2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: MoTAC Cultural Resources Management Compliance – REVISED 11/22/2019

Which PM&E measure(s) in the Project 2188 License will this proposal enhance or support?

NA – This project is designed to ensure NWE-funded projects comply with the 1997 Cultural Resources Management Plan. NWE-funded projects will be screened at annual meetings to determine if they support P,M&E measures.

Proposal Submitted by: Grant Grisak

Date Submitted: November, 2019

Location of Proposed Project: Missouri River from Canyon Ferry Dam to headwaters of Fort Peck Reservoir.

Total Project Cost: TBD at annual meeting.

TAC Funds (Cost-Share) Requested: TBD at annual meeting.
11/20/2019 – TAC approved $3,000

I. Introduction.

NorthWestern Energy-funded projects are required to comply with the Cultural Resources Management Plan (1997) filed with FERC for License 2188.

The plan states "…In all actions, direct effects are those that may occur to cultural resources located at the specific sites of proposed actions. Indirect effects are those that may arise from actions removed in time or space from the primary action, but are essential to the primary action…NWE will be responsible for all studies and costs in cultural resources management (CRM) for all actions it proposes… Studies will be undertaken by NWE, under the four step plan detailed hereinafter, unless another party involved in an action agrees to undertake CRM studies…"

TAC applicants would traditionally integrate the costs of a CRM inventory in their applications, then facilitate having a NWE CRM consultant perform the inventory. Afterwards, NWE would forward the results of those inventories to SHPO for concurrence in findings, thus complying with the 1997 CRM Plan. TAC applicants, such as Federal Government Agencies who have CRM personnel on staff, would generally have their staff perform the CRM inventories for their projects and forward to NWE to file with SHPO for concurrence.

This proposal is to formalize the process by identifying the projects needing CRM inventories during the annual TAC meetings. Upon approval of an application, the CRM funds would be removed and integrated into one proposal (this proposal) to aid the NWE CRM consultant for tracking purposes and ease in contracting. Those Federal partners who continue to perform their own CRM inventories and reports will remain separate, except when seeking SHPO concurrence.

In 2019, the average cost of an individual CRM inventory performed by NWE consultant was $2,300 (range $1,100-$3,800).

11/12/2019 – NWE consulting archaeologist made the following determinations;
NWE: MO-TAC Proposals for 2020 - Cultural Resource Management Reviews

Proposal Title	**Proponent((s)**	**CRM Review**
Beaver Creek Phase I Stream and Wetland Restoration Construction Implementation	USFS Helena	**Applicant Stated:** *The Helena Ranger District received SHPO concurrence on the Beaver Creek Restoration Project on 9/17/2019 (R#2018011700047). Montana SHPO concurred there were No Adverse Effects and no properties on or eligible for NRHP appear likely to exist within project impact area. A copy of the SHPO memo is available upon request.* **Review: A copy of the SHPO memo was rec'd 11/12/2019. No further actions necessary.**
Engman River Bank Restoration	Jason Mullen – MTFWP	**Applicant Stated**: *Treatments along the 700-ft bank will vary depending on the level of current erosion and the slope*

	Fisheries Biologist	*of the banks. The consultant report describes three treatments. The most extensive treatment where a vertical bank is present, includes* establishing a *stable bank toe with wood debris, some rock, and soil lifts inter-spaced with willow bundles. The soil lifts and willow bundles will extend up to the bankfull elevation where a floodplain with willows will be established. The upper bank will be sloped and seeded with native grass mix, shrubs, and trees. In the other treatment areas where a stable toe has already been established the toe will be preserved, and the upper bank will be sloped and revegetated. This project would include land disturbing activity. The proposal includes $2,000 to hire a private consultant to conduct a cultural survey.* **Review: This project should be included into the single proposal for conducting CRM inventories, assessments and SHPO consultations. Estimated cost is $3,000.**
Sevenmile Creek Habitat Restoration – Final		***Applicant Stated:*** *The proposed restoration approach involves constructing a new channel alignment through Sevenmile Creek's historic floodplain. Selecting an alignment during the design process for a restored channel through SM4 involved analyzing historic imagery to help determine the most likely route of the historic channel. Based on these images and existing topography, the historic channel likely flowed north of the existing channel throughout the majority of this reach. Channelization of the creek subsequently pushed the channel to the southern edge of the historic floodplain, where it currently remains. A cultural resource survey for phase 1 of the SM4 project and was completed and approved by the SHPO in 2019. It found no significant cultural resources within the project area. This document was provided to Northwestern Energy upon completion. If necessary, a similar effort will take place for phase 2.* **Review:** No additional consideration for CRM is required for Phase I of the project. None is required for Phase 2, since this is actual construction of the area inventoried in Phase 1.

II. Objectives. Comply with the Cultural Resources Management Plan (1997) filed with FERC for License 2188.

III. Methods. Identify projects needing CRM inventories at annual meeting. Determine if CRM will be performed by another party or NWE consultant. Integrate CRM funds into one proposal for ease in tracking and contracting with NWE CRM consultant. Ensure all projects funded by NWE comply with 1997 CRM Plan.

IV. Schedule. This work is done throughout the entire field season.

V. Personnel. Grant Grisak is the NWE project leader. Assistance is provided by NWE CRM consultant, Federal staff credentialed in CRM and Any Welch, NWE, Hydro Compliance Leader.

VI. Requested Budget

TBD at annual meeting. NWE consulting archaeologist estimated $3,000 for CRM inventory for TAC project 2020-7 11/20/2019 – TAC approved $3,000.

List all other funding (cost-share) sources and amounts for this project: NWE provides staff time to file CRM reports with SHPO and tracks that processes and responses through communication with a consultant and a document repository. Estimated annual cost to NWE is $10,000 through staff time and consulting fees.

VII. Deliverables. CRM inventory reports on NWE-funded projects. SHPO concurrence for each of those reports.

NWE received SHPO letter of concurrence for project 2020-6 on 11/12/2019. MoTAC approved funding for CRM inventory for project 2020-7. An inventory report will be completed and letter of concurrence will be obtained from SHPO and filed with NWE.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

This proposal is specifically designed to ensure all projects funded by NWE in 2020 will comply with the 1997 CRM Plan.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9 March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: No water rights are associated with this project.
No water rights are associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 208 N Montana Ave., Suite 205; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

2020 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: 2020 Annual Monitoring Project

Date: October 28, 2019

Explain how this Project addresses a specific Project 2188 License Article(s): This is a Priority 1project because it meets License Article requirements and PM&E for fisheries populations or their habitats within the Missouri River system from Hauser Reservoir to Fort Peck Reservoir as required by FERC license 2188.

Provide justification for Priority 1, 2 or 3 (above) that you selected: PM&E is required by the FERC license. The 9 year agreement ensures consistent and reliable monitoring to fulfill FERC license requirements.

Project Sponsor (submitted by): Jason Rhoten, Montana Fish, Wildlife & Parks

Location of Proposed Project: Missouri River from Hauser Reservoir to Fort Peck Reservoir.

Total Project Cost: Estimated $592,368 per year.

TAC Funds (Cost-Share) Requested for Project: $242,368 in 2020.

I. Introduction; brief statement of project to be completed with pertinent background information.

Throughout most of the 2188 project area in the mainstem Missouri River drainage, the FERC license requires annual fish population monitoring, evaluation, and development of measures to reduce hydroelectric project impacts on fisheries and aquatic habitats (see list of conditions above). Fisheries monitoring is critical to: 1) determine the influence of hydroelectric projects operations on river and reservoir fish populations; 2) to evaluate the need and type of protection mitigation and enhancement projects; and 3) to evaluate the success of protection, mitigation and enhancement activities. Montana Department of Fish, Wildlife and Parks (MFWP) has conducted periodic monitoring in many areas of the drainage, but due to changing priorities and fiscal conditions there is no long-term guarantee that current monitoring activities will continue. The intent of this proposal is to forge a long-term cooperative agreement that insures NorthWestern Energy (NWE) is able to meet FERC-mandated fisheries monitoring and evaluation requirements as well as to facilitate MFWP participation in the development and implementation of mitigation and enhancement measures in a cost-effective manner.

Montana FWP and NWE entered into a longterm monitoring agreement intended to enable NWE to meet the requirements of FERC license 2188 and to provide valuable information necessary for the effective management of the states' fisheries resources. The contract spans January 1, 2018 through December 30, 2026.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Monitoring, reporting and recommendations as identified in the 2018-2026 agreement.

III. Methods; description of how Project objectives will be accomplished.

Work will be performed using standard methods currently employed by MFWP in similar surveys. Methods are subject to change pending discussion and approval by Technical Advisory Committee.

IV. Schedule; when the Project work will begin and end. Work will be conducted from January 1, 2020 through June 30, 2021.

Seasonal schedule of activities is provided for each item in Section II. Several elements in the monitoring plan will require assistance from existing NWE Hydro Compliance personnel. Specific areas requiring assistance include Hauser & Holter tailwater electrofishing, Cascade section electrofishing, Great Falls reservoirs monitoring, and monitoring of Missouri River downstream from Morony Dam. Deviations from seasonal and annual schedules may occur if approved by Technical Advisory Committee.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

Project Leader:	Jason Rhoten, Region 4 Fisheries Manager, MFWP
Project Biologists:	Adam Strainer, Helena, MFWP
	Jason Mullen, Great Falls, MFWP
	Luke Holmquist, Lewistown, MFWP
Project Technicians:	Troy Humphrey, Helena, MFWP
	Chris Hurley, Helena, MFWP
	Adam Geik, Great Falls, MFWP
	Rob Beattie, Lewistown, MFWP
	Daniel Madel, Great Falls, MFWP
	Other temporary and seasonal technicians

VI. Project budget must include amounts for the following:

Direct Labor = $182,333
Travel and Living = $30,942
Materials - NA
Other Direct Expenses - trammel net cleaning paid directly to vendor = $3,500
Direct Overhead = $25,593
All cost-share sources and amounts, including estimation of “in-kind” contributions

A. NorthWestern Energy estimated personnel and operations:

The budget from last year has been modified and updated with new salary levels, operations, and overhead as shown below. Salaries have been adjusted to actual cost levels for specific personnel, as provided by MFWP Human Resources department on October 31, 2019. The State overhead rate decreased to 12% for state FY2020.

Operations amounts are based on the amounts negotiated in the fish monitoring agreement for 2018 through 2026 between NWE and MFWP. This amount increases by 2.0% each year. In January 2016 the federal Patient Protection and Affordable Care Act mandates all Montana state employees receive health care insurance benefits. The 2020 proposal reflects benefit rates as mandated by the Act. The proposed 2020 budget is as follows:

	Item	FTE	Hours	Pay rate including benefits	Amount
Hauser and Holter Reservoirs and Tail waters					
93474-CH	F&W Tech	0.29	603	$28.69	$17,290
93472-RS	Creel Survey Tech	0.35	728	$22.97	$16,721
93473-Vacant	F&W Tech	0.2	416	$23.02	$9,575
93472-RS	F&W Tech (012-07)	0.3	624	$22.97	$14,333
	Operations ($11,142 + 2%)				$11,365
	Subtotal				$69,284
	Overhead (12%)				$8,314
	Total	1.14	2,371		**$77,598**
Missouri River Below Holter Dam					
93474-DM	F&W Tech	0.3	624	$27.88	$17,395
	Operations ($4,457 + 2%)				$4,546
93474-DM	NWE Fieldwork Tech	0.05	104	$27.88	$2,899
	Subtotal				$24,841
	Overhead (12%)				$2,981
	Total	0.35	728		**$27,821**
Great Falls Reservoirs and Tailwaters					
37340-LH	F&W Biologist	0.5	1040	$37.10	$39,040
37341-RB	F&W Tech	0.5	1040	$30.09	$32,144
93474-MS	F&W Tech	0.4	874	$27.31	$24,271
	Operations ($14,736 + 2%)				$15,031
93474-MS	F&W Tech Trammel Net Repair	0.1	208	$27.31	$5,776
93474-MS	NWE Fieldwork Tech	0.05	104	$27.31	$2,888
	Subtotal				$119,151
	Overhead (12%)				$14,298
	Trammel Net Cleaning				$3,500
	Total	1.55	3,266		**$136,949**
	Grand Total	3.04	6,365		**$242,368**

B. Montana FWP Contribution:

MFWP will be contributing personnel time, equipment, operations, and other assets to this project. The value of this contribution is valued at over $350,000 per year. This includes the Helena, Great Falls, and Lewistown offices.

In addition, MFWP will continue habitat protection and enhancement activities throughout the system and will monitor other biological parameters in the system, such as the status of fish diseases, aquatic invasive species and westslope cutthroat trout. MFWP fisheries improvements will be funded primarily through the Future Fisheries Program, grants or donations which are likely cost-share for 2188 fisheries PM&E projects. MFWP specialists in water rights and allocation, habitat protection and enhancement, engineering, and land acquisition/easement will be available on a case-by-case basis for specific projects. MFWP fisheries staff in northcentral Montana will participate in the 2188 Technical Advisory Committee and will be key personnel for identification and implementation of PM&E projects, including fisheries research, habitat protection and enhancement projects. MFWP also conducts a statewide biennial fishing pressure survey, which provides useful fishing pressure information for the Missouri River and reservoirs. The exact value of these additional matching resources cannot presently be valued but is substantial and will vary year-to-year.

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

The main products of this project will be: 1) annual reports based on sound scientific procedures which describe the current trends of key fish populations and fish species of special concern in the Missouri River and reservoirs, and 2) effective fisheries and aquatic habitat PM&E projects in northcentral Montana. Reports will satisfy FERC requirements for annual monitoring of fish populations for the purposes listed in 2188 license. The information generated by this project will be critical for determining the effects of project operations on fisheries resources and will also be the primary method for determining the effectiveness of fisheries PM&E measures.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: There are no ground breaking activities associated with fisheries monitoring.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: There are no water rights associated with fisheries monitoring.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Grant.Grisak@northwestern.com
- andrew.welch@northwestern.com

Project Title: Habitat Project Consultant Assistance 2020

Which PM&E measure(s) in the Project 2188 License will this proposal enhance or support?

This project is Priority #1 because it typically involves habitat restoration projects on the mainstem Missouri River. Some elements of this project are Priority #2 because they involve restoration work on primary tributaries to the Missouri River. The project supports FERC license articles 414, 415 and 416, which specify enhancement of tributary spawning adn mitigation for impacts of operation of Hauser, Holter, and the Great Falls dams.

Proposal Submitted by: Grant Grisak (NorthWestern Energy)

Date: November, 2019

Location of Proposed Project: Upper Missouri River Watershed

Total Project Cost: $20,000

TAC Funds (Cost-Share) Requested: $20,000

I. Introduction.
Habitat projects addressed in the FERC license agreement (Articles 414-9 and 416-7) have been proposed and funded since the inception of the PM&E funding program. Viable habitat projects have sometimes been difficult to identify and implement. This proposal is to continue a contract with McNeal Resources (Allen McNeal) to continue working on habitat restoration projects in the Great Falls area and in the Helena Valley. Consultant may also work on identifying and development of projects on other streams and rivers in the FERC Project 2188 project area as opportunities arise. This project will cover the cost of project design and permitting and also will defray construction oversight costs.

II. Objectives. Depending on availability, investigate feasibility and initiate design of restoration projects on Missouri River and reservoir tributaries.

III. Methods. A contract would be established between NWE and McNeal Resources to complete this work.

IV. Schedule. Investigative and scoping work on other projects will proceed during the year as time allows.

V. Personnel. Work on this project will be accomplished by McNeal Resources Inc. (Allen McNeal) in cooperation with private landowners, construction contractors, MDFWP staff, and staff from other organizations and agencies.

VI. Budget must include amounts for the following items:

Direct Labor	Consultant and contractors will design and construct. FWP biologists and staff will provide oversight.
Direct Overhead	N/A – claims will be submitted directly from consultant to NWE for payment
Travel and Living	N/A
Materials	Raw materials required for stream reconstruction will be incorporated into stream specific proposals.

VII. Deliverables. This proposal is designed to design and complete habitat projects in the MoTAC project area. Success will be measured in habitat projects completed and stream/river length that has been restored. Project completion reports will be prepared by project partners.

VIII. Cultural Resources. Cultural resource surveys will be conducted and SHPO clearance will obtained prior to the initiation of any ground disturbing activities on habitat improvement projects funded by MoTAC.

IX. Water Rights. This project requires no new water rights or changes to existing rights. Water rights issues will be handled on a case-by-case basis by trained experts as the need arises.

Project Title: Field Operations – NWE 2020

Which PM&E measure(s) in the Project 2188 License will this proposal enhance or support?
This is a Priority #1 project because it involves work completed on the mainstem Missouri River. The project supports FERC 2188 license Articles 414, 416, and 417. NWE staff provide assistance on Hauser and Holter reservoirs and tailwaters, the Great Falls reservoirs, and the Missouri River downstream from the Great Falls reservoirs.

Proposal Submitted by: Grant Grisak

Date Submitted: November, 2019

Location of Proposed Project: Missouri River from Canyon Ferry Dam to headwaters of Fort Peck Reservoir.

Total Project Cost: $20,000

TAC Funds (Cost-Share) Requested: $10,000

I. Introduction.
This is an ongoing annual proposal to offset some of NWE's operating costs for implementation of the Missouri River fisheries Protection Mitigation & Enhancement (PM&E) program. Project proposal includes: operation and maintenance of NWE electrofishing boat; purchase of fish tagging and surgical supplies; purchase of basic field monitoring supplies; vehicle operation and travel expenses; and operation and maintenance of the Holter boat house including utilities (electricity).

II. Objectives. Support Montana Department of Fish, Wildlife and Parks and other agencies and organizations in the implementation of the Missouri River 2188 fisheries PM&E program.

III. Methods. Methods vary depending on project and area.

IV. Schedule. This work is done throughout the entire field season.

V. Personnel. Grant Grisak is the NWE project leader. Assistance is provided by FWP technicians and biologists, NWE employees, and other individuals depending on project and area.

VI. Requested Budget

Direct Labor…….	$ 0
Direct Overhead……	$ 0
Travel and Living…….	$2,000
Materials	
Boat gas, oil, maintenance…….	$3,000
Supplies & equipment……	$2,000
Vehicle operation & maintenance ……..……	$3,000
Other Direct Expenses……..	$ 0
TOTAL	**$10,000**

List all other funding (cost-share) sources and amounts for this project: Total NWE operations costs are approximately $20,000/year for this project. NWE will provide $10,000 of the total amount required for this project from other Company accounts.

VII. Deliverables. Completion reports are provided by partner agencies and organizations.

VIII. Cultural Resources. This proposal does not include any ground-disturbing activities in need of cultural clearance.

IX. Water Rights. No water rights issues associated with this project.

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: **Northcentral Montana Westslope Cutthroat Trout Restoration**

Date: **10/29/2019**

Explain how this Project addresses a specific Project 2188 License Article(s): **This project addresses Article 417, #4. Protect and provide for the recovery of threatened and endangered fish species and other aquatic species of special concern in the Great Falls reservoirs and below Morony Dam.**

Westslope cutthroat trout were once abundant in the river downstream from Morony but are now restricted to isolated headwater tributaries in the area. This proposal includes measures to protect and preclude listing of westslope cutthroat trout by maintaining existing populations. Westslope cutthroat trout were originally the only native trout species in the Great Falls area of the Missouri River. This species has been extirpated from approximately 95% of its original range in northcentral Montana due to the introduction of competing non-native trout species (rainbow, brook and brown trout) and habitat degradation. A number of remnant genetically-pure native westslope cutthroat trout populations have been discovered in isolated headwater areas of tributaries to Belt and Highwood creeks, which flow into the Missouri River shortly downstream from Morony Dam. MoTAC will continue to seek opportunities to protect and restore populations of this rare native fish. Opportunities to restore westslope cutthroat in the mainstem Missouri River are not feasible due to the presence of high numbers of non-native trout and other competing or predatory fish species. Hence, westslope cutthroat restoration projects will most likely occur in small headwater tributaries. Projects in other tributary drainages such as the Dearborn, Smith, Sun, Teton, Marias, and Judith rivers will be considered on a case-by-case basis.

Provide justification for Priority 1, 2 or 3 (above) that you selected: **Priority 3. The work would occur in the greater Missouri River drainage upstream from Fort Peck Reservoir primarily in headwater tributaries. Most work is anticipated in the Highwood and Belt creek drainages with less emphasis on other work in other headwater streams from Canyon Ferry Reservoir to the Judith.**

Project Sponsor (submitted by): **George Liknes, US Forest Service.**

Location of Proposed Project**: Primary work area would be in the headwater streams of Highwood and Belt creeks. Other work may include headwater reaches and streams of Arrow Creek, Big Spring Creek, Box Elder Creek, Ford Creek, the Judith River, Smith River, Sun River, Two Medicine River (headwaters of Marias River), and Upper Missouri River and Upper Missouri – Dearborn HUCs; some of the waters in these HUCs are direct tributaries of reservoirs or the Missouri River.**

Geocode (in decimal degrees ex 46.89743) Lat; Lon:
Since this is for work on multiple waters, over a wide area, no latitude, longitude was provided since it is highly variable.

Total Project Cost: **$23,551.65**

TAC Funds (Cost-Share) Requested for Project: **$13,500.00**

I. Introduction; brief statement of project to be completed with pertinent background information. **The primary work to be accomplished would include electrofishing for suppression of non-native fish expanding into secured and unsecured pure westslope populations, monitoring to ensure that non-native fish have not ascended installed barriers, and ground work planning required to carry out non-native fish removal/westslope cutthroat trout restoration work above barriers such as on the Dry Fork Belt Creek.**

II. Objectives; explicit statement(s) of what is intended to be accomplished. **The objective of this proposal is to perform field work that will maintain, secure, and/or enhance all westslope cutthroat trout populations identified as conservation populations, especially genetically pure (core) populations, in the Upper Missouri River drainage with special emphasis on the Belt Creek and Highwood Creek drainages. Funds would be used to rehire an experienced FWP Fisheries Tech through the long standing Challenge Cost Share Agreement between Montana Fish, Wildlife and Parks and the Helena – Lewis and Clark National Forest.**

III. Methods; description of how Project objectives will be accomplished. **Project objectives would be accomplished by electrofishing, determining flow rates and assessment of water chemistry.**

IV. Schedule; when the Project work will begin and end. **Work would be scheduled to begin during the field season in 2020 and be completed by December 31, 2020.**

V. Personnel; who will do the work ? **The funding request would provide a part of the salary for an experienced FWP fisheries technician that the U.S. Forest Service has supported for many years though a Challenge Cost Share (CCS) Agreement. This tech would do the work along with Forest Service Biologists and FWP staff. During the next field season a FWP Westslope cutthroat trout biologist may be available to provide oversight on projects to secure populations. Other staff costs were not included in the project budget.**
Identify Project leader or principal investigator. **Alli Russell and Eric Archer would be project leaders for the US Forest Service. George Liknes would be considered the principal investigator on the US Forest Service side of the CCS and Montana FWP staff would also provide mentoring, primarily through project and cutthroat biologists. The MOTAC contract would be between NWE and the US Forest Service (1% overhead), which would then be obligated to FWP (5% overhead) through the Westslope Cutthroat Trout Restoration Activities Challenge Cost Share Agreement 17-CS-11011500-045.**

VI. Project budget must include amounts for the following:

Direct Labor:
Salary MOTAC - $12,690.00
Salary USFS – $4,151.65
Travel and Living -
Operations From FWP SWIG – (Estimated, Not secured) - $5,000.00
Materials –
Other Direct Expenses – Office Space - $900.00
Direct Overhead:
NWE to USFS (1% of $13,500) - $135.00
USFS to FWP (5% of $17,651) - $675.00
Total = $23,551.65

All cost-share sources and amounts, including estimation of "in-kind" contributions

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated? **All work associated with this funding would be described in an annual westslope cutthroat trout restoration project report supplied to NWE in the fall of the year by mid-November, 2020.**

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: **No ground disturbing activities will take place as part of this project.**

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: **This project will not involve development, restoration, or enhancement of wetlands and will not affect Water rights, water right law, policy or guidelines.**

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

2019 Cost-Share Proposal for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project Title: Beaver Creek Phase I Stream and Wetland Restoration Project
Construction Implementation

Date: 10/30/2019

Applicability to Project 2188 License Article(s):

Beaver Creek Phase I will offset impacts to river resources associated with Project 2188 (Madison-Missouri River). The project meets the purpose and intent of License Article 416, which supports spawning and rearing habitat enhancement projects on Holter Reservoir and in tributaries to the reservoir and tailwaters. Specifically, Project 2188 license for Holter reservoir identifies Beaver Creek as a primary spawning tributary to Holter where potential habitat enhancement could likely contribute to natural reproduction of the Holter Reservoir fishery. This proposal addresses wildlife, fisheries, and floodplain habitat in a primary tributary that enters the Missouri River between Hauser Dam and Upper Holter lake and would be designated a Priority 2 measure.

Priority Classification:

Beaver Creek Phase I Restoration Project classifies as a Priority 2 2188 license project. The project is located on Beaver Creek, a major spawning tributary to large adfluvial rainbow and brown trout that migrate from Holter Reservoir. Restoration efforts would improve fisheries resources by reconstructing the stream channel and floodplain to more natural conditions, improving habitat and riparian complexity, addressing sediment impairments and restoring hydrologic processes.

Project Sponsor (submitted by): USFS Helena-Lewis and Clark National Forest, Helena Ranger District
Contact: Alli Russell

Location of Proposed Project:
The project is located in Lewis and Clark County approximately 14 miles northeast of Helena, MT. Beaver Creek is a large watershed originating on National Forest lands flowing 18 miles to the confluence of the Missouri River just below Hauser Dam. The project area lies entirely on FS lands on the Helena Ranger District approximately 1.3 miles upstream from its mouth at the Missouri River. The area was originally homesteaded by Charles Cochrane in 1909 and the Helena National Forest later acquired the land from Chester French in 1974. The legal description of the project area is NW1/4 and NE1/4 Section 20, Township 12 North, Range 2 West; SE1/4 Section 17, Township 12 North, Range 2 West; refer to Figure 1.

Figure 1. Beaver Creek Restoration Project vicinity map.

Geocode (in decimal degrees) Lat; 46.797 Lon: -111.877

Total Project Cost: $449,000

TAC Funds (Cost-Share) Requested for Project: $150,000

I. Introduction

Beaver Creek and the Missouri River (Hauser tailrace) provide the majority of spawning habitat for the large adfluvial rainbow and brown trout that migrate from Holter Reservoir, which are the aquatic focal species of this restoration project. Beaver Creek is within the Holter Lake system and supports a very popular recreational fishery for both rainbow and brown trout. Holter Lake ranked 6th in the state for fishing pressure and observed approximately 96,103 angler days from March 2017- February 2018. The Missouri River just above and below Beaver Creek observed over 18,800 angler days during this time frame (Strainer, MT FWP). The project is also designed to develop and enhance riparian areas to provide nesting and foraging habitat for migratory songbirds and wetland areas for amphibians.

The USFS Helena Ranger District in partnership with the Pat Barnes Chapter Trout Unlimited, Montana Fish Wildlife and Parks and the River Design Group (RDG) propose to restore 1.2 miles of lower Beaver Creek. This project would be a multi-phased restoration approach with Phase I restoring 0.6 miles of the channel. This 2019 cost-share proposal is for the implementation of Phase I, which includes approximately 0.6 miles (3,075 feet) of restoration work on Beaver Creek. 2016 and 2017 MoTAC funding projects were used to produce final designs (Figure 3).

Beaver Creek is a highly impaired system resulting from past agricultural, grazing practices, and rip-rap stabilization that resulted in stream channelization, removal of riparian vegetation and likely the displacement of beaver, refer to Figure 2. These impacts have led to degradation of the channel form, bank stability and eventual channel incision and substantial loss of floodplain connectivity. Due to channel incision and lack of floodplain connectivity, there is a lack of aquatic habitat diversity. Stream reaches in the project area are primarily dominated by long homogenous riffles with highly embedded substrate and infrequent pools with limited depth. In 1974, the USFS purchased the 3,355 acre parcel from private ownership in lower Beaver

Creek and it has not been grazed/farmed since, and the project area is not in a designated grazing allotment. Currently, recreational impacts are limited to three dispersed campsites in the project area; however, Forest Service Road 138 and the trailhead at the confluence of Beaver Creek and the Missouri are well utilized by hikers and anglers alike. Beaver Creek is currently a 303(d) listed stream for sediment impairments and alteration of stream-side vegetative cover; there is not an approved TMDL associated with this waterbody.

Restoration goals were developed to restore hydrologic processes, reconstruct the stream channel and floodplain to more natural conditions that emulate historic stream sinuosity and morphology, improve water quality, and increase habitat complexity to provide spawning and rearing habitat, restore riparian areas and create additional wetland habitat. Proposed restoration work will improve connectivity to the Missouri River and provide for more consistent access for spawning runs that are comprised of a high percentage of trophy size trout. Rearing habitat would also be created, with the goal of increasing natural recruitment and supplementing the reduced hatchery plants in the Missouri River Reservoir system. New floodplain surfaces would support emergent, forested, and scrub-shrub wetland communities. The project is designed to raise the groundwater table to support riparian/wetland habitat enhancement.

Figure 2. Pictures display channel incision and bank instability in Reach 2, rip-rap streambank modification/stabilization is common throughout the project area. Beaver Creek is listed for sediment impairments (MT DEQ).

II. Objectives

The new channel and floodplain design was developed to provide a landscape capable of sustaining geomorphic processes to support desired aquatic habitat and riparian conditions. The primary limiting factor driving geomorphic, vegetation, and aquatic habitat impairments in the project area is lack of floodplain connection due to channel entrenchment. The proposed design would reduce channel entrenchment, establish pools, address stream flows and ponding, and modify channel hydraulics to produce flows that would support a mobile gravel bed i.e. functional and naturally maintained spawning areas. The shape of the new channel and adjacent floodplain work was determined through hydrologic analysis, terrain model development, earthwork analysis and hydraulic modeling. To achieve the desired condition of floodplain connectivity and habitat complexity, a combination of restoration strategies would be applied:

- Re-connect former abandoned floodplain surfaces.
- Reconnect abandoned oxbows to increase stream length and reduce channel slope, and create aquatic habitat.
- Construct a new channel characteristic of a riffle-pool C4 stream type, within a terraced valley and broadly connected floodplain.
- Transition to Reaches 1 and 4 with a moderately entrenched B4 stream type by increasing floodplain

width and increasing more sinuosity.

- Convert the existing channel to emergent wetlands (0.2 acres) and construct and preserve approximately 1.0 acres of shallow open water and scrub/shrub wetlands. Constructed side channel habitat (400 linear feet) would connect a portion of the emergent wetland habitat to the main channel. Beaver dam analog placement (17 each) on side channel habitat would facilitate the development of wetland habitat.
- Install naturalized streambank structures to allow bank vegetation to become established while also improving habitat complexity. Approximately 36 large wood structures would be constructed and 4,457 linear feet of vegetated/wood matrix streambank treatment.
- Riparian and upland revegetation which would increase the coverage of woody shrubs and trees.
- Reconstruct floodplain surface with microtopography grading and placement of coarse wood material (7 acres).
- Dispersed campsite reclamation/improvements at dispersed campsite #1.

III. Methods

Construction will be implemented using a qualified, experienced stream restoration contractor (TNT Excavating). Given the
sensitive resource conditions, construction specifications will utilize low-pressure ground equipment including off-road articulated trucks (minimum 14 cubic yard), tracked excavators with hydraulic thumb minimum bucket volume of 1 cubic yard, an All Surface Vehicle (ASV), D5 dozer or equivalent, and harrow for de-compacting soils and construction access roads. The excavators will be GPS compatible to ensure the project is implemented in accordance with the design specifications and drawings. The ASV will be equipped with sod tracks to minimize disturbance and one tree spade to transplant large vegetative material. RDG will provide construction oversight and ensure compliance with permits drawings and specifications. The contractor will also be responsible for seed bed preparation and both riparian and upland broadcast seeding.

- Streambed treatments will consist of complex aquatic habitat including riffle, run, pool, and glide features
- Streambank treatments will be composed of wood, alluvium, native rock and vegetation, refer to sheets 8.0 and 8.1 for typical drawings of large wood and vegetated woody matrix structures.
- Floodplain treatments will include the use of swales, side channels, off-channel wetlands, microtopography and placement of course wood material.
- Existing vegetation would be salvaged and transplanted into constructed floodplain surfaces and streambanks.
- Seeding of 6.42 acres of floodplain and 2.5 acres of upland native seed mix.

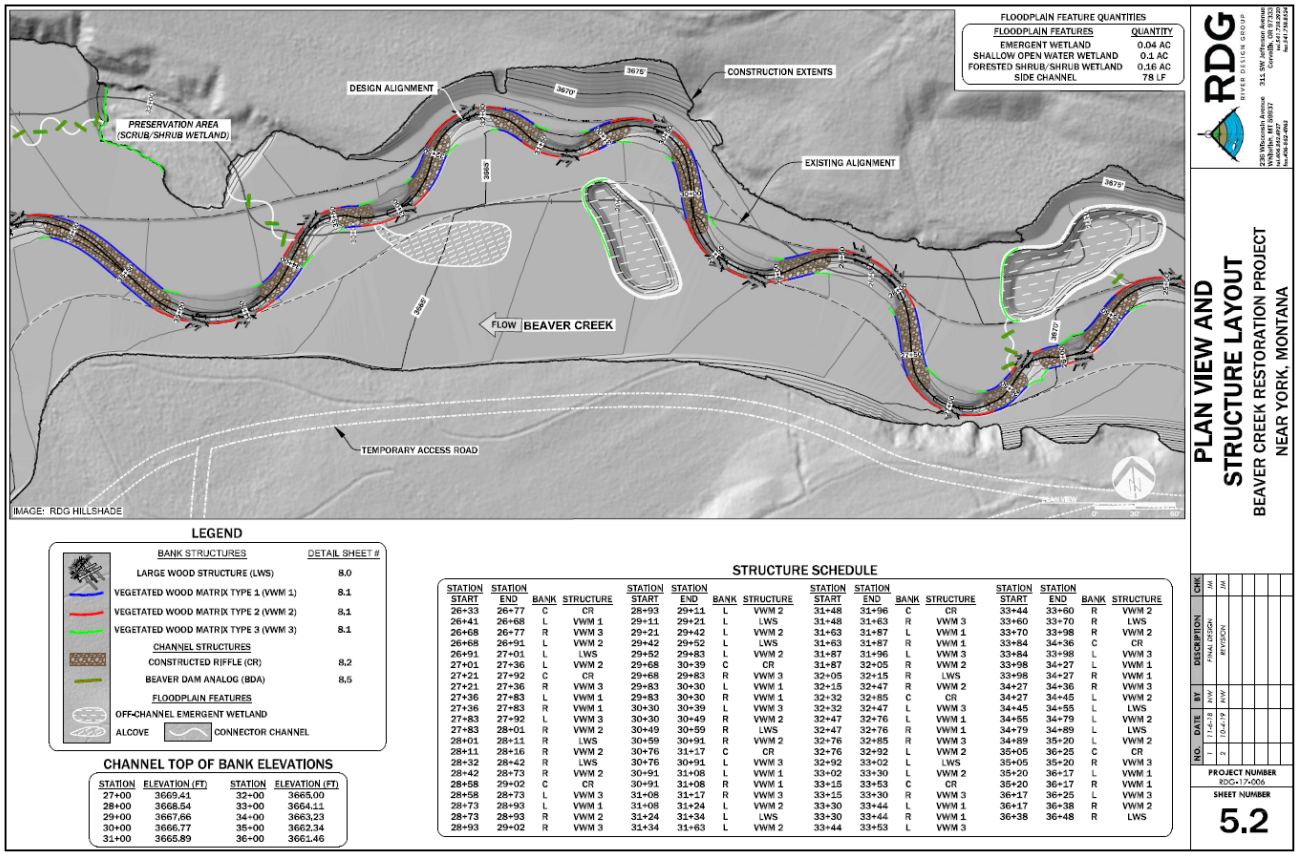


Figure 3. Excerpt from final Restoration Plan for Beaver Creek Phase I, Reach 2 (RDG, 2019).

IV. Schedule

The following project schedule had been developed. The Helena Ranger District signed the Decision Memo for the Beaver Creek Restoration Project on June 10, 2019. USFS personnel will complete all regulatory permitting by February, 2020. A cultural resource investigation with SHPO clearance was completed by the USFS September 2019.

Table 1. Project Schedule for the Beaver Creek Phase I Restoration Project

Task	Jan-March	April	May	June	July - October
General Project Management					
Task 1. Pre-construction Services					
Task 2. Construction Implementation					
Task 3. Direct Costs					

V. Personnel

The Beaver Creek Restoration Project Phase I will be implemented under the sponsorship of a diverse group of stakeholders including the USFS Helena-Lewis and Clark National Forest, Montana Fish Wildlife and Parks,

Pat Barnes Trout Unlimited Chapter, and RDG. RDG is an approved consultant on NorthWestern Energy's Qualified Vendor's List for stream and wetland restoration services. RDG prepared the preliminary analsyis and alternative development and final designs for the Beaver Creek project including Phases 1 and 2. Mr. John Muhlfeld will serve as the project manager and technical lead on behalf of the design team. Mr. Nate Wyatt, P.E., with RDG, will serve as the project engineer. Alli Russell will be the principle USFS contact for the project.

VI. Project budget

Table 2 below includes a cost estimate to perform the Scope of Work (SOW). The total cost to perform the SOW is $449,000. As noted, project partners have $99,000 committed in cost-share an additional $6,417 in-kind services. The cost-share match accounts for 23% of the total project cost. This proposal is requesting TAC funds in the amount of $150,000. The total budget provides for a contingency fund of slightly less than 2.8%.

VII. Deliverables

Table 2. Beaver Creek Phase I Cost Estimate	
Task	Cost
1. Pre-Construction Services and Construction Management, and Direct Cost	$56,938.62
2. Construction	
Clear and Grub site, Floodplain and Upland Seeding	$ 6, 250
Construct and Decommission Diversions	$ 4,000
Salvage, Preserve and Transplant Existing Vegetation	$11,000
Construct and Improve Roads and Staging Areas	$ 5,500
Excavate, Haul and Place Floodplain backfill	$ 48,906
Excavate, Haul and Place Fill in Repositories	$ 16,203
Furnish Wood	$ 25,000
Furnish Streambed fill	$ 44,110
Construct Channel Streambed	$ 36,887
Construct Large Wood Structures	$ 49,500
Construct Vegetated Matrix Type 1	$ 32,828
Construct Vegetated Matrix Type 2	$ 25,146
Construct Vegetated Matrix Type 3	$ 3,150
Install Beaver Dam Analogs	$ 5,610
Furnish Willow Cuttings	$ 14,130
Construct Side Channels	$1,320
Install Floodplain Roughness and wetlands	$11,550
3. Mobilization, GPS Equipment, Crew Per Diem	$38,500
Estimated Project Cost	**$449,000***
Cost-Share Future Fisheries Improvement Program	**$75,000**
Cost-Share PBCTU	$4,000
Cost-Share USFS	$20,000
Funding request to WildTAC	$200,000
Total TAC Funds Requested	**$150,000**

*Accounts for a 2.8% contingency fund

VIII. Cultural Resources.

The Helena Ranger District received SHPO concurrence on the Beaver Creek Restoration Project on 9/17/2019 (R#2018011700047). Montana SHPO concurred there were No Adverse Effects and no properties on or eligible for NRHP appear likely to exist within project impact area. A copy of the SHPO memo is available upon request.

IX. Water Rights

Appropriate analysis will be performed to demonstrate that the project complies with the intent of Montana DNRC's "*Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities*", issued by the Water Resources Division on March 9, 2016.

DNRC guidelines state that "any wetland project (restoration) whose final design approximates the natural characteristics of adjacent natural wetlands or approximates something smaller in magnitude does not require a water right". The guidelines also state that restored wetlands should have characteristics similar to other natural wetlands in the area and should function entirely in the absence of artificial controls and diversions of water that intentionally appropriate water for wetland use.

The Beaver Creek project intends to restore wetland habitat by lowering floodplain surfaces to more natural conditions, converting 0.2 acres of existing stream channel habitat to ephemeral wetlands and the development of 1.0 acres of shallow open water wetland features and development of shrub/scrub wetlands. Wetland development will not involve the construction of any berms, dams, or dikes; and will not involve any diversion of water; wetland and new channel construction will offset the loss of riverine wetland habitat; and will not increase water consumption. The proposed project complies with the intent of Montana DNRC's *"Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities".*

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Engman River Bank Restoration

Date: 10/21/2019

Explain how this Project addresses a specific Project 2188 License Article(s):
Provide justification for Priority 1, 2 or 3 (above) that you selected:

Article 417 3). Propose additional measures to minimize fish loss and to mitigate for avoidable and unavoidable impacts.
Priority 1. - This project would restore and enhance riparian vegetation along approximately 700 feet of bank of the Missouri River. The project would directly enhance the Missouri River fishery and wildlife populations, by reducing sedimentation and enhancing riparian vegetation through resloping, stabilizing the toe, and planting of riparian vegetation. This project is Priority 1, because it enhances habitat on the main stem Missouri River downstream of Holter Dam.

Project Sponsor (submitted by): Montana Fish, Wildlife and Parks, Jason Mullen – Fisheries Biologist

Location of Proposed Project: Approximately 1 mile downstream of Cascade, MT
Narrative:

The project will stabilize a 700-ft long section of river bank on the Missouri River, approximately 1 mile downstream of Cascade, MT. About 350-ft of the bank is over 11-ft tall and continues to slough into the river. The work will include re-sloping the bank, stabilizing the toe, and planting new riparian vegetation. Treatments along the 700-ft bank will vary depending on the level of current erosion and the slope of the banks. The most extensive treatment in the vertical reach, includes establishing a stable bank toe with wood debris, some rock, and soil lifts inter-spaced with willow bundles. The soil lifts and willow bundles will extend up to the bankfull elevation where a floodplain bench with willows will be established. The upper bank will be sloped and seeded with native grass mix, shrubs, and trees. The design avoids using rip-rap, which is costly, and provides little riparian or instream habitat, and can promote erosion downstream. The consultant design report is available upon request.

Geocode (in decimal degrees ex 46.89743) **Lat:** 47.27479 **Lon:** -111.69618

Total Project Cost: $54,175

TAC Funds (Cost-Share) Requested for Project: $25,375

I. Introduction; brief statement of project to be completed with pertinent background information.

The Missouri River is a very important recreational fishery, consistently ranking in the top 3 in terms of most angler use. In 2017, the Missouri River was ranked 2nd in the state in terms of angler use with a total of 170,736 angler days. These angler days generated an estimated 61.1 million dollars in angling expenditures. Given the importance of the fishery, this project aims to enhance the fishery by improving riparian vegetation and reducing sedimentation to the river. The project is located approximately 1 mile downstream of

Cascade, MT. A quality trout fishery extends several miles downstream of Cascade. This reach has seen increased use in recent years as anglers look to avoid the increased pressure upstream.

The project will restore a 700-ft long section of river bank on the Missouri River. About 350-ft of the bank is over 11-ft tall and continues to slough into the river. Surveys and comparisons of past and current aerial photos by the landowner's consultant have indicated that as much as 4,000 cubic yards of soil has eroded into the river. The work will include re-sloping the bank, stabilizing the toe, and planting new riparian vegetation. Treatments along the 700-ft bank will vary depending on the level of current erosion and the slope of the banks. The consultant report is available upon request and describes three treatments. The most extensive treatment where a vertical bank is present, includes establishing a stable bank toe with wood debris, some rock, and soil lifts inter-spaced with willow bundles. The soil lifts and willow bundles will extend up to the bankfull elevation where a floodplain with willows will be established. The upper bank will be sloped and seeded with native grass mix, shrubs, and trees. In the other treatment areas where a stable toe has already been established the toe would be preserved, and the upper bank will be sloped and revegetated. The design avoids using rip-rap, which is costly, and provides little riparian or instream habitat, and can promote erosion downstream. The project was designed by Steve Fisher, of Steve Fisher and Associates from Missoula, MT. Steve Fisher will complete the project oversight. Gates Excavation of Cascade, MT has been selected as the contractor. This project will serve as an example for landowners interested in stabilizing a streambank and increasing riparian health as an alternative to rip rap. The project is supported by the Cascade Conservation District.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Stabilize a streambank of the Missouri River by a combination of establishing a stable toe, resloping, and revegetating the bank. The project will provide an example of streambank stabilization that will promote riparian and instream habitat and avoids using rip-rap.

III. Methods; description of how Project objectives will be accomplished.

Treatments along the 700-ft bank will vary depending on the level of current erosion and the slope of the banks. The consultant report describes three treatments. The most extensive treatment where a vertical bank is present, includes establishing a stable bank toe with wood debris, some rock, and soil lifts inter-spaced with willow bundles. The soil lifts and willow bundles will extend up to the bankfull elevation where a floodplain with willows will be established. The upper bank will be sloped and seeded with native grass mix, shrubs, and trees. In the other treatment areas where a stable toe has already been established the toe will be preserved, and the upper bank will be sloped and revegetated.

IV. Schedule; when the Project work will begin and end.

The landowner has secured the necessary permits from the ACOE and the conservation district. The landowner and consultant plan on completing the work in 2020.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

Jason Mullen – MTFWP Fisheries Biologist – Liaison between MFWP, Northwestern Energy, the landowner, and the consultant.
Steve Fisher – Consultant responsible from project design and construction oversight.
Bob Engman - Landowner

VI. Project budget must include amounts for the following:

Cost Estimate from Steve Fisher and Associates:

Excavation and site work -	$23,375
Materials -	$19,000
Project design, permitting, construction supervision, and professional consultation	$11,800
Project Total	$54,175
Cultural Resource Survey	$2,000

Cost Share:

MoTAC Request (Excavation and Site Work and Cultural Survey)	$25,375
Missouri River Flyfishers (funds requested) -	
Bob Engman (remaining balance)	

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this

Project. How will "success" for this project be monitored or demonstrated?

The deliverables would be a properly functioning river bank with a stable slope and toe, and enhanced vegetation. MT Fish, Wildlife and Parks will submit a report to Northwestern Energy documenting the health of the streambanks following restoration activities. Report will consist of a narrative description of activities accomplished and the riparian conditions, and before and after photographs.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

This project would include land disturbing activity. The proposal includes $2,000 to hire a private consultant to conduct a cultural survey.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

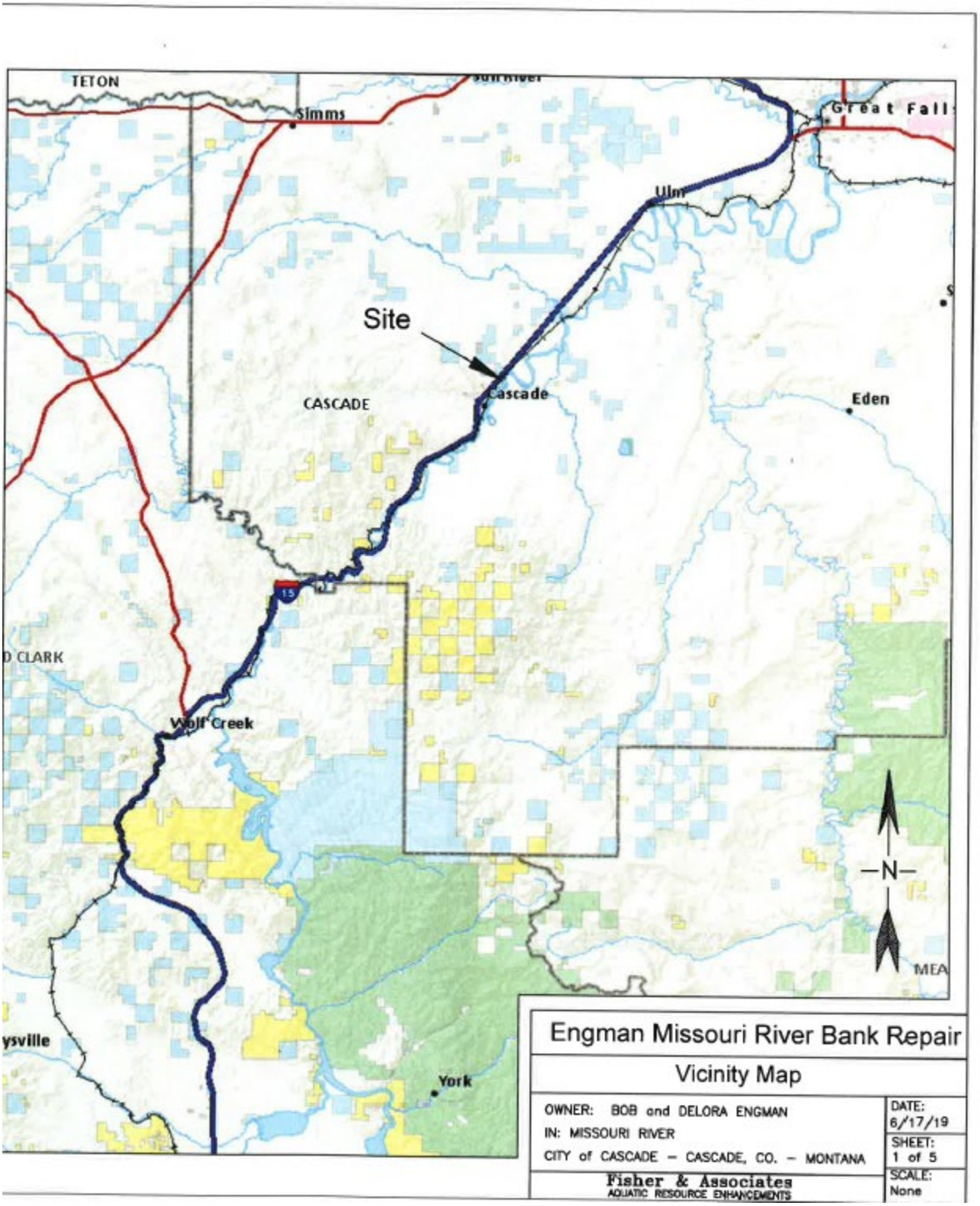
The project would not affect existing water rights, nor does it develop, restore, or enhance wetlands.

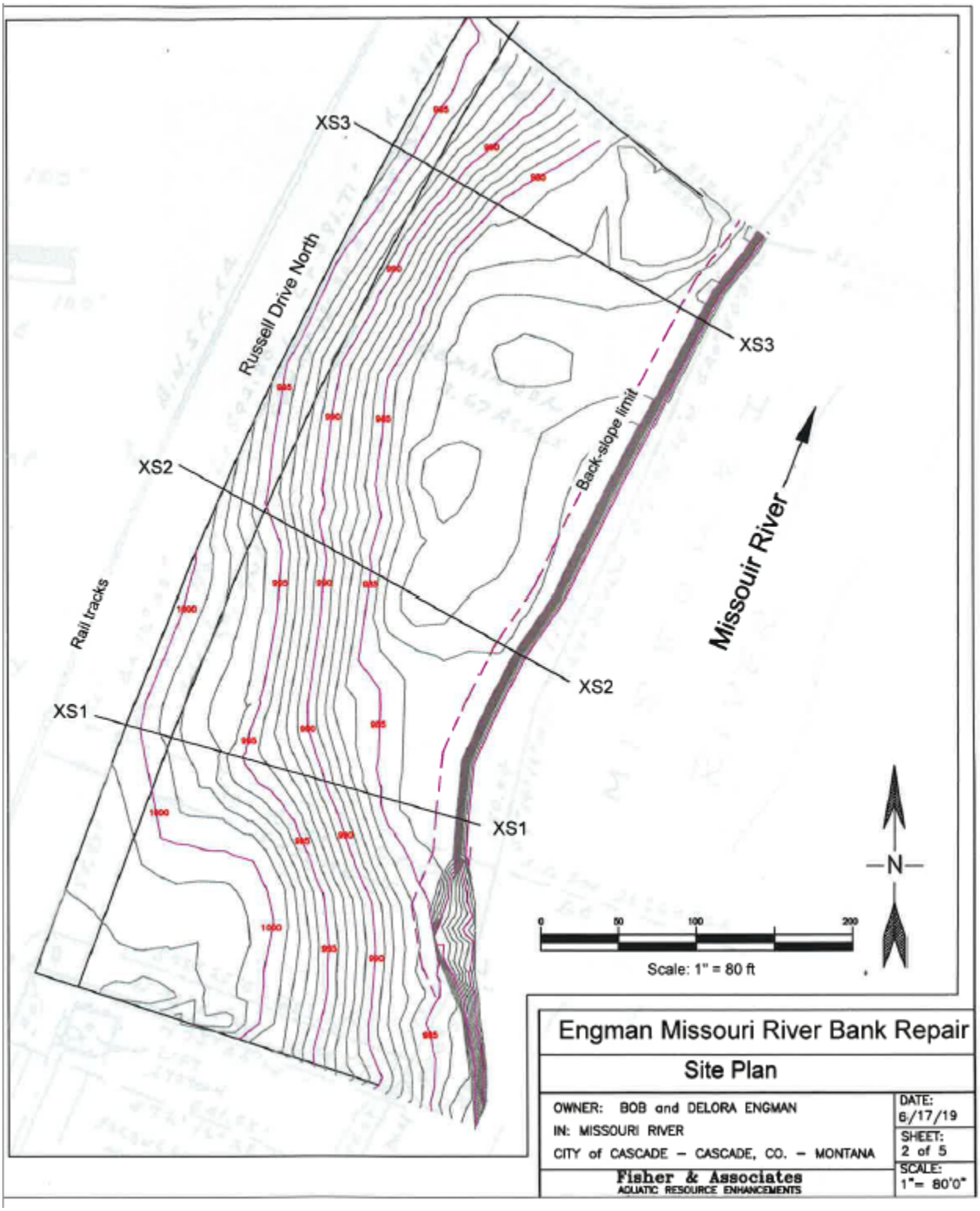
All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

Appendix A from Missouri River Bank Stabilization and Erosion Control (Fisher &Associates 2019)





Engman Missouri River Bank Repair

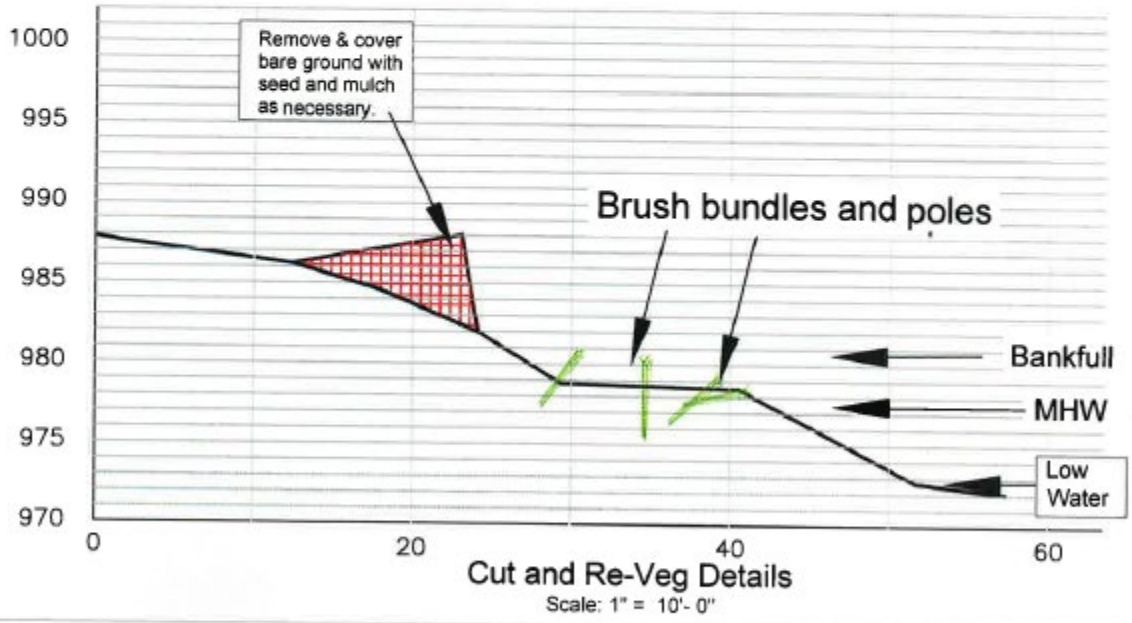
Site Plan

OWNER: BOB and DELORA ENGMAN
IN: MISSOURI RIVER
CITY of CASCADE – CASCADE, CO. – MONTANA

Fisher & Associates
AQUATIC RESOURCE ENHANCEMENTS

DATE: 6/17/19
SHEET: 2 of 5
SCALE: 1"= 80'0"

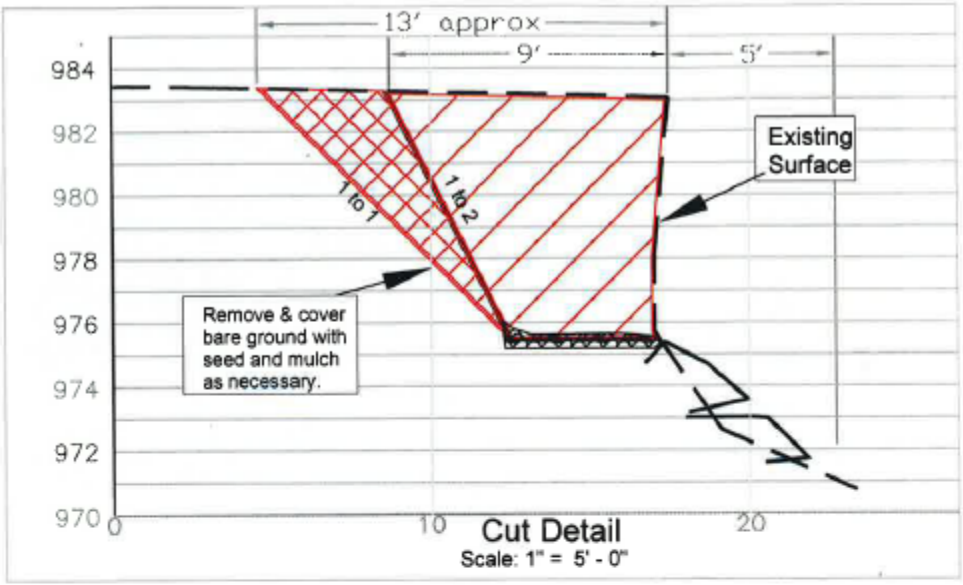
Location of Cross Section 1



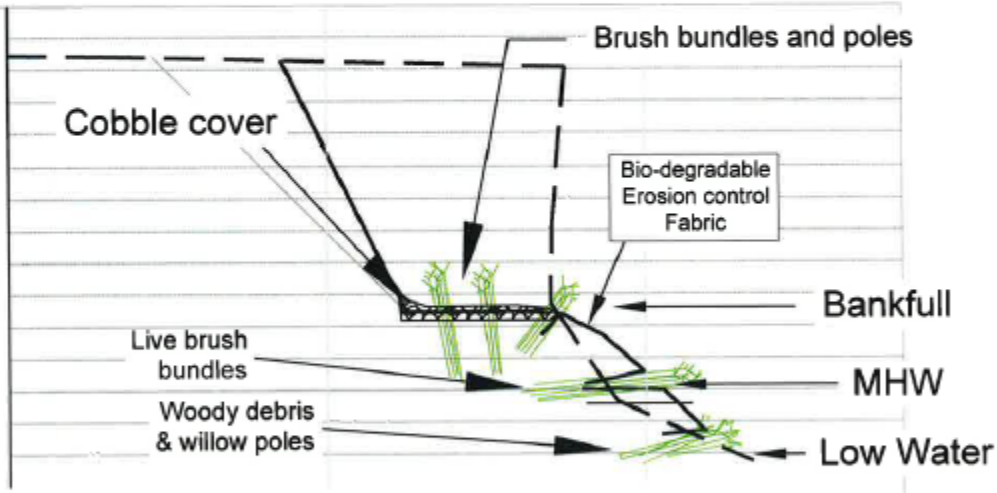
Cut and Re-Veg Details

Scale: 1" = 10'- 0"

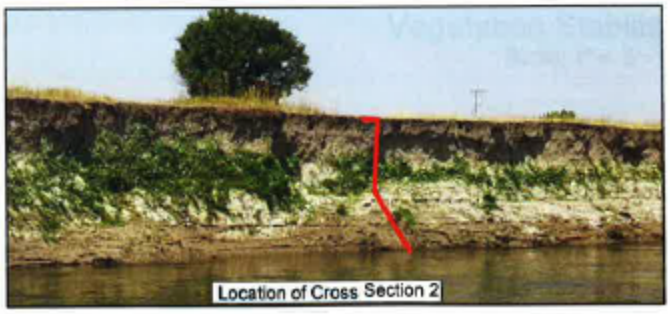
Engman Missouri River Bank Repair		
Cross Section 1 - Details		
OWNER: BOB and DELORA ENGMAN IN: MISSOURI RIVER CITY of CASCADE – CASCADE, CO. – MONTANA	DATE: 6/17/19 SHEET: 3 of 5	
Fisher & Associates AQUATIC RESOURCE ENHANCEMENTS	SCALE: Various	



Cut Detail
Scale: 1" = 5' - 0"



Vegetation Stabilization Detail
Scale: 1" = 5' - 0"



Engman Missouri River Bank Repair

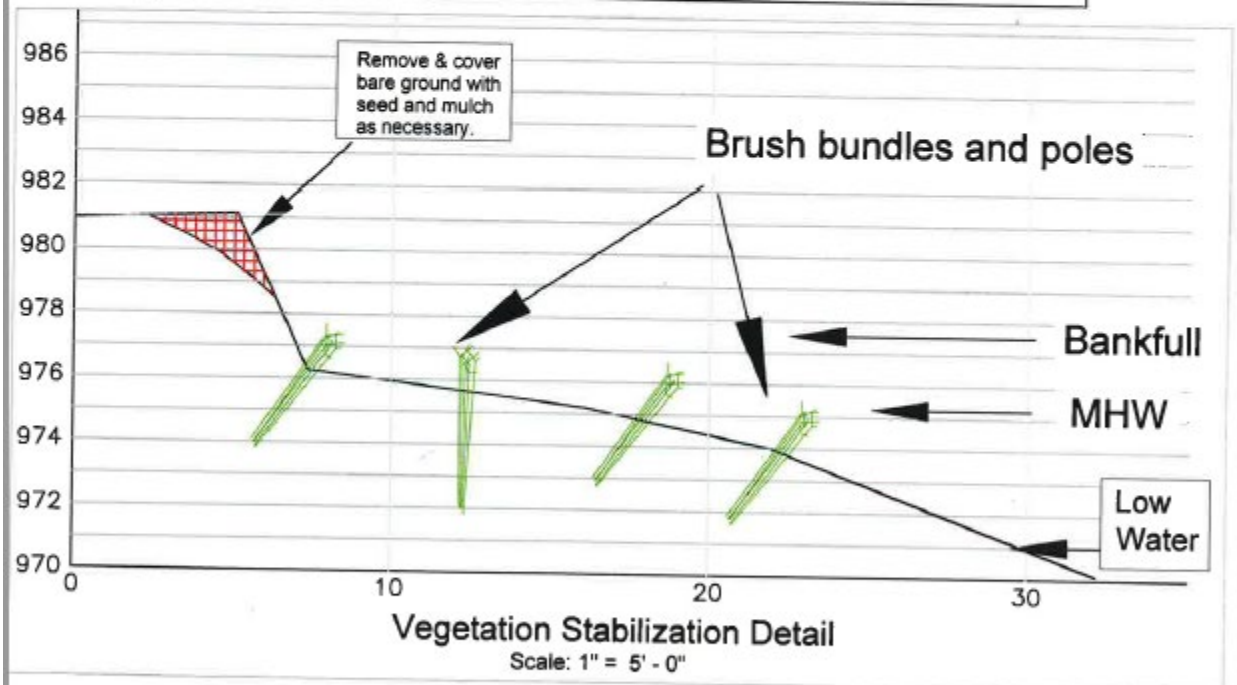
Cross Section 2 - Details

OWNER: BOB and DELORA ENGMAN
IN: MISSOURI RIVER
CITY of CASCADE – CASCADE, CO. – MONTANA

DATE: 6/17/19
SHEET: 4 of 5
SCALE: Various

Fisher & Associates
AQUATIC RESOURCE ENHANCEMENTS

Location of Cross Section 3



Vegetation Stabilization Detail

Scale: 1" = 5' - 0"

Engman Missouri River Bank Repair	
Cross Section 3 - Details	
OWNER: BOB and DELORA ENGMAN IN: MISSOURI RIVER CITY of CASCADE – CASCADE, CO. – MONTANA	DATE: 6/17/19 SHEET: 5 of 5
Fisher & Associates AQUATIC RESOURCE ENHANCEMENTS	SCALE: Various

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Radio Telemetry Remote Monitoring Equipment
Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. 2) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 3) Provide assistance to FWP for ongoing evaluation of pallid sturgeon recovery in the Missouri River downstream of Morony Dam.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

These satellite modems will allow more efficient use of resources while tracking fish on the Missouri River (Priority 1) and into the Marias and Teton Rivers (Priority 2).

Project Sponsor (submitted by): Luke Holmquist

Location of Proposed Project:

Narrative; Missouri River from Morony Dam to Fort Peck Reservoir; Lower Marias River (Below Tiber Dam); Lower Teton River

Geocode (in decimal degrees ex 46.89743)

Site: Morony Dam	Lat:47.58159	Lon: -111.05972
Site: Tiber Dam	Lat:47.58159	Lon: -111.09705
Site: Fort Peck Headwaters	Lat:47.55384	Lon: -107.92449

Total Project Cost:

TAC Funds (Cost-Share) Requested for Project: $16,342

I. Introduction; brief statement of project to be completed with pertinent background information.

A network of solar powered land based Lotek telemetry receivers have been used to monitor fish movements throughout the Missouri River and associated tributaries since 2006. Retrieving the data has required FWP personnel to travel to those sites via boat or vehicle and manually download the data. The newer SRX800 receivers and host software will allow for satellite modems to be utilized to remotely download data without needing to go into the field, a capability that will prove very useful. As more and more of the hatchery-origin pallid sturgeon become reproductively active and utilize new reaches of river, monitoring spawning movements will become more challenging. By having the ability to remotely monitor movement past stations of interest (such as the Marias

Confluence station) we will be able to deploy mobile tracking crews more effectively for collecting spawning movements of reproductive female pallid sturgeon and narrowing down spawning dates and locations. We currently have two SRX800 receivers deployed along the Missouri River in addition to eleven SRX400 receivers (first available in 1991). We would like to purchase two additional SRX800s to improve the capabilities of our receiver network. Additionally, the attached invoice shows a quote from Ritter Designs for the development, production, and installation of four complete satellite interface kits that will work with the SRX800 receivers. We plan to deploy the units at the Marias Confluence, Power Plant Ferry, Coal Banks Landing, and Judith Landing (Figure 1). If these units prove to be useful we may want to continue updating the network of stations with the purchase of additional SRX800 receivers and modems from Ritter Designs in the future. If funded, there are additional $450 allocated in the Middle Missouri River Radio Telemetry proposal for Iridium Satellite Network credits needed to download the stations.

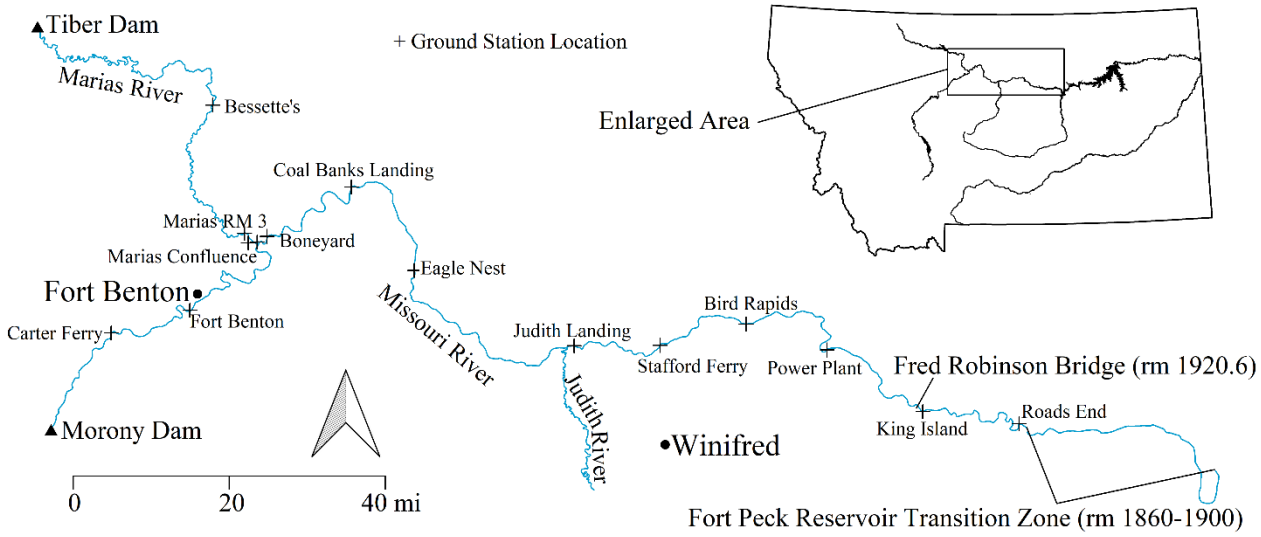


Figure 1. Map of the Middle Missouri River and current network of solar powered land based telemetry stations. The Bessette's and Eagle Nest Stations were not deployed in 2019.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

-Purchase RockFish equipment from Ritter Designs
-Assist Ritter Designs with installation at 4 high priority locations
-Successfully remotely access the receivers and download telemetry data

III. Methods; description of how Project objectives will be accomplished.

-Equipment will be purchased and modems will be deployed in Spring 2020
-Receivers will be downloaded weekly during the sturgeon spawning season (late-May through early-July)
    -Data will inform mobile tracking efforts
-Receivers will be downloaded monthly during the rest of the year.

IV. Schedule; when the Project work will begin and end.

-Project will begin spring 2020 and continue indefinitely

V. Personnel; who will do the work? Identify Project leader or principal investigator.

-NWE will purchase the supplies from Ritter Designs and Lotek Wireless.
-FWP and Ritter Designs staff will install the satellite modems
-FWP will download the data.

FWP Personnel
-Luke Holmquist, Biologist, FWP (Project Leader)
-Rob Beattie, Fisheries Technician, FWP
-Mike Schilz, Fisheries Technician, FWP

VI. Project budget must include amounts for the following:

Direct Labor ..... **$ 00.00**

Travel and Living ..... **$ 00.00**

Materials **$16,342**
SRX800-MD4 receivers (Quantity = 2 @ $5895- $1474[SRX400 trade-in credit]) $8,842.00
Remote Monitoring Interface (Quantity = 4) $7,500.00

Other Direct Expenses ..... **$ 00.00**

Direct Overhead ..... **$ 00.00**
-*NWE will purchase the equipment so no overhead is required.

All cost-share sources and amounts, including estimation of "in-kind" contributions

Other funding associated with this Telemetry Project: $127,763

- $55,011 proposed from NWE in 2019
- $43,752 annual cost share USBOR funds (5-year contract; 2016-2021)
- $20,000 by USFWS Section 6 funding personnel on this project
- $5,000 WAPA funding for Pallid Sturgeon radio transmitters
- $4,000 approximate – WAPA funds to Bozeman Fish Technology Center for blood plasma steroid analysis

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Success of this project will be demonstrated by NWE purchasing the equipment and FWP successfully installing RockFish satellite modems at 4 sites on the Missouri and Marias Rivers that allow for remotely downloading fish movement data.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

No ground disturbance is associated with this project

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

No wetland development associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

REMOTE MONITORING SATELLITE INTERFACE
MONTANA FISH, WILDLIFE & PARKS

12742 35th Ave NE Apt A
Seattle, WA 98125
Phone: 443.340.5168
Email: chris@ritterdesigns.com

Prepared For:
Luke Holmquist
Montana Fish, Wildlife & Parks
333 Airport Road
Lewistown, MT 59457
Phone: (406) 538-2445
Email: lholmquist@mt.gov

DATES THIS INVOICE COVERS:	N/A
QUOTE #:	2019_09_001
DATE PREPARED:	9/20/2019
TERMS:	N/A

PROJ.	DESCRIPTION/SERVICES RENDERED	QTY	SUBTOTAL ($)	TOTAL ($)
MTFWP Region 4 Radiotelemetry Satellite Interface	**Remote monitoring satellite interface for Lotek radiotelemetry receiver** - Satellite modem, antenna, and cable - Power cable - Enclosure - Initial system installation	4	$1,875	$7,500
			TOTALS:	$ 7,500.00

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Middle Missouri River Radio Telemetry Study

Date: February 10, 2022

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. 2) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 3) Provide assistance to FWP for ongoing evaluation of pallid sturgeon recovery in the Missouri River downstream of Morony Dam.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

This radio telemetry project monitors fish movements in the Missouri River (Priority 1) and tributaries such as the Marias River, Teton River, and Judith River (Priority 2).

Project Sponsor (submitted by): Luke Holmquist

Location of Proposed Project:
Narrative; Missouri River from Morony Dam to Fort Peck Reservoir; Lower Marias River (Below Tiber Dam); Lower Teton River

Geocode (in decimal degrees ex 46.89743)

Site: Morony Dam	Lat: 47.58159	Lon: -111.05972
Site: Tiber Dam	Lat: 47.58159	Lon: -111.09705
Site: Fort Peck Headwaters	Lat: 47.55384	Lon: -107.92449

Total Project Cost: $127,763

Other associated funding: $72,752

- $43,752 annual cost share USBOR funds (5-year contract; 2016-2021)
- $20,000 by USFWS Section 6 funding personnel on this project
- $5,000 WAPA funding for Pallid Sturgeon radio transmitters
- $4,000 approximate – WAPA funds to Bozeman Fish Technology Center for blood plasma steroid analysis

TAC Funds (Cost-Share) Requested for Project**: $55,011**

I. Introduction; brief statement of project to be completed with pertinent background information.

Radio telemetry has been an invaluable tool for advancing our understanding of fish movements in the Missouri River above Fort Peck Reservoir. The Missouri River between Morony Dam and Fort Peck Reservoir is a semi-regulated system, and movements of several fish species in relation to environmental conditions are of particular interest. This includes the impacts of anthropogenically altered discharge and temperature, on federally endangered species and species of concern. In 2020, efforts will focus on relocating fish that are currently tagged throughout the year and also implanting additional radio tags into wild and older year-class hatchery-origin pallid sturgeon (HOPS). Currently the radio-tagged population of fish includes seven wild pallid sturgeon, sixty-nine HOPS (sixty-one 1997 year-class, one 2005 year-class, two 2007 year-class, three 2009 year-class, and two unknown year-class), twenty-five shovelnose sturgeon, sixteen smallmouth buffalo, and four bigmouth buffalo. In addition to tracking and tagging new fish, we need to begin replacing radio tags that were implanted into pallid sturgeon prior to 2013 or 2014. These tags are advertised to have an 8-year battery life, but are only guaranteed to last ~6.5 years. In 2019, many of the transmitters implanted in 2013 and 2014 were never relocated, indicating the battery had expired over winter. Many of the pallid sturgeon containing such tags have been serially sampled in successive years for information about spawning periodicity and age/size at first maturity. Keeping active tags in these fish is vital to developing our understanding of sexual maturity and spawning ecology for this endangered species.

A combination of boat and stationary telemetry receivers have been utilized in recent years. The land based stationary receivers provide important spatial and temporal data regarding course movements and habitat used by tagged fish in this stretch of river. In 2019, we maintained and downloaded thirteen land based stations between Carter Ferry and Fort Peck Reservoir, including two stations on the Marias River and another on the Teton River. The thirteen stations include: Carter Ferry, Fort Benton, Loma area, Coal Banks, Judith Landing, Stafford Ferry, Bird Rapids, Power Plant Ferry, King Island and Roads End on the Mainstem Missouri, two stations on the Marias River, and one station on the Teton River. Many of these stations have been maintained for over a decade and as such have experienced wear-and-tear to antennas, cables, and in some cases the telemetry receiver and switch box. We typically service one receiver a year as issues present themselves (bad batteries, decreased detection efficiency, etc.), however as the current SRX400 receivers continue to age, they are malfunctioning more frequently. Keeping this array functioning allows for many more telemetry contacts at a much lower cost than if we relied on boat relocations alone. We plan to begin slowly phasing out the SRX400 receivers in favor of the more feature rich SRX800 units. In most years, we estimate that roughly 40% of the fish relocations have been by boat; thus, the ground stations effectively more than double our telemetry contacts. Furthermore, the array of land based stations generates a continuous monitoring effort at multiple locations, which is not possible with boat based tracking efforts.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

1. Manually track from Fort Benton to Fort Peck Reservoir at least once per month from April through October.
    a. Enter data and combine with land-based telemetry network data in existing data file.
2. Increase telemetry effort to monitor spawning related movement and habitat use of reproductively-active pallid sturgeon in May and June.
    a. Identify pallid sturgeon spawning and aggregation sites.
    b. Use information collected to inform the timing and location of larval sampling efforts.
3. Continue to implant radio tags into HOPS and wild pallid sturgeon that exceed 2000 g.
    a. Replace any expiring radio tags in HOPS and wild pallid sturgeon.
4. Continue to conduct reproductive assessments, including gonadal biopsies and blood samples, in all wild, 1997 year-class, and other older age classes of HOPS.
    a. Assess known reproductively active female pallid sturgeon pre- and post- spawn
    b. Transfer samples to Bozeman Fish Technology Center in a timely manner so that maturity and sex will be known and can inform tracking efforts.
5. Maintain and improve the existing land based telemetry station array and download stations at least once every 6 weeks.
    a. Enter and proof downloaded data using manual tracking and tagging data.

III. Methods; description of how Project objectives will be accomplished.

-See schedule below.

IV. Schedule; when the Project work will begin and end.

January……. Download data from stations every 5-6 weeks and summarize data and prepare report.
February …….. Download data from stations every 5-6 weeks and summarize data and prepare report.
March ……..…. Download data from stations every 5-6 weeks and summarize data and prepare report.
April ……...… Prep gear, install stations, manually track fish, download data from stations, and maintain stations.
May ……. Manually track fish, download data from stations, install new radios, and maintain stations.
June ……. Manually track fish, download data from stations, install new radios, and maintain stations.

**Weekly for 4 sites if Satellite Modems are installed.*

July…..……. Manually track fish, download data from stations, install new radios, and maintain stations.
August ……. Manually track fish, download data from stations, install new radios, and maintain stations.
September.……...… Manually track fish, download data from stations, install new radios, and maintain stations.
October……. Manually track fish, download data from stations, install new radios, and maintain stations.
November……. Download data from stations every 5-6 weeks and summarize data and prepare report.
December…….. Download data from stations every 5-6 weeks and summarize data and prepare report.

V. Personnel; who will do the work? Identify Project leader or principal investigator.

Fish Tech IV; 0.45 FTE filled by incumbent Michael Schilz ($17.61/hour plus with benefits)

-Additional Staff;
Luke Holmquist – Project Lead; Biologist funded by NWE and FWP
Robert Beattie - Conservation Technician funded by NWE and FWP
Nate Beckman - Fish Technician funded by NWE and USFWS

VI. Project budget must include amounts for the following:

Materials
-Supplies & Materials ……. $3,500
-Boat Gas ($500/month for 8 months)……..... $4,000
-SRX400 Telemetry Receiver Service Fees ……...…… $1,300
-(2 receivers @ $100 shipping, $350 service fee, $200 replace battery)
-*Iridium Satellite network data fees (5000 credits)…….……$ 450
**contingent on "Radio Telemetry Remote Monitoring Equipment" proposal approval*

-MATERIALS TOTAL……...… **$ 9,250**

Direct Labor
-NWE funded Wages/Benefits for Tech II (0.45 FTE) ……. $25,660
-Science Technician (Band 4) $17.61/hour plus benefits

-DIRECT LABOR TOTAL……. **$25,660**

Travel and Living
-Trailer Pad at Loma (7 months at $150/month)……..…….... $1,050
-Entire Day Per Diem ($30.5/day; 13 days/month; 8 months)..……..... $3,172
-Partial Day Per Diem ($23/day; 6 days/month; 8 months)..……..... $1,104
-Vehicle Mileage (1700 miles/month; $0.358/mile; 250.80 a month; 7 months..... $6,016
-Vehicle Mileage (900 miles/month; $0.358/mile; 250.80 a month; 5 months)..…$2,865

-TRAVEL AND LIVING TOTAL…….. **$ 14,207**

Project funds to FWP……...…….. **$49,117**
Direct Overhead (12.0%):……**$ 5,894**
TOTAL NWE FUNDING REQUESTED…….……..... $55,011

All cost-share sources–

Materials
-USBOR funded Boat Gas ……..... $ 1,200
-WAPA funded steroid analysis materials to BFTC (approximate)..... $ 1,000
-WAPA funded radio tags to FWP……..…….……...$ 5,000
-USBOR Field Gear…….$ 300
-MATERIALS TOTAL……..……...… **$ 7,500**

Direct Labor

-WAPA funded blood steroid analysis at BFTC……..……..$ 3,000
-USBOR funds to FWP for personnel services
- Science Tech (Band 4); 0.55 FTE ($17.61/hour plus benefits)……..…$32,000
-USFWS funds (Section 6) to FWP for personnel services
- Science Tech (Band 4; 0.35 FTE ($17.61/hour plus benefits)……$20,000
-DIRECT LABOR TOTAL……..…… **$55,000**

Travel and Living
-USBOR Funded Mileage……..…….$ 1,680
-USBOR Funded Travel ……..…..…..$ 1,472
-TRAVEL AND LIVING TOTAL…….…….. **$ 3,152**

Overhead
-USBOR Annual Overhead…….....$ 7,100
-COSTSHARE OVERHEAD TOTAL…….$ 7,100

TOTAL COST-SHARE FUNDS (Overhead included) = $72,752

VII. Deliverables; Annual Report submitted September 2021

How will "success" for this project be monitored or demonstrated?

–Annual Report submitted September 2021

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

-No ground disturbance is associated with this project

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

-No wetland development associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

NorthWestern Energy
New Contract Request __X___ New SOS_____ Contract Modification_____
Additional Information

Requestor: Grant Grisak
Contractor: U.S. Fish & Wildlife Service
CLM:
Vendor #: 257483
TAC project number: 2020-10
Amount: $20,000
Order number: 10009601-751
Term: April 30, 2020 – December 31, 2020
NWE contact: Name Grant Grisak email grant.grisak@northwestern.com phone 406-268-2299
Vendor contact: Name Yvette Converse email yvette_converse@fws.gov phone 406-994-7486
Description:

The US Fish and Wildlife Service (FWS) is conducting a genetic analysis of sicklefin chub and sturgeon chub throughout their range for an Endangered Species Act status assessment. Tissue collected from wild fish populations will be analyzed by Southern Illinois University (SIU) to develop analytical markers and determine population structure. SIU will provide a report on the genetic diversity and population status of these two species. The FWS is providing $80,000 for this project and NorthWestern Energy is providing $20,000. NorthWestern's interest covers the section of the Missouri River downstream of Morony Dam that is described by FERC License 2188.

Deliverables:

The FWS will provide NWE with a copy of the report prepared by Southern Illinois University on the genetic diversity and population status of these two species.

Payment Terms:
The Vendor will invoice NorthWestern Energy for the full amount upon execution of the agreement.

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Middle Missouri River Fisheries Trammel Nets Purchase - 2019

Date: October 22, 2019

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 417: 1) Monitor the relative abundance of the most common fish species in the Missouri River downstream of Morony Dam. 2) Protect and provide for the recovery of Threatened and Endangered species and other species of special concern in the Missouri River downstream of Morony Dam. This is a priority one (Missouri) and two (Marias).

Provide justification for Priority 1, 2 or 3 (above) that you selected:

Trammel nets are the main sampling gear used to evaluate long term trends of Pallid Sturgeon and Shovelnose Sturgeon.

Project Sponsor (submitted by): Rob Beattie, Luke Holmquist

Location of Proposed Project: Missouri River between Morony Dam and Fort Peck Reservoir and the lower Marias River.

These trammel nets will be used on the Missouri River from Carter Ferry to Fort Peck Reservoir (Priority 1) and in the lower Marias River (Priority 2).

Geocode (in decimal degrees ex 46.89743)

Site: Morony Dam	Lat:47.58159	Lon: -111.05972
Site: Tiber Dam	Lat:47.58159	Lon: -111.09705
Site: Fort Peck Headwaters	Lat:47.55384	Lon: -107.92449

Total Project Cost: **$6,380.00**

TAC Funds (Cost-Share) Requested for Project: **$6,380.00**

I. Introduction; brief statement of project to be completed with pertinent background information.

Sampling with a trammel net is necessary to assess the populations of target deep-water fish species as required by the monitoring plan. Also, trammel net sampling is integral or evaluating the pallid sturgeon stocking program and for capture of fish for radio tagging. We complete approximately 140 - 400 sets/year. Trammel nets are used to maximize pallid sturgeon collections and obtain shovelnose sturgeon information. The wear and tear these nets receive during the sampling process requires that some of the nets get replaced each year. In the past few years, we have used more nets to maximize river field work time. This year we are requesting 10 new 1-inch mesh nets and 10 new 4-inch mesh nets. The 1-inch nets are to replace nets torn beyond repair during standardized sturgeon sampling efforts. The additional ask of 10 new 4-inch nets are to be used for recapture of reproductively active

pallid sturgeon from the 1997 year-class. We expect to have approximately 8 high priority females to recapture during the 2020 sturgeon spawning season and 4-inch mesh nets are the most efficient gear to recapture pallid sturgeon in the 1997 age class.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

These nets will be used in the monitoring of the fish communities in the Middle Missouri River and for pallid sturgeon investigations.

III. Methods; description of how Project objectives will be accomplished. NA

IV. Schedule; when the Project work will begin and end. Purchase 20 nets for use during 2020 field season.

V. Personnel; who will do the work ? Identify Project leader or principal investigator. NA

VI. Project budget must include amounts for the following:

Materials Only:	10 – 150 x 6 x 10 x 1”	@ $340/net……$3,400.00
	10 – 150 x 6 x 10 x 4”	@ $278/net……$2,780.00

Shipping: $200
Total: $6,380.00

Direct Labor NA
Travel and Living NA
Other Direct Expenses NA
Direct Overhead NA – Purchase by NWE
All cost-share sources and amounts, including estimation of “in-kind” contributions

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will “success” for this project be monitored or demonstrated? NA

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: No ground disturbance associated with this project.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC’s “Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities”, issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: No water rights associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

DULUTH NETS
by H. Christiansen Co.

Quote

Quote #	2482
Date	10/10/2019

Customer Information

MT DEPT. FISH, WILD & PARKS
333 Airport Rd
Lewistown, MT 59457
Clinton Smith

Shipping Information

MT DEPT. FISH, WILD & PARKS
215 W. AZTEC DR.
LEWISTOWN, MT 59457

Contact:	Robert Beattie
Phone:	406-538-4658
Email:	Rbeattie@mt.gov

Rep:	BJS
Memo:	

QTY	Product Description	Rate	Amount
10	150'x6' Trammel Nets -Two Outside Walls 10" Square #9 Twine -One Inside Wall of 1" Square #139 Multi 54 MD -Top Rope: 3/8" Foamcore Rope -Bottom Rope: 30lb Leadcore Rope	340.00	3,400.00
10	150'x6' Trammel Nets -Two Outside Walls 10" Square #9 Twine -One Inside Panel: 4" Square #208 13 MD -Top Rope: 3/8" Foamcore Rope -Bottom Rope: 30lb Leadcore Rope	278.00	2,780.00
1	Shipping ~$200	200.00	200.00

Subtotal	$6,380.00
Sales Tax (7.375%)	$0.00
Total	$6,380.00

Quotes Valid for 90 Days.

4976 Arnold Rd Duluth MN 55803 office@duluthnets.com duluthnets.com

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Equipment – Holter/Hauser Reservoir gillnets (floating and sinking) and spar buoys

Date: October 22, 2019

Explain how this Project addresses a specific Project 2188 License Article(s):

Article 414, 8) Monitor the effects of project operations on Hauser Reservoir fish populations; and Article 416, 6) Monitor the effects of project operation on Holter Lake fish populations. This proposal is to purchase 4 gillnets (2 floating, 2 sinking) and 6 Spar buoys for sampling fisheries population trends on two Missouri River reservoirs (Holter and Hauser).

Provide justification for Priority 1, 2 or 3 (above) that you selected:

Nets and buoys would be used to conduct fisheries population surveys on two Missouri River reservoirs (Holter and Hauser), this proposal is considered priority 1.

Project Sponsor (submitted by): Montana FWP, Adam Strainer

Location of Proposed Project: Two Missouri River reservoirs (Holter and Hauser)

Geocode (in decimal degrees ex 46.89743)

Total Project Cost: **$1,986.80**

TAC Funds (Cost-Share) Requested for Project: **$1,986.80**

I. Introduction; brief statement of project to be completed with pertinent background information.

This proposal is to buy 4 experimental gillnets (2 floaters, 2 sinkers) and 6 Spar buoys (used in conjunction with floating gillnets). Reservoir fish populations are monitored annually in spring and fall using experimental floating and sinking gillnets set and in 30 locations in Holter Reservoir and 33 standardized locations in Hauser Reservoir. These netting surveys have been conducted annually since 1986 and are the best indicators of fish population changes that may be caused by project operations. Normal operational life-span of a gillnet used for standardized sampling is typically 2-5 years.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

Nets and buoys will be used to monitor fisheries populations in Hauser and Holter Reservoir

III. Methods; description of how Project objectives will be accomplished.

Gillnets and buoys will be purchased prior to the standardized field sampling season of spring 2020

IV. Schedule; when the Project work will begin and end. Will purchase when funds are available

V. Personnel; who will do the work ? Identify Project leader or principal investigator.

Adam Strainer – MTFWP Fisheries Biologist – Project Leader

VI. Project budget must include amounts for the following:

Materials Only: 4 nets……..……$873.60
6 buoys……$813.20

Shipping: $300.00
Total: $1,986.80

Direct Labor NA
Travel and Living NA
Other Direct Expenses NA
Direct Overhead NA – Purchase by NWE
All cost-share sources and amounts, including estimation of "in-kind" contributions

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated? NA

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management: No ground disturbance associated with this project.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines: No water rights associated with this project.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

Memphis Net & Twine Co., Inc.

2481 Matthews Ave.
Memphis, TN 38108-0331
www.memphisnet.net
(800) 238-6380

Quote

Quote No:: 20358
Quote Date: 10/22/2019
Quote ID MD
Sales Person: Michelle Darnell

SOLD TO	SHIP TO
ADAM STRAINER @@ 406-495-3263 **MT DEPT FISH WILDLIFE & PARK** **930 W CUSTER AVE** **HELENA MT 59602-0227** **Customer ID: 3933**	**ADAM STRAINER 406-495-3263** **MONTANA FWP** **930 W CUSTER AVE** **HELENA MT 59602-0227**

Ship via:	Best Way

SKU	Description	UOM	Ordered	Unit Price	Total
EXP888	EXPERIMENTAL NET MULTI GILL NET 6'D X 125'L WITH 5-25' PANELS	EA	2	$0.00	$0.00
G15	MULTI GILL NET, (133) #104, 3/4" SQ., 1-1/2" STR., 6' DEEP, (54 MD) - SOLD BY THE YARD	EA	18	$4.69	$84.42
G32	MULTI GILL NET, (171) #139, 1" SQ., 2" STR., 6' DEEP, (41 MD) - SOLD BY THE YARD	YD	18	$4.35	$78.30
G16G	MULTI GILL NET, (137) #104, 1-1/4" SQ., 2-1/2" STR., 6' DEEP, (32 MD) - SOLD BY THE YARD	YD	18	$3.59	$64.62
G39	MULTI GILL NET, (179) #139, 1-1/2" SQ., 3" STR., 6' DEEP, (27 MD) - SOLD BY THE YARD	YD	18	$3.62	$65.16
G48	MULTI GILL NET, (193) #139, 2" SQ., 4" STR., 6' DEEP, (20 MD) - SOLD BY THE YARD	YD	18	$3.20	$57.60
NFC12	FOAMCORE 1/2"	YD	90	$0.15	$13.50
N50LC	50 LB LEADCORE F/ GILL NETS	EA	90	$0.29	$26.10
PANEL	PANEL CHARGE	EA	10	$5.00	$50.00
EXP888	EXPERIMENTAL NET MULTI GILL 6'D X 125'L WITH 5-25' PANELS	EA	2	$0.00	$0.00
G15	MULTI GILL NET, (133) #104, 3/4" SQ., 1-1/2" STR., 6' DEEP, (54 MD) - SOLD BY THE YARD	EA	18	$4.69	$84.42
G32	MULTI GILL NET, (171) #139, 1" SQ., 2" STR., 6' DEEP, (41 MD) - SOLD BY THE YARD	YD	18	$4.35	$78.30
G16G	MULTI GILL NET, (137) #104, 1-1/4" SQ., 2-1/2" STR., 6' DEEP, (32 MD) - SOLD BY THE YARD	YD	18	$3.59	$64.62
G39	MULTI GILL NET, (179) #139, 1-1/2" SQ., 3" STR., 6' DEEP, (27 MD) - SOLD BY THE YARD	YD	18	$3.62	$65.16
G48	MULTI GILL NET, (193) #139, 2" SQ., 4" STR., 6' DEEP, (20 MD) - SOLD BY THE YARD	YD	18	$3.20	$57.60
N20LC	20 LB LEADCORE F/ GILL NETS	YD	90	($0.21)	($18.90)
NFC58	FOAMCORE 5/8"	EA	90	$0.47	$42.30

Thanks for the Opportunity!

All Quotes Good for 30 days from Quote Date.

Memphis Net & Twine Co., Inc.

2481 Matthews Ave.
Memphis, TN 38108-0331
www.memphisnet.net
(800) 238-6380

Quote

Quote No:: 20358
Quote Date: 10/22/2019
Quote ID MD
Sales Person: Michelle Darnell

SOLD TO	
ADAM STRAINER @@	406-495-3263
MT DEPT FISH WILDLIFE & PARK	
930 W CUSTER AVE	
HELENA MT 59602-0227	
Customer ID: 3933	

SHIP TO	
ADAM STRAINER	406-495-3263
MONTANA FWP	
930 W CUSTER AVE	
HELENA MT 59602-0227	

** Shipping has been estimated. It may change at the time the order is taken

Subtotal	$813.20
Shipping	$125.00
Sales Tax	$0.00
Total	$938.20

Comments

Thanks for the Opportunity!
All Quotes Good for 30 days from Quote Date.

TRIONIC CORP.

222 E. Main St. · P.O. Box 324 · Port Washington, WI 53074 · Phone: 262-268-9240 · Fax: 262-364-3200

QUOTATION

Contact: Troy Humphrey
To: **Montana Fish, Wildlife & Parks**
930 West Custer Ave
Helena, MT 59620
Phone: 406-495-3266

DATE: 10/11/2019
F.O.B.: Wisconsin
TERMS: Cash in Advance
DELIVERY: 3-4 week ARO
e-mail: thumphrey@mt.gov

QTY	U/M	DESCRIPTION	UNIT PRICE	TOTAL PRICE
6	ea.	765S-B Spar Buoy Regulatory 5" w/ Standard Message NOTE: Buoys have bands, symbols, & standard message Custom messages are additional cost	$ 145.60	$ 873.60
			SUBTOTAL	$ 873.60
			FREIGHT	$ 175.00
			TOTAL	$ 1,048.60

Trionic Corporation

Santo Cannistra

Santo Cannistra
President

2019 Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

Priority 1: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

Priority 2: 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

Priority 3: 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

All TAC project proposals must include the following information:

Project Title: Sevenmile Creek Habitat Restoration – Final Phase

Date: 11/1/2019

Explain how this Project addresses a specific Project 2188 License Article(s): Article 414-9-2, 3, 4, 6. Evaluate the potential to enhance tributary spawning to increase the contribution to natural reproduction to the Hauser Reservoir fishery. Tributary enhancements will include, but will not be limited to: 2. Channel restoration, including re-meandering; 3. Removal of fish barriers; 4. Improvement of fish passage; 6. Improved livestock grazing management in riparian areas

Provide justification for Priority 1, 2 or 3 (above) that you selected: Priority 2. Sevenmile Creek is a tributary to Tenmile Creek, which is a known corridor for migratory fish from Lake Helena. Sevenmile Creek also maintains resident populations of Eastern brook trout and brown trout.

Project Sponsor (submitted by): Adam Strainer, Helena Area Fish Biologist

Location of Proposed Project: Sevenmile Creek, T10N R4W Sec 10

Geocode (in decimal degrees ex 46.89743) Lat; 46.63842 Lon: -112.09243

Total Project Cost: $329,547

TAC Funds (Cost-Share) Requested for Project: $131,731

I. Introduction; brief statement of project to be completed with pertinent background information.

As the MoTAC may recall, the Sevenmile project is on a 350- acre parcel acquired by Prickly Pear Land Trust (PPLT), to preserve open space, conduct habitat restoration, and provide recreational opportunities in the Helena Valley. Approximately 2.2 miles of Sevenmile Creek flows across the property (Figure 1). In the past, the stream was heavily impacted by riparian clearing, intensive grazing, flow diversion, and channelization.

An assessment of Sevenmile Creek (partially funded by MoTAC) was completed in 2016, and delineated the stream into four geomorphologically unique sub-reaches (SMs) (Figure 2). In 2017, restoration of SM1 and SM2 were completed with funding by Montana Aquatic Resources Services, Inc. (MARS), while SM3 restoration was completed later in 2017, with MoTAC as the primary funder, alongside other partners. Project components completed to date include: construction and revegetation of inset floodplain benches, stabilization of eroding banks and terraces, temporary establishment of a fish passage and reconnection of two stream segments separated by a former (removed) irrigation diversion, re-establishment of historic wetlands, and relocating SM3 out of an eroding gully to its former floodplain. Each of these project components will improve the ecological function of the stream channel,

floodplain, and wetlands within the project area, all of which will benefit the public. In 2018, permitting and design were completed for SM4 and, again, MoTAC as a primary funder for the initiation of this last phase of Sevenmile restoration.

PPLT now requests $131,731 in support to complete the construction portion of SM4 restoration, that will, in turn, complete the project as a whole. Construction of the final reach is set to begin in summer 2020, after the spring run-off, and to be completed by November 2020. PPLT contracted with Confluence, Inc. to complete the final design and they will subsequently oversee the construction of the project. This request to the MoTAC would go towards the construction and oversight portions of the project, with a small portion set aside to cover Northwestern Energy's insurance requirements, and some PPLT staff time limited to the management of the project. To date, $151,316 has been secured for the project, with support from: The Cross Foundation, Willow Springs Foundation, City of Helena, and the Future Fisheries Improvement Program, as well as DNRC's 223 program. An additional $43,000 has been requested and is pending from other donors.

SM4 is the straightest and most degraded stream reach in the project area, and has not regained sufficient length to support any sort of complex bed morphology or associated fish habitat. The riparian corridor is either completely lacking or is limited to a very thin band of woody shrubs growing near the bottom of the incised streambed (Figure 3). Downcutting has resulted in the exposure of high fine-grained banks that are actively contributing large quantities of fine sediment to the system. The overall condition of SM4 with respect to floodplain function, riparian vegetation, sediment loading, fish habitat, and geomorphic stability is exceedingly poor (Figure 3). With an investment by the MoTAC in SM4 restoration, an opportunity exists to accelerate Sevenmile's recovery process by restoring the creek's alignment, dimension, and floodplain to a more historic configuration. Restoration of the creek throughout the reach will provide immediate benefits to water quality, aquatic habitat, floodplain function, and wildlife along the creek corridor, all of which will benefit the public.

The proposed restoration approach involves constructing a new channel alignment through Sevenmile Creek's historic floodplain. Selecting an alignment during the design process for a restored channel through SM4 involved analyzing historic imagery to help determine the most likely route of the historic channel. Based on these images and existing topography, the historic channel likely flowed north of the existing channel throughout the majority of this reach. Channelization of the creek subsequently pushed the channel to the southern edge of the historic floodplain, where it currently remains.

Relocating the channel across its historic floodplain as depicted in Figure 4 requires the channel be stepped down to meet the existing channel's bed elevation. A cascade feature would be constructed to be sturdier and at a flatter gradient than the steep step-pool ladder temporarily constructed at the downstream end of SM3. The cascade will improve upon the step-pool ladder by providing for permanent fish passage during a range of flows and permanent stream segment reconnection. It would be more similar to what might be seen in mountain streams, a cascading, rock step-pool structure designed to handle the increased flow of water in a high-flow event. The deactivated channel will be plugged with material generated by the new channel alignment, and from stockpiled excavation materials associated with wetland re-establishment from SM2.

The proposed permanent cascade feature to connect the restored channel with the existing channel lies approximately 500 feet upstream of the PPLT parcel boundary. This 350-foot step-pool segment of the channel will be improved by constructing a vegetated, inset floodplain that extends 20 feet on either side of the channel. The inset floodplain will extend downstream approximately 150 feet, and then taper before the channel departs the PPLT property. The newly excavated floodplain below will be vegetated with wetland seed and shrubs to establish a riparian corridor. The new floodway will be graded with 2:1 slopes to tie into the existing ground surface.

Re-aligning Sevenmile Creek through SM4 has required more extensive (and more costly) permitting than previous reaches because it lies in a FEMA-mapped floodplain. This required PPLT to obtain 310, 404, and 401 permits, as well as a Floodplain Development and Floodplain Map Revision permit. Since this project will result in a rise to the base flood elevation by more than 0.5 feet, it required a floodplain map revision process with FEMA (a Conditional Letter of Map Revision [CLOMR]) prior to constructing the project, and a Letter of Map Revision (LOMR) post construction. To date all permits have been submitted and we expect approvals before the end of the year (December 2019), with the exception of the FEMA permit, expected in early 2020.

Proposed restoration actions for SM4 are outlined more fully under II. Objectives, and III. Methods, below. Proposed restoration is expected to: permanently improve fish passage, improve water quality by reducing bank erosion and re-establishing vegetative cover, improve bird and other wildlife habitat, and provide a recreational resource for the Helena area. Further, one of the Lake Helena Watershed Restoration Plan —2016-2023 (December 2015) top three restoration priorities is for "Sediment reduction activities throughout the watershed." The Plan notes that removal of woody vegetation has largely reduced the natural protections from stream bank erosion in all parts of the watershed. Sevenmile Creek is one of twelve streams identified as not meeting its full potential to support fish and aquatic life due to excessive levels of sediment. Excessive sedimentation impacts fish spawning and aquatic insect habitat, fills pools, and alters channel morphology. Sevenmile Creek contributes the fifth largest sediment load in the watershed; the sediment load reduction target is 1,475 tons less per year than its current 1,855 tons per year. This project is expected to contribute to sediment-load reduction in Sevenmile.

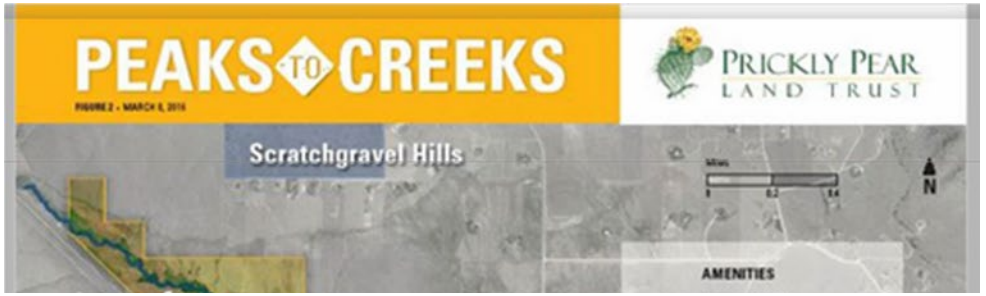


Figure 1: Area map showing Sevenmile Creek restoration site relative to Helena

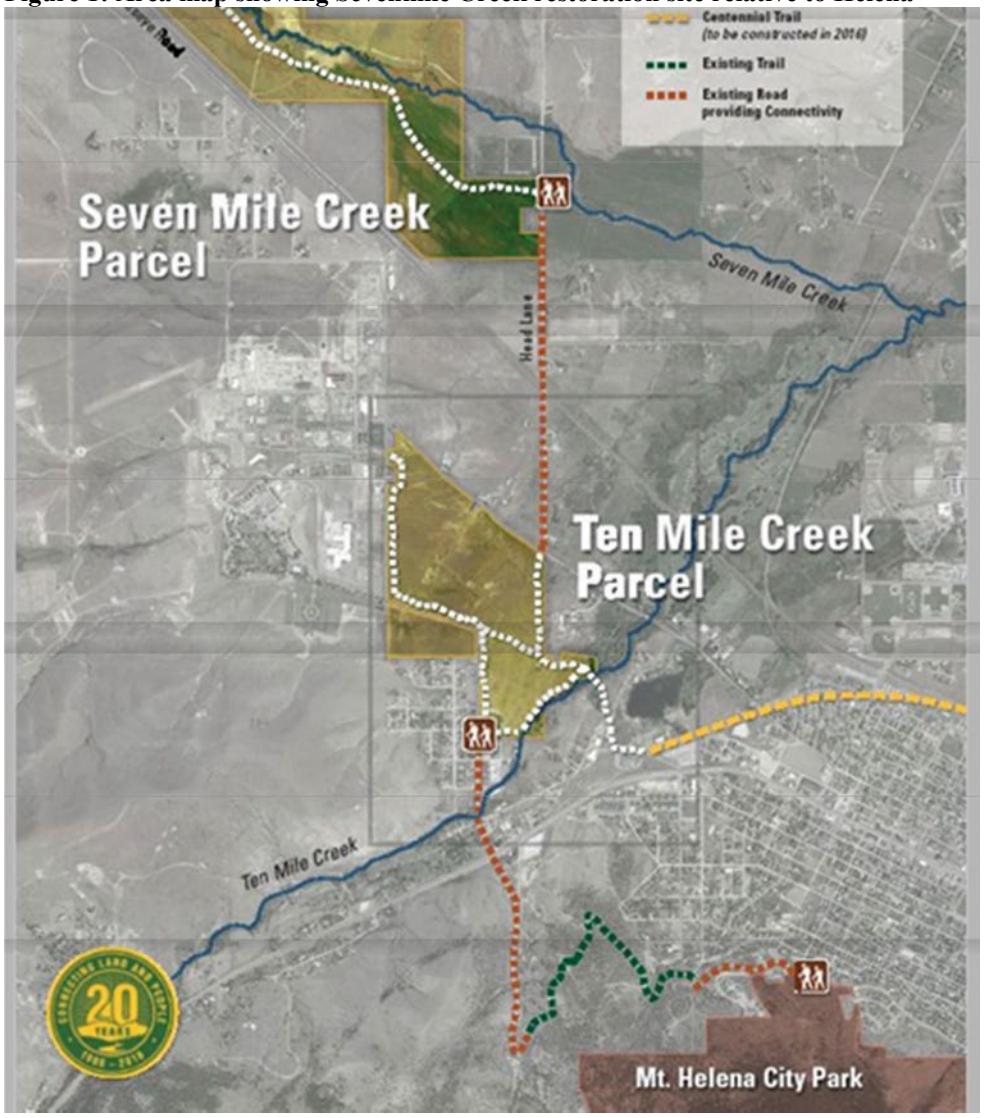


Figure 2: Area map showing the Sevenmile Creek restoration site relative to Helena

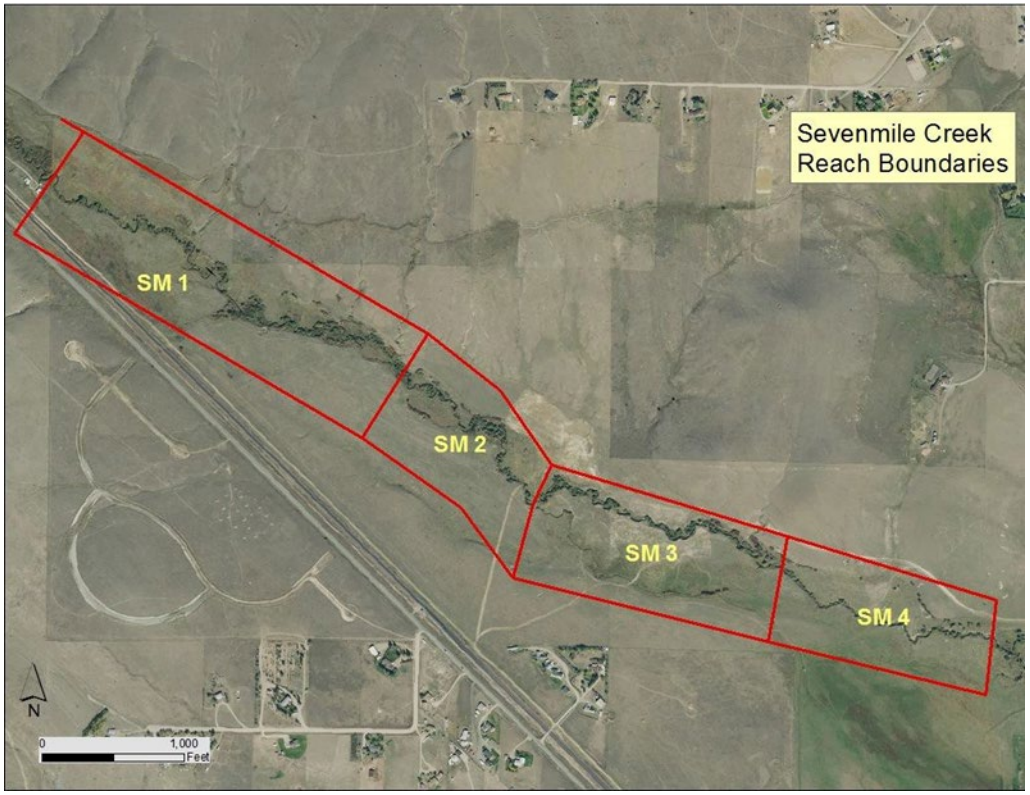


Figure 2: Sevenmile Creek sub-reaches

Figure 3: Photo of reach 4 showing its disconnection from the floodplain and lack of vegetation.

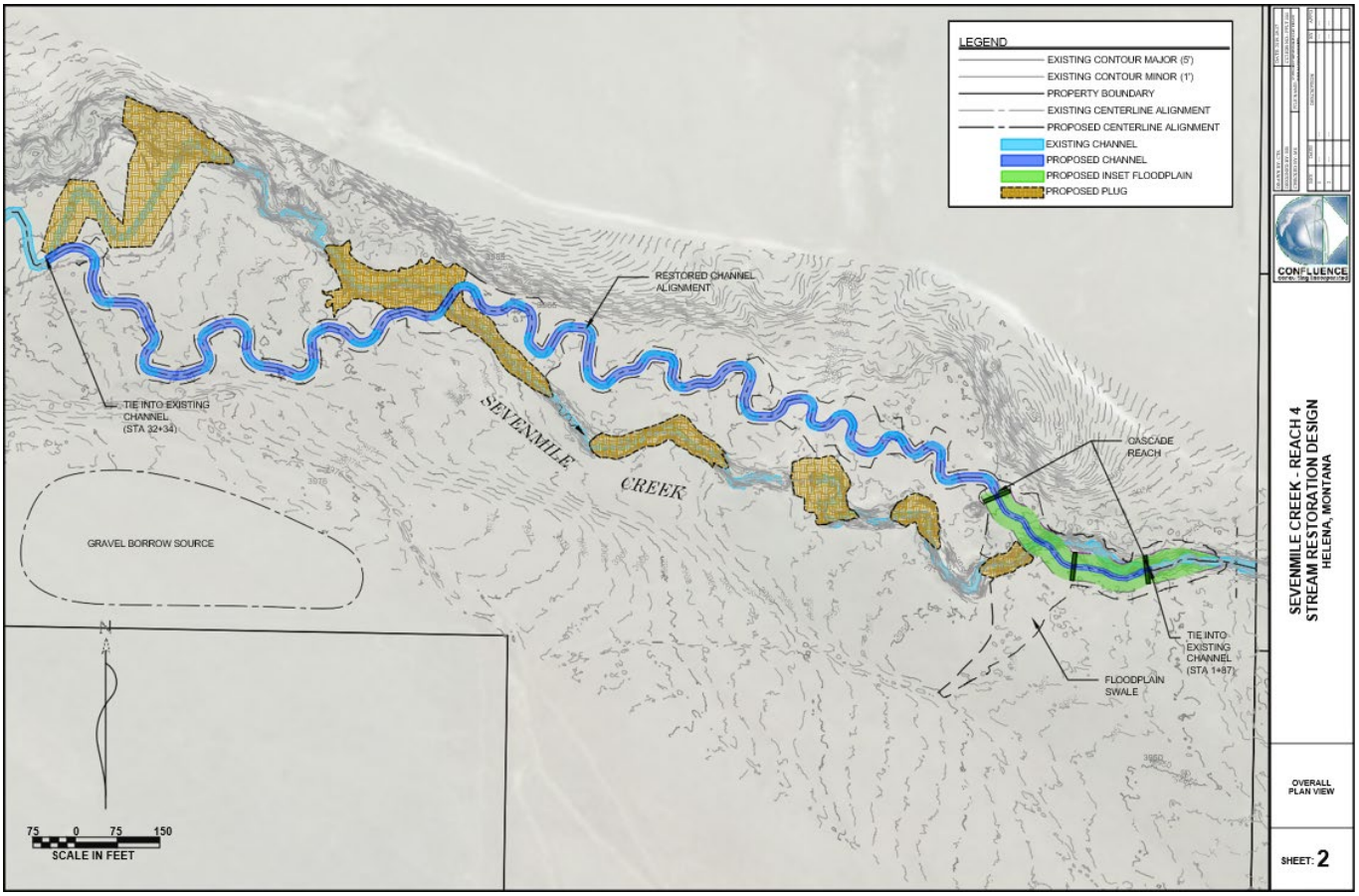


Figure 4: Proposed location of channel with cascade feature

II. Objectives; explicit statement(s) of what is intended to be accomplished.

The completion of the restoration of Sevenmile Creek on Prickly Pear Land Trust property in the Helena Valley, Montana. SM 4 will be raised from its incised channel, placed within its historic floodplain, connected via a cascade feature back to the creek, and revegetated. This will complete a restoration project that began in 2017 on over 2 miles of Sevenmile Creek in the Helena Valley.

III. Methods; description of how Project objectives will be accomplished.

PPLT has contracted with Confluence, Inc. to accomplish the objectives outlined above. Construction objectives are outlined below.

Vertical Stability

- The channel bed along the new alignment will be constructed with gravel and cobble materials mined from a nearby borrow source south of the irrigation ditch
- Gravel and cobble will be placed across the width of the bed and extend an additional 4 feet on both sides to allow the channel to migrate without risking incision.
- Step pools on the downstream end of the new alignment will be constructed to resist erosion up to a 25-year discharge, or a discharge specified by PPLT.

Lateral Stability

- Sod mats will be salvaged wherever possible along the deactivated channel and transplanted along the new channel alignment.
- The outside bank of all pools, which are subject to the highest erosive forces, will be protected using a combination of gravel/cobble bed materials, root wads, conifer fascines, coir wrapped soil lifts, and sod mats to resist erosion until woody vegetation establishes.
- Mature shrubs will be salvaged from the deactivated channel and transplanted adjacent to the new channel.
- Willow sprigs will be harvested and installed along the new channel alignment to establish a woody riparian corridor

Floodplain Stability

- The existing channel will be plugged using material generated by excavating the new channel and stockpiled material generated by the wetland restoration project in Reach 2.
- The new floodplain will be revegetated using a combination of upland and wetland seed mixes and woody plantings.

Wetland Creation

- New wetlands will be created behind the wetland plugs, similar to those in the previous reach.

Willow sprigs and woody plantings will be cut and planted by contractors and volunteers. Noxious weed treatments will be completed by a licensed applicator. Livestock have been removed from the property since February 2016, and fencing will be installed to create one livestock enclosure away from the stream, with funding secured from COE through MARS, not reflected in the project budget.

In addition, PPLT and Confluence have sent out a limited-bid solicitation for construction, per MoTAC's request. While bids are not expected by the time of this grant submission, it is anticipated that they will be received by the time the MoTAC meets on November 20th. An updated budget will be provided to the MoTAC at that time.

IV. Schedule; when the Project work will begin and end.

Final permit approvals are anticipated by March 2020 and construction will begin in August of 2020 and be complete by November 30, 2020.

V. Personnel; who will do the work ? Identify Project leader or principal investigator.

Nate Kopp, PPLT Project Manager, is the primary project administrator. Confluence, Inc. will oversee construction and implementation of the design plan. A firm will be chosen in a limited-bid solicitation overseen by PPLT and Confluence, Inc.

VI. Project budget must include amounts for the following:

Task	Quantity	Unit	Unit Cost	Total Cost
Relocated Channel				
Equipment Mobilization	4	EA	$1,000	$4,000
Excavate and stockpile topsoil along new channel alignment	2,050	CY	$3.00	$6,150
Excavate and stockpile subgrade along new channel alignment	3,530	CY	$3.00	$10,590
Generate Channel for new channel bed	1,750	CY	$4.00	$7,000
Grade gravel to riffle and pool habitats	2,700	FT	$3.00	$8,100

Replace topsoil and general fill along new channel	1,360	CY	$1.50	$2,040
Pool bank treatments	1,200	FT	$75.00	$90,000
Transplant sod mats	1,800	SQ YD	$9.00	$16,200
Construct channel plugs	8,740	CY	$1.50	$13,110
Cover plug slopes with erosion control fabric	7,150	SQ YD	$1.60	$11,440
Fill existing channel below tie-in	2,250	CY	$1.50	$3,375
Load and haul stockpiled material from reach 2	3,000	CY	$4.00	$12,000
Revegetate floodplain and gravel borrow	4.8	AC	$7,000	$33,551
Transplant mature willows	54	EA	$40.00	$2,157
			Subtotal:	**$219,713**
Create Steep Channel and Inset Floodplain				
Excavate and stockpile topsoil along new channel and floodplain alignment	920	CY	$3.00	$2,760
Excavate and stockpile subgrade along new channel and floodplain alignment	3,180	CY	$3.00	$9,540
Import cobble/boulder bed material	320	CY	$50.00	$16,000
Set resting boulders	180	EA	$7.00	$1,260
Install bed material	350	FT	$6.00	$2,100
Replace topsoil floodplain	800	CY	$1.50	$1,200
Cover inset floodplain along cascade channel with erosion control fabric	1,530	SQ YD	$1.60	$2,448
Fill Existing channel to create floodplain	500	CY	$1.50	$750
Construct rock grade controls	40	CY	$40.00	$1,600
Revegetate inset floodplain	0.5	AC	$7,000	$3,445
Seed upland slopes and swale	0.7	AC	$500	$355
			Subtotal:	**$41,458**
Construction subtotal				**$261,171**
15% contingency				**$39,176**
Construction oversight				**$15,000**
NWE Insurance and PPLT staff time				**$8,400**
LOMR (FEMA permit, post-construction)				**$5,800**
			TOTAL:	**$329,547**

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will "success" for this project be monitored or demonstrated?

Upon completion of SM4, trout at multiple life stages will be able to pass up and downstream of the step-pool structure, which should reduce population fragmentation and allow passage to preferred spawning habitats above and below the proposed realignment in SM4. DFWP replicated four 2018 electrofishing sections (100 m each) on Sevenmile Creek in early September 2019. Fish numbers below the temporary drop structure were similar to last year, but there has been a significant change in the sections within the new (restored) channel above it. Last year DFWP observed 9 sculpin towards the top of the uppermost section. This year staff found numerous juvenile brown trout (~ 3-4-inches), a fair number of adult brown trout (~ 8-14.5-inches), and many sculpin. Stream conditions in the restored reaches were observed to have changed significantly due to reduced sedimentation and robust riparian vegetation growth. It appears as though the new reach is officially providing new spawning and/or rearing habitat just one year after completion and the adults are tapping into the exceptional grasshopper population on the property. DFWP noted that data like these will better help them understand how fisheries respond to projects like this.

Sediment inputs from highly eroding stream banks already have been and will continue to be greatly reduced, resulting in clearer and cooler water temperatures. Improved stream bank vegetation will provide additional stream shading and fish cover. Improved floodplain connectivity will substantially reduce erosion impacts during high flow events. Bird habitat will be substantively improved by increased vegetative cover and reduced noxious weeds, providing a secondary benefit to bird-watching enthusiasts. Public access to the parcel will provide ample fishing opportunity for the Helena angling community where few fishing opportunities currently exist close to town. Success will be determined by DFWP fisheries monitoring that will occur throughout the restored reaches to ensue fish habitat and passage requirements, especially during spawning timeframes.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing

activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

A cultural resource survey for phase 1 of the SM4 project and was completed and approved by the SHPO in 2019. It found no significant cultural resources within the project area. This document was provided to Northwestern Energy upon completion. If necessary, a similar effort will take place for phase 2.

IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9March2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

All aspects of this proposed project meet "Stream Restoration Projects" criteria as outlined in "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities," therefore no impacts or modifications to water rights are anticipated.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- Andrew.Welch@Northwestern.com
- Jon.Hanson@Northwestern.com
- Grant.Grisak@Northwestern.com

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to: Andy Welch, Leader Hydro License Compliance, NorthWestern Energy, 1315 N Last Chance Gulch, Helena, MT 59601; 406-444-8115 (office); 406-565-7549 (cell); Andrew.Welch@northwestern.com.

Grisak, Grant

From: Grisak, Grant
Sent: Tuesday, September 1, 2020 3:56 PM
To: Christopher Boone; Jim Boyd (james_boyd@fws.gov); Russell, Allison - FS; Archer, Eric - FS; Don Skaar (dskaar@mt.gov)
Cc: Mullen, Jason (JMullen@mt.gov); Jason Rhoten; Welch, Andrew
Subject: MoTAC - decision made

Hello MoTAC,
Regarding the request to increase funding for project 2018-10 from $78,036 to $91,405, Ive heard back from FWS, USFS and FWP who all voted in favor of the proposal. NWE also supports the proposal.

According to the 2017-2026 MOU between NWE and the Resource Agencies, Item IV, C states "…TAC decisions in person or by proxy require a quorum of NWE and FWP and at least one representative of FWS or USFS or BLM…" In this case NWE, FWP, FWS and USFS provided a vote in favor of the proposal. As such, I will amend project 2018-10 to include the addition of $11,930 from project 2019-24 and $1,439 from project 2020-1.

Please call with any questions. Thank you for your quick response to this request.

Grant Grisak
Fish Biologist - Hydro License Compliance
Grant.Grisak@NorthWestern.com
O 406-268-2299
C 406-403-1967
6700 Rainbow Dam Road
Great Falls, MT 59404

NorthWestern Energy
Delivering a Bright Future