2023 319 Application Form - General and Focus Watershed

General Information

Project Name: Takima Park Riparian Enhancement and Fisheries Protection

Sponsor Name: City of Missoula

Registered with the Secretary of State? Y

Registered with SAM? Y

UEI #: NBMKDLVHBMF1

Does your organization have liability insurance? Y

Primary Contact: Tracy Campbell

Title: Superintendent

Address: 1345 West Broadway St

City: Missoula State: MT Zip Code: 59802

Phone Number: 406-830-5455

Email Address: campbellTL@ci.missoula.mt.us

Signature:

Signatory: Jordan Hess

Title: Mayor

Address: 435 Ryman St

City: Missoula State: MT Zip Code: 59802

Phone Number: 406-552-6005

Email Address: hessJ@ci.missoula.mt.us

Signature:

Technical and Administrative Qualifications

The City of Missoula Public Works & Mobility Department has many staff to lend technical and administrative support for this project: e.g., professional engineers, administrative assistants, environmental scientist, outreach program specialist, and communications specialist. The City Parks & Recreation Department has expertise in ecosystems services, plant propagation, habitat restoration and public outreach. The Missoula Valley Water Quality District has specialists in geohydrology, water chemistry, and water quality monitoring.

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	$ 4,124	$ 2,749	$ 0	$ 6,873
Administration	$ 6,429	$ 4,286	$ 0	$ 10,715
Project 1 Name				
Project Planning	$ 45,600	$ 30,400	$ 0	$ 76,000
Landowner Agreements	$ 0	$ 0	$ 0	$ 0
Project Implementation	$ 75,120	$ 50,080	$ 0	$ 125,200
Project Effectiveness Monitoring	$ 2,860	$ 1,907	$ 0	$ 4,767
Total	$ 123,580	$ 82,387	$ 0	$ 205,967
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	$ 134,133	$ 89,422	$ 0	$ 223,555

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)	Interpretive signage in the park
Target Audience	Pattee Canyon residents and Takima Park visitors
Goals	Increase awareness about the importance of riparian buffers to help mitigate nonpoint source pollution
Effectiveness Evaluation	The sign will have a QR code that visitors can scan to visit a website where they can learn about nonpoint source pollution and ways they can help protect waterways. We will track how many people visit the website.

Activity (method of delivery)	website development through Engage Missoula and public meetings
Target Audience	City of Missoula residents
Goals	Solicit public input about the project
Effectiveness Evaluation	Number of citizens who interact with the website; number of citizens who attend the meetings

Activity (method of delivery)	Press release
Target Audience	City of Missoula residents
Goals	Solicit public engagement
Effectiveness Evaluation	Number of citizens who provide input or attend the meetings

319 Funding Request	Non-Federal Match	Other Funding*	Total
$ 4,124	$ 2,749		$ 6,873

Match Source	Stormwater Utility	Secured	✔
Match Source	Parks & Recreation Department	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
$ 6,429	$ 4,286		$ 10,715

Match Source: Stormwater Utility — Secured: ☑

Match Source: _____ — Secured: ☐

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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 Takima Park Riparian Enhancement and Fisheries Protection

Project 1 - Problem Description

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

Bitterroot - Bitter Root Water Forum

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

Waterbody name from the 2020 List of Impaired Waters	Bitterroot River
Probable causes of impairment to be addressed	Alteration in streamside or littoral vegetative cover, temperature
Waterbody name from the 2020 List of Impaired Waters	
Probable causes of impairment to be addressed	
Name of healthy waterbody to be protected	Pattee Creek
Description of identified threat to non-impairment status	Temperature, sedimentation, and alteration in streamside or littoral vegetative cover
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)

The primary types of pollutants in the project area are due to stormwater runoff: e.g., grease, oil, and heavy metals from cars; fertilizers, pesticides and other chemicals from gardens, homes and businesses; bacteria from pet wastes and failing septic systems; and sediment from poor construction site practices. Stormwater runoff is most often the source of nonpoint source pollution. There are four outfalls that discharge into Takima Park, and there is no water quality treatment prior to discharging runoff into Pattee Creek.

Pattee Creek originates in the Lolo National Forest and flows down Pattee Canyon into the City of Missoula. Pattee Creek has been heavily manipulated over the past century due to various development pressures. When the creek enters the Missoula Valley at Southwest Higgins, it flows through a system of open channels, pipes, ponds, and wetlands before discharging into the Bitterroot River. Because of significant overlap with the City's stormwater system, it is no longer considered a natural waterway by many agencies. Although Pattee Creek still flows perennially to the Bitterroot River, it was not evaluated as a tributary in the TMDL studies, presumably due to extreme modifications to its flow regime. Nonetheless, this tributary affects water quality and improvements must be prioritized due to its urban setting.

The available habitat adjacent to the daylighted portions of this perennial stream has been severely diminished. Although Pattee Creek is not on the 303(d) list of impaired waters, there is direct year-round discharge to the Bitterroot River, which is an impaired water body. Per the Bitterroot Watershed Restoration Plan, Missoula Valley Water Quality District sampling in March 2019 indicated Pattee Creek contributes to Bitterroot River impairments as total suspended solids at the headwaters site were measured at non-detect while discharge at the mouth measured at 282 mg/L. Sampling by the City of Missoula Stormwater Utility has shown that during runoff events approximately 1,395 lbs/day of sediment, 14 lbs/day of nitrogen, and 1.9 lbs/day of phosphorus are being discharged into the Bitterroot River from Pattee Creek. With increasing development in the watershed, it is important to evaluate alternatives to treat stormwater and protect water quality in the Bitterroot River.

The proposed project are is located in Takima Park, which is owned by the City of Missoula and managed the Parks & Recreation Conservation Lands Program as open space. Takima park is managed as a public natural area. This park provide important native species refugia within Missoula's Pattee Canyon/Farviews neighborhoods. The proposed project reach is home to pure-strain weststlope cutthroat trout, a State Species of Concern, that is at risk of extirpation in the state because of hybridization and habitat loss/degradation. A multitude of other native plant and animal species utilize Takima Park. Overtime, the section of Pattee Creek located in Takima park has become incised and adjacent riparian vegetation is dwindling. Habitat values for both aquatic and terrestrial species in the park have been steadily declining.

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)

Alternatives:
No Action
Grey infrastructure/proprietary treatment devices
Green infrastructure (preferred alternative)

Our goal is to treat stormwater runoff through green infrastructure and to improve stream health through channel manipulation. We will do this by restoring riparian vegetation to mitigate nonpoint source pollution and create wetland habitat to provide biological filtration of runoff. There are four existing stormwater outfalls that discharge directly to the creek, with no treatment of the runoff. Additionally, the proposed project will allow for sediment deposition and removal prior to discharging to the creek. Specifically, we aim to restore at least 100 linear feet of streambank; plant at least 550 native grasses, forbs, and shrubs; and create approximately 4,000 square feet of wetlands. Where necessary, we will remove invasive species. The proposed project is needed to address nonpoint source pollution and reduce Pattee Creek's contribution to the Bitterroot River water quality impairment.

We chose to implement green infrastructure because we desire to restore habitat that has been lost over time to urban and suburban development. It is important to construct stormwater treatment wetlands, to provide an example of how modern methods to manage runoff can attenuate flood potential while also creating amenities for wildlife and recreation.

The project area is owned by the City of Missoula and managed by the Park & Recreation Conservation Lands Division. This facilitates the project since landowner agreements are not necessary. The proposed project aligns with the City's long-term objectives to improve habitat in the park. No federally endangered species are present in the project area. Design and permitting would be part of the proposed project, if funded.

It is anticipated that annual maintenance will be needed for invasive species management and to remove accumulated debris from the wetland.

Project 1 - Goals and Effectiveness Evaluation

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

Our goal is to use wetlands to remove pollutants in runoff through sediment trapping, nutrient removal, and chemical detoxification.

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.

We will evaluate the effectiveness of the wetlands to remove pollutants by sampling the creek during at least two runoff events downstream of Takima Park, before and after construction. We will sample the creek for the common stormwater pollutants: total suspended solids, phosphorus, nitrogen, oil & grease, copper, lead, and zinc). We will also measure the reduction in sediment load to the creek by removing accumulated debris at the outfalls. We will document how much sediment is removed annually and we will test the sediment for common stormwater pollutants (e.g., oil & grease, copper, lead, zinc, nitrogen, and phosphorus) that would have otherwise entered the stream without the wetlands.

Project 1 - Location

Upstream End	Latitude	46.836736	Longitude	-113.99075
Downstream End	Latitude	46.837602	Longitude	-113.991496
Centerpoint	Latitude	46.837231	Longitude	-113.991373
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: 170102051603 Hayes Creek-Bitterroot River

☑ **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)*

☐
☐
☐
☐
☐

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?
City of Missoula	The property is managed as public land/open space and the project does not require a landowner agreement	☐
		☐
		☐
		☐

Project Partner	Contributions to Project	Letter of Support Attached?
City of Missoula Parks & Recreation Department - Conservation Lands Division	Technical expertise on habitat restoration and design; provide all plant materials; utilize staff & volunteer time to ensure restoration & educational goals are met; utilize staff time for public outreach and meetings	☐
Missoula Conservation District	Technical expertise and input on design	☑
Montana Fish, Wildlife & Parks	Technical expertise and input on design	☐
Missoula Valley Water Quality District	Technical expertise and input on design; input on sampling protocol for monitoring effectiveness	☑
		☐

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
$ 45,600	$ 30,400		$ 76,000

Match Source	Stormwater Utility	Secured	✔
Match Source	Parks & Recreation Department	Secured	✔
Match Source		Secured	☐
Match Source		Secured	☐

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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
			$ 0

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
$ 75,120	$ 50,080		$ 125,200

Match Source	Stormwater Utility	Secured	✔
Match Source	Parks & Recreation Department	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 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
$ 2,860	$ 1,907		$ 4,767

Match Source	Stormwater Utility	Secured	✔
Match Source	Parks & Recreation Department	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
Public Outreach	✔											
Neighborhood Council Meeting	✔											
Contract design engineer		✔										
30% Design			✔									
Neighborhood Council Meeting				✔								
60% Design				✔								
Permitting				✔								
90% Design					✔							
100% Design					✔	✔						
Construction bidding							✔					
Bid Award							✔					
Construction								✔	✔			
Closeout										✔		

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 will improve public access to a healthy environment by improving riparian habitat in an urban area. Improved habitat in Takima Park will provide citizens many outdoor educational opportunities: e.g., bird watching, nature hikes, school visits, insect collecting, and native plant identification. The proposed project has the potential to benefit underserved populations by improving natural riparian and wetland habitats in an area where there is a lack of access to open space.

Climate Change/Resilience

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

The proposed project will improve climate change resilience for our community, native plants, wildlife, and ecosystems by restoring native riparian buffers. Restoring vegetation will re-establish lost wildlife habitat and restore natural ecosystem functions. Additionally, the proposed project will create perennial wetland habitat.

Impacts to Downstream Human, Plant and Animal Communities

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

In our dry climate, surface water is especially important to human, plant, and animal communities. The goals of this project are to deliver more water and cleaner water to the Bitterroot River. The proposed project intends to mitigate pollutants in nonpoint source pollution through the creation of wetland habitat that will provide biological treatment of pollutants. This wetland and associated riparian vegetation will increase natural water storage capacity and reduce evaporative loss from the creek. The proposed project will also help to protect Missoula's sole source of drinking--the aquifer. Due to highly permeable soils in the Missoula Valley, there is a high infiltration rate to groundwater. Restoring vegetation along the project reach and providing for nutrient uptake and biological filtration, there will be improved water quality runoff to the creek, thus resulting in cleaner water infiltrating the aquifer.

Riparian areas are the most biologically diverse habitats in Montana. This project is located in an areas of dense development on the Wildland-Urban Interface. As Pattee Ck. weaves through the urban area it passes through several City-owned parcels. Enhancing riparian habitat on these parcels will certainly benefit the terrestrial and aquatic animals who use Pattee Ck. to migrate though the City. These same improvements positively impact the quality of life for humans who utilize these natural spaces.

Map

STORM WATER
City of Missoula

Takima Park

Resource Enhancement Project

- Outfall
- Manhole
- Drywell
- Inlet
- Culvert
- Gravity Main
- Pattee Creek
- Takima Park Streets

CITY OF MISSOULA STORMWATER
BE THE SOLUTION TO STORMWATER POLLUTION

Site Name: **Takima Park**
Site Landowner: City of Missoula
Site Coordinates:
46.837250, -113.991415

HILL CREST LOOP
CANYON GATE DR
TAKIMA DR
PATTEE CANYON DR
N
0 100 200 400 Feet

Sources: City of Missoula GIS, Cartographer: Carver Butterfield (Missoula Stormwater Utility) , Date: 10/4/2022

Letters of Support

MISSOULA CONSERVATION DISTRICT

Missoula Conservation District
3550 Mullan Rd. Suite 106
Missoula, MT 59808

October 4, 2022

Attn: Montana Department of Environmental Quality
Re: Letter of Support – City of Missoula Department of Public Works & Mobility | Stormwater

Dear MT DEQ:

Over the past year, the Missoula Conservation District and the City of Missoula Stormwater Utility have been partnering to restore riparian vegetation along Pattee Creek with hopes that it helps keep water temperatures cool and sediment out to the stream. The Missoula Conservation District is concerned about the degradation of water quality in Pattee Creek and the ultimate impacts to the Bitterroot River.

The Missoula Conservation District is in full supportive of the city of Missoula's Storm Water Utility's proposal to improve stormwater quality at Takima Park, where Pattee Creek is heavily influenced by the populated portion of Missoula's south hills neighborhood. Pattee Creek is a hard stream for the Conservation District to protect by simply enforcing the Montana Natural Streambed and Land Preservation Act. It will take diverse partnerships to achieve any restoration goals. Next year, the Conservation District has plans to work with landowners to promote voluntary conservation efforts working with our Big Sky Watershed Corp Member. The work of Missoula's Storm Water Utility's to improve stormwater quality at Takima Park will help build community support, while directly affecting the water quality in Pattee Creek.

We ask that Montana Department of Environmental Quality please be a part of this partnership and financially support the City of Missoula Stormwater Utility's Takima Park proposal through 319 Nonpoint Source Program funding.

Sincerely,

Radley Watkins
Resource Conservationist

BITTER ROOT WATER FORUM

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brwaterforum.org

DEQ 319 Panel

October 5, 2022

Dear Panel Members,

The Bitter Root Water Forum is writing to offer its support of the Department of Public Works & Mobility Pattee Creek project.

This letter was requested from us as the authors of the Bitterroot WRP. Though we were only recently introduced to the proposed project, it appears to be inline with the goals as stated in the Pattee Creek portion of the WRP (authored by the Clark Fork Coalition).

Regards,

Heather Barber

Heather Barber
Executive Director

Missoula City-County Health Department
WATER QUALITY DISTRICT
301 W Alder | Missoula MT 59802-4123
www.missoulacounty.us/wqd
Phone | 406.258.4890
Fax | 406.258.4781

October 7, 2022

319 Review Committee
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

RE: Takima Park

Dear 319 Review Committee,

The Missoula Valley Water Quality District is a local government agency whose mission is to protect and improve surface and groundwater quality within the Missoula valley. The District is deeply interested in stormwater quality as it is known to be a leading cause of surface water degradation nationally and is certainly a concern in urban environments. As such, the District supportive of the city of Missoula's proposal to improve stormwater quality at Takima Park, a junction and discharge point of stormwater from Missoula's south hills neighborhoods into Pattee Creek.

The Water Quality District has been studying surface water quality in Pattee Creek for a number of years, including annual sampling of Total Suspended Solids (TSS), Nutrients and chlorides. We have seen marked impacts from stormwater runoff through the project section of Pattee Creek with some of the highest levels of TSS and Chloride detected within the District. The District is pleased to work with the City of Missoula in efforts to combat this trend. Please accept this letter as strong support for the City's application.

Thank you for the opportunity to demonstrate our support for this project.

Sincerely,

Ellen Evans

Environmental Health Manager/Hydrogeologist
Missoula Valley Water Quality District
eevans@missoulacounty.us