

**FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION***All sections must be addressed, or the application will be considered invalid***I. APPLICANT INFORMATION**

- A. Applicant Name: Big Hole Watershed Committee (BHWC)
- Mailing Address: P.O. Box 21
- City: Divide State: MT Zip: 59727-0021
- Telephone: 406-960-4855 E-mail: blaporte@bhwc.org
- B. Contact Person (if different than applicant): _____
- Address: _____
- City: _____ State: _____ Zip: _____
- Telephone: _____ E-mail: _____
- C. Landowner and/or Lessee Name (if different than applicant): Montana Fish Wildlife and Parks
- Mailing Address: 1420 East Sixth Avenue
- City: Helena State: MT Zip: 59620-0701
- Telephone: 406-444-2535 E-mail: fwpgen@mt.gov

II. PROJECT INFORMATION

- A. Project Name: Upper French Gulch Fish Passage and Restoration Project
- River, stream, or lake: Stream
- Location: Township: 2N Range: 11W Section: 05
- Latitude: 45.950445 Longitude: -112.996903 *within project (decimal degrees)*
- County: Anaconda Deer Lodge

B. Purpose of Project:

The purpose of this project is to restore upstream passage connectivity for native fish in the upper reaches of French Gulch, a headwater tributary to the Big Hole River. The project's scope includes the construction of a sinuous, step-pool fish passage system to replace the existing migration barriers, both of which were caused by historic non-renewable resource extraction in the late 1800s and early 1900s.

C. Brief Project Description (attach additional information to end of application):

The primary goal of this project is to restore fish passage connectivity for native Arctic grayling and Westslope cutthroat trout in upper French Gulch. The proposed project area was the location of the first gold strike in the Big Hole drainage in the 1860s, and mining occurred through the early 1900s. The proposed project is located approximately 0.5 miles upstream from the confluence of Julius Gulch and represents the most heavily mined area in the drainage. At the head of the main mining area, there is a very large head-cut where the stream drops approximately 30-40 feet from its former channel elevation to the elevation of the mining work downstream. This drop, combined with a perched culvert immediately upstream, form a complete barrier to fish passage. Downstream of the fish barrier, the stream flows through approximately 2,000 feet of confinement where it is bordered directly by rock walls and mine excavations, known locally as the "Chinese Wall". It is very likely that fish existed upstream of the cascade before mining, given the size of the stream and the available habitat. Less impactful placer and hard-rock mining also occurred upstream of the cascade, which likely resulted in the extirpation of the fishery there. Habitat conditions have naturally improved over time, but fish have been unable to recolonize the stream because of the cascade and culvert fish barriers.

The project will replace the existing cascade and culvert barrier with a constructed step-pool fish passage system. In 2019, the DLVCD and BHWC received a planning grant from the DNRC's RDGP to conduct an alternatives analysis with the end goal of selecting the appropriate restoration action and develop preliminary designs to address the mining-related barriers to fish movement. A total of four alternatives with correlating conceptual designs and cost estimates were produced. Project partners MFWP and the BHWC, guided by project engineers, MMI, selected the best method of stream reconnection based on multiple ecological, economic, and cultural factors. Reconnection of upstream passage to the upper 1.7 miles of French Gulch on a preferred, sinuous alignment at the existing cascade is the favored restoration alternative. This alternative includes 4,700 cubic feet of earthwork and 220 linear feet of step-pool stream channel construction. This alternative will adjust the longitudinal slope to an average of 14%, with pools constructed from onsite rock and stream alluvium. The sinuosity will eliminate the impact on the Chinese Wall but will also require additional earthwork to widen the drop to make room for added sinuosity.

Currently, Montana, Fish, Wildlife and Parks (MFWP) has found no fish in the 1.7 miles of the stream above the barriers, which would be suitable spawning and rearing habitat for the threatened native Westslope cutthroat trout and Arctic grayling. It is expected that once the step-ladder is built, native fish from downstream tributaries introduced as part of FWP's native fish reintroduction project will move into French Gulch, where they will thrive. A fully connected and restored French Gulch will serve as a native fish stronghold, populating downstream tributaries and the Big Hole River for the benefit of Montanans and tourists for the foreseeable future.

In 2021, the Deer Lodge Valley Conservation District (DLVCD) and the BHWC received \$194,832.00 from the Montana Department of Natural Resources and Conservation's (DNRC) Reclamation and Development Grants Program (RDGP) for this project. These DNRC funds will pay for final design, permitting, bidding, and a portion of construction and oversight costs. This FFIP request will cover the remaining construction costs (\$20,000.00) needed for a complete project. The 20k will go toward the "Earthwork" line item in the project budget. All other project costs are covered under the DNRC RDGP grant.

- D. Length of stream or size of lake that will be treated (project extent): 150 feet
 Length/size of impact, if larger than project extent (e.g. stream miles opened): 1.7 miles opened

E. Project Budget:

Grant Request (Dollars): \$ 20,000.00

Matching Dollars: \$ 194,832.00

Matching In-Kind Services:* \$ 5,000.00

**salaries of government employees are not considered matching contributions*

Other Contributions (not part of this application) \$ _____

Total Project Cost: \$ 217,832.00

- F. **Attach** itemized (line item) budget – see *budget template*

- G. **Insert** or **attach** a project location map showing the project area in relation to a major landmark or town. Please indicate if the project location is on public or private property.

The project is on public property. French Gulch is a headwater tributary of French Creek, which flows into Deep Creek, the second largest tributary to the Big Hole River. French Gulch is located on the state-owned Mount Haggin Wildlife Management Area, approximately 17 miles southeast of Anaconda in Anaconda-Deer Lodge County and within the Big Hole Watershed in Southwest Montana.

- H. **Attach** specific project plans (e.g. detailed sketches, plan views [showing location and type of channel modifications], example photographs), current condition photographs, and maps. **If project involves water leasing or water salvage complete and attach a supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).*

- I. **Attach** letters or statements of support. This includes landowner consent, community or public support, and fish biologist support.

- J. The project agreement includes a 20-year maintenance commitment. Please indicate (yes or no) that you will ensure project protection for 20 years. Discuss your ability to meet this commitment.

Yes ☐ No ☐

Montana Fish Wildlife and Parks are the landowner and primary partner on this project. The principal biologist, Jim Olsen (Fisheries Biologist) and Vanna Boccadori (Wildlife Biologist) have both been involved in multiple BHWC habitat restoration projects on the Mount Haggin WMA over the last 7 years and are familiar with the Landowner Agreement commitment.

- K. **Describe** or **attach** land management & maintenance plans, including changing to grazing regimes, that will ensure protection of the restored area.

There are no grazing allotments in the project reach. Furthermore, there are no operation and maintenance costs necessary to support this project in the future. The project design emphasizes structural stability to ensure longevity and resiliency. The fish passage channel will be constructed using appropriately sized rocks that will be placed in the channel. The new channel will be well armored and constructed as a permanent solution for fish passage.

III. PROJECT BENEFITS (attach additional information to end of application):

A. What species of fish will benefit from this project?

This project will directly benefit Arctic grayling and Westslope cutthroat trout.

B. How will the project protect or enhance wild fish habitat?

The entire French Creek drainage including French Gulch is being restored to native species including Arctic grayling and Westslope cutthroat trout. Restoration of cutthroat and grayling to French Creek and its tributaries will add an additional 40 miles of stream restored for native fish and would nearly double the amount of secured habitat for the native fish in the Big Hole. Restoration of fish passage and habitat in upper French Gulch would add nearly 2 miles of stream to this total.

C. Will the project improve fish populations and/or fishing? To what extent? What are the expected short term and long term benefits to the fishery?

Yes. It is anticipated that native fish populations in French Gulch will increase substantially with the increased habitat and access to miles of upstream habitat. It is also anticipated that migratory fish from adjacent creeks will use the upper reaches of French Gulch for spawning and rearing. This project, in conjunction with MFWP's Westslope Cutthroat trout and Arctic grayling restoration project, will aid in conserving these species and lessen the chances that they will warrant listing as a Threatened or Endangered Species.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?

Yes, this project will open up 1.7 miles of critical headwater habitat for Arctic grayling and Westslope cutthroat as the entirety of the project is located on public lands. Angling experience will automatically increase upstream of the project area, but also downstream on Deep Creek, and the Big Hole watershed as the French Creek basin feeds native fish populations.

E. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?

The cause of habitat degradation is directly linked to past placer mining in French Gulch between 1864 and the early 1900's. In French Gulch the valley floor extensively was mined from one side to the other resulting the lowering of the valley floor by roughly 30 ft. The stream was moved to the west side of the valley and trapped there by the careful placement of a nearly vertical boulder wall known as the Chinese Wall. At the head of this wall the stream drops off in a steep cascade of water to the elevation of the old mining area. The cascade, in conjunction with a perched culvert, is impeding upstream fish passage and access to 1.7 miles of in-stream habitat. Fish are unable to migrate past these human-caused, mining-related impairments. The proposed project will restore fish passage to the upper reaches of the French Gulch watershed and give complete connectivity for the first time in over 100 years.

F. What public benefits will be realized from this project?

Montanans will directly benefit from this project through the restoration of aquatic and riparian habitat that belongs to them. Because the project area is located on public property that is accessible year-round, all recreationists that recreate on the Mount Haggin Wildlife Management Area will be positively affected. Opportunities for both Montanans and visitors to observe and, in some cases, harvest these fish in this area will be increased through implementation of the proposed action.

G. Will the project interfere with water or property rights of adjacent landowners? (explain):

No. Water rights should remain unaffected for downstream users as in-stream flows will remain in the French Gulch channel. No manipulation to the natural flow regime will occur.

H. Will the project result in the development of commercial recreational use on the site? (explain):

This is not anticipated, but if guiding does occur they are subjective to the Mount Haggin WMA regulations. Guiding occurs downstream on the Big Hole River.

I. Is this project associated with the reclamation of past mining activity?

Yes.

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Ben LaPorte Date: 11/9/21

Sponsor (if applicable): _____

Submittal: Applications must be signed and received on or before November 15 and May 15 to be considered for the subsequent funding period. Late or incomplete applications will be rejected.

Mail to: FWP Future Fisheries Fish Management Bureau PO Box 200701 Helena, MT 59620-0701	Email: Future Fisheries Coordinator at: FWPFFIP@mt.gov Electronic submissions must be signed. For files over 10MB, use https://transfer.mt.gov & send to mmcgree@mt.gov
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Applications may be rejected if this form is modified.

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

011-2022

Both tables must be completed or the application will be returned

PROJECT COSTS					CONTRIBUTIONS			
WORK ITEMS (Itemize by Category)	NUMBER OF UNITS	UNIT DESCRIPTION *	COST/UNIT	TOTAL COST	FUTURE FISHERIES REQUEST	MATCH (Cash or Services)**	OTHER (Not part of this application)	TOTAL
Personnel***								
Survey				\$ 2,458.00				\$ -
MMI Design Engineer	1	Hours	\$140.00	\$ 140.00	-	140.00		\$ 140.00
MMI Engineering Technician	10	Hours	\$107.00	\$ 1,070.00	-	1,070.00		\$ 1,070.00
MMI Surveyor	14	Hours	\$72.00	\$ 1,008.00	-	1,008.00		\$ 1,008.00
MMI Survey Total Station	1	Day	\$240.00	\$ 240.00	-	240.00		\$ 240.00
Final Design				\$ 12,648.00	-	-		\$ -
MMI Design Engineer	25	Hours	\$140.00	\$ 3,500.00	-	3,500.00		\$ 3,500.00
MMI Engineering Technician	40	Hours	\$107.00	\$ 4,280.00	-	4,280.00		\$ 4,280.00
MMI Quality Assurance (QA/QC)	4	Hours	\$222.00	\$ 888.00	-	888.00		\$ 888.00
MMI Cad Desinger	40	Hours	\$97.00	\$ 3,880.00	-	3,880.00		\$ 3,880.00
MMI Printng	1	Lump Sum	\$100.00	\$ 100.00	-	100.00		\$ 100.00
Permitting and Bidding				\$ 8,410.00	-	-		\$ -
MMI Design Engineer	26	Hours	\$140.00	\$ 3,640.00	-	3,640.00		\$ 3,640.00
MMI Engineering Technician	30	Hours	\$107.00	\$ 3,210.00	-	3,210.00		\$ 3,210.00
MMI Scientist	4	Hours	\$120.00	\$ 480.00	-	480.00		\$ 480.00
BHWC Executive Director	8	Hours	\$35.00	\$ 280.00	-	280.00		\$ 280.00
BHWC Programs Manager	32	Hours	\$25.00	\$ 800.00	-	800.00		\$ 800.00
Oversight and Project Coordination				\$ 30,464.80	-	-		\$ -
MMI Design Engineer	36	Hours	\$140.00	\$ 5,040.00	-	5,040.00		\$ 5,040.00
MMI Engineering Technician	100	Hours	\$107.00	\$ 10,700.00	-	10,700.00		\$ 10,700.00
BHWC Executive Director	80	Hours	\$35.00	\$ 2,800.00	-	2,800.00		\$ 2,800.00
BHWC Programs Manager	250	Hours	\$25.00	\$ 6,250.00	-	6,250.00		\$ 6,250.00
DLVCD RDGP Admin	1	Lump Sum	\$5,674.80	\$ 5,674.80	-	5,674.80		\$ 5,674.80
Monitoring	50	Hours	\$100.00	\$ 5,000.00	-	5,000.00		\$ 5,000.00
		Sub-Total		\$ 58,980.80	\$ -	\$ 58,980.80		\$ 58,980.80
Travel								
Mileage				\$ -				\$ -
MMI Mileage	2000	Miles	\$0.72	\$ 1,440.00	-	1,440.00		\$ 1,440.00
BHWC Mileage	2640	Miles	\$0.58	\$1,531.20	-	1,531.20		\$ 1,531.20
Per diem				\$ -				\$ -
		Sub-Total		\$ 2,971.20	\$ -	\$ 2,971.20	\$ -	\$ 2,971.20
Construction Materials****								
Misc. Materials	1	LS	\$1,000.00	\$ 1,000.00	-	1,000.00		\$ 1,000.00
								\$ -
								\$ -
		Sub-Total		\$ 1,000.00	\$ -	\$ 1,000.00	\$ -	\$ 1,000.00
Equipment, Labor, and Mobilization								
Mobilization, Bonding, and General Requirements	1	Lump Sum	\$20,000.00	\$ 20,000.00	-	20,000.00		\$ 20,000.00
Diversion and Care of Stream	1	Lump Sum	\$5,000.00	\$ 5,000.00	-	5,000.00		\$ 5,000.00
Earthwork	4700	Cubic Yards	\$20.00	\$ 94,000.00	20,000.00	74,000.00		\$ 94,000.00
Boulder Salvage	180	Each	\$15.00	\$ 2,700.00	-	2,700.00		\$ 2,700.00
Step-Pool Construction	220	Linear Feet	\$50.00	\$ 11,000.00	-	11,000.00		\$ 11,000.00
RCP Removal	1	Lump Sum	\$1,500.00	\$ 1,500.00	-	1,500.00		\$ 1,500.00

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

011-2022

Site Restoration	1 Lump Sum	\$5,000.00	\$	5,000.00	-	5,000.00		\$	5,000.00
Machine Time	8 Hours	\$200.00	\$	1,600.00	-	1,600.00		\$	1,600.00
Contingency (10%)	10 % of subtotal		\$	14,080.00	-	14,080.00		\$	14,080.00
			\$	-				\$	-
			\$	-				\$	-
			\$	-				\$	-
			Sub-Total	\$ 154,880.00	\$ 20,000.00	\$ 134,880.00	\$ -	\$ 154,880.00	
			TOTALS	\$ 217,832.00	\$ 20,000.00	\$ 197,832.00	\$ -	\$ 217,832.00	

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used). Do not use government salaries as match. Describe here or in text.

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a justification or minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of \$1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.







Additional details:

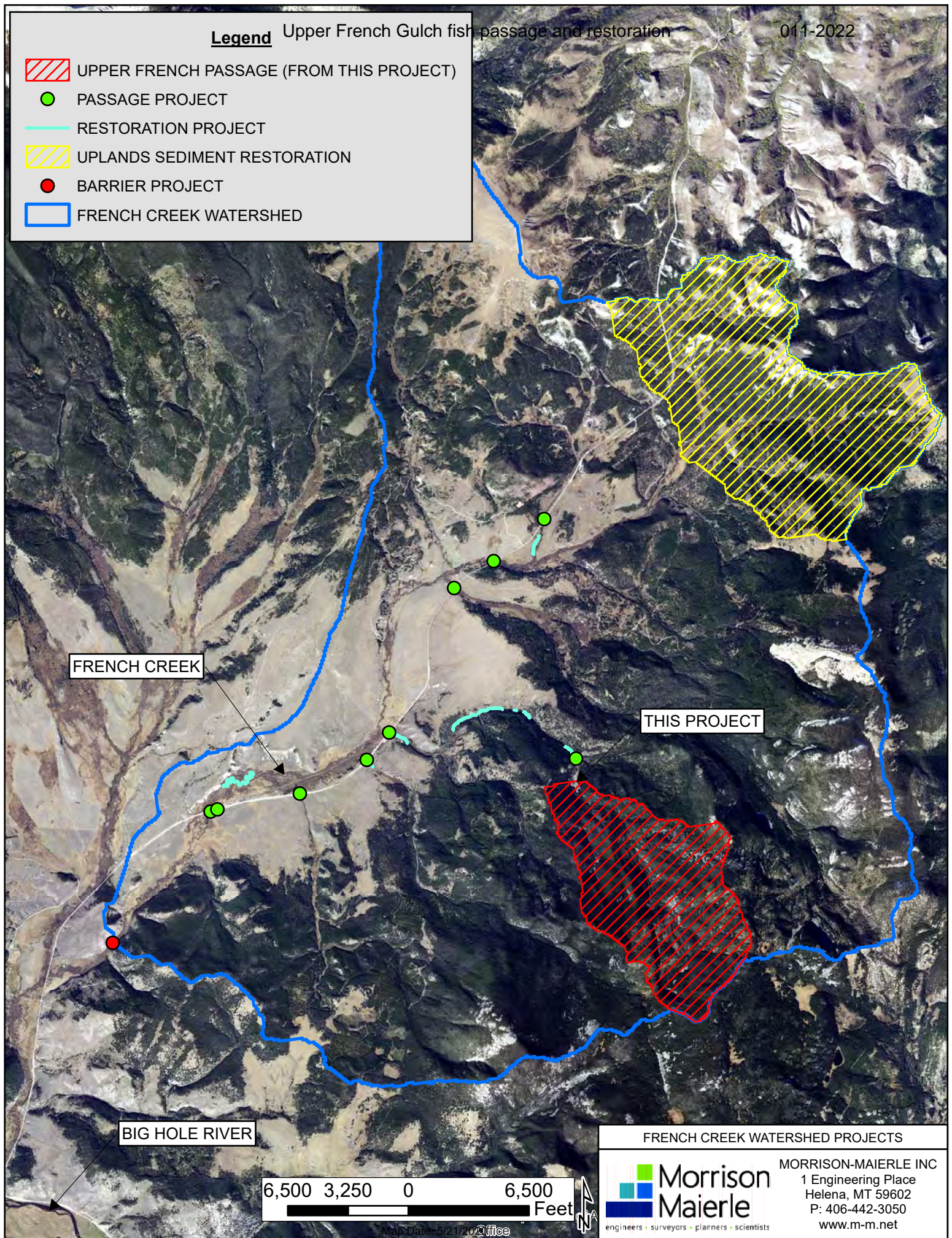
APPLICATION MATCHING CONTRIBUTIONS				
(do not include requested funds or contributions not associated with the application)				
CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
DNRC's Reclamation and Development Grants Program	\$ -	\$ 194,832.00	\$ 194,832.00	Yes
Montana Fish Wildlife and Parks-Fisheries Biologist (Jim Olsen)	\$ 5,000.00	\$ -	\$ 5,000.00	Yes
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
TOTALS	\$ 5,000.00	\$ 194,832.00	\$ 199,832.00	

OTHER CONTRIBUTIONS				
(contributions not associated with the application)				
CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
TOTALS	\$ -	\$ -	\$ -	

Project Location – Big Hole River Watershed



-  UPPER FRENCH PASSAGE (FROM THIS PROJECT)
-  PASSAGE PROJECT
-  RESTORATION PROJECT
-  UPLANDS SEDIMENT RESTORATION
-  BARRIER PROJECT
-  FRENCH CREEK WATERSHED

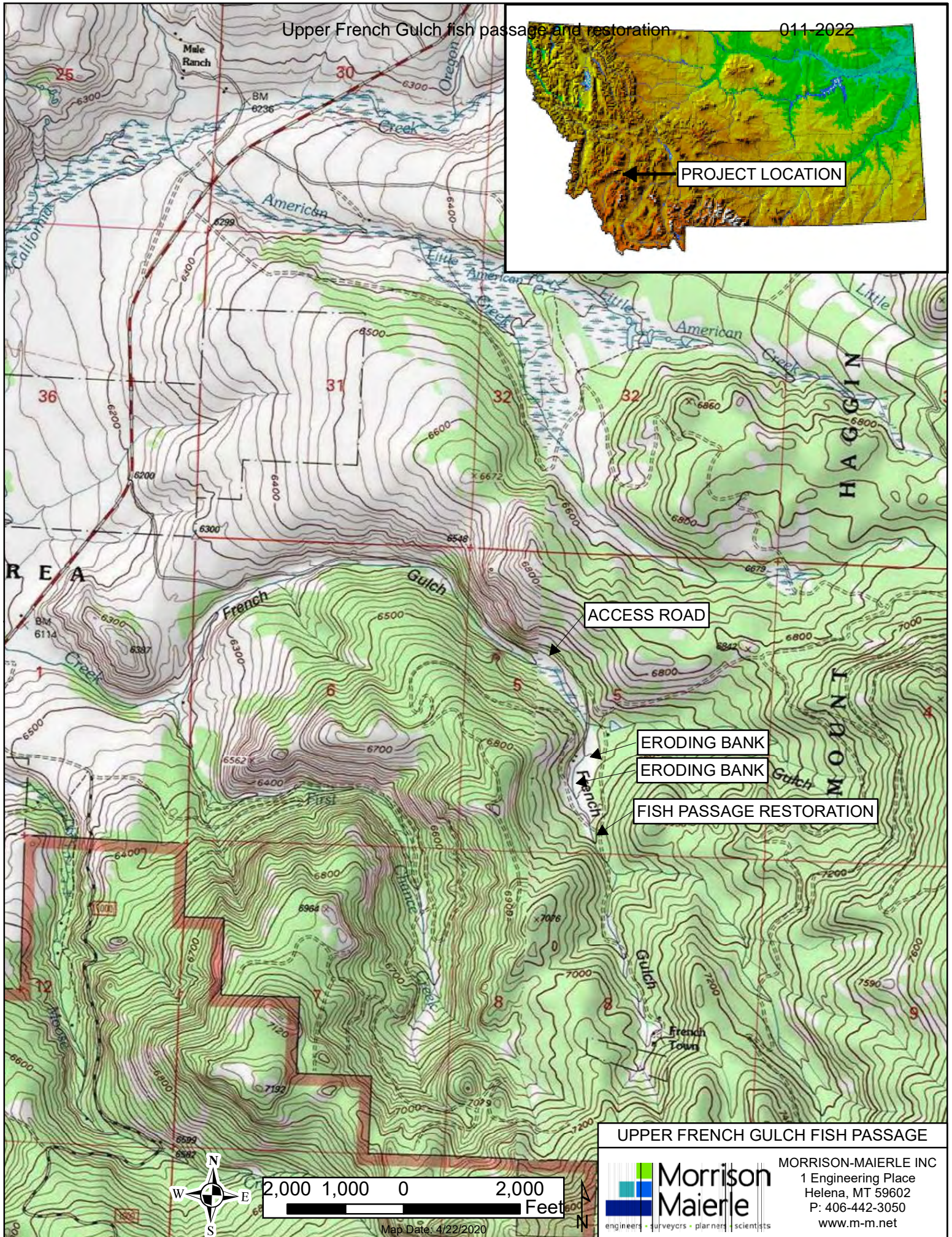
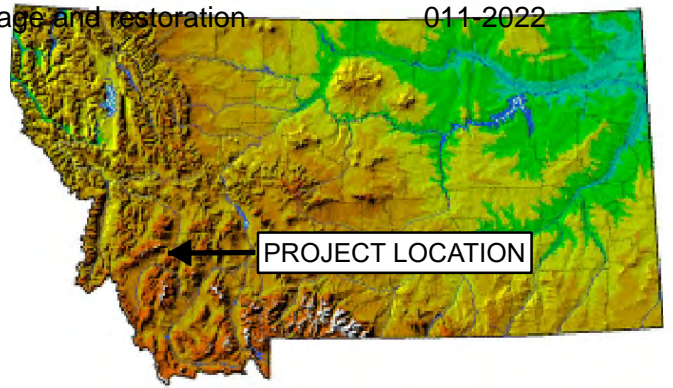


FRENCH CREEK WATERSHED PROJECTS



MORRISON-MAIERLE INC
1 Engineering Place
Helena, MT 59602
P: 406-442-3050
www.m-m.net

011-2022



UPPER FRENCH GULCH FISH PASSAGE



**Morrison
Maierle**
engineers • surveyors • planners • scientists

MORRISON-MAIERLE INC
1 Engineering Place
Helena, MT 59602
P: 406-442-3050
www.m-m.net

ACCESS ROAD

PROJECT LOCATION

FRENCH CREEK

JULIUS GULCH

ERODING BANK

ERODING BANK

FISH PASSAGE RESTORATION



420 210 0 420 Feet

Map Date: 4/22/2020 Office, Copyright © 2020

UPPER FRENCH GULCH FISH PASSAGE



MORRISON-MAIERLE INC
1 Engineering Place
Helena, MT 59602
P: 406-442-3050
www.m-m.net



1

Fish barriers in the project area to be restored. This is the location where major mining activities stopped in French Gulch, creating a 30-foot-high, unnaturally steep cascade that plunges from the original valley height down to the current elevation. At the head of the cascade sits a perched culvert where an old road crosses the stream.



Figure 1. Perched culvert



Figure 2. 30 ft high cascade



2

Images looking upstream (left) and downstream (right) along the "Chinese Wall". Due to cultural and historical significance of this feature, the project will not disturb any portions of the wall. All project work will be done above and below the wall.

Figure 3. Looking upstream



Figure 4. Looking downstream





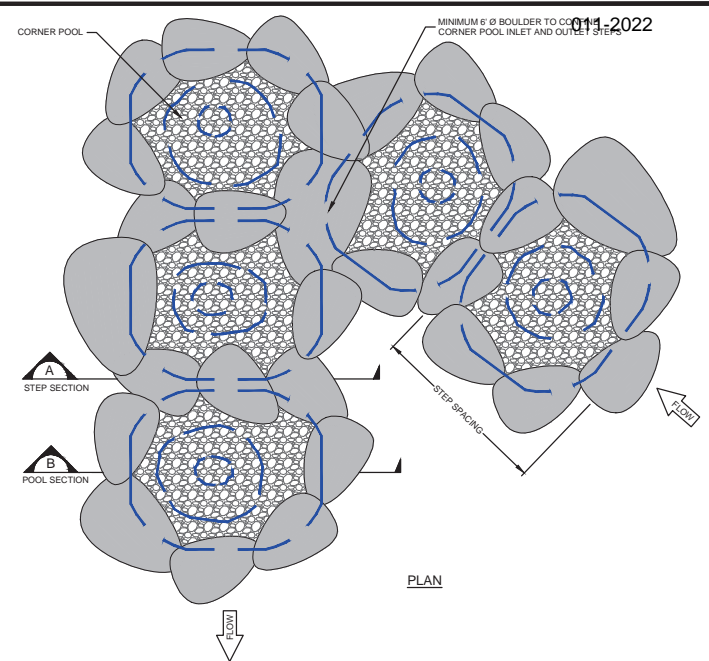
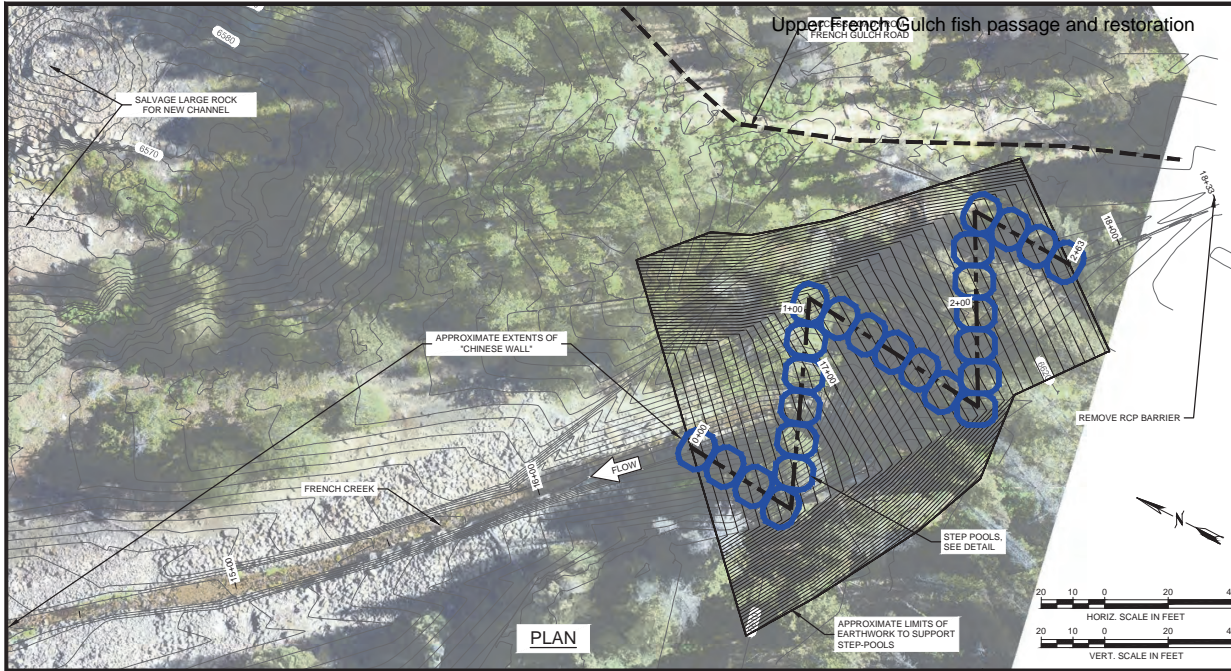
"Chinese Wall" below project site. May 28, 2021.



30 ft high cascade. May, 28, 2021.

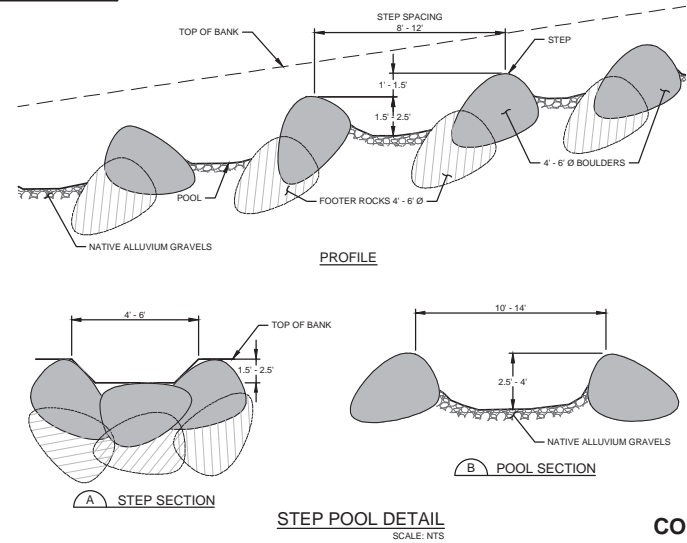
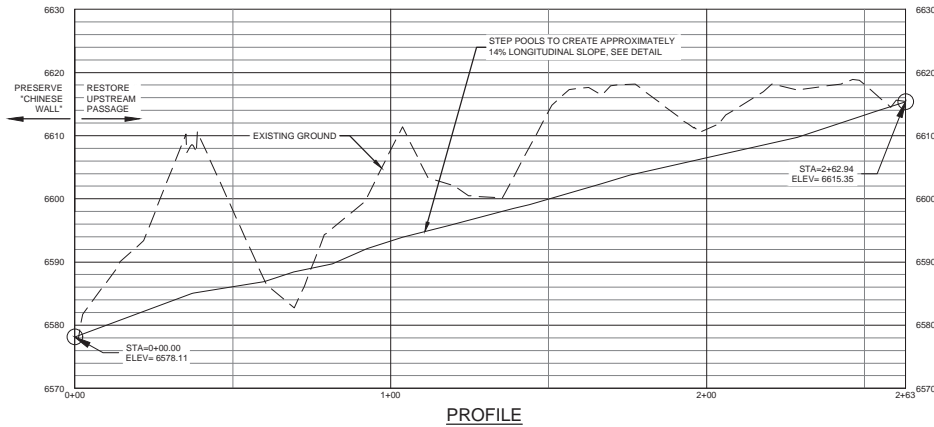


Perched culvert upstream of cascade. May 28, 2021.



GENERAL NOTES

1. SITE SURVEY COMPLETED IN SEPTEMBER 2019 WITH uAS, GNSS RTK, AND TRIMBLE GEO 7X EQUIPMENT.
2. CONCEPT DESIGN INFORMATION FOR PLANNING PURPOSES ONLY.



CONCEPTUAL DESIGN FEBRUARY 2020

VERIFY SCALE!	NO.	DESCRIPTION	REVISIONS	BY	DATE
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.					
MODIFY SCALE ACCORDINGLY!					

**Morrison
Mayerle**
engineers • surveyors • planners • scientists

1 Engineering Place
Helena, MT 59602
406.442.3050
www.m-m.net

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DRAWN BY: _____
DSGN. BY: _____
APPR. BY: _____
DATE: _____
Q.C. REVIEW BY: _____
DATE: _____

UPPER FRENCH GULCH RESTORATION

MONTANA

UPSTREAM PASSAGE - PREFERRED OPTION

PROJECT NUMBER
5406.00500

SHEET NUMBER

DRAWING NUMBER

EX-3



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1 Engineering Place
Helena, MT 59602

Ph: (406) 442-3050
www.m-m.net

ENGINEER'S OPINION OF CONCEPTUAL CONSTRUCTION COST	
Date:	2/6/2020
Project #:	5406.00500
Project Name:	Upper French Gulch Fish Passage
Engineers:	M Barnes

Upstream Passage - Preferred Option (EX-3)

Item No.	Description	Estimated Quantity	Unit	Unit Price (Low/High)		Total Cost (Low/High)	
100	Mobilization, Bonding, and General Requirements	1	LS	\$15,000	\$20,000	\$15,000	\$20,000
101	Diversion and Care of Stream	1	LS	\$2,500	\$5,000	\$2,500	\$5,000
102	Earthwork	4,700	CY	\$10	\$20	\$47,000	\$94,000
103	Boulder Salvage	180	EACH	\$5	\$15	\$900	\$2,700
104	Step-Pool Construction	220	LF	\$25	\$50	\$5,500	\$11,000
105	RCP Removal	1	LS	\$500	\$1,500	\$500	\$1,500
106	Site Restoration	1	LS	\$2,500	\$5,000	\$2,500	\$5,000
107	Machine Time	8	HR	\$100	\$200	\$800	\$1,600

SUB-TOTAL	\$74,700	\$140,800
CONTINGENCY 10%	\$7,470	\$14,080
CONSTRUCTION TOTAL	\$82,000	\$155,000

Design (20%)	20%	\$15,000	\$28,000
Construction Oversight (15%)	15%	\$11,000	\$21,000
ENGINEERING TOTAL		\$26,000	\$49,000
PROJECT TOTAL		\$108,000	\$204,000



FWP.MT.GOV

THE **OUTSIDE** IS IN US ALL.

Butte Area Resource Office
1820 Meadowlark Lane
Butte, MT 59701

National Fish and Wildlife Foundation
Bring Back The Natives Grant Program

July 27, 2021

To whom it may concern,

As owners and managers of the potential project on upper French Gulch, Montana Fish Wildlife and Parks fully supports the Big Hole Watershed Committee in their efforts to restore the impacts of past mining practices in the French Creek watershed. Recent collaborative efforts to restore French Gulch and Moose Creek have resulted in significant improvements in aquatic habitat and the creation of a functioning stream channel and floodplain which is rapidly becoming a healthy riparian area. These efforts resulted in the restoration of nearly 3 miles of stream channel that had been impacted by mining that occurred a century ago. The mining in the French Gulch was extensive and would be difficult to restore entirely. However, we view the proposed project at the head of French Gulch as the last major project in the drainage to restore the main known impacts to habitat and water quality.

Extensive mining that occurred upstream of Julius Gulch lowered the valley floor elevation and the stream was rerouted and confined by what has been called the Chinese Wall. This feature is a constructed boulder canyon from 8-12 ft high all constructed by hand. At the head of this feature where major mining stopped French Gulch plunges down a steep 30-ft high cascade up to the former valley elevation. This cascade blocks all upstream fish passage. Because of the mining that occurred upstream there are no fish in French Gulch and because of the cascade no fish can access the upper 1.5 miles of stream to recolonize the area. At the head of the cascade the road accessing the hard rock mine crosses French Gulch. This concrete culvert is perched roughly 2 ft above the bed of the stream and there are boulders below with no jump pool that would allow fish to jump into the culvert.

Downstream of the Chinese Wall French Gulch is pinned against the western side of the valley bottom so the east side could be mined. The stream is locked into this location by large placer piles. The natural valley slope in this area is relatively steep and boulder substrates are common. The historic channel was likely relatively straight with a narrow riparian area similar to what is present upstream of the cascade reach. There is also a historic road on this side of the drainage accessing old cabin sites. The road in several places is being undermined by the stream and large amounts of sediment are entering the stream. The fish habitat through is area is limited with few pools.

The RDG planning grant awarded two years ago has served to survey and explore restoration alternatives for this reach of stream. This effort has been completed and the restoration alternative that is the most cost effective with the least impacts to cultural resources is a zig-zagging, step-pool complex that connects the stream from the Chinese Wall to the head of the culvert upstream. The culvert would be removed and there would be little to no disturbance to the Chinese wall. The structure would undoubtedly result in the passage of fish upstream to access available habitat. The zig-zag nature of the proposed channel will allow for a low enough stream grade to pass fish and avoid having to impact the culturally significant wall. This alternative is much more cost effective than relocating the stream channel when the primary objective is to facilitate fish passage. Additional minor stream channel work and stream bank stabilization is necessary downstream of the wall to reduce erosion and improve fish habitat.

Efforts to improve fish habitat through bank stabilization, erosion control and revegetation will also improve intact habitat for wildlife in this area, such as moose, black bear, elk, mule deer, ruffed grouse and numerous songbird species that nest in riparian habitat.

FWP fully supports the Big Hole Watershed Committee in its efforts to obtain funding restore fish passage and aquatic habitat in the upper French Gulch area. Restoration of these impairments would be the last major step to restoring the known and most significant impacts of mining in the French Gulch area. FWP is also currently restoring native westslope cutthroat trout and Arctic grayling to the French Creek watershed. If this project is funded and the restoration work completed, additional stream habitat will once again become accessible to these native fish which hasn't seen fish in 100 years. The chronic sources of fine sediment to the stream will also be eliminated.

Sincerely,

Jim Olsen
Fisheries Biologist

Vanna Boccadori
Wildlife Biologist

ANACONDA-DEER LODGE COUNTY**PLANNING DEPARTMENT**

800 South Main

Anaconda, Montana 59711

Phone No. (406) 563-4010



National Fish and Wildlife Foundation
Bring Back The Natives Grant Program

July 27, 2021

To whom it may concern,

In the interest of maintaining and improving a clean and safe environment for the residents and visitors of Deer Lodge County, the proposed work by the Big Hole Watershed Committee within the French Gulch watershed, carries the full support of the County. Deer Lodge County appreciates the restoration improvements that have recently been completed on French Gulch and the County is fully supportive of seeing the past mining damage minimized, cleaned and restored to the best of our capabilities.

Extensive mining that occurred upstream of Julius Gulch lowered the valley floor elevation and the stream was rerouted and confined by what has been called the Chinese Wall. This feature is a constructed boulder canyon from 8-12 ft high all constructed by hand. At the head of this feature, where major mining stopped French Gulch, plunges down a steep 30-ft high cascade up to the former valley elevation. Because of the mining that occurred upstream, there are no fish in French Gulch and because of the cascade, no fish can access the upper 1.5 miles of stream to recolonize the area. At the head of the cascade, the road accessing the hard rock mine crosses French Gulch. This concrete culvert is perched roughly 2 ft above the bed of the stream and there are boulders below with no jump pool that would allow fish to jump into the culvert.

Furthermore, downstream of the Chinese Wall, French Gulch is pinned against the western side of the valley bottom so the east side could be mined. The stream is locked into this location by large placer piles. Streambanks in two locations are being undermined by the stream and large amounts of sediment are entering the stream. The proposed restoration of the two eroding streambanks downstream of the cascade by revegetating and applying bioengineering techniques will aid in decreased sedimentation downstream and the improvement of water quality.

As previously mentioned, extensive work has already been completed to restore natural ecosystem functions as well as assess remaining impacts from historic mining. The RDG planning grant awarded

two years ago enabled a survey and development of restoration alternatives for this reach of stream. The preferred alternative includes reconnecting the upstream reach of French Gulch with a sinuous alignment at the existing cascade. The County, and its history buffs, appreciate that there is no proposed disturbance to the Chinese wall. The structure would undoubtedly result in the passage of fish upstream to access available habitat. The zig-zag nature of the proposed channel will allow for a low enough stream grade to pass fish and avoid having to impact the culturally significant wall.

Anaconda-Deer Lodge County fully supports the Big Hole Watershed Committee in its efforts to obtain funding to reconnect the upper reaches of French Gulch. Restoration of these impairments would be the last major step to restoring the known and most significant impacts of mining in the French Gulch area.

If you have any questions regarding the County's support for this grant application, please do not hesitate to ask. Thank you for your consideration.

Sincerely,



Carl Hamming
Planning Director
Anaconda – Deer Lodge County
chamming@adlc.us
Office: 406.563.4015
Cell: 406.560.8437



July, 27 2021

National Fish and Wildlife Foundation
Bring Back The Natives Grant Program

The Anaconda Sportsmen's Club is certainly in favor of the efforts of the Big Hole Watershed Committee restoring French Gulch's upper portions. We are very pleased and impressed with the work they have done.

By funding this project with your grant, future generations will benefit. The work to be done will remediate the scars from the past centuries, when the land was damaged by mining, logging and smelting. Removing the fish barriers mentioned, will allow complete passage and native fish will recolonize the creeks upper section, especially the West Slope Cutthroat; which will be reintroduced later, and to propagate miles beyond these barriers. This work will greater benefit the natural resources, which will help beautify the landscape. For the aquatic species, it will slow the current, allowing more water to be absorbed into the ground, helping plant growth in the stream and on the banks. Those banks will have been reduced from their former steep slopes. The sediment retention will also be increased, lessening downstream sedimentation, eventually benefiting the Big Hole River.

Anaconda and the surrounding communities will also benefit because the increased area recreation value will become a destination for avid outdoorsmen. Thanks to Big Hole Watershed Committee for their efforts and to NFWF for considering granting this project.

Gary Ouldhouse
Anaconda Sportsmen's Club President



Technical Memo

TO: Ben LaPorte, Project Manager, BHWC
FROM: Matt Barnes, PE, CFM; Zachariah Campbell
DATE: February 26, 2020
JOB NO.: 5406.00500
RE: Upper French Gulch Conceptual Design Memo
CC: Pedro Marques, BHWC; Jim Olsen, FWP; File

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☒ For Your Use

1. PROJECT BACKGROUND

Big Hole Watershed Committee (BHWC) and Montana Fish, Wildlife, and Parks (FWP) have identified past mining impacts in the upper reaches of French Gulch on the Mt Haggin Wildlife Management Area (WMA). FWP owns and manages the WMA and supports restoration of the area. BHWC hired Morrison-Maierle to investigate the site, survey, document alternatives, and develop a conceptual design to achieve the project goals.

FWP and BHWC have completed many restoration project in the WMA to restore watershed health, natural water storage, and native fisheries. This area appears to be one of the last remaining major projects in the French Creek watershed for restoration.

2. GOAL AND OBJECTIVES

The goal and objective of this project is to provide upstream passage connectivity for native fish to the upper reaches of the French Creek drainage by replacing the existing cascade and culvert barrier with a step-pool system. The step-pool system will be installed in summer 2022 and will provide immediate connectivity.

The other goal at the site is to restore several eroding streambanks downstream of the cascade by revegetating and spot treatments of bioengineering with hand crews and equipment.

3. PROBLEM HISTORY

Past mining activity is the primary cause of the problem to be addressed by this project. The French Creek watershed and much of Mt Haggin WMA has seen many impacts from mining, logging, transportation projects, and smelter waste from Anaconda. Many projects have been completed in French Gulch, lower French Creek, Oregon Creek (tributary), California Creek, and uplands areas to address and restore these impacts.

This project is located near the old mining community of Frenchtown. The red arrow in Figure 1 points to the location of the existing cascade barrier. The existing cascade barrier is about 34 feet tall and blocks access to about 1.7 miles of French Creek. There is an existing reinforced concrete pipe (RCP) culvert about 100 feet upstream of the cascade that also creates a likely barrier to upstream passage shown in Figure 2.

Upper French Gulch Conceptual Design Memo



Figure 1 – Frenchtown in French Gulch, 1913



Figure 2 – Existing RCP outlet

Upper French Gulch Conceptual Design Memo

There is a past mining feature that includes a stacked rock wall containing and directly adjacent to French Creek from the cascade and extending about 550 feet downstream (Figure 3). These walls have been identified for preservation by SHPO. Some impacts may be acceptable but should be minimized if and where possible.



Figure 3 – Stacked Rock Walls

Upstream of the existing RCP, a reference reach was identified and investigated to inform stream design. The features investigated and measured that related to the proposed design are shown in Table 1.

Table 1 – French Creek Reference Reach Measurements

Feature	Bankfull Width	Bankfull Depth	Step Height	Step Spacing	Residual Pool Depth	Pool Length
Minimum	3.5	0.8	0.8	4.0	0.2	4.0
Maximum	9.0	2.0	2.0	18.0	0.9	15.0
Mean	5.8	1.5	1.6	8.8	0.5	7.8

4. PROJECT ALTERNATIVES

- No Action

With no action the upper 1.7 miles of French Creek will continue to be isolated and disconnected from the remainder of the watershed.

- Stream Relocation

Channel relocation would accomplish reconnection to the upper 1.7 miles of French Creek. This would require much more earthwork and over 1,000 feet of new stream channel. There would be potential for added benefits with additional floodplain and habitat, however, these would likely be relatively minor in the valley setting high in the watershed.

Upper French Gulch Conceptual Design Memo

- Reconnect Upstream Passage on Existing Alignment

Reconnection of upstream passage to the upper 1.7 miles of French Creek will require about 210 feet of new step-pool features at the existing cascade. These features will adjust the longitudinal slope to a maximum of 15% with pools constructed from onsite rock and stream alluvium. A similar design was constructed in 2016 as part of a larger restoration project in lower French Gulch where an existing culvert barrier was removed (Figure 4). The existing RCP barrier will also be removed and the local streambed elevations reconnected. This alternative will require some disturbance to the stacked rock walls shown in Figure 3 which has been noted as a possible issue with historical preservation personnel.



Figure 4 – Complete step-pools in lower French Gulch

- Reconnect Upstream Passage on Preferred Alignment

Reconnection of upstream passage to the upper 1.7 miles of French Creek will require about 263 feet of new step-pool features on a more sinuous alignment at the existing cascade. These features will adjust the longitudinal slope to an average of 14% with pools constructed from onsite rock and stream alluvium. The sinuosity will reduce the impact to the stacked rock walls but also require additional earthwork to widen the drop. A similar design was constructed on the South Fork Divide Creek upstream of the Butte water reservoir (Figure 5). The existing RCP barrier will also be removed and the local streambed elevations reconnected.



Figure 5 – Step-pools in S. Fork Divide Creek

5. PROJECT COSTS

The cost to design, permit and construct the two alternatives have been estimated based on the conceptual project quantities and a range of recent unit costs from similar projects. The estimated cost for Stream Relocation is from \$511,000 to \$798,000. The estimated cost for Upstream Passage on the existing alignment is from \$58,000 to \$100,000. The estimated cost for Upstream Passage on the preferred alignment is from \$112,000 to \$211,000.

6. COST/BENEFIT ANALYSIS

Upstream Passage provides a higher cost/benefit ratio since the cost is less, due in most part to reduce construction quantities, and provides a similar level of resource benefits. Both alternatives provide upstream passage to the upper 1.7 miles of French Creek as the primary project benefit.

7. PROJECT TASKS

Final design, permitting, bidding, and construction are needed to provide upstream passage at the project site. Final design will include civil engineering and construction plans to define the project to a constructible level. This will likely include additional specifications on materials, material sources at the site, and planning for access and site restoration.

Permitting for the project will likely require a SPA 124 permit, USACE 404 permit, and DEQ 318 authorization. Once permits are secured the project will be advertised for construction bid form qualified contractors. Several contractors with relevant experience will be invited to bid on the project along with public advertisement.

The construction of the project will occur in one season and likely last between one and two months due to the remote site. Key stages of construction are likely to include access improvements for equipment, materials sorting, diversion of stream flows around the site, fill placement, step-pool construction, and site restoration.

Upper French Gulch Conceptual Design Memo

Project closeout will take place when construction is complete. A final site review with BHWC, FWP, permit agencies, contractor, and the design engineer will occur to verify the project meets the intent. Documentation that the goals and objectives of the project are met will conclude the project closeout.

8. PROJECT SCHEDULE

- Grant Award – Summer 2021
- Final Design – Fall 2021
- Permitting and Bidding – Winter/Spring 2022
- Construction – Summer 2022
- Closeout – Summer 2022

9. ATTACHMENTS

- Conceptual Project Plans
- Conceptual Project Cost Estimate