required attachments submitted to DEQ.

Administrative fee is less than 6% of budget.



Match Source	BBCTU	Secured ☑
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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 406-465-0039.

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	Nevada Creek Restoration Project Phase 5

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

Blackfoot River - Blackfoot Challenge

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

Waterbody name from 2020 List of Impaired Waters	Nevada Creek
Probable causes of impairment to be addressed	Sediment, Nutrients, Temperature, Altered streamside/physical substrate
Waterbody name from 2020 List of Impaired Waters	
Probable causes of impairment to be addressed	

OR*

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	

**While the majority of the available 319 project funding is dedicated to addressing known impairments, EPA is allowing states to use a limited amount of funding to protect non-impaired waters (healthy waters) from becoming impaired.*

Project 1 Location

Upstream End	Latitude	46.840412	Longitude	-112.919025
Downstream End	Latitude	46.837462	Longitude	-112.912673
Centerpoint	Latitude	46.843718	Longitude	-112.920312

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	170102030903

☑ Project site map(s) attached, showing the location of all proposed on-the-grount restoration activities?

Community Participation and Support

Landowner	Contributions to Project	Letter of Support Attached?
Mannix Brothers Ranch	Allow access; provide sods, gravel, transplants, willow cuttings; participate in project coordination; landowner agreement goals and objectives	☑
		☐
		☐
		☐

Partner	Role	Letter of Support Attached?
Montana Fish, Wildlife & Parks	MTFWP has or will assist with developing project objectives, establish permit conditions and lead the monitoring effort of the fisheries response. Future Fisheries is also a potential source for this next phase of work on Nevada Creek and has supported the previous four phases.	☐
Blackfoot Challenge	The BC will help develop the grazing management system on this reach of Nevada Creek in coordination with the landowners and will help conduct outreach and education with local communities and schools related to this and overall water quality in the Blackfoot.	☑
USFWS Partners for Fish & Wildlife Program	The USFWS will provide technical review and oversight assistance, permitting assistance and financial support, play a key role in the completion of the grazing system and will provide grass seed and assist with project seeding.	☑
Montana Trout Unlimited	Provided funding for the LiDAR flight and will help notify volunteers of opportunities to collect willows.	☐

Other Community/Stakeholder Support

BBCTU will coordinate with local schools and enthusiastic volunteers to ensure their involvement in this project from a service and educational value. With a watershed-wide constituency of approximately 8,000 residents, we bring partners to the table to build trust, seek common ground and develop win-win solutions for the natural resources and local communities in the Blackfoot. Our team is comprised of landowners, fisheries and wildlife biologists, ecologists, hydrologists, engineers, range management specialists, and water rights specialists. This combination interjects a broad range of view points, a substantial knowledge base, and many years of experience in the implementation of on-the-ground restoration projects. The BBCTU Board of Directors is comprised of several landowners and business owners from the Blackfoot River watershed. Their time and participation in project development and design review, project sequencing, along with private donor fundraising will be important to this effort

Project Description

Describe the nature and extent of the nonpoint source problem you are trying to address, the root causes of the problem, and your proposed solution.

Nevada Creek is the largest tributary to the middle Blackfoot River and supports populations of westslope cutthroat trout, rainbow trout, brown trout, bull trout and other fish species. Listed by Montana DEQ as impaired for nutrients, siltation, suspended solids, alterations in streamside cover and substrate habitat alterations, historic channel manipulations and agricultural impacts have caused the channel to downcut and severely erode as the stream tries to reconnect with a floodplain and regain the proper pattern, profile and dimensions. The Blackfoot Restoration team has initiated a comprehensive restoration program aimed at addressing the causes and sources of water quality and aquatic life impairments in the Nevada Creek drainage for several reasons, including its high potential to greatly improve water quality, instream and riparian habitat conditions, and ultimately increase downstream recruitment of trout populations. Since our work began in 2010, over 24,400 feet of instream and associated riparian habitat has been restored and follow up monitoring has indicated a strong fishery and riparian restoration response and bank erosion rates have been reduced by over 50%. The proposed project outlined in this application seeks to secure funding for the next phase of our collaborative effort on 9,100 feet of Nevada Creek and restoration strategies in the project area will focus on reducing sediment loading though stream bank treatments (matrices consisting of small wood, willow and sod mats built at bankfull elevations) while improving floodplain connectivity, aquatic habitat complexity, and overall stream function. In contrast to past restoration phases, planform modifications are not proposed as the geometry is complex, demonstrating high planform diversity, and within the range of measured reference conditions. Bank Erodibility Hazard Index ratings were conducted to delineate streambanks characterized by low to extreme streambank annual erosion rates. Moderately to extremely rated streambanks are due to high, unstable terraces. These formerly willow-dominated surfaces are now supporting grass/forb community types due to land clearing, agricultural practices, and grazing. Restoration strategies aim to create streambank conditions that will promote woody vegetation establishment and reduce streambank erosion rates. Actively formed and decadent (i.e. compromised) beaver dams are prevalent throughout the project area. These conditions attest to the temporal nature of the beaver dam complexes formed in entrenched channel systems. Within the project area, a majority of the streambanks are rated moderate to very high in terms of bank erodibility potential, are geotechnically unstable as a result of the wet-dry cycles that occurs as beaver dams are formed, and are then compromised. The rapid drawdown of bank pore water pressure in the spring causes block failure and collapse of overlying bank sediments. In these areas, restoration strategies aim to reduce bank height ratios to floodplain elevation and establish woody vegetation, which in turn will provide deep binding root masses to stabilize streambank soils. These strategies will increase streambank resiliency to erosion. The restoration strategies embrace the concept that beaver are a natural and desired component of Nevada Creek, and sediment load reduction strategies can be implemented to support these desired physical and biological riverine components. Community richness and population densities of fishes in the main stem Blackfoot River closely reflect the quality of nearby tributaries making the broad level, systematic restoration program across the entire watershed fundamental to the success in recovering native trout. Our program is a collaborative effort with private, state and federal partners and this project will provide new opportunities to educate communities about water quality and encourage new projects and partnerships.

Is this project a continuation of a previous project? If so, please explain the connection.

This project builds upon the collaborative effort to restore and delist Nevada Creek from the Impaired Waters list that began in 2010, with the latest stretch being completed in November of 2020. The total stream footage restored in the Nevada Creek drainage is 24,400 with hundreds of acres under grazing management systems. The landowners associated with this next proposed phase has toured the previous phases and have been requesting assistance with restoring the stretch of Nevada Creek that runs through their ranch. Restoring Nevada Creek and addressing the multiple limiting factors throughout the drainage is an important priority for the Blackfoot Restoration team and is part of the Watershed Restoration Plan.

Water Quality Benefits and Sustainability

Explain why the project is an appropriate next step for making progress towards removing a pollutant/waterbody combination from Montana's 2020 Impaired Waters List or preventing a healthy waterbody from becoming impaired?

The long-term goal across the Nevada Creek watershed is to have a self-sustaining stream system and a functional, healthy riparian area all while supporting agricultural values. Having the opportunity to address a large-scale, contiguous reach along Nevada Creek with a committed private landowner will allow for a critical next step in making huge strides towards delisting Nevada Creek from the Impaired Waters List. In addition, the demonstration and educational value of this project is important to further our restoration program across the Nevada Creek drainage. The ranch for this next phase of restoration is also protected with a conservation easement.

Will your project address a major local source of nonpoint source pollution? Explain.

Yes, pre-project Bank Erosion Hazard Index (BEHI) data collected through the proposed project reach indicates an estimated 381 tons per year of sediment is contributed to Nevada Creek from streambank related sources, primarily related to bank erosion and channel instability. An important objective of this project is to address the causes of the channel impairments, reconnect the floodplain and allow the stream to be self-maintaining and fully-functioning again.

Will the project create long-term, sustainable reductions in NPS pollution? Explain.

To date, monitoring data from our collaborative efforts to restore the Nevada Creek drainage has shown a reduction in bank erosion rates of over 50%, a 90% survival of riparian plantings and an increase in wetland acres due to floodplain reconnection. The native trout response is also a very strong indicator that we are meeting our instream and riparian habitat goals. Monitoring of projects initially implemented in 2010 continuing through 2020 are still ongoing and with the grazing management plans and landowner agreements in place, we are confident that our strategy is effective and sustainable. The entire reach of the proposed project is also protected from development by a perpetual conservation easement.

Describe how the project will promote self-maintaining, natural, ecological and social processes that protect water quality?

This next phase of Nevada Creek will benefit 9,100 feet of channel and over 375 acres of riparian and upland habitat with a goal of establishing a floodplain or meander belt width that will support natural floodplain function. The current river system is locally incised, and lowering bank heights to floodplain elevation will reduce near bank stress and erosion rates. Our approach embraces the concept that beaver are a natural and desired component of Nevada Creek critical for floodplain connection, and sediment load reduction strategies can be implemented to support these desired physical and biological riverine components. This approach, in coordination with a grazing management plan, will set the stage for the project goal which is to restore a self-sustaining stream channel and riparian system. The design process will follow similar concepts and specifications implemented across the Blackfoot River watershed over the past fifteen years. That work has required very little maintenance work and monitoring data has consistently shown that we are meeting project goals and objectives. Nothing "artificial" will be proposed and the design parameters will meet the valley and channel type. The landowner is committed to protecting the investment by also developing a grazing management system through the proposed project reach.

Nonpoint Source Goals and Success Metrics

Nonpoint source pollution goal	Action that will be taken to reach the goal	Metrics used to measure success
Reduce siltation	Restore Nevada Creek through this reach to the proper pattern, profile and dimensions, reconnect to the floodplain and protect the riparian area through the grazing management plan.	Pre and post-project BEHI data and photo points.
Restore streamside vegetation	Ensure floodplain reconnection and implement revegetation techniques that will set the stage for natural regeneration. Dormant willow cuttings and transplants will be incorporated throughout the project reach. Grazing management system will also encourage rejuvenation of the riparian area.	BEHI data, photo points and vegetation survival surveys.

Project Education and Outreach

Describe the educational benefits of your project. Will the project inspire additional nonpoint source pollution prevention work within the watershed?

The restoration program in the Blackfoot River watershed is a grass-roots led effort with 100% voluntary participation. The demonstration value of the work supported by past 319 funding has highlighted the effectiveness of these projects and stimulated more interest in restoration. Simply put, landowners are realizing that they can still manage their agriculture operations while supporting a healthy riparian area and stream system. These projects are saving acres of important ground from being washed downstream and the collaborative nature of these projects demonstrate that agriculture, fisheries, high quality instream and riparian habitat can all coexist. The landowner interest in this next proposed phase is driven by the success of the projects implemented to date in the Nevada Creek drainage with the support of 319 funding.

Bigger Picture Benefits

NPS pollution projects often have benefits that go beyond simply cleaning up Montana's lakes and streams. Describe your project's benefits to each of the items below. If there are no associated benefits, type "NA" for "not applicable".

Environmental Justice (EJ)

Will the project improve or create public access to a healthy environment?

Nevada Creek is the largest tributary to the middle Blackfoot River and this area provides important public fishing opportunities. The project on Nevada Creek is designed to increase wild trout habitat in the Blackfoot River watershed and will ultimately provide off-site recruitment to the Blackfoot River by improving spawning and rearing habitat in a high priority tributary. By addressing the dramatic bank erosion issues, water quality conditions will improve and bank storage and groundwater recharge achieved through floodplain connection will help contribute cooler water temperates in the drainage.

Will the project have a public benefit in a county where 15% or more of the population lives below the poverty level? Counties include: Big Horn, Blaine, Chouteau, Deer Lodge, Garfield, Glacier, Golden Valley, Hill, Lake, Liberty, Lincoln, Meagher, Mineral, Musselshell, Pondera, Powell, Roosevelt, Rosebud, Sanders, Silver Bow, Toole and Wheatland.

Nevada Creek is located in Powell County and will benefit the public by improving the fishery in the Blackfoot River, so yes we believe this project will have a public benefit.

Will the project benefit historically underserved populations (e.g. minority populations, people with disabilities)?

The project will create local jobs by using local contractors and supplies thereby fueling the local economy. By increasing recruitment of trout populations in the middle Blackfoot River, local kids and community members in Helmville will also have an increased opportunity to catch trout. Improving habitat conditions in the middle Blackfoot River will also encourage anglers to fish this area of the Blackfoot and ultimately support local businesses during their visit to the area. BBCTU also participated in the Wounded Warrior program and hopes to continue that partnership in future years.

Climate Change

Will the project improve climate change resilience for communities, native plants, wildlife or ecosystems?

Bank storage (water absorbed and stored in stream banks) through floodplain connection, water temperature decreases, and the rejuvenation of a healthy, self-sustaining, native riparian ecosystem will all contribute to climate resiliency. Floodplains play an integral role in the health of river systems and provide some of the most biologically productive habitat for a multitude of animals and plant species. The exchange of water, sediments and organisms that occurs during periodic inundation and through connectivity has far reaching benefits including attenuating flood stages, dispersing energy, improving water quality, and storing carbon. This project will benefit westslope cutthroat trout and bull trout--a Montana species of special concern and a threatened species under the ESA. Species dependent on healthy riparian areas will also see positive benefits including migratory song birds, sandhill cranes, waterfowl, grizzly bears, and amphibians.

Will the project restore or protect cool, late-season flow?

By restoring floodplain connection and ultimately groundwater recharge, hyporheic exchanges during lower flow periods will help cool stream temperatures. By restoring the proper dimensions by restoring the appropriate width to depth ratios, water temperatures will also decrease.

Impacts to Downstream Communities

Will the project reduce pollutant loading above a permitted point source discharge in a way that could increase assimilative capacity in the the receiving water?

NA

Will the project help protect a drinking water source?

Nevada Creek flows through several private land parcels before entering the Blackfoot River near Helmville, Montana. There are hundreds of wells in this area and improving water quality and quantity is a priority. Floodplain connection will help filter sediments and nutrients along with recharging the groundwater aquifer. Nevada Creek is one of the largest tributaries to the Blackfoot River which flows through several communities including Ovando, Greenough, Bonner and Missoula--the second largest city in Montana.

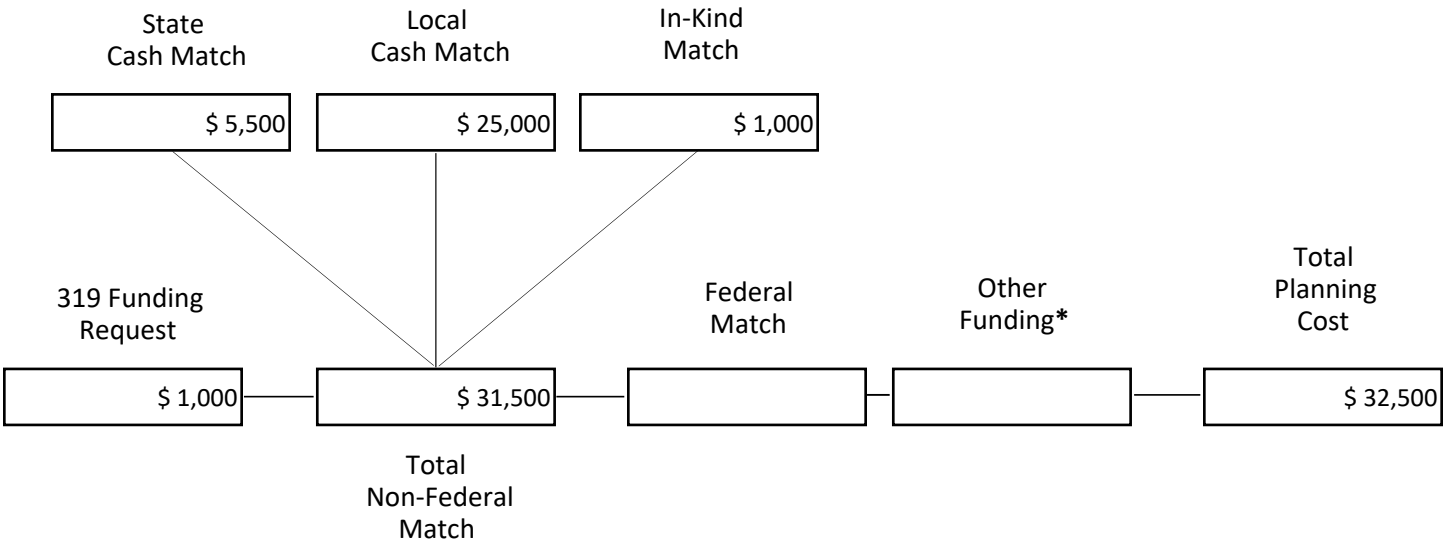
Tasks and Budget

DEQ uses a standard template to develop scopes of work for 319 contracts. The tasks below match up with DEQ standard scope of work template. Some tasks might not be applicable to your project. Please leave the non-applicable tasks blank. If your project doesn't fit the task outline, use the task labeled "Other" to describe your project.

Task 1 - Project Planning Deliverables *(Include such things as completing project designs, conducting site evaluations, obtaining permits, organizing volunteers, conducting scoping meetings, etc. Identify specific deliverables that will be submitted.)*

Big Blackfoot Chapter of Trout Unlimited will help facilitate implementation schedules, volunteer /outreach events and ensure project monitoring meets 319 contract requirements. All documents required to begin implementation such as project permits will be shared with DEQ project manager.

Additional deliverables that will be an important part of this project, but will occur before a potential contact for this next phase is signed include: a final design document, permit acquisition, project bids and contractor contracts secured.



Match Source	Montana Fish, Wildlife & Parks	Secured	✔
Match Source	USFWS Partners for Fish & Wildlife Program	Secured	✔
Match Source	Big Blackfoot Chapter of Trout Unlimited	Secured	✔
Match Source	Montana Trout Unlimited	Secured	✔

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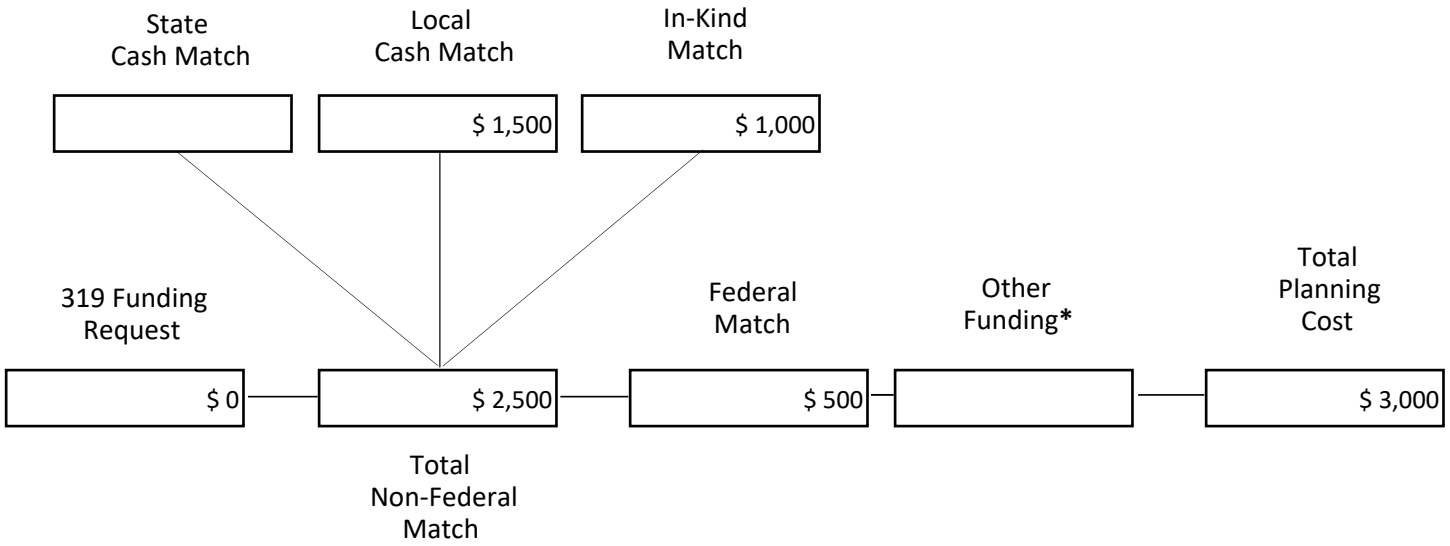
Landowner Agreements, Operation and Maintenance

This task only applies to projects involving on-the-ground activities. DEQ periodically evaluates the effectiveness of each on-the-ground project. To accomplish this, DEQ requires a process be in place to allow periodic access to the project site. The landowner agreement should also specify the roles of each project partner in the design, implementation and continued operation of on-the-ground pollution prevention practices. DEQ does not require the use of a specific landowner agreement template. In some situations, existing agreements between the project sponsor and the landowner may be sufficient.

Task 2 - Landowner Agreements, Operation and Maintenance Deliverables *(Include such things as landowner/ sponsor communication, and draft and final agreements.*

BBCTU is the main contact between the landowner and contractors and will ensure the landowner agreement is drafted to outline the maintenance and monitoring responsibilities of the project. A copy of the agreement will be submitted to DEQ for review and comment prior to signature, followed with a final signed agreement. Partners will ensure that the landowner agreement addresses who shall be responsible for operating and maintaining all structures, vegetation, management measures, and water quality benefits associated with the projects. The partners will also monitor and ensure this operation and maintenance for the life of the projects.



Match Source	Landowners	Secured	✔
Match Source	Big Blackfoot Chapter of Trout Unlimited	Secured	✔
Match Source	US Fish & Wildlife Service	Secured	✔
Match Source		Secured	☐

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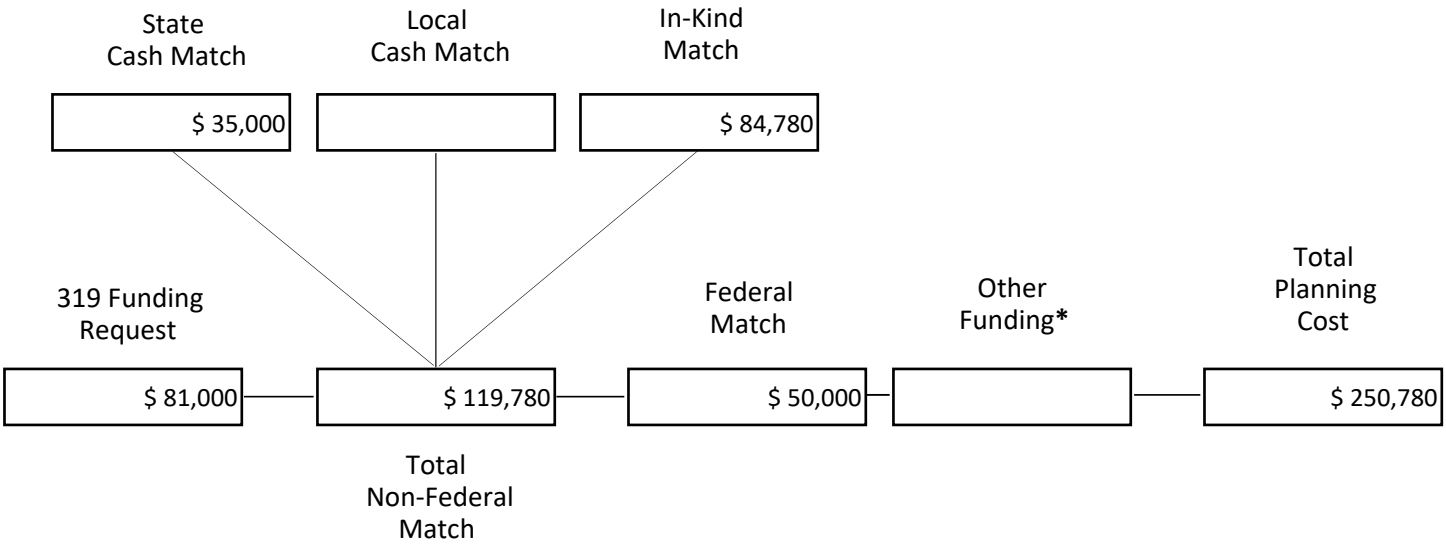
Project Implementation

Task 3 - Project Implementation Deliverables *(Include such things as construction oversight, implementation of on-the-ground restoration practices, preparation and submittal of as-built drawings, etc.)*

Implementing the Nevada Creek Phase 5 Restoration Project will focus on reducing sources of sediment loading while setting the stage for recovery of riparian areas and aquatic habitat, ultimately improving conditions for a rebounding trout population. The project will reduce bank height ratios to floodplain elevation and establish woody vegetation by incorporating vegetated wood and brush fascine matrices on those banks identified with moderate to extreme bank erosion levels. A grazing management plan will be established and implemented which will protect the recovering channel and riparian restoration investment. Construction oversight will involve qualified hydrologists who are developing the restoration design and channel work will be completed by experienced contractors. BBCTU will oversee both the consultant and the contractor and ensure all aspects of the project implementation are coordinated including permitting, material acquisition, landowner communication and volunteer opportunity facilitation. As-built drawings will be prepared and submitted to BBCTU by the consultant overseeing construction. Project specifics include: addressing a 9,100 foot reach of Nevada Creek and of that ~4,000 feet will be limited to vegetated wood and brush fascine bank treatments to set the stage for a functioning riparian area. We anticipate cutting and installing over 28,000 dormant willow cuttings and using over 500 native shrub transplants. The grazing management plan will address over 375 acres.



Match Source	Private Landowner	Secured	✔
Match Source	Montana Fish, Wildlife & Parks	Secured	☐
Match Source	BBCTU	Secured	✔
Match Source	USFWS	Secured	✔

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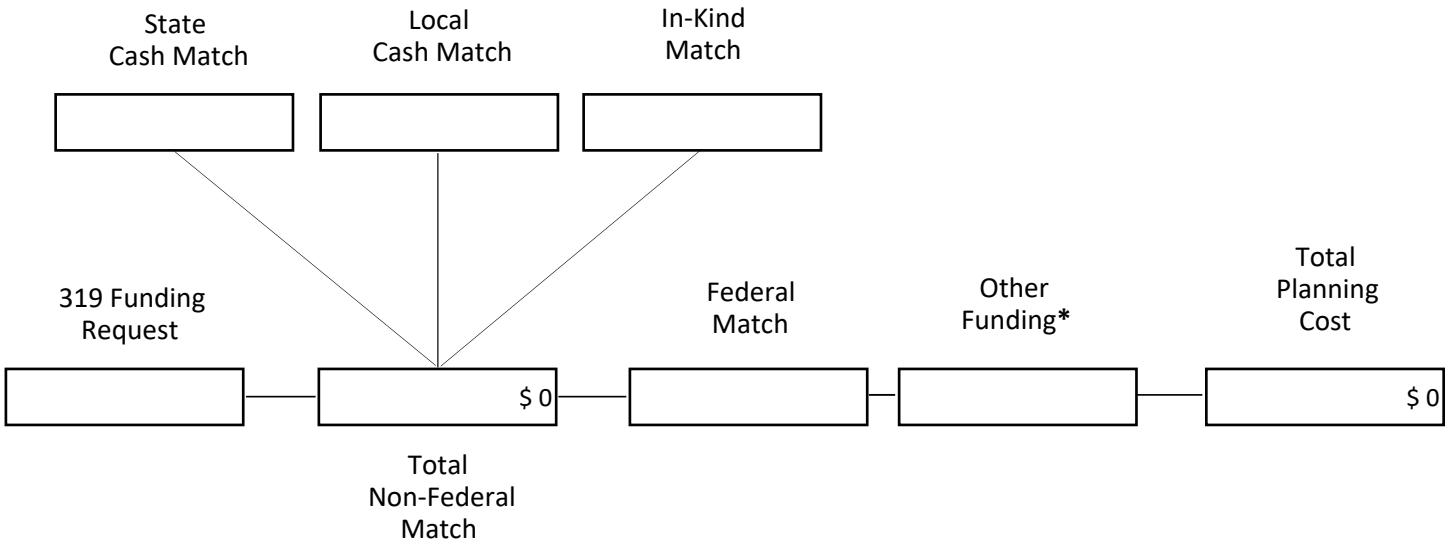
Other Activities

Use this task if the activities you are proposing are outside the scope of the typical design/implement/monitor process. Provide sufficient details to enable application reviewers to successfully compare the nonpoint source pollution reduction benefits of your project to those of other projects in the applicant pool.

Task 4 - Project Deliverables *(Include activities you will complete and the products you will submit to demonstrate completion.)*



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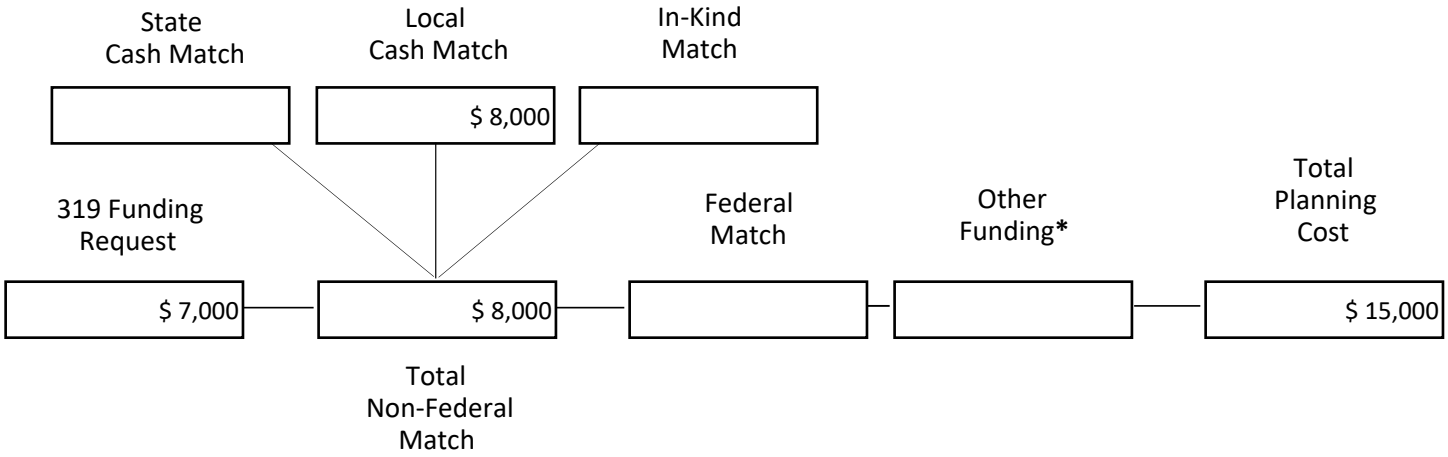
***Use this space to record any funding that will be used to support creation of the task deliverables, but will not be reported as match. The purpose of this information is to give application reviewers a clearer understanding of the total amount of funding required to complete a task.*

Project Effectiveness Monitoring

The short duration (1-3 years) and limited spatial extent (often just a few hundred yards) of most 319-funded projects frequently precludes the use of traditional water chemistry monitoring as a means of evaluating project effectiveness. Instead, DEQ encourages project sponsors to use simpler, more qualitative tools. Typically, this will include pre- and post-construction photo point monitoring, vegetation mortality measurements, and perhaps modeling to estimate pollution load reductions. Please contact one of the DEQ Nonpoint Source Program staff for guidance relative to your specific project.

Task 5 - Project Effectiveness Monitoring Deliverables *(Identify the specific tools and products you will use to evaluate and demonstrate the effectiveness of your project in reducing nonpoint source pollution.)*

Baseline monitoring of the stream conditions and limiting habitat factors has been conducted and this dataset will inform the design parameters, project objectives, and the particular methods we will use during the project to accomplish those objectives. The instream restoration work will be monitored during construction and post-project with as-built channel surveys (cross-sections and longitudinal profiles) to ensure the project was built to design specifications and standards. The success of the riparian planting effort and natural response will also be assessed post-project during the growing season and will include photo points and riparian vegetation surveys. "Best Management Practice" monitoring will include Bank Erosion Hazard Index (BEHI) surveys (including sediment load reduction estimates), established photo points, pre-and post-project to monitor habitat improvements. Big Blackfoot Chapter of Trout Unlimited will work in collaboration with the DEQ project manager to develop a plan and methods for evaluating, monitoring and reporting on the effectiveness of the proposed projects.



Match Source	Big Blackfoot Chapter of Trout Unlimited	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.*

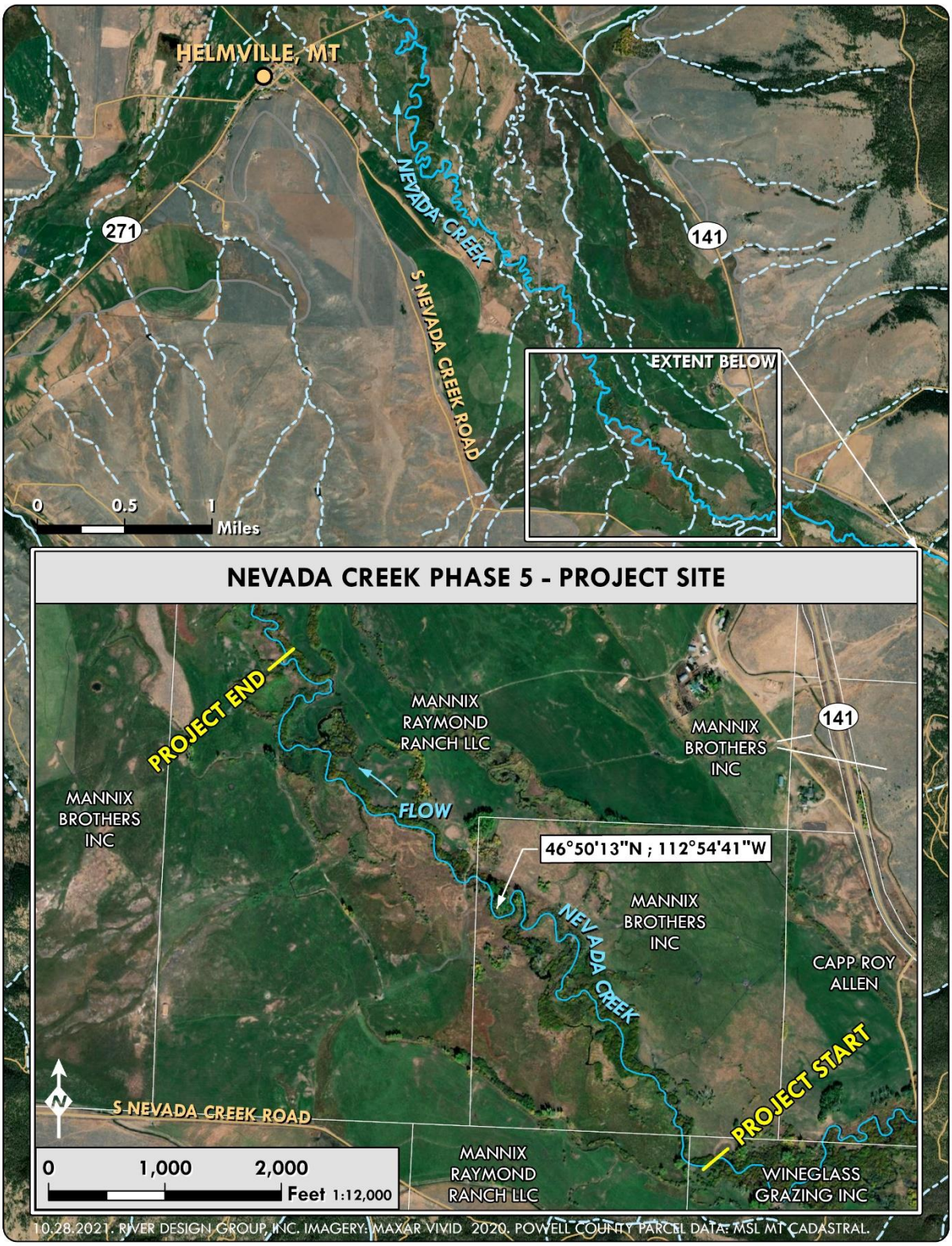
Additional Attachments

Attach additional items that could help reviewers better understand your project. Items could include site photos, design drawings, site evaluations, permits, etc. Please be conscious of reviewers' time, as they may not have time to read lengthy studies and reports. List all additional attachments below.

- [x] Site Photos
- [x] Site Evaluations including plan view and pre-project BEHI data
- [x] Previous phase photo points and monitoring data
- [x] Letters of Support
- [x] Project Map
- [ ]

Additional information that could assist reviewers in evaluating the project's potential impact on NPS pollution.

Project Map


HELMVILLE, MT
NEVADA CREEK
S NEVADA CREEK ROAD
271
141
EXTENT BELOW
0 0.5 1 Miles
NEVADA CREEK PHASE 5 - PROJECT SITE
PROJECT END
MANNIX RAYMOND RANCH LLC
MANNIX BROTHERS INC
141
MANNIX BROTHERS INC
FLOW
46°50'13"N ; 112°54'41"W
MANNIX BROTHERS INC
NEVADA CREEK
CAPP ROY ALLEN
PROJECT START
N
S NEVADA CREEK ROAD
0 1,000 2,000 Feet 1:12,000
MANNIX RAYMOND RANCH LLC
WINEGLASS GRAZING INC
10.28.2021. RIVER DESIGN GROUP, INC. IMAGERY: MAXAR VIVID 2020. POWELL COUNTY PARCEL DATA: MSL MT CADASTRAL.

Letters Of Support

Blackfoot CHALLENGE
Better Rural Communities through Collaborative Conservation

October 25, 2021

Mark Ockey
Montana Department of Environmental Quality
Watershed Protection Section
PO Box 200901
Helena, MT 59620

RE: BBCTU 2021 319 Proposal

Dear Mark & 319 Review Team:

In 2014, the Blackfoot Challenge, in cooperation with Blackfoot communities and partners, completed the Blackfoot Watershed Restoration Plan. While outlining future priorities, this plan also recognized decades of collaborative restoration and stewardship work that has helped to improve riparian health, stream flows and water quality across the watershed.

At the heart of many Blackfoot watershed restoration successes, the Big Blackfoot Chapter of Trout Unlimited (BBCTU) has devoted more than 30 years to restoring and enhancing Blackfoot tributaries. The Blackfoot Challenge has enjoyed a strong working partnership on many of these shared projects, including projects previously funded through the DEQ 319 program.

A major success of the last several years, the restoration of Nevada Creek is revitalizing native trout habitat and improving drought resilience, while eliminating water quality challenges that have existed for many years. The Challenge has partnered on this work by helping design grazing plans that support water quality goals and engaging youth and adults in community education about the revitalization of Nevada Creek. As BBCTU moves into Phase 5 of the Nevada Creek restoration work, the Blackfoot Challenge will continue to support their work as a watershed partner. Thank you for your consideration of this funding proposal and for all of the support DEQ has provided toward conserving and enhancing the Blackfoot watershed.

Sincerely,

Jim Stone

Jim Stone
Chairman

United States Department of the Interior
FISH AND WILDLIFE SERVICE
MONTANA PARTNERS FOR FISH & WILDLIFE PROGRAM
PO Box 66
Ovando, Montana 59854 406/793.7400

IN REPLY REFER TO:

October 27, 2021

Montana Department of Environmental Quality
319 Nonpoint Source Program
1520 E 6th Ave
Helena, MT 59620

Dear Committee Members:

This letter is in reference to the Nevada Creek Restoration Project located in the Blackfoot Watershed being proposed by the Big Blackfoot Chapter of Trout Unlimited. The U.S. Fish and Wildlife Service fully support this project because of the incredible biological values associated with it.

The Partners for Fish and Wildlife has a long history of working with the associated private landowners and other partners collaborating to restore the native trout fishery of this important tributary to the Blackfoot River. This project is exciting in that we will be able to continue our efforts of restoring native trout within the watershed by working with committed landowners.

We commend the efforts of the many partners for their time and due diligence with this important project and urge the 319 Nonpoint Source Program Review Committee to support this grant application.

If you have any questions regarding this project feel free to contact me.

Sincerely,

Greg Neudecker
State Coordinator
Partners for Fish and Wildlife Service

To whom it may concern,

I would like to voice our support for the grant proposal that the Big Blackfoot Chapter of Trout Unlimited (BBCTU) has presented to you. The Mannix family is fully committed to BBCTU's plans to restore portions of Nevada Creek throughout our property. We recognize the value in collaboration on conservation projects and have had a great experience in the past working with BBCTU. One of our family's most prominent values is to better our natural resources for future generations to come. Working with BBCTU makes this possible. The experience and knowledge that they bring to projects is unmatched and these restoration goals would be financially infeasible without them. We look forward to this opportunity to help do our part in bettering the Blackfoot watershed.

Sincerely,

Bryan Mannix

Montana Fish, Wildlife and Parks
Region 2 Headquarters
3201 Spurgin Rd.
Missoula, MT 59804

October 28, 2021

Water Protection Bureau
Department of Environmental Quality
Attn: Mark Ockey
P.O. Box 200901
Helena, MT 59620-0901

Dear DEQ Nonpoint Source Program Grant Committee:

I am writing in support of the Nevada Creek Restoration-Phase 5 application submitted by the Big Blackfoot Chapter of Trout Unlimited. This project will expand on the success of previous restoration projects in Nevada Creek by improving habitat conditions in the immediate stream reaches while reducing nonpoint source pollution in the Blackfoot River. Habitat restoration efforts in the Nevada Creek drainage have increased in recent years, creating high-quality habitat conditions and measurable decreases in downstream sediment delivery.

Nevada Creek is a severely degraded tributary impacted from sedimentation, low flows, nutrient inputs, elevated water temperatures, and lack of instream habitat complexity. Furthermore, the section of the Blackfoot River from Nevada Creek to the North Fork Blackfoot River is a high priority reach with listed impairments of nutrients, sediment, and temperature. Achieving water quality goals in lower Nevada Creek will also improve conditions within this important section of the mainstem Blackfoot River. The biological response from previous phases of restoration indicated a significant improvement in habitat quality and habitat capacity. A before-after evaluation of the Phase 1 project documented a two-fold increase in trout abundance following restoration.

The Phase 5 project area contains relatively intact sections interspersed with heavily degraded and eroding sections. This proposal represents a balanced design that leverages the recovery potential of large areas of the project section through passive approaches, while focusing active restoration and channel reconstruction in the specific areas that require an intensive approach to achieve restoration objectives. Collectively, this cost-effective approach will result in significant improvements to nearly two miles of important tributary habitat in the Blackfoot River watershed. This will be the first major restoration project in the middle section of lower Nevada Creek, which experiences the most problematic low-flow conditions below the Douglas Canal. The community support and restoration momentum in Nevada Creek is extremely encouraging, and the ability to work on a large section under single-ranch ownership presents a unique

opportunity to implement large-scale, comprehensive restoration that will greatly improve water quality, riparian conditions, and fisheries resources.

Your continued investment in Nevada Creek will contribute to restoring the quality of aquatic resources in this large tributary while improving water quality in the Blackfoot River. This work advances our broader fisheries management and conservation objectives in the watershed. Thank you very much for consideration of this funding application.

Sincerely,

Randy Arnold
Regional Supervisor

Supplemental Information

Examples of condition of banks proposed to be treated with sod, willow wood matrix structures

Block failure and existing water quality issues on Nevada Creek Phase 5

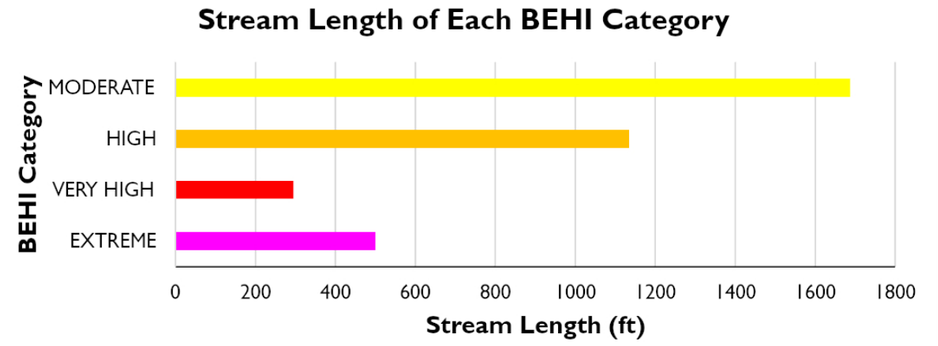
Example of hoof shear on a reach of Nevada Creek Phase 5

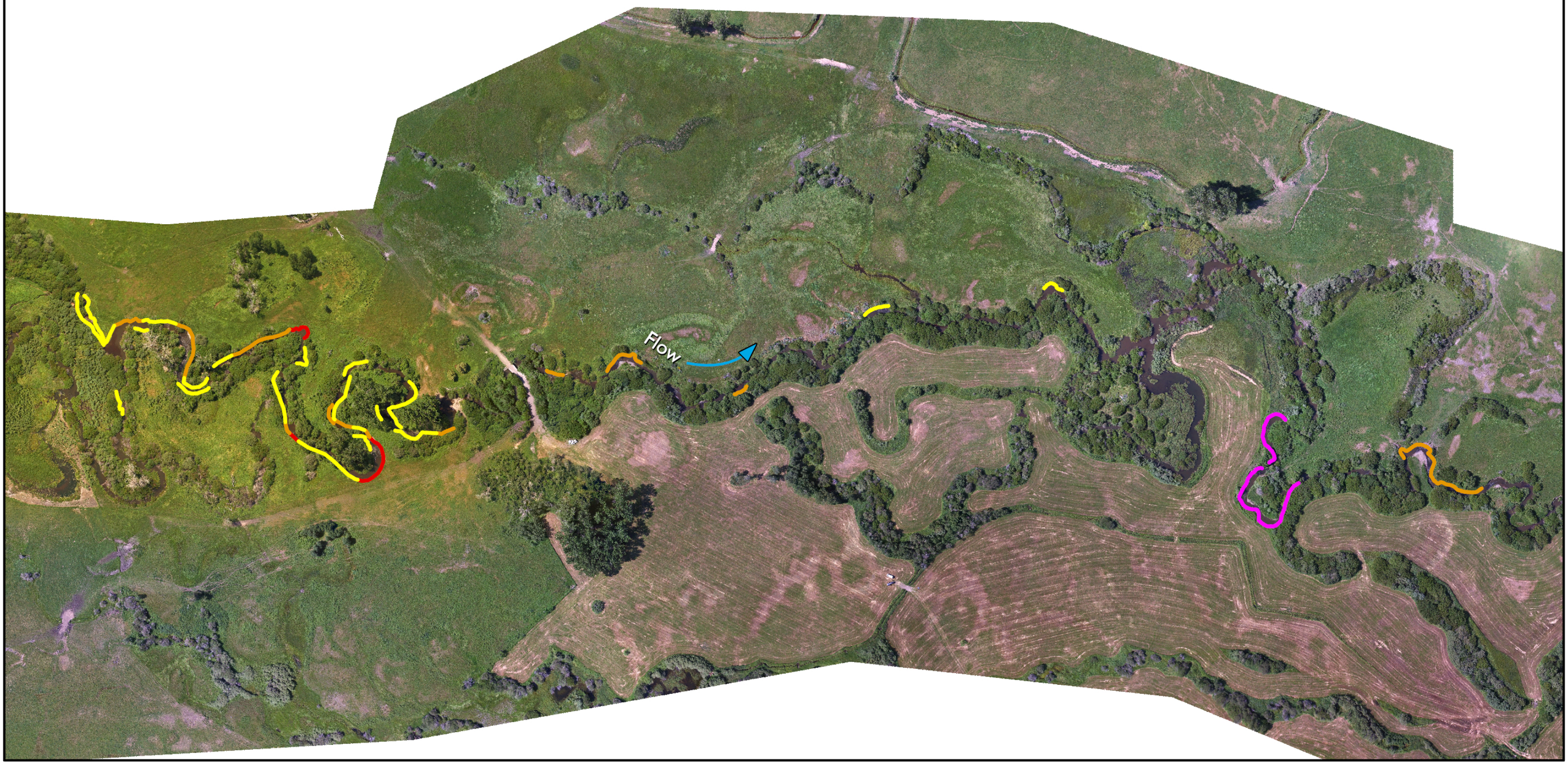
Nevada Creek Phase 5
Conceptual Restoration Site Overview

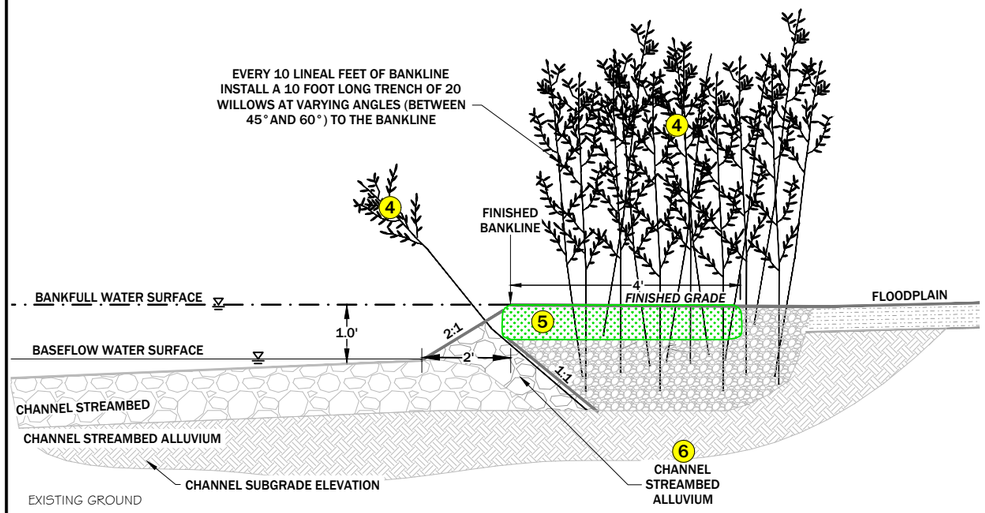
0 250 500 1,000 Feet

Scale: 1:3,000

2021-10-29 River Design Group. UAS Imagery 2020 RDG

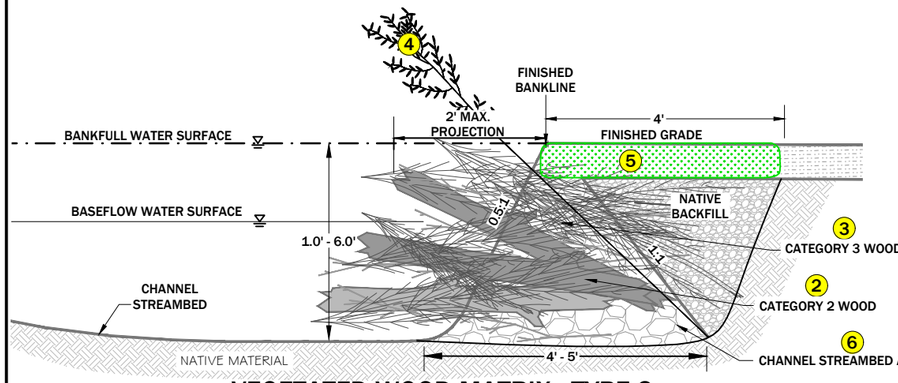






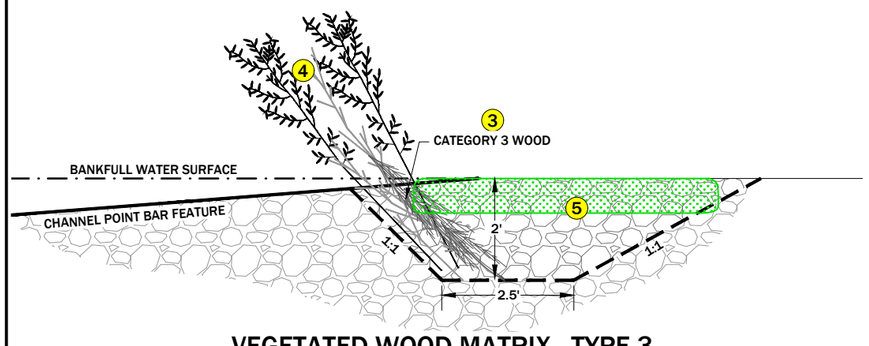
VEGETATED WOOD MATRIX - TYPE 1
SECTION VIEW

0' 1' 2'



VEGETATED WOOD MATRIX - TYPE 2
SECTION VIEW

0' 1' 2'



VEGETATED WOOD MATRIX - TYPE 3
SECTION VIEW

0' 1.5' 3'

GENERAL NOTES

1. CONSTRUCTION OF THE VEGETATED WOOD MATRIX WILL OCCUR AFTER THE CHANNEL AND FLOODPLAIN BACKFILL IS PLACED AND THE CHANNEL STREAMBED IS CONSTRUCTED. INSTALLATION OF FLOODPLAIN TREATMENT SHALL BE COMPLETED AFTER VEGETATED WOOD MATRIXES ARE INSTALLED.
2. IF VEGETATED WOOD MATRIX STRUCTURES ARE INSTALLED PRIOR TO OCTOBER 1, LEAVE BACK TRENCH UNFILLED AND COMPLETE STRUCTURE WHEN DORMANT WILLOWS ARE AVAILABLE.
3. IT IS CONTRACTOR'S RESPONSIBILITY TO CUT WOOD INTO APPROPRIATE SIZE LENGTHS TO FIT STRUCTURE DIMENSIONS.
4. ANY CHANGES TO THE CONSTRUCTION SEQUENCE MUST BE APPROVED BY CONSTRUCTION MANAGER.
5. CONTRACTOR SHALL MARK AND CONSTRUCTION ENGINEER SHALL APPROVE THE GENERAL LOCATION FOR EACH VEGETATED WOOD MATRIX STRUCTURE PRIOR TO CONSTRUCTION.

NOTES ON VEGETATED WOOD MATRIX INSTALLATION

1. EXCAVATE TO THE EXCAVATION LIMITS AS SHOWN. EXCAVATED MATERIAL SHALL BE STOCKPILED ON THE FLOODPLAIN OUTSIDE OF THE IMMEDIATE WORK AREA.
2. PREPARE THE BENCH OF THE STRUCTURE BY PLACING CHANNEL STREAMBED ALLUVIUM FROM THE BASE OF THE EXCAVATION DEPTH/BOTTOM OF EXCAVATION TO WITHIN 1.0-FT. OF FINISHED GRADE.
3. CATEGORY 2 AND CATEGORY 3 WOOD (TYPE 2 AND 3 ONLY), AND CHANNEL STREAMBED ALLUVIUM SHALL BE PLACED IN ALTERNATING LAYERS AND BUCKET COMPACTED UP TO 0.8 FEET OF THE TOP OF BANK ELEVATION AS SHOWN BELOW IN THE INSTALLATION SEQUENCE. PLACE SIX (6) FT TO EIGHT (8) FT. DORMANT WILLOW CUTTINGS AT A DENSITY OF 5 PER LINEAR FT ALONG THE TOP OF BANK LINE ELEVATION. WILLOW CUTTINGS SHALL SLOPE AT AN APPROXIMATE 1:1 SLOPE AS SHOWN IN SECTION VIEW. STEMS MAY OVERLAP. THE CUT ENDS SHALL BE PLACED AT THE BASE OF THE SLOPES WITH THE UN-CUT ENDS EXTENDING BEYOND THE EDGE OF THE TRENCH SO NO GREATER THAN ONE-THIRD OF THE TOTAL CUTTING LENGTH IS EXPOSED BEYOND THE FRONT EDGE OF THE BASE. PLACE SOD MATS ON TOP OF MATRIX EXTENDING FROM EDGE OF CHANNEL MARGIN BACK A MINIMUM OF 4' INTO THE FLOODPLAIN. TOP OF SOD MATS SHALL BE PRESSED TO ESTABLISH TOP OF BANK DESIGN ELEVATION.
4. THE UPSTREAM AND DOWNSTREAM ENDS OF THE STRUCTURE SHALL TRANSITION SMOOTHLY INTO ADJACENT STREAMBANK STRUCTURES TO MINIMIZE EROSION, FLANKING, AND BANK FAILURE. STRUCTURE ENDS MAY BE STABILIZED WITH ADDITIONAL CATEGORY 1 ROCK AS APPROVED BY ENGINEER.
5. AFTER INSTALLATION OF THE VEGETATED WOOD MATRIX, BACKFILL THE STRUCTURE WITH STOCKPILED MATERIAL TO FINISHED GRADE, AND BUCKET COMPACT. INSTALL WILLOW TRENCHES AT A RATE OF 2 PER LINEAR FOOT (OR 20 PER TRENCH) AS SHOWN. NO AREAS BEHIND THE FINISHED BANKLINE ARE TO BE LEFT BELOW FINISHED GRADE.

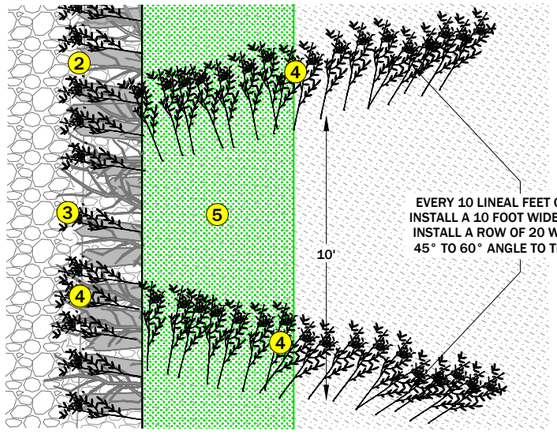
ALLUVIUM GRADATION

SIZE (INCHES)	PERCENT PASSING	REPRESENTATIVE SIZE CLASS
8	95	D100
7	80 - 90	D84
2	45 - 55	D50
1	30 - 40	D35
0.6	20 - 30	D16
0.08	20	

PROVIDE MINIMUM 20% RETAINED IN 0.08" SIZE CLASS

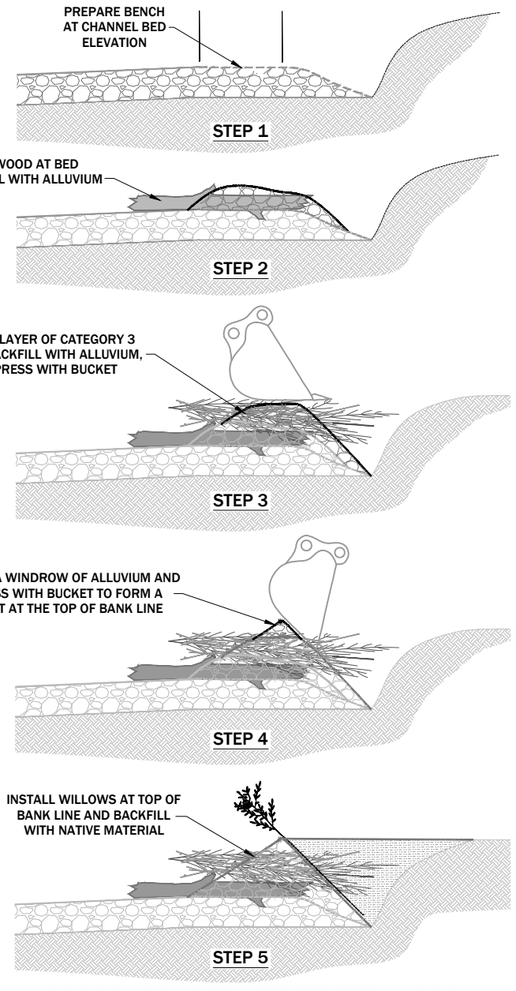
MATERIAL SCHEDULE (PER LINEAR FOOT)

	ITEM	DIA.	QUANTITY TYPE 1	QUANTITY TYPE 2	QUANTITY TYPE 3
2	CATEGORY 2 WOOD	6" - 12"	-	2 - 4	-
3	CATEGORY 3 WOOD	3" - 6"	-	2 - 4	1
4	WILLOW CUTTINGS	0.25" - 1"	7	7	7
5	SOD MAT	5" - 8" THICK	4 SF	4 SF	4 SF
6	CHANNEL STREAMBED ALLUVIUM	8" MINUS	0.11 CY	0.2 CY	-



WILLOW TRENCH DETAIL
PLAN VIEW

0' 1' 2'



RECOMMENDED VEGETATED WOOD MATRIX INSTALLATION SEQUENCE
SECTION VIEW

0' 2.5' 5'

RDG RIVER DESIGN GROUP
311 SW Jefferson Avenue
Corvallis, OR 97333
tel.541.738.2920
fax.541.758.8524
236 Wisconsin Avenue
Whitefish, MT 59937
tel.406.862.4927
fax.406-862-4963

VEGETATED WOOD MATRIX DETAIL
NEVADA CREEK PHASE 5
NEAR HELMVILLE, MONTANA

NO.	DATE	BY	DESCRIPTION	CHK
1	10-29-21	NW	CONCEPTUAL DESIGN	JM

PROJECT NUMBER
RDG-21-009

SHEET NUMBER
1.0

Nevada Creek BEHI Assessment
Phase 5 Pre-Restoration (2021)

BANK EROSION HAZARD INDEX ASSESSMENT

CATEGORY

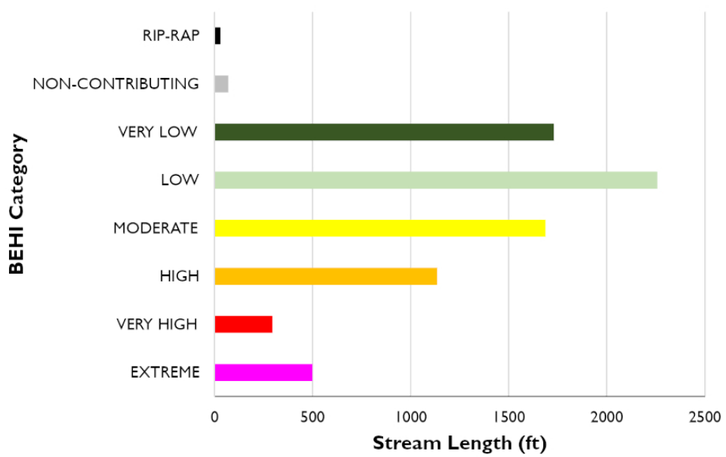
- EXTREME
- VERY HIGH
- HIGH
- MODERATE
- LOW
- VERY LOW
- NON-CONTRIBUTING
- RIPRAP

0 125 250 500 Feet

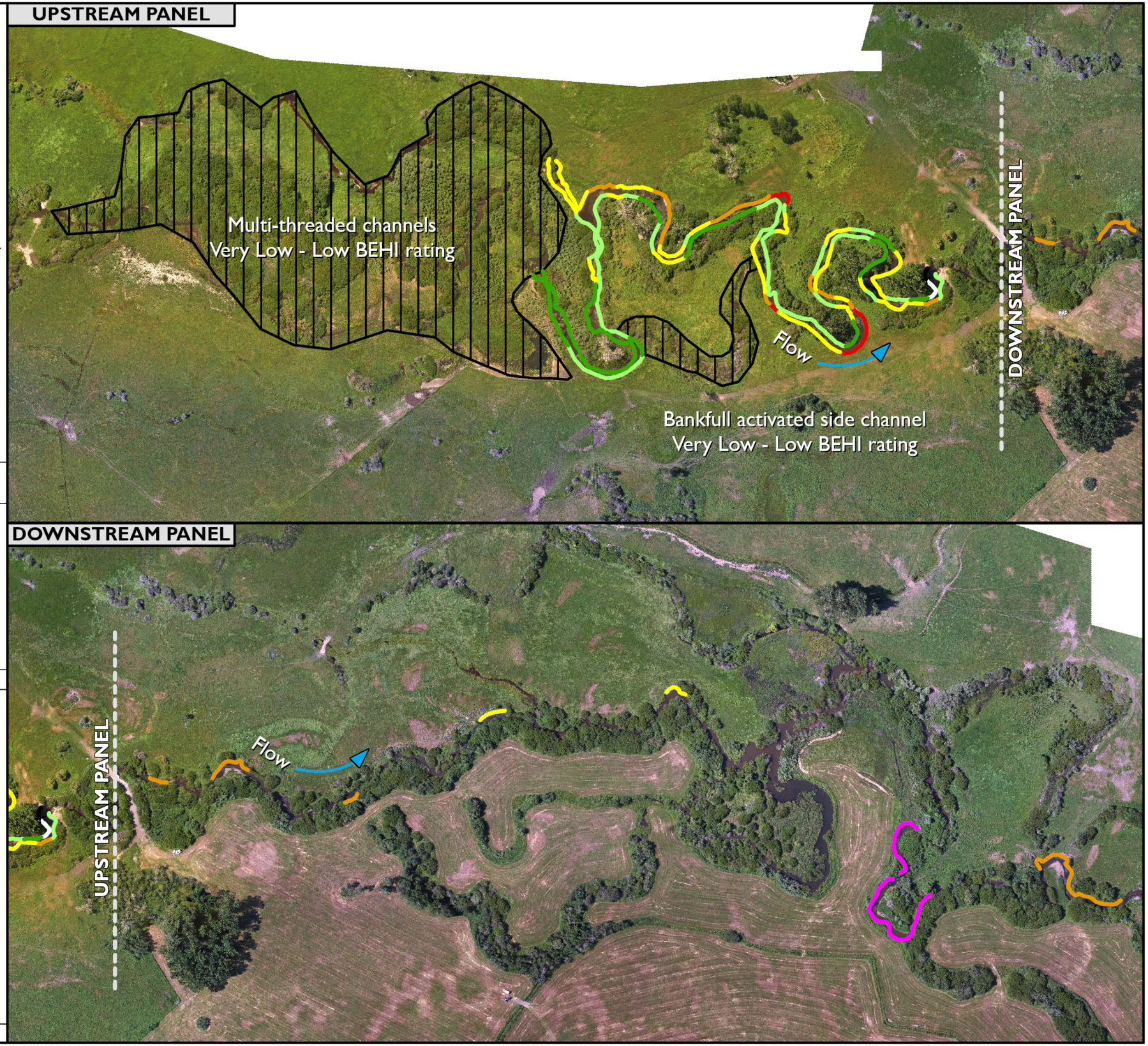
Scale: 1:3,000

BEHI CATEGORY	LENGTH (FT)	RATE (FT/YR)	HEIGHT (FT)	DENSITY (LBS/FT³)	YIELD (TONS)
EXTREME	500	0.47	6.5	100	76
VERY HIGH	296	0.39	6	100	35
HIGH	1135	0.31	5	100	88
MODERATE	1688	0.23	4.5	100	104
LOW	2,258	0.17	3.0	100	58
VERY LOW	1,731	0.1	2.5	100	21
NON-CONTRIBUTING	70	0	0	100	0
RIP-RAP	31	0	5.0	100	0
TOTAL	**7,708**				**381**

Stream Length of Each BEHI Category



2021-10-29 River Design Group. UAS Imagery 2020 RDG



Nevada Creek BEHI Assessment Phase 5 Pre-Restoration (2021)

BANK EROSION HAZARD INDEX ASSESSMENT

CATEGORY

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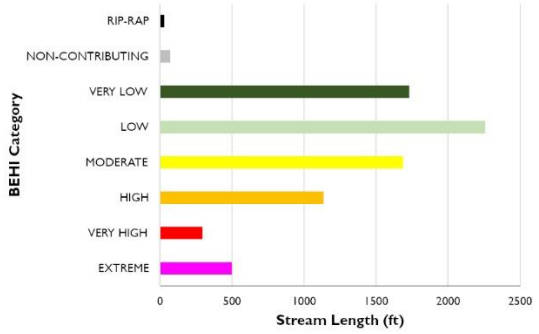
Stream Length of Each BEHI Category



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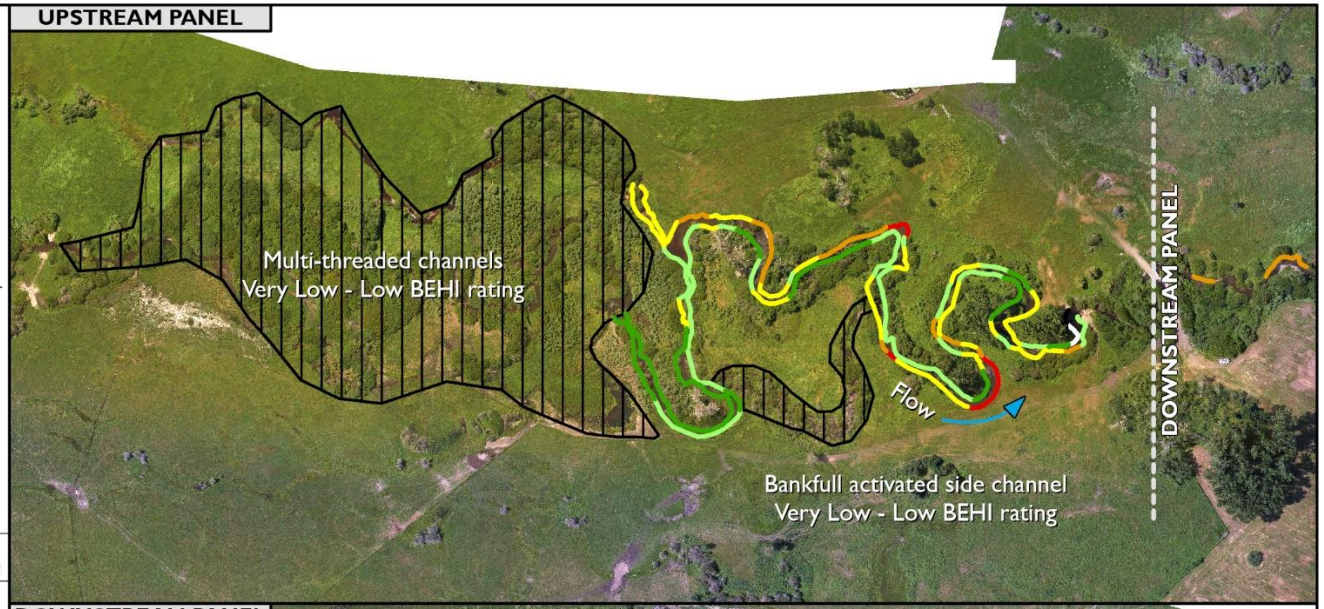
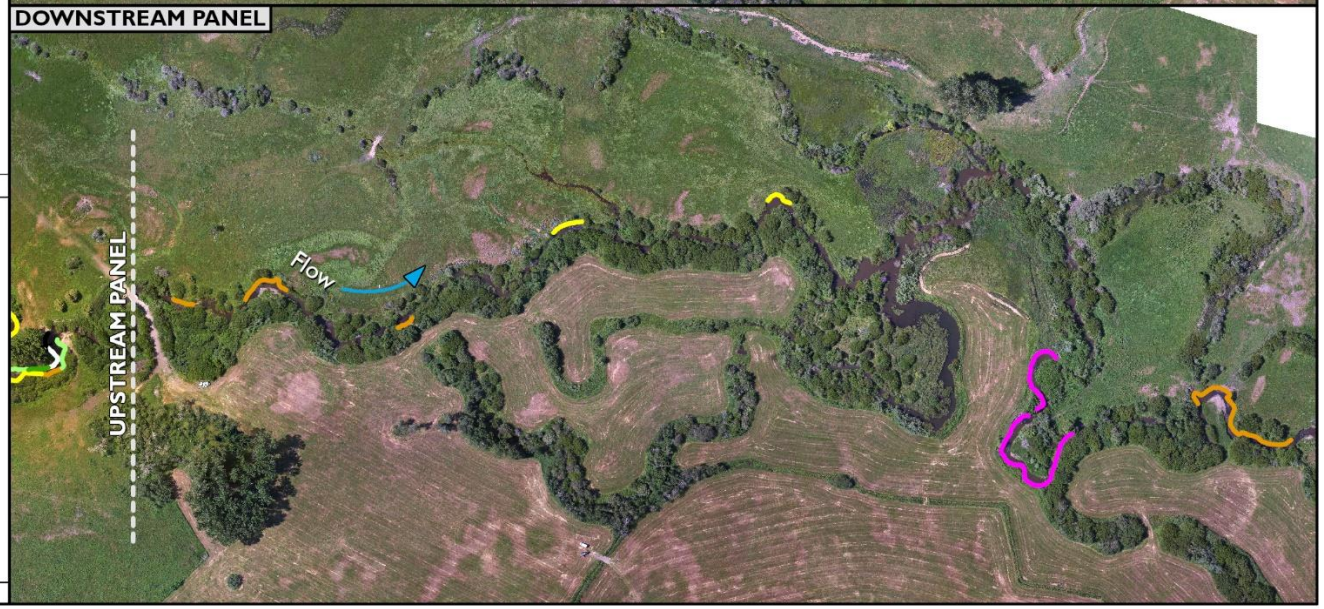




Before & After Station 29+50

Before & After Station 31+50

Before & After Station 53+50

Before & After Station 55+50

Before & After Station 60+50

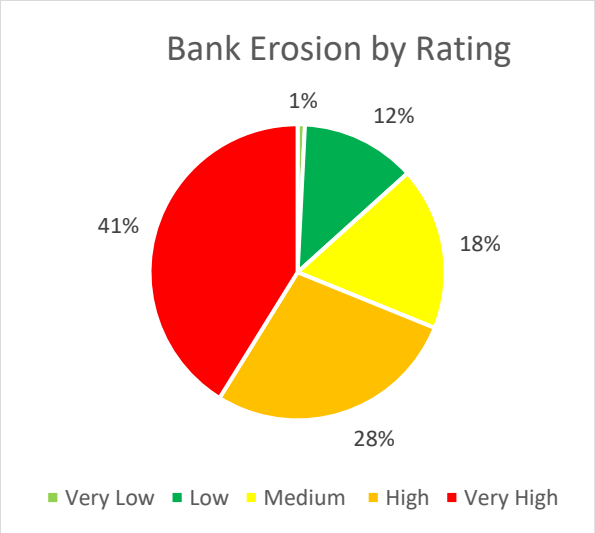
Before & After Station 85+50

Before & After Station 88+50

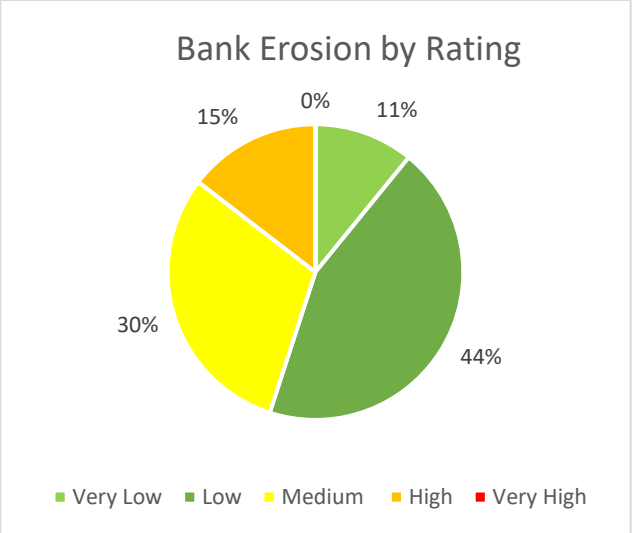
Nevada Creek Phase 3 BEHI Monitoring Data:

Nevada Creek Phase 3: Stream Bank Erosion Sediment Yield Analysis						
BEHI Rating	**Bank Length (ft)**	**Erosion Rate (ft/yr)**	**Bank Height (ft)**	**Sediment Yield (Low Density)**	**Sediment Yield (High Density)**	**Sediment Yield Mean (Tons)**
Pre-Restoration						
Very Low	1862	0.1	0.7	6.0	8.4	7.2
Low	6245	0.17	2.0	94.7	131.5	113.1
Medium	4193	0.23	3.1	134.5	186.8	160.7
High	2886	0.31	5.2	209.3	290.7	250.0
Very High	3319	0.39	5.3	310.9	431.8	371.4
Rip-Rap	792	0	NA	NA	NA	0
Post-Restoration						
Very Low	5005	0.1	1.7	39.3	54.6	47.0
Low	6587	0.17	3.2	159.6	221.6	190.6
Medium	2841	0.23	3.7	110.0	152.8	131.4
High	723	0.31	5.2	52.6	73.1	62.9
Very High	0	0.39	6.5	0.0	0.0	0.0
Rip-Rap	549	0	NA	NA	NA	0

Pre-Restoration Yield (Tons)	**902.4**
Post- Restoration Yield (Tons)	**431.9**
Yield Reduction (Tons)	**470.5**
Yield Reduction (%)	**52%**



PRE-PROJECT



POST-PROJECT

Vegetation Mortality Rate Monitoring

As part of meeting our long-term streambank stability and riparian habitat project goals, willow cuttings were installed along woody matrix bank treatments throughout the Nevada Creek Phase three project. Four different willow species (Bebb's, Geyer's, Drummond and Sandbar) were collected when dormant throughout the Blackfoot River watershed and installed from September-November in 2019. Willow cutting survival was estimated by setting up three representative 100-foot transects along the sod mat seams where the willows had been installed, and then counting the number of live stems one-year post-install. BBCTU revisited the site September 15, 2020 to collect the post-install survival data.

Station	Total # Willows	Total Surviving	% Survival Rate
66+00 - 67+00	523	509	98.20%
70+75 - 71+75	608	602	99.1%
77+50 - 78+50	549	521	95.10%

Looking downstream at monitoring site 66+00 – 67+00

Looking downstream at monitoring site 70+75 - 71+75

Looking upstream at monitoring site 77+50 - 78+50