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***WaterSMART Cooperative Watershed Management Program Phase II***



## **Lower Icicle Water Quality Improvement Implementation**

*Watershed Group: Icicle Work Group*

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## Executive Summary

November 16<sup>th</sup>, 2020

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Wenatchee, Chelan County, Washington

The Lower Icicle Water Quality Improvement Implementation Project is a collaborative undertaking to address multiple watershed issues, including temperature and sediment loading in the lower Icicle River. The project will rehabilitate a section of Icicle River characterized by vertical eroding streambanks caused by past land use practices, removal of native riparian vegetation, and downcutting of Icicle River. Project elements include implementation of bioengineered wood structures and planting benches to stabilize and re-grade eroding streambank and establishing a functioning riparian buffer across 850 linear feet of streambank. These actions on the high restoration priority Fromm parcel will improve water quality by reducing sediment inputs into the Lower Icicle by an estimated 485.5 tons/year, phosphorus loading by 485.5 tons/year, and nitrogen loading by 971 tons/year and providing shade and additional wood inputs to help reduce stream temperatures and increase deeper pools and complex habitat. Project elements include installation of 9 wood structures, grading of the over-steepened bank, placement of fabric encapsulated soil lifts, and planting of 1.1 acres of riparian area. This project will restore a healthy riparian buffer in a reach that has an impaired ability to restore itself due to past management practices, influence of a historic mill pond dam downstream, and lack of natural wood accumulation. The project will also increase resilience to the potential effects of climate change which include increased seasonal flooding and hotter drier summers.

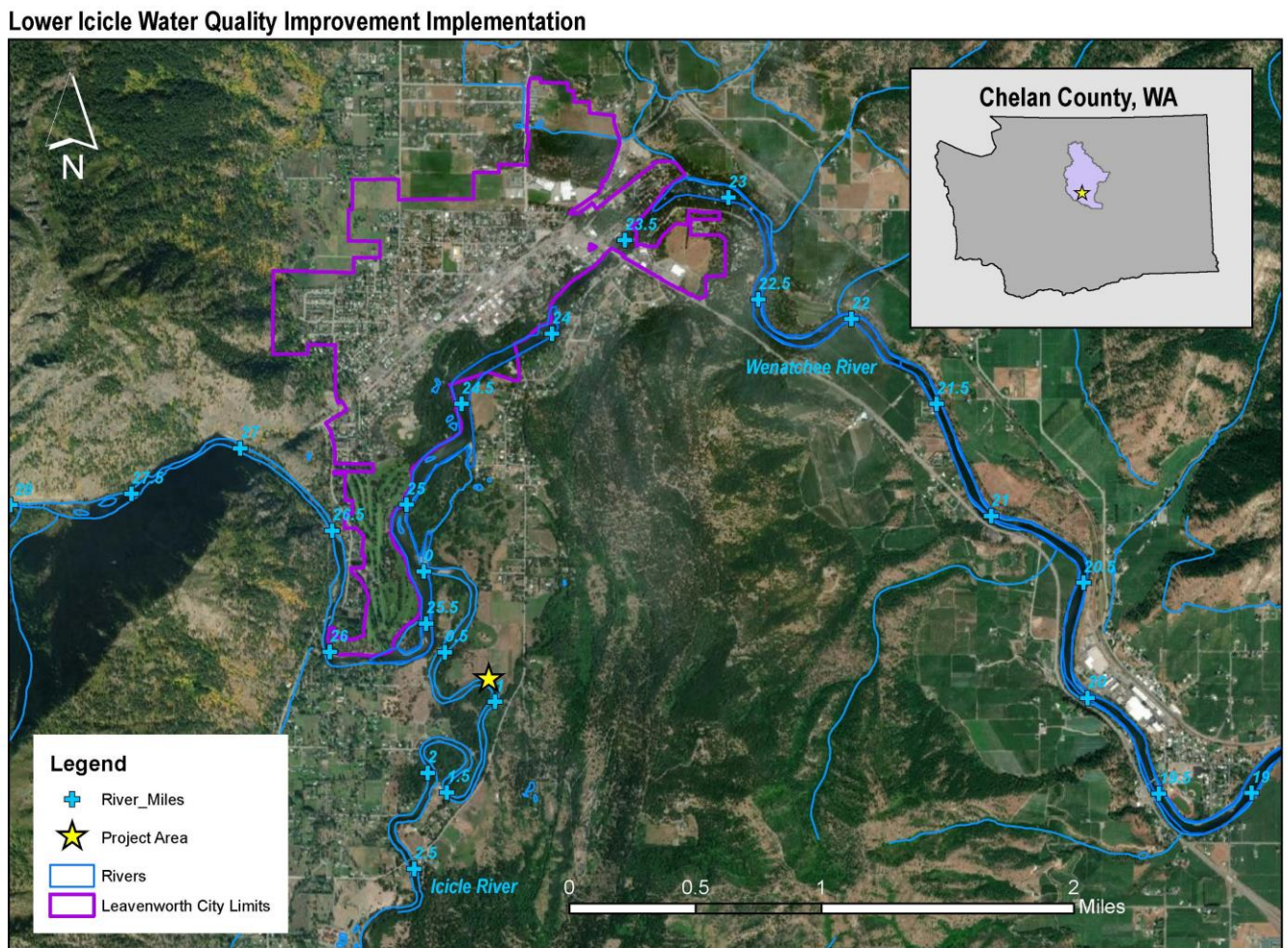
This project represents a partnership between the Icicle Work Group- a multi-stakeholder non-regulatory watershed management group, Washington Department of Ecology, and Chelan County Natural Resource Department. The project will address several watershed concerns that are documented in the Washington State Water Quality Assessment 303(d) list, the Icicle Strategy Guiding Principles, and the Upper Columbia Regional Technical Team Revised Biological Strategy for Salmon Recovery. These watershed concerns include water quality, aquatic ecosystem habitat, and resilience to drought and climate change. This project is an integral piece of the overall strategy to protect water supply and instream flow that was developed by Icicle Work Group and is now entering the implementation phase.

Designs and permitting are currently underway through separate funding sources. The implementation activities described in this proposal are expected to occur in 2021-2022. The expected construction start date will be July 15<sup>th</sup>, 2022, with an expected completion date of October 15<sup>th</sup>, 2022. The project occurs on private land and will serve as an example of sustainable restoration for other private landowners in the watershed.

## Project Location

The Lower Icicle Water Quality Improvement Project is located on the Icicle River within the Wenatchee Sub-basin of the Upper Columbia Basin in Chelan County, Washington (see Appendix A: Watershed Map). The project area occurs about 1 mile upstream of the confluence of the Icicle and Wenatchee Rivers, near the town of Leavenworth and about 25 miles from the confluence of the Wenatchee and Columbia Rivers. The project latitude is 47 34'26" N and longitude is 120 39'40" W. Icicle River drains a watershed of 214 sq. mi. and has an average 2-year peak flow of 4,450 cfs. The Lower Icicle inhabits a low-gradient floodplain from the mouth of Icicle Canyon near river mile (RM) 5 to the confluence with the Wenatchee River. The Leavenworth National Fish Hatchery occupies RM 4.5-RM 3, after which the Lower Icicle winds through the East Leavenworth floodplain where legacy impacts of riparian clearing, removal of large wood, sediment accumulations from a 19<sup>th</sup> century mill pond, and rip-rap bank armoring have constrained natural floodplain processes and degraded habitat and water quality.

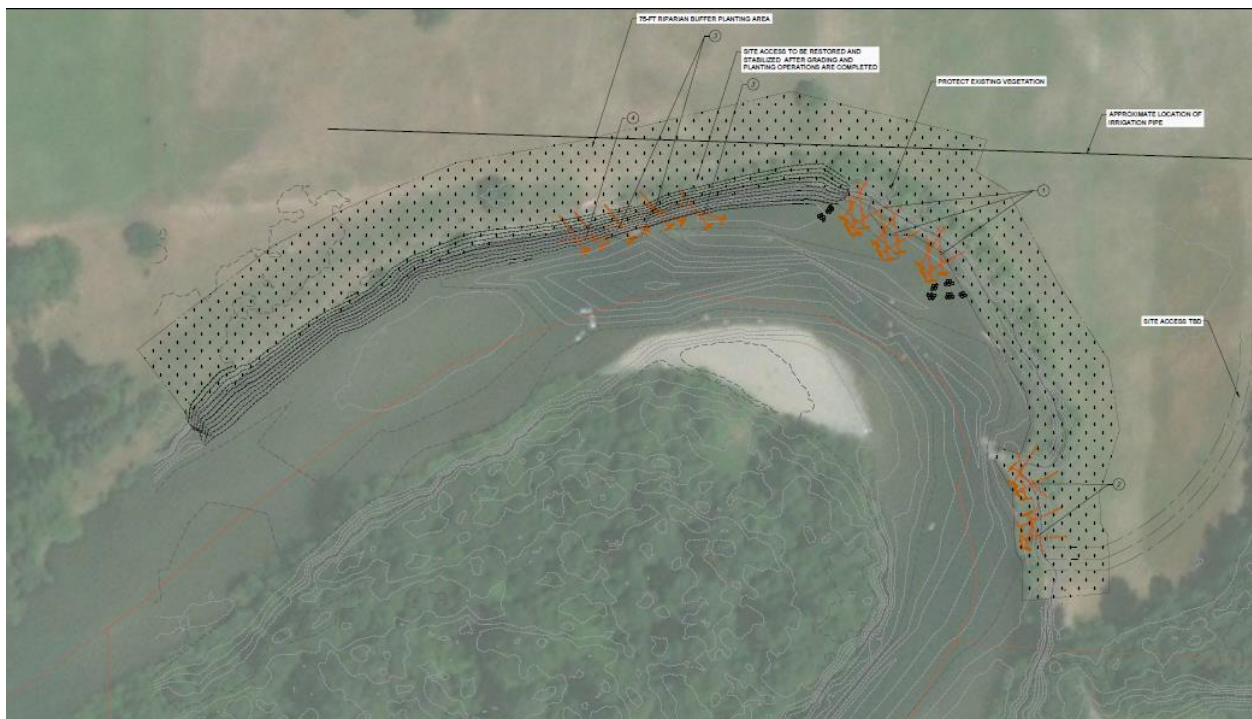
Figure 1. Project Area Map



## Technical Project Description

The goal of the Lower Icicle Water Quality Improvement Implementation Project is to address water quality and habitat issues in the Lower Icicle and Wenatchee Rivers through reductions in sediment loading, installation of channel roughness elements, establishment of a robust riparian buffer, and encouragement of a deeper channel thalweg through the project area. This will be accomplished through additions of large wood structures and bank grading to deflect erosive scour along the toe of the bank and allow bank overtopping during high flow events. Once the graded bank angle and wood structures are installed, native riparian plantings integrated into the bank roughness elements and across a buffer width of 75' from the Ordinary High Water (OHW) will be installed. The line of riprap that currently exists in the middle of the channel will be pulled back and integrated into the wood structures at the toe of the bank. Areas of the project that are currently experiencing rapid erosion will be strengthened with fabric encapsulated soil lifts (FESL) with willow plugs integrated into the lifts to facilitate rapid establishment of vegetation.

Figure 2. Location of proposed structures and riparian planting buffer from 30% Preliminary Design set. See Appendix B for full plan set.



The work described above will be accomplished during the in-water work window established by local regulatory agencies and will take place in work areas that are isolated from main Icicle flows and cleared of native fish species during construction. Excavators will work from the shore and within these isolated areas to build engineered log jams with intact rootwads in

areas specified in the plans (see Appendix B: 30% Design). 9 wood structures will be placed across the project area, in 4 different structure type formations. Over-steepened banks will be graded back and FESL placed using excavators working from outside OHW. Riparian plants will be integrated into the structures during construction, and planting of the bank margins and upland areas will take place post-construction by contracted planting crews. Irrigation lines will be installed and tied into the existing irrigation infrastructure on the property to ensure success of the established buffer. A total of 850' of shoreline and an area of 1.1 acres is planned for restoration across a single private ownership.

The Fromm property where the project will occur is ranked as the 5<sup>th</sup> highest priority parcel on the entire Lower Icicle for riparian restoration under the 2018 Riparian Prioritization Report completed by Chelan County Natural Resource Department (CCNRD) with funding from Washington Department of Ecology (CCNRD 2018). It is also one of the top priority recommended actions for restoration in the Lower Icicle Geomorphic Reach Assessment completed by Natural Systems Design in 2017 (NSD 2017). Due to residential encroachment, agricultural utilization, and transportation infrastructure, few opportunities exist in the Wenatchee Basin to restore such a significant stretch of riverfront in an area with documented water quality issues. This implementation project will directly address the 303(d) listings in Lower Icicle of temperature, pH, and dissolved oxygen by increasing riparian shading, reducing nitrogen and phosphorus inputs, and reversing the over-widening and shallowing of the channel. Habitat for ESA-listed species and other aquatic organisms has also been limited in this reach by anthropogenic impacts causing lack of channel complexity, cover, and nutrition. Upon implementation, this project will provide the type of stream margin habitat and deeper channel habitat that has become severely lacking in the Lower Icicle and Wenatchee rivers. This project is part of a bigger-picture restoration strategy in the Icicle watershed that focuses on not only keeping enough water in the Icicle for habitat and human needs, but also ensuring that water can provide the intended benefits in terms of water quality and availability of habitat.

CCNRD staff will oversee all aspects of project management and construction implementation. Hired through the Chelan County formal bid process, contractors will undertake the physical restoration elements. CCNRD will manage environmental and regulatory compliance, construction oversight, public outreach, grant administration, and all other needs related to the project. The expected outcomes of this project are improvements in water quality and habitat in the Lower Icicle and extending into the Wenatchee River, a strengthening of the multi-stakeholder Icicle Strategy, and a greater public awareness of the benefits of aquatic and riparian restoration in the Wenatchee Basin.

## Performance Measures

CCNRD will implement several measures to monitor the success of the project post-implementation. The following list encompasses the primary monitoring tactics that will be established during project implementation.

1. Plots will be established at 3 different locations within the riparian planting buffer. CCNRD has a monitoring protocol that was established under a Shade Monitoring QAPP for WA Department of Ecology funded riparian planting projects. This protocol will be used to monitor plant survival and provide shade benefit metrics.
2. Photo points of the project area will be established before construction. Pre- and post-construction photos will show the immediate benefits provided within the project area, and photos over time will monitor the stability of the structures and provide a metric for bank recession or lack thereof. These photo points will be utilized during high flows to illustrate effectiveness of the structures and bank grading during events that were previously resulting in rapid erosion.
3. Channel depth locations will be established before construction. These repeatable measurements will monitor the depth of the channel over time and portray the water quality and habitat benefits associated with a deeper channel thalweg and scour holes.
4. Snorkel surveys to detect fish presence will occur intermittently in the project area. CCNRD periodically conducts fish count surveys in various locations in the Wenatchee Basin. This project will be included in snorkel survey efforts in the vicinity of the Icicle and lower Wenatchee.

CCNRD has dedicated monitoring staff to implement these measures after the implementation project is complete as part of the department's ongoing monitoring program. This project will be incorporated into the regular project monitoring program for at least 3 years following project implementation.

## Evaluation Criteria

### E.1.1 Evaluation Criteria A – Project Benefits

*Will the project make more water available to meet water needs, or make water available at a more advantageous time or location? If so, how and to what extent?*

Although the project is not specifically a water quantity improvement project, implementation of the project will restore natural processes and floodplain connectivity, contributing to re-timing of the hydrograph and water availability later in the season. The Icicle Strategy includes substantial flow improvement during the summer low flow months to ensure habitat and

multiple water availability needs are met in the Lower Icicle River and downstream in the Wenatchee basin. With the accomplishment of this major effort by the Icicle Work Group, this project will assure that the habitat and water quality in the project area are providing the intended benefits of these target flows. The project will become particularly important with the anticipated impacts of climate change in the area (see Figure 4 below), when the project elements will help provide habitat and water quality during drought conditions. If these habitat and water quality elements don't exist, then the Icicle Work Group's effort to maintain flows during drought cannot achieve their full benefits.

*Will the project result in long-term improvements to water quality? For example, will the project decrease sediment or nutrient pollution, improve water temperature, or mitigate impacts from floods or drought? If so, how and to what extent?*

The project directly addresses water quality impairments identified in the Department of Ecology Total Maximum Daily Load Report for Icicle River and recently received funding from Ecology's 2021 Centennial Clean Water Funding program, ranking 17<sup>th</sup> among all 147 projects statewide (see Appendix D: Ecology Funding Commitment Letter). The Department of Ecology Sediment Reduction Model provides a method to estimate the amount of sediment and nutrients that will not enter the system following measures to reduce erosion rates. Across the 850' project length, with an estimated 80% BMP efficiency, this project stands to reduce sediment inputs into the Lower Icicle by 485.5 tons/year, phosphorus loading by 485.5 tons/year, and nitrogen loading by 971 tons/year.

Historical land use practices in the Icicle watershed over the past century have resulted in degraded aquatic conditions in the lower Icicle that are unable to naturally recover. Clearing of much of the forested floodplain for agricultural and residential purposes has resulted in unstable banks with little root/soil cohesion, lack of wood inputs that historically sustained channel habitats and provided natural bank protection, and lack of shading and cover by overhanging riparian plant species. The presence of the Lamb-Davis Dam and the associated mill pond from 1904-1927 contributed to a sediment deposition area reaching upstream on Icicle river to the project area resulted in unnaturally high, vertical banks when the dam was removed and the river incised vertically through the soft sediment. Additionally, bank armoring of around 60% of the Lower Icicle reach has confined the natural migration of the river, resulting in lack of floodplain access and increased vulnerability of unarmored banks to erosion (NSD 2017).

These conditions are clearly seen on the Fromm property located on the outside meander bend at RM 1 on Lower Icicle. Historically cleared for agriculture, much of the riverfront property lacks riparian vegetation and is subject to rapid erosion (see Figure 3). A line of riprap historically placed on the property was breached in the 1995 100-year flood event and now resides in the middle of the shallow channel about 70' from the current bank (indicating an average bank loss of about 2.8' per year). The heavy sediment loading, lack of riparian vegetation, and widening of the channel are contributing to water quality issues in a reach that has multiple 303(d) listings. This project will result in long-term improvements to the water quality issues identified in the Washington Department of Ecology 303(d) List of Impaired



Waters (Ecology 2016) from the project area to the confluence with the Wenatchee River. Benefits will also extend downstream from the confluence with reductions of sediment and nutrient loading and reduced water temperature.

Figure 3. Photo of active bank erosion on Fromm property

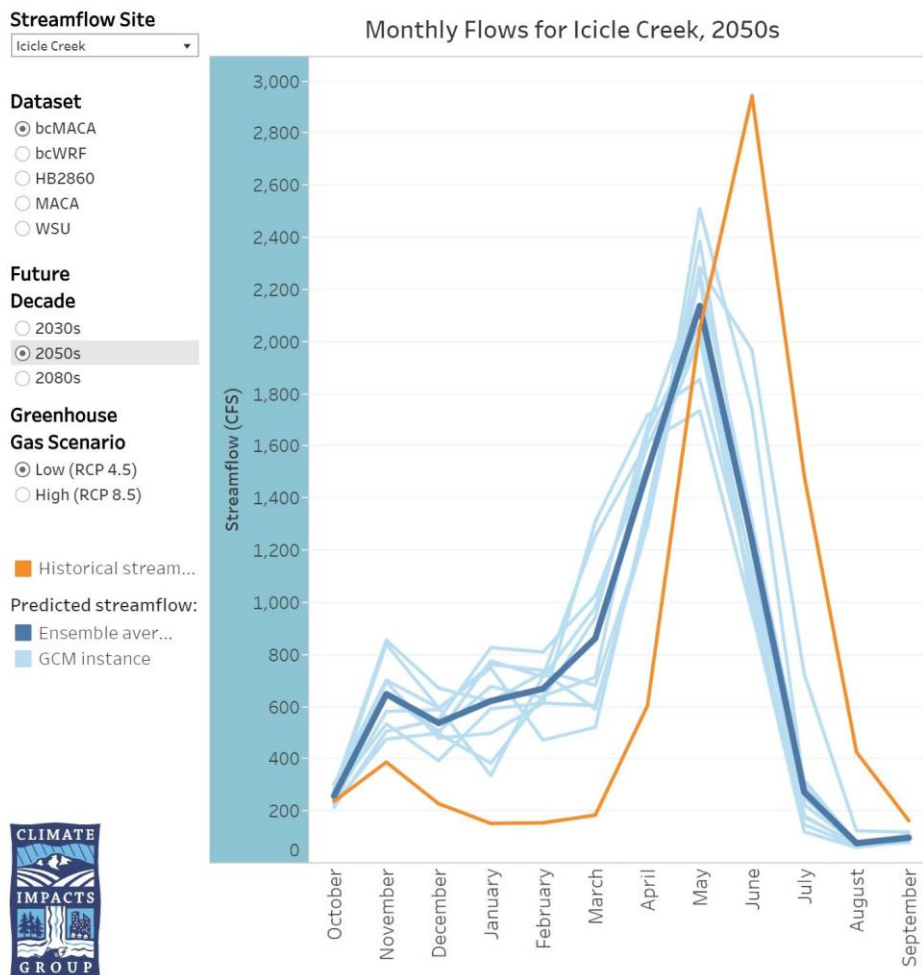


The project area is located in an area with a 303(d) listing for temperature. Lack of riparian shading and widening and shallowing of the channel at the project site are contributing to the temperature issue in the Lower Icicle. According to the 2018 Riparian Prioritization Report completed by CCNRD and funded by Ecology in order to identify parcels with the highest potential benefit to water temperature through riparian restoration, the Fromm parcel ranks 5<sup>th</sup> highest priority in the Icicle watershed for riparian restoration implementation (CCNRD 2018). Few such opportunities exist in the Icicle Basin to restore a large swath of denuded agricultural land, as most landowners are not willing to convert cleared land to riparian buffer. The Fromm family still uses the land for grazing of a small number of cattle and for hay production, but they have agreed to the conversion to riparian buffer and are supportive of the project (see Appendix C: Fromm Family Landowner Letter of Acknowledgement). This project will establish a riparian buffer covering 1.1 acres, with a minimum width of 75' from the OHW. The planting plan includes a variety of native riparian species designed to provide rapid root

establishment and overhanging growth form at and near OHW, and drought tolerant species that will grow to a height that will continue to provide long-term bank stability and shade benefits.

Slowing the rate of lateral migration through this reach will prevent the current widening of the channel which is resulting in a shallow planar bed surface that is subject to more rapid warming than a deeper defined channel thalweg would be. Additionally, scour holes created by hydraulic processes around the installed structures will keep colder pockets within the river matrix. This will become even more important with the anticipated effects of climate change, which are projected to present as earlier and lower peak flows in spring, lower base flows in summer, and higher fall and winter flows resulting from rain-on-snow events. Figure 4 depicts the anticipated hydrograph three decades from now, as modeled by the University of Washington Climate Impacts Group for the Icicle Work Group (Mauger et. al. 2017). This underscores the importance of promoting deeper channel formation and adequate riparian shading. Additionally, fall and winter flood events will likely increase pressure on vulnerable banks, illustrating the need to apply the bioengineered techniques proposed here to increase roughness along the river margins and increase resistance to erosion and bank sloughing.

Figure 4. Climate Impacts Group Hydrograph Modeling for Icicle Creek.

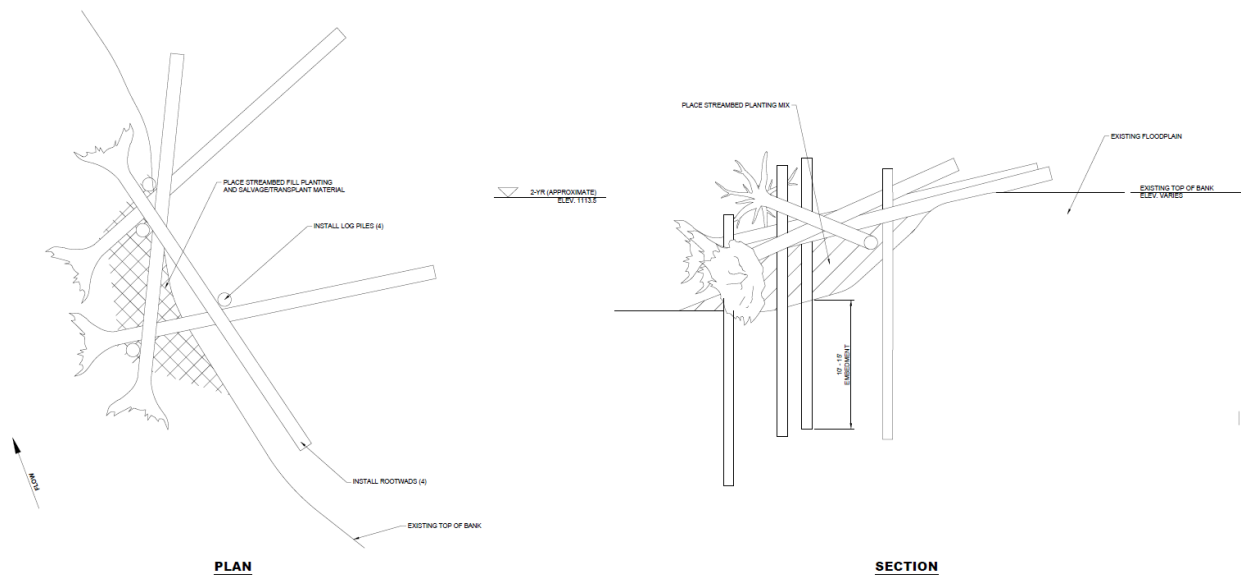


The proposed implementation actions will benefit water quality both in the immediate project vicinity as well as downstream to the confluence of the Wenatchee River and beyond. They are designed to emulate natural conditions in a system that is unable to recover on its own, and should persist into perpetuity as the riparian buffer establishes and is able to provide stability and wood inputs into the system.

*Will the project benefit aquatic or riparian ecosystems within the watershed? For example, will the project reduce flood risk, reduce bank erosion, increase biodiversity, or preserve native species? If so, how and to what extent?*

Along with the water quality benefits outlined above, this project will benefit aquatic and riparian systems within the watershed. Additions of large woody material (LWM) in the channel margin and establishment of a riparian buffer will help restore the aquatic and riparian ecosystems to pre-settlement conditions. Stable accumulations or “key” pieces of large woody material act as hard points in the floodplain that create backwater, promote sediment deposition and pool formation, decrease potential for channel incision, and provide essential cover habitat (NSD 2017). These key pieces are essential to the restoration of habitat-forming processes in lower Icicle Creek, and implementation of the 9 proposed structures in the project area will provide the best channel margin habitat in the lower 3 miles of Icicle River (from the Leavenworth National Fish Hatchery to the confluence with the Wenatchee River).

Figure 5. Proposed LWM Structure Type 1 from Preliminary Project Design



Establishment of the riparian buffer will fill several roles in benefiting aquatic and riparian ecosystems. While the wood structures provide cover and complex pool habitat, the overhanging vegetation integrated into the bank structures will provide additional shade and nutrients in the form of invertebrates and organic material falling into the water. This type of margin habitat is particularly important at the rearing stage for salmonid species when nutrition and cover are crucial for survival. Over time, these plants will mature and begin to senesce, falling into the river to provide ongoing margin complexity while new shoots continue to propagate. The root structure will spread throughout the project area, providing bank stability that is currently lacking in the project area and increasing resistance to floods and bank erosion. Establishment of the riparian buffer will provide the greatest long-term benefits to the Lower Icicle, and the wood structures will give the buffer the protection it needs for early development and maturation.

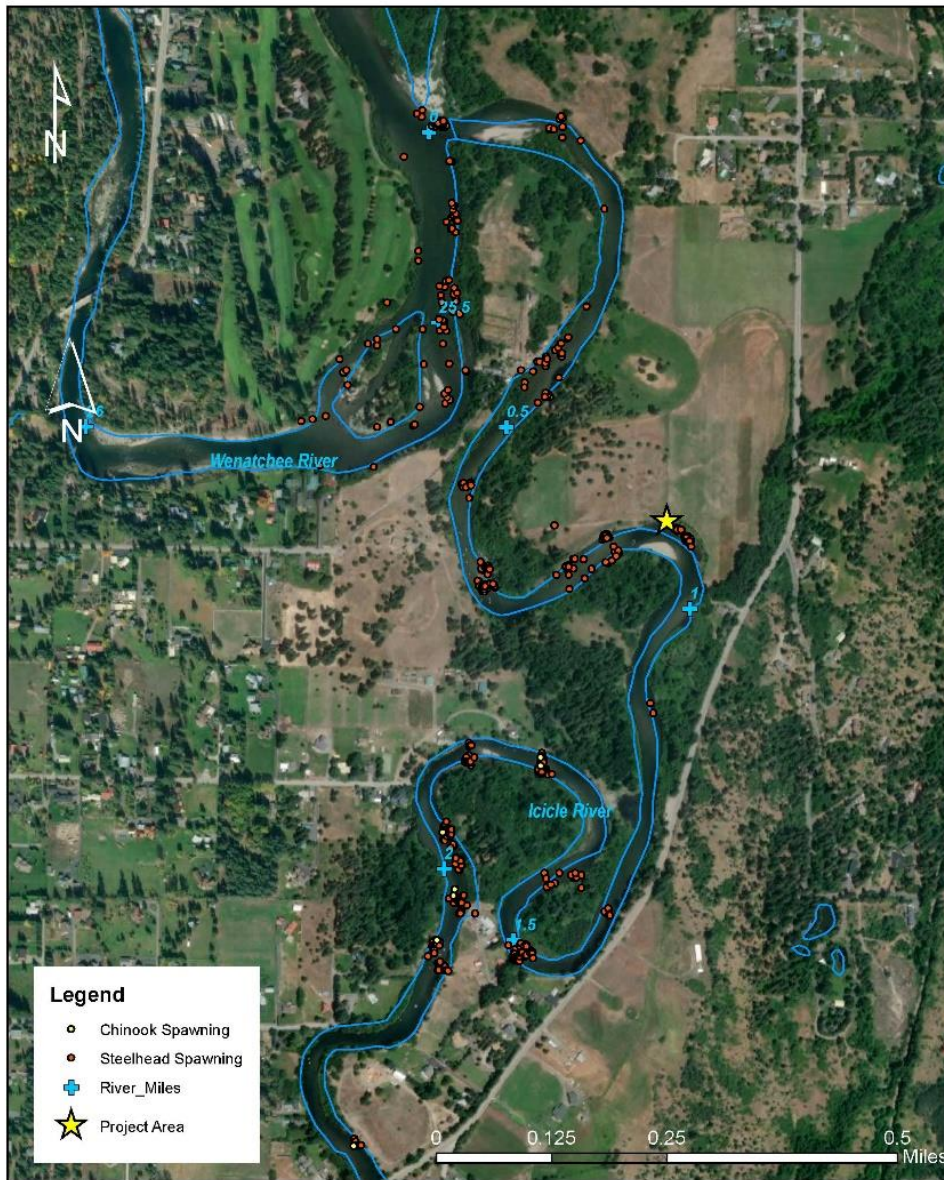
The project will benefit local aquatic and riparian ecosystems, but these benefits will also extend downstream of the project area. Reductions in fine sediment inputs attributed to reduced erosion will improve spawning habitat and egg-fry survival in the spring Chinook and steelhead critical spawning areas located downstream of the project area. Wood inputs from the mature riparian buffer will find their way downstream to help increase channel complexity. Increased shading will help keep water temperatures cool in the Icicle and Wenatchee Rivers.

*Will the project benefit specific species and habitats? If so, describe the species and/or type of habitat that will benefit. How and to what extent will the project benefit the species or habitat? Please explain the status of species and habitat that will benefit (e.g., native species, game species, federally threatened or endangered, state listed, and whether critical habitat has been designated).*

The Lower Icicle River is home to several federally ESA-listed species including spring Chinook (Endangered), Upper Columbia steelhead (threatened), and bull trout (threatened) (WDFW 2020). The reach has been designated as critical habitat for steelhead (NOAA 2020). Spring Chinook and steelhead use the reach for juvenile rearing and adult migration, and is a Major Spawning Area (MaSA) for steelhead (UCRTT 2017). Numerous spawning redds of both species have been documented in the vicinity (Figure 6). However, habitat suitability index modeling completed for the Lower Icicle Geomorphic Reach Assessment showed a low suitability index for juvenile rearing due to lack of cover and connectivity to off-channel habitats (NSD 2017). The Revised Biological Strategy to Protect and Restore Salmon Habitat in the Upper Columbia Region also points to the lack of margin habitat for rearing. According to this report, the primary ecological concern in the Wenatchee assessment unit is the loss of transitional and peripheral habitat due to anthropogenic impacts associated with agriculture, transportation, and residential development (UCRTT 2017).

Figure 6. Lower Icicle Chinook and Steelhead Redds

Spring Chinook and Steelhead Documented Spawning Locations



Chelan County GIS 2020, UCSRB Chinook and Steelhead Spawning Locations 2020 and 2019.

The project elements will improve rearing habitat for spring Chinook and steelhead along 850' of channel margin and will provide a key habitat type that is a limiting factor for salmon recovery in the Wenatchee basin. The sediment reduction impacts of this project will benefit spawning sites downstream from the project area by reducing the inputs of fine sediment that can degrade potential spawning sites and reduce egg-to-fry survival. Additionally, deeper pools and main channel and cooler water will benefit adults of all three listed species as they pass through this area. Other species that utilize the Lower Icicle corridor but are not ESA listed, such as Coho and whitefish, will also benefit from these habitat improvements.

*Will the project benefit multiple water uses within the watershed (e.g., agricultural, municipal, tribal, environmental, recreation uses)? If so, how and to what extent?*

The project will benefit multiple water users and tribal, environmental, and recreational users. The City of Leavenworth municipal water supply well field is located on the Icicle River below the project location and in hydraulic continuity with Icicle River. The project will contribute to improved water quality conditions and less contamination risk to the City water supply. The project will benefit many downstream orchardists with surface water diversions who grow high-value tree fruit, primarily pears. Wenatchee Valley tree fruit growers have universally embraced improved and highly-efficient irrigation systems, primarily through the implementation of micro-sprinklers. These micro-sprinklers are highly susceptible to clogging from sediment inputs; additionally, increasing food safety and sustainability standards nitrogen and phosphorus inputs on-farm. The project will address all of these conditions.

The Lower Icicle River is an increasingly popular destination for water-based recreation and a natural experience in the environment for bird- and wildlife-watching and the surrounding mountainous scenery. The project will improve habitat and native flora and fauna as well as safety by removing hazardous rip-rap. Recreational users will also see the implemented project and river-facing signs illustrating the benefits of riparian and aquatic restoration. Recreational fishing is a large draw to the area and will be supported by improved habitat conditions.

The Wenatchi Band of the Confederated Tribes of the Colville Reservation and the Yakama Nation Tribe both hold tribal fishing rights on the Lower Icicle, dating back to “time immemorial” and the signing of treaties with the US government. The subsistence fishing rights of these tribal members depends on a stable fish population and high-quality habitat to support fish populations.

The environmental benefits of the project are extensive and include the restoration of natural processes, floodplain reconnection, riparian vegetation re-establishment, sediment and nutrient reduction, physical habitat improvement (wood), and livestock exclusion. Outreach planned for this project includes an educational website and on-site signage which will reinforce the importance of aquatic restoration within the community mindset.

*Will the project benefit watershed stakeholders in ways not addressed in the preceding questions? If so, how? Will the project reduce water conflicts within the watershed? Will the project increase resiliency to drought? Will the project provide benefits to other water uses not mentioned above? If so, how and to what extent?*

This project is part of the Icicle Strategy, an integrated and comprehensive strategy to address multiple issues of concern within the watershed. The Icicle Strategy has been developed by the multi-stakeholder Icicle Work Group and is entering the implementation phase of improving water supply for agricultural, hatchery, domestic uses, and instream flows, enhancing fish habitat, and protecting tribal fishing rights. By implementing this project, the entire Icicle Strategy moves toward attaining watershed improvement goals. All of the metrics must

progress together to achieve the overall goals of the Strategy. For example, agricultural water supply must be met, but in-stream flow targets must also be met in order for this project to attain the full benefits of restoration. This comprehensive approach will ensure all stakeholders see benefits from the implementation of the Strategy. This watershed planning effort is described in detail in the next section.

### **E.1.2. Evaluation Criteria B – Watershed Restoration Planning**

*Describe your watershed plan. When was the restoration plan prepared and for what purpose?*

The Icicle Work Group (IWG) was formed in 2012 to develop an integrated, comprehensive water resource management strategy that improves instream flows, meets out-of-stream water needs, such as domestic and agricultural uses, and improves instream uses, such as fish habitat, recreation, and ecosystem processes while protecting tribal treaty and non-treaty fishing interests. Over several years and with input from all stakeholders, including extensive public engagement, the Icicle Work Group developed a set of Guiding Principles and accompanying Metrics by which to measure success. This cooperative effort resulted in the completion of the Final Programmatic Environmental Impact Statement (PEIS) for the Icicle Creek Water Resource Management Strategy (Icicle Strategy) in January 2019. The Final PEIS is available here, <https://www.co.chelan.wa.us/natural-resources/pages/environmental-review>.

*What types of watershed management issues are addressed in the plan? For example, does the restoration plan address water quantity issues, water quality issues, and/or issues related to ecosystem health or the health of species and habitat within the watershed?*

The management objectives for the PEIS are the Guiding Principles developed by the IWG, which are to improve instream flows, improve the sustainability of the Leavenworth National Fish Hatchery, protect tribal and non-tribal fish harvest, improve domestic supply, improve agricultural reliability, enhance Icicle Creek habitat, and comply with State and Federal Law, including the Wilderness Acts and Clean Water Act. Past water management practices in the Icicle Creek Subbasin failed to consistently meet the demand for instream and out-of-stream water uses, including minimum instream flows for fish, municipal and domestic water supply, and agricultural water supply. This has been demonstrated by the minimum instream flows established in Chapter 173-545 WAC not being met, interruptible water users not receiving irrigation water, and litigation over water rights and Leavenworth National Fish Hatchery (LNFH) operations. There are additional issues in Icicle Creek surrounding fish habitat and passage, tribal and non-tribal fish harvest, and sustainable operation of the LNFH. The Icicle Strategy seeks to address all watershed issues, including water quantity, water quality, and aquatic habitat condition in the Icicle watershed.

*Who was involved in preparing the plan? Was the plan prepared with input from stakeholders with diverse interests (e.g., water, land or forest management interests, and agricultural, municipal, tribal, environmental, recreation uses)? What was the process used for interested stakeholders to provide input during the planning process?*

The following groups are members of the Icicle Work Group and were directly involved in preparing the Icicle Strategy.

WA State Dept of Ecology Office of Columbia River  
Chelan Co Board of Commissioners  
Conf Tribes of the Yakama Indian Nation  
WA State Dept of Fish & Wildlife  
Conf Tribes of the Colville Reservation  
Cascadia Conservation District  
Icicle & Peshastin Irrigation District  
USFWS – Leavenworth National Fish Hatchery  
City of Leavenworth  
NOAA Fisheries  
Chelan County  
Cascade Orchard Irrigation Co  
Icicle Creek Watershed Council  
WA Water Trust  
US Forest Service  
Trout Unlimited  
Agricultural Representative Mel Weythman  
Agricultural Representative Daryl Harnden  
City of Cashmere  
US Bureau of Reclamation

To find solutions for water management within the Icicle Subbasin, the Chelan County Natural Resource Department and the Washington State Department of Ecology's Office of the Columbia River (Ecology-OCR) co-convened the Icicle Work Group (IWG) in 2012. The IWG comprises a diverse set of stakeholders representing local, state, and federal agencies, tribes, irrigation and agricultural interests, municipal/domestic water managers, and environmental organizations. A full list of IWG members is listed in the attached IWG Operating Procedures (Appendix E). After several years of identifying the Guiding Principles and defining specific metrics for them, stakeholder coordination, project identification and investigations, the IWG began development of the PEIS as the best way to obtain public input on the Guiding Principles and the best collection of projects that would meet the Guiding Principles. The PEIS was prepared jointly by Chelan County and Ecology-OCR in compliance with Washington's State Environmental Policy Act (SEPA). Public input was obtained during a 90-day SEPA Scoping



comment period and multiple community meetings and public workshops. Several alternatives were developed in response to comments and guidance from the IWG. A draft PEIS was issued in 2018 followed by a 60-day public comment period with a total of 9,981 comments submitted. Following this process, Ecology-OCR and Chelan County selected Alternative 1 as the preferred alternative.

*If the restoration plan was prepared by an entity other than the watershed group, explain why the watershed group did not prepare its own plan. In cases where the applicant did not prepare the restoration plan, the applicant must provide documented support for the proposed project by the entity that authored the plan.*

Washington State Department of Ecology's Office of Columbia River and Chelan County are the co-conveners of the Icicle Work Group. The IWG worked collaboratively to define the Guiding Principles and explore the projects and alternatives evaluated in the PEIS. Ecology and Chelan County entered into a Memorandum of Understanding to act as SEPA co-lead agencies per Chapter 43.21 RCW to conduct the environmental review of the Icicle Strategy.

*Describe how the existing restoration plan provides support for your proposed watershed management project.*

This project is included in Alternative 1, the preferred alternative for the Icicle Strategy (PEIS) and helps address two Guiding Principles: Enhance Icicle Creek Habitat and Comply with State and Federal Law. Alternative 1 includes the implementation of stream restoration projects such as riparian plantings, engineered log jams, to improve stream habitat and ecosystem health. To help guide the identification and development of these projects, the IWG completed the Lower Icicle Creek Geomorphic Reach Assessment. This project is one of the top priority restoration actions recommended in the report (NSD 2017). This project will also help address water quality issues identified in the Wenatchee River TMDL (completed under the Clean Water Act) report by reducing sediment and improving stream temperature conditions.

*Does the proposed project implement a goal or need identified in the restoration plan?*

Yes, this project helps meet the Habitat Enhancement Guiding Principle. Since this project also addresses water quality issues in Icicle Creek, it helps make progress in addressing water quality issues that have been listed on Washington State's 303(d) list under the Clean Water Act.

*Describe how the proposed project is prioritized in the referenced restoration plan.*

The Icicle Strategy is focused on implementing a suite of projects that will collectively meet all of the Guiding Principles. The IWG is ensuring that some progress is being made on all of the guiding principles so no projects are left behind. This effort is to ensure that the needs of all stakeholders will be met. The project being proposed will be the first one to help meet the Habitat Enhancement Guiding Principle and is a high priority for implementation. Additionally,

the project is a top tier project identified in the Lower Icicle Geomorphic Reach Assessment, which was completed for the purpose of identifying and prioritizing restoration projects in the Lower Icicle.

### **E.1.3. Evaluation Criteria C – Stakeholder Support**

*Please describe the level of stakeholder support for the proposed project. Are letters of support from stakeholders provided (see Section D.2.2.9. Letters of Support)? Are any stakeholders providing support for the project through cost-share contributions, or through other types of contributions to the project?*

There is broad support for this project. Extensive public outreach was conducted through SEPA and the development of the Final Icicle Strategy PEIS, and this project was identified through the Icicle River reach assessment. This included community meetings, a formal public hearing, newspaper and radio coverage, and updates to elected officials and other groups. In addition, Chelan County has been conducting regular public outreach to stakeholders throughout Icicle Creek and the surrounding area on natural resource issues for nearly 20 years. Local residents and stakeholders are highly supportive of improving stream habitat in Icicle Creek. One purpose of the Icicle Strategy is to coordinate related activities in the subbasin to achieve greater success. Many of these projects would occur independently but may have interacted in some way. Funding obtained through the Icicle Work Group has been used to design this project. A letter of support is included in this proposal from the co-conveners of the Icicle Work Group, written on behalf of the IWG.

In addition to the stakeholder support for the Icicle Strategy list of projects, this specific project has been reviewed by Washington Department of Fish and Wildlife, US Army Corps of Engineers, Washington Department of Ecology, and Washington Department of Natural Resources, and the Icicle Work Group. Washington Department of Fish and Wildlife has provided a letter of support for the project.

*Please explain whether the project is supported by a diverse set of stakeholders (appropriate given the types of interested stakeholders within the watershed and the scale, type and complexity of the proposed project). For example, is the project supported by entities representing agricultural, municipal, tribal, environmental, or recreation uses?*

The project is well supported by Icicle Work Group members and other stakeholders. The IWG is made of a diverse group including state, local and federal agencies, agricultural and irrigation interests, tribes, and environmental organizations. CCNRD holds a community watershed meeting series bi-annually, and the upcoming Icicle watershed public meeting will provide an opportunity to share project information and get continued feedback from the community. The recreation community in particular will be engaged through a specific outreach effort in 2021 to make recreational users aware of the project plan. As part of the project outreach task specified in the Ecology grant providing partial funding for this project, CCNRD will post project

information on the County website and share the link via public outreach materials and social media. Additionally, over the years CCNRD has actively engaged the Icicle Valley Chapter of Trout Unlimited, a local fishing advocacy and aquatic ecosystem health group. They are supportive of habitat restoration actions in the Lower Icicle and have volunteered on several occasions for riparian planting projects and will likely be involved in implementation. They will help spread the work through the recreational fishing community about project impacts and benefits.

*Is the project supported by entities responsible for the management of land, water, recreation, or forestry within the watershed? Is the project consistent with the policies of those agencies?*

This project is supported by local governments, including Chelan County and the City of Leavenworth, and nearby land managers, including the U.S. Forest Service and Leavenworth National Fish Hatchery. All of these entities are members of the Icicle Work Group. The permitting process will entail a detailed risk assessment that will ensure recreational concerns are addressed. The elements of recreational risk mitigation will include wood placements that act as deflectors rather than strainers, high visibility signage at top of project area, and removal of wood pilings in other places in the river recreation corridor that currently pose significant safety concerns. The permitting process will ensure that the project is consistent with the policies of land management agencies, and the overall project goals are certainly in line with the agency mandates.

*Will the proposed project complement other ongoing watershed management activities by state, Federal, or local government entities, non-profits or individual landowners within the watershed? Please describe other relevant efforts, including who is undertaking these efforts and whether they support the proposed project. Explain how the proposed project will avoid duplication or complication of other ongoing efforts.*

The Icicle Strategy is a comprehensive approach to watershed management in the Icicle Basin. Watershed management activities are primarily focused through this group, which prevents duplicative efforts by multiple groups. There are several restoration entities interested in working in the Icicle Basin, and the Icicle Work Group acts as a central hub to help coordinate various efforts. Additionally, all local restoration entities collaborate to prioritize projects for Salmon Recovery Funding, again helping to avoid redundant funding requests. Currently, Trout Unlimited is working on a large-scale fish passage project upstream of the fish hatchery, Cascadia Conservation District is working on water quality outreach and education and riparian planting in the Icicle watershed, and Yakama Nation is assessing potential for a groundwater gallery downstream of the project area. These efforts all compliment the proposed project and do not pose any conflicts.

*Is the project completely or partially located on Federal land or a Federal facility? If so, explain whether the agency supports the project, whether the agency will contribute toward the project, and why the Federal agency is not completing the project?*

This project will occur on private land. As noted above, this project is an integral part of the Icicle Strategy which is a comprehensive water management plan. One purpose of this Strategy is to ensure that projects move forward in a way that is coordinated among all entities involved.

*Is there opposition to the proposed project?*

There is no opposition to this project.

#### E.1.4 Evaluation Criteria D – Readiness to Proceed

##### Implementation Plan

Design and permitting for this project are funded through current Ecology and Icicle Work Group grants, and are underway with 60% design in development and regulatory agencies engaged. Final designs, permitting, and cultural resource review will occur outside of the proposed construction budget and schedule from January-September 2021. These milestones will ready the project for implementation with the BOR, Ecology, and Icicle Work Group funds outlined in the project budget, beginning in late 2021. Under the proposed budget and schedule, CCNRD will work through environmental and regulatory compliance, bidding process, contractor selection, and implementation of restoration elements in 2022. Restoration work will be complete by the end of 2022, with final billing and reporting completed by January 2023.

Table 1. Implementation Plan

Task	Milestone	Completion Date
Development of 60% Preliminary Permit-ready Designs with input from regulatory agencies	60% Design	Dec. 15, 2020
Complete Section 106 Cultural Resource Compliance	Cultural Resource Compliance	May 15, 2021
Complete Final Design	Final Design	July 15, 2021
Secure all required permits (WDFW HPA, ACOE NWP 27, Ecology 401, DNR Aquatic Lands Program Restoration Permit)	Permits secured	Sept. 15, 2021
Complete BOR Environmental and Regulatory Compliance	Project in compliance with fed. requirement	Nov. 15, 2021
Complete Bid Package	Ready to Advertise	Dec. 15, 2021
Advertise project and award contractor bid	Bid Awarded	April 15, 2022
Conduct community outreach about restoration project	Outreach complete	June 15, 2022
Construction of large wood elements, moving of riprap, and bank work to reduce angle and stabilize/plant	In-water construction complete	August 15, 2022
Riparian buffer planting and installation of irrigation infrastructure	Riparian Planting Complete	Oct. 15, 2022
Project complete, including billing and grant reporting	Project Complete	Jan. 30, 2023

completed under current grant sources; not included in project budget

*The project budget outlining costs for specific tasks (required in Section D.2.2.5. Project Budget) should identify costs associated with the tasks in your project schedule, and all contractor costs should be broken out to identify the specific tasks included in those costs.*

The project budget is described in detail in the Project Budget section.

*Describe any permits and agency approvals that will be required, along with the process and timeframe for obtaining such permits or approvals.*

This project will require a variety of state and federal permits and local authorizations. All permitting will occur outside of the proposed project budget and will be complete prior to initiate of implementation under this proposal. A list of the required permits and timeframe for obtaining them is as follows:

- US Army Corps of Engineers Nation Wide 13 Permit. This permit covers fill within OHW, and included federal ESA consultation and Section 106 consultation. This can take up to 8 months to obtain following JARPA submission- expected issuance is September 2021.
- Washington Department of Ecology 401 Water Quality Certification authorization. This is completed as part of the Nation Wide permit but authorization will come directly from Ecology- expected issuance is September 2021.
- Washington Department of Fish and Wildlife Hydraulic Project Approval. This is issued by local habitat specialists after a 45-day review period- expected issuance February 2021.
- Washington Department of Natural Resources Aquatic Use Authorization. This authorization is required for restoration projects on land below OHW where DNR asserts authority, and requires a risk analysis. CCNRD will reference the Bureau's Risk-Based Design Guidelines when conducting public outreach and completing the DNR Risk Assessment Checklist. Expected issuance June 2021.
- Chelan County Shoreline authorization- this project is a Fish Habitat Exemption Project and we show no-rise flood impacts to satisfy FEMA NFIP requirements so a Shoreline Development Permit is not required, but the County will review the package and is expected to concur.

*Identify and describe any engineering or design work performed specifically in support of the proposed project, or that will be performed as part of the project. Priority will be given to project that are further along in the design process and ready for implementation.*

CCNRD is working with David Evans and Associates, Icicle Work Group, Washington Department of Fish and Wildlife, Ecology, and the property owners to develop the restoration design for this project. 2D hydraulic modelling was completed as part of the preliminary design development, showing that the proposed elements will achieve the intended benefits. 30% preliminary

designs are currently under review by regulatory agencies, and 60% permit ready designs are expected to be complete by December 2020 (see Appendix B: 30% Design). Current funding outside of the proposed project budget will carry through to final design. Upon initiating the project with BOR funding, the project will be ready for implementation with final design and permitting complete.

*Does the applicant have access to the land or water source where the project is located? Has the applicant obtained any easements that are required for the project? If so, please provide documentation. If the applicant does not yet have permission to access the project location, please describe the process and timeframe for obtaining such permission.*

Access to the property has been granted by the Fromm family who owns the land (see Appendix C: Landowner Acknowledgement). CCNRD has worked extensively with the Fromm family during design development. The family is fully in support of the project.

*Has the applicant included an amount equal to 5 percent of the total project costs in their project budget to cover costs associated with environmental and cultural resource compliance (see Section 2.2.5. Project Budget for additional information)?*

Yes, 5 percent of the total project costs for environmental and cultural compliance is included in the total project budget.

#### **E.1.5. Evaluation Criteria E – Performance Measures**

The plan to establish monitoring protocol and measure progress and effectiveness of the project into the future is described in the Performance Measures section of the technical project description. CCNRD has dedicated monitoring staff and established QAPPs for implementing the performance measures as described, and plans to integrate them into our annual monitoring plan for at least 3 years following project implementation.

#### **E.1.6. Evaluation Criteria F – Department of the Interior and Bureau of Reclamation Priorities**

##### *Department of the Interior Priorities*

This project addresses the following Department of Interior Priorities:

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt*
  - a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment*

The Icicle Work Group uses science as the foundation of the Guiding Principles and to set water supply goals in the face of climate change. This project draws on other science-based resources as well, such as the Upper Columbia Regional Technical Team's Revised Biological Strategy (UCRTT 2017), and Ecology's Water Quality Assessment 303(d) list.

*e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands*

This project offers the opportunity for the Department of the Interior, through the BOR WaterSMART competitive funding program, to foster relationships with the Icicle Work Group, which is a conservation organization advocating for balanced stewardship of public lands and resources. Much of the work covered under the Icicle Strategy occurs on US Forest Service lands in the upper watershed, and the balanced approach to water supply and habitat protection taken by the Work Group aligns well with Department of Interior priorities.

*3. Restoring trust with local communities*

- a. Be a better neighbor with those closest to our resources by improving dialog and relationships with persons and entities bordering our lands*
- b. Expand the lines of communication with governors, state and natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, tribes, and local communities*

The Icicle Work Group provides an open line of communication between all entities listed in this priority item. This project will provide a connection between the Department of Interior and the local stakeholders involved in the Work Group.

*4. Striking a regulatory balance*

- b. Ensure that ESA decisions are based on strong science and thorough analysis.*

This project will provide habitat for ESA listed species through a scientific process of project selection via habitat site suitability index modeling, and scientific review by the National Marine Fisheries Services through the federal ESA consultation process.

*Bureau of Reclamation Priorities*

*1. Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities*

The Icicle Work Group strives to address issues of water supply, storage, and reliability through a non-regulatory stakeholder group backed by land management agencies and invested entities such as the Icicle-Peshastin Irrigation District.

*2. Streamline Regulatory Processes and Remove Unnecessary Burdens to Provide More Water and Power Supply Reliability*

*3. Leverage Science and Technology to Improve Water Supply Reliability to Communities*

As mentioned previously, the Icicle Work Group bases its Guiding Principles and metrics on sound science. Detailed studies have been conducted to assess water storage capacity within the Icicle Subbasin, and review alternatives for ensuring adequate water supply for all needs including agricultural, domestic, and instream flow.

*4. Address Ongoing Drought*

One of the significant studies completed for the Icicle Work Group by the University of Washington Climate Impacts Group was the Climate Impact Study for the Icicle watershed. This study identified issues with future water supply and instream flow, and provides a basis for decision-making in light of ongoing and future drought conditions.

*5. Improve the Value of Hydropower to Reclamation Power Customers*

*6. Improve Water Supplies for Tribal and Rural Communities*

The Icicle Strategy Guiding Principles include protection of tribal and non-tribal fish harvest, and improvement of domestic supply and agricultural reliability. Much of the Icicle subbasin and the downstream agricultural areas are rural and depend on reliable water supply from the Icicle River. The Icicle Work Group seeks to reliably meet these needs while also balancing other needs in the subbasin.

*7. Implementation of new Title Transfer authority pursuant to P.L. 116-9*

## **Project Budget**

### **1. Funding Plan and Letters of Commitment**

The funding for this project will be a cost-share effort between BOR, Washington Department of Ecology, and the Icicle Work Group. The BOR funding request represents 45% of the total project cost, placing it well within the threshold of a 50% cost share. Ecology is providing \$174,439 for project implementation through a 2021 Centennial Water Quality grant (see Appendix D: Ecology Centennial Funding Commitment Agreement). These funds will be available upon signing of the agreement, which is expected to occur in December 2020. The grant is valid through 2023. The remaining funding is pending through the Icicle Work Group. The amount requested from Icicle Work Group is \$106,596 and will be evaluated under the new biennial budget in 2021. This amount is earmarked in the Icicle Work Group 2021 Biennial



Budget and is expected to be approved by the Work Group in early 2021. A funding commitment letter will be available at that time. Please see Appendix G: Icicle Work Group Letter of Support for indication of commitment to project cost share.

Environmental compliance and cultural resource review work is currently being completed by CCNRD staff under separate funding. Some of this work may fall under the project proposal and may be incurred prior to project award. If so, the costs would fall under the 5% Regulatory and Environmental Costs line item required by BOR, and would not exceed \$12,164, or 50% of the line item cost.

## 2. Budget Proposal

**Table 2. Project Total Cost**

SOURCE	AMOUNT
Costs to be reimbursed with requested BOR funding	\$229,901
Value of matching grants from WA Ecology Centennial Water Quality	\$174,439
Value of matching funds commitment from Icicle Work Group	\$106,596
<b>TOTAL PROJECT COST</b>	<b>\$510,891</b>

**Table 3. Detailed Budget**

BUDGET ITEM DESCRIPTION	UNIT COST	QUANT.	TYPE	TOTAL
<b>Staff Wages</b>				
Project Manager	\$38.70	120	Hour	\$4,644.00
Construction Officer	\$38.70	240	Hour	\$9,288.00
Construction Assistant	\$37.56	200	Hour	\$7,512.00
Chief Accountant	\$34.94	80	Hour	\$2,795.20
Program Director	\$47.04	80	Hour	\$3,763.20
<b>Benefits</b>				
Project Manager	\$16.01	120	Hour	\$1,921.20
Construction Officer	\$14.41	240	Hour	\$3,458.40
Construction Assistant	\$14.75	200	Hour	\$2,950.00
Chief Accountant	\$15.23	80	Hour	\$1,218.40
Program Director	\$17.03	80	Hour	\$1,362.40
<b>Travel</b>				
Trips to Site	\$25.30	40	Trip	\$1,012.00
<b>Equipment</b>				
<b>Supplies and Materials</b>				
<b>Construction Contract</b>				
Mobilization & Demobilization	\$16,180.00	1	Lump Sum	\$16,180.00
Surveying	\$11,740.00	1	Lump Sum	\$11,740.00
High Visibility Safety Fence	\$6.50	500	Lump Sum	\$3,250.00

Construction Staging Area	\$0.15	40000	Sq. Feet	\$6,000.00
Repair Temp Access and Haul Routes	\$2,360.00	0.75	Acre	\$1,770.00
Protect Landowner Infrastructure	\$3,494.00	1	Lump Sum	\$3,494.00
Salvage and Extend Split Rail Fence	\$10.15	950	Lin. Feet	\$9,642.50
Dewatering	\$12,300.00	1	Lump Sum	\$12,300.00
Bulk Bag Site Isolation	\$3,543.00	3	Each	\$10,629.00
Floodplain Grading	\$2.01	8000	Cub Yard	\$16,080.00
Log Rootwad Barb Structure - Type 1	\$8,388.00	3	Each	\$25,164.00
Log Rootwad Barb Structure - Type 2	\$3,900.00	2	Each	\$7,800.00
Log Rootwad Barb Structure - Type 3	\$3,300.00	3	Each	\$9,900.00
Log Rootwad Barb Structure - Type 4	\$2,700.00	1	Each	\$2,700.00
Fabric Encapsulated Soil Layer (FESL)	\$60.30	100	Lin. Feet	\$6,030.00
Erosion and Water Pollution Control	\$1.00	7500	Lump Sum	\$7,500.00
Permanent Seeding - Low and High Bank	\$3,000.00	0.5	Acre	\$1,500.00
Permanent Seeding - Floodplain and Upland	\$1,500.00	1.7	Acre	\$2,550.00
Straw Mulch	\$250.00	50	Ton	\$12,500.00
36" Live Stake	\$4.00	2000	Each	\$8,000.00
Treepot Native Plant	\$14.00	1000	Each	\$14,000.00
Deepot Native Plant	\$12.00	1000	Each	\$12,000.00
10 C.I. Plug Native Plant	\$4.00	2500	Each	\$10,000.00
Wood Chip Mulch	\$12.00	800	Cub Yard	\$9,600.00
Pile Logs (12 to 15-in x 25-ft)	\$600.00	31	Each	\$18,600.00
Structure Logs (18 to 24-in x 50-ft)	\$800.00	15	Each	\$12,000.00
Rootwad Logs (24-in dia x 50-ft)	\$1,400.00	29	Each	\$40,600.00
Boulder Cluster	\$526.00	7	Each	\$3,682.00
Irrigation Materials and Installation	\$20,000.00	1	Lump Sum	\$20,000.00
Contingency			20%	\$67,955.79
Sales Tax			8.20%	\$33,434.25
<b>Engineer Contract</b>				
Construction Inspection	\$2,200.00	10	Day	\$22,000.00
Bid Support	\$2,500.00	1	Lump Sum	\$2,500.00
<b>Indirect</b>				
20.5% approved indirect rate		20.50%	Wages	\$5,536.80
<b>Project Total</b>				<b>\$486,538</b>
<b>5% Environmental and Regulatory Compliance Costs</b>				<b>\$24,328</b>
<b>Project Cost</b>				<b>\$510,891</b>

### 3. Budget Narrative

The budget above was built from estimations of construction materials, contractor costs, and staff time needs for similar projects recently completed by the department. Specifically, CCNRD completed a large-scale restoration project in the Entiat watershed in 2020, and the actual costs of this project provided current construction project estimates.

Staff costs for project administration and construction inspection comprise just under 10% of total project cost. 10% of project cost is a standard amount for administrative costs for CCNRD

projects and has proven over years of successful project implementation to be appropriate. The indirect rate included in the project budget is the Chelan County indirect rate of 20.5% of staff wages (not including benefits). Staff identification and project roles are as follows:

**Project Manager:** Erin McKay, Senior Natural Resource Specialist. Erin will manage the grant budget, ensure environmental and cultural resource compliance, assist with development of bid specifications, coordinate with project engineer, manage project schedule, and complete project reporting including final project and evaluation.

**Construction Officer:** Pete Cruickshank, Senior Natural Resource Specialist. Pete is a construction manager by training and will complete the County process of bid advertisement, contractor selection, bid award, and construction oversight.

**Construction Assistant:** Matt Holland, Natural Resource Specialist. Matt is a monitoring specialist and will assist with environmental compliance during construction, implementation of monitoring protocol, and other tasks related to project construction.

**Chief Accountant:** Sofia Bjorklund. Sofia will manage reimbursement requests and other financial requirements associated with multiple grant sources.

**Program Director:** Mike Kaputa. Mike will oversee project and coordinate public outreach.

The travel rate represents round-trip travel from Department headquarters in Wenatchee, WA to the project site near Leavenworth, WA (44 miles). An estimation of 40 trips during construction covers two staff traveling to the site 5 days a week for 4 weeks.

There are currently no budget items for equipment or supplies. We expect to include all equipment and supplies under contracted services (ex: planting supplies, irrigation equipment). However, if significant cost savings are noted, we may work with funders to approve equipment purchases to provide items outside of contracted services.

Contractors will be utilized for construction of project elements and associated tasks, and for riparian planting. CCNRD will use the official County bidding process to select contractors. Under this process, bids are publicly advertised, a mandatory pre-bid walkthrough is arranged with potential contractors, and the low bidder is selected and, provided all administrative requirements are met, awarded the contract.

The suggested 5% of total project cost for environmental and regulatory compliance costs has been added to the project budget. We expect much of the compliance should be complete through the federal nexus of US Army Corps of Engineers permitting, but it is understood that additional coordination will occur for BOR to adopt compliance and additional work may be required from CCNRD to facilitate this process.

## Required Permits or Approvals

Required permits and approvals are discussed under E.1.4. Evaluation Criteria D—Readiness to Proceed.

## Documentation in Support of Application Eligibility

Chelan County Natural Resource Department is applying on behalf of, and as the fiscal agent of, the Icicle Work Group. Chelan County co-convened the Icicle Work Group with Ecology in 2021, and is responsible for administration and funding management of the stakeholder group. Please see Appendix E: Icicle Work Group Operating Procedures for a description of the purpose, members, and ultimate goals of this non-regulatory grass-roots entity. A complete membership list is included as Appendix A of the Operating Procedures. Appendix G of this proposal provides a letter of support from the Icicle Work Group for this project and for the fiscal management of grant funding secured through this proposal by Chelan County Natural Resource Department.

The Icicle Work Group has developed a set of Guiding Principles that provide a comprehensive water resource management strategy (also called the Icicle Strategy). These Guiding Principles are aimed at achieving reliable water supplies for all users as well as adequate in-stream flows for aquatic ecosystems. A list of projects needed to fully implement and achieve the goals of the Guiding Principles was developed and a Final Programmatic Environmental Impact Statement was recently completed to evaluate the impacts of implementing these measures. The full PEIS can be viewed here: <https://www.co.chelan.wa.us/natural-resources/pages/environmental-review>. The Guiding Principles are found in the Icicle Work Group Operating Procedures (Appendix E). This project falls under Guiding Principle 6: Improves ecosystem health including protection and enhancement of aquatic habitat. This project also addresses Guiding Principle 1 by providing the channel formation and function that will be directly benefit the in-stream flow targets. This project also fits into the project list included here under Appendix F, under the project description of “riparian plantings, engineered log jams, conservation easements, and other habitat projects”. The Final PEIS, Guiding Principles, and project list serve as the Icicle Work Group Watershed Plan, and describe the multi-faceted approach to sustainable water resources benefiting all stakeholders in the Icicle Basin.

The Icicle Work Group holds quarterly Icicle Work Group Meetings, with monthly steering committee meetings between meetings. As viewed on the Chelan County Icicle Work Group website, the 2021 quarterly meeting schedule is as follows:

## Meeting Schedule:

January 14th, 2021 12:30-3:30 PM via WebEX - Icicle Work Group Meeting

April 8th, 2021 12:30-3:30 PM via WebEX - Icicle Work Group Meeting

July 8th, 2021 12:30-3:30 PM via WebEX - Icicle Work Group Meeting

October 14th, 2021 12:30-3:30 PM via WebEX - Icicle Work Group Meeting

## Letters of Support

Along with the support expressed in the Icicle Work Group letter (Appendix XX), Washington Department of Fish and Wildlife (WDFW) has also reviewed the project and provided a letter of support for the goals and methods of this proposed project. Washington Department of Fish and Wildlife is a state regulatory agency that evaluates and permits in-stream projects based on their expected benefits to habitat and water quality. WDFW staff have visited the project site and reviewed proposed designs, and fully support the proposed project (see Appendix H: WDFW Letter of Support).

**Official Resolution**

**Resolution No. 2020- | 14**

**RE: Resolution supporting Chelan County application to the US Bureau of Reclamation WaterSMART Cooperative Watershed Management Program Phase II on behalf of the Icicle Work Group for the Lower Icicle Creek Water Quality Improvement Implementation Project**

WHEREAS, the Icicle Creek watershed in Chelan County, Washington, has a number of critical resource needs for water quality, water quantity and habitat improvement and protection; and

WHEREAS, the Icicle Work Group was formed in 2012 to develop an integrated water resource management strategy addressing water quality, water quantity and habitat improvement and protection through collaboration and the cooperation of federal, state and local agencies; tribes; interest groups; irrigation districts; and other interested parties; and

WHEREAS, Chelan County acts as the fiscal agent for the Icicle Work Group;

WHEREAS, the Chelan County Natural Resources Department has the capability to provide the funding and in-kind contributions specified in the funding plan;

NOW, THEREFORE, BE IT RESOLVED that:

1. The Chelan County Natural Resource Director is authorized to make formal application to the U.S. Bureau of Reclamation for grant assistance and enter into a funding agreement;
2. The Chelan County Natural Resources Director has reviewed the application on behalf of Chelan County and supports the submittal of the application submitted; and
3. Chelan County certifies that the matching funds and in-kind support indicated in the grant application shall be provided if the grant application is successful;
4. The Natural Resource Director and staff will work with the U.S. Bureau of Reclamation to meet established deadlines for entering into a financial assistance agreement; and
5. This resolution becomes part of the grant application.


Dated this 9<sup>th</sup> day of November, 2020


BOARD OF CHELAN COUNTY COMMISSIONERS


ATTEST: CARLYE BAITS

  
Clerk of the Board



  
DOUG ENGLAND, CHAIRMAN

  
BOB BUGERT, COMMISSIONER

  
KEVIN OVERBAY, COMMISSIONER

## References

CCNRD (2018). Wenatchee River Riparian Prioritization Report. Chelan County Natural Resource Department and Confluence Environmental. Available at: <https://www.ucsr.org/mdocs-posts/ccnrd-wenatchee-river-riparian-prioritization-final-report-june-2018/>

Ecology (2016). 305(b) Report and 303(d) List of Impaired Waters for the State of Washington, Approved by U.S. Environmental Protection Agency on July 22, 2016. Accessed November 2020 at <https://apps.ecology.wa.gov/ApprovedWQA/ApprovedPages/ApprovedSearch.aspx>.

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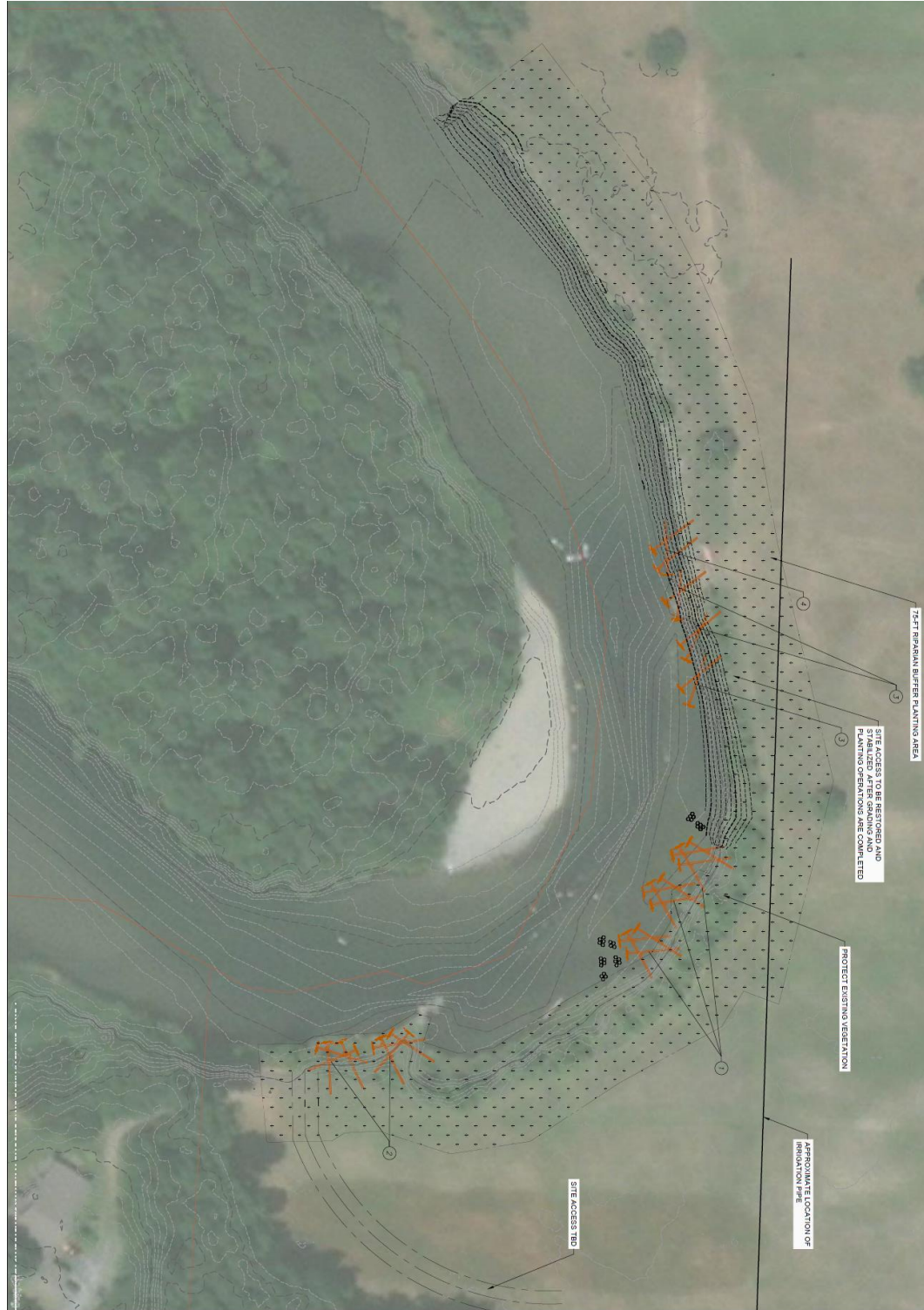
WDFW (2020). Salmonscape mapping application, accessed at <https://apps.wdfw.wa.gov/salmonscape/>. November 2020.

# Appendix A: Watershed Map





**Appendix B: Project 30% Designs**



REVIEWED BY:		REVIEW BY:		DATE:		DATE:	
NO.	DATE	REVISION	BY:	CK:	DATE	DATE	DATE

**PRELIMINARY**

60%

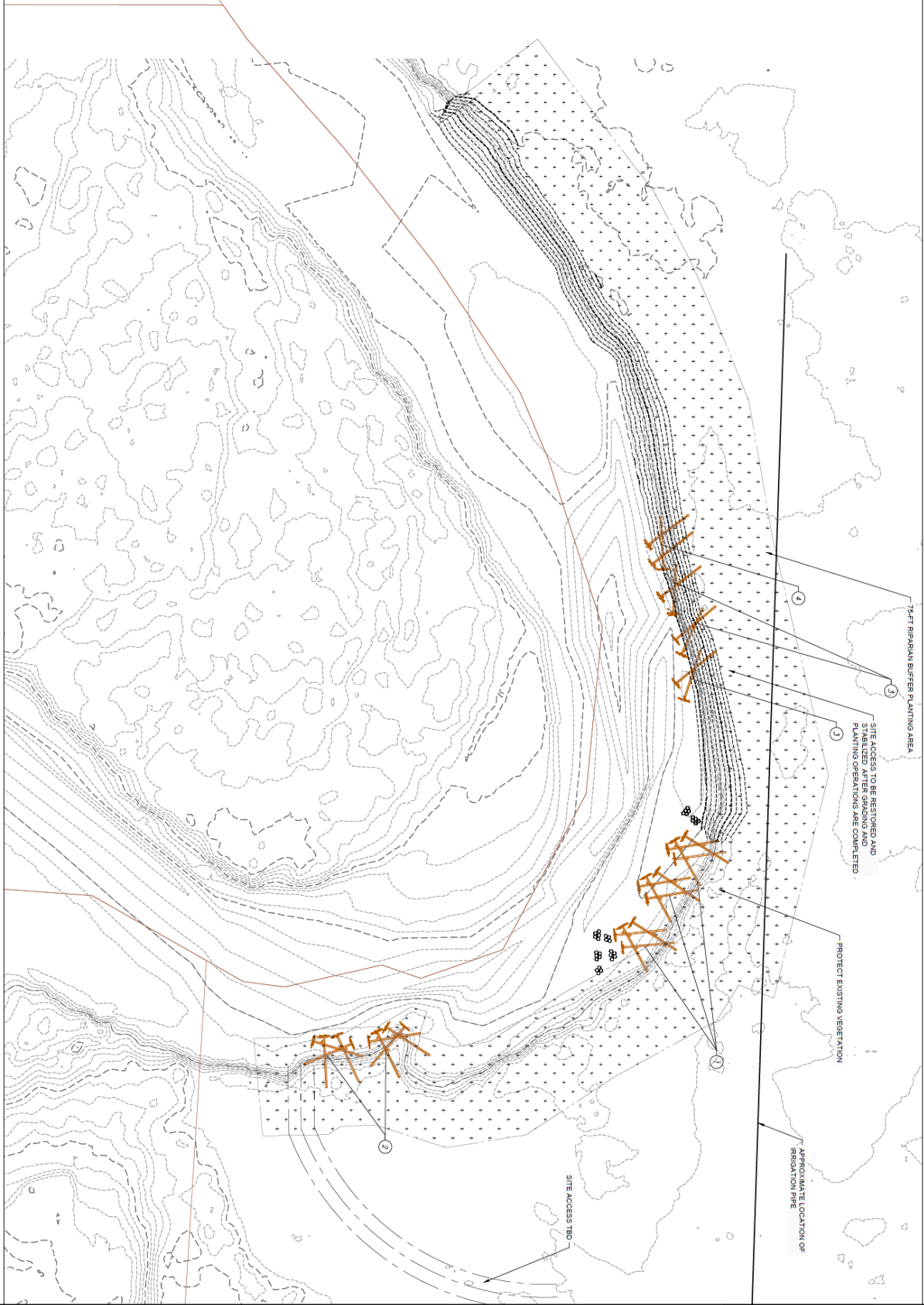
**LOWER ICICLE CREEK SEDIMENT REDUCTION AND RIPARIAN FROMM PROPERTY**

CHELAN COUNTY NATURAL RESOURCE DEPARTMENT

**BARB LAYOUT PLAN**

CHELAN, WASHINGTON WA

**DAVID EVANS AND ASSOCIATES INC.**  
 2010 1st St  
 Chelan, WA 98820  
 Phone: 360.688.0000



**PRELIMINARY**

REVIEWED BY: REVIEW BY		DATE	DATE
NO.	DATE	REVISION	BY
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**LOWER ICICLE CREEK SEDIMENT REDUCTION AND RIPARIAN FROMM PROPERTY**

CHELAN COUNTY NATURAL RESOURCE DEPARTMENT  
**BARB LAYOUT PLAN**

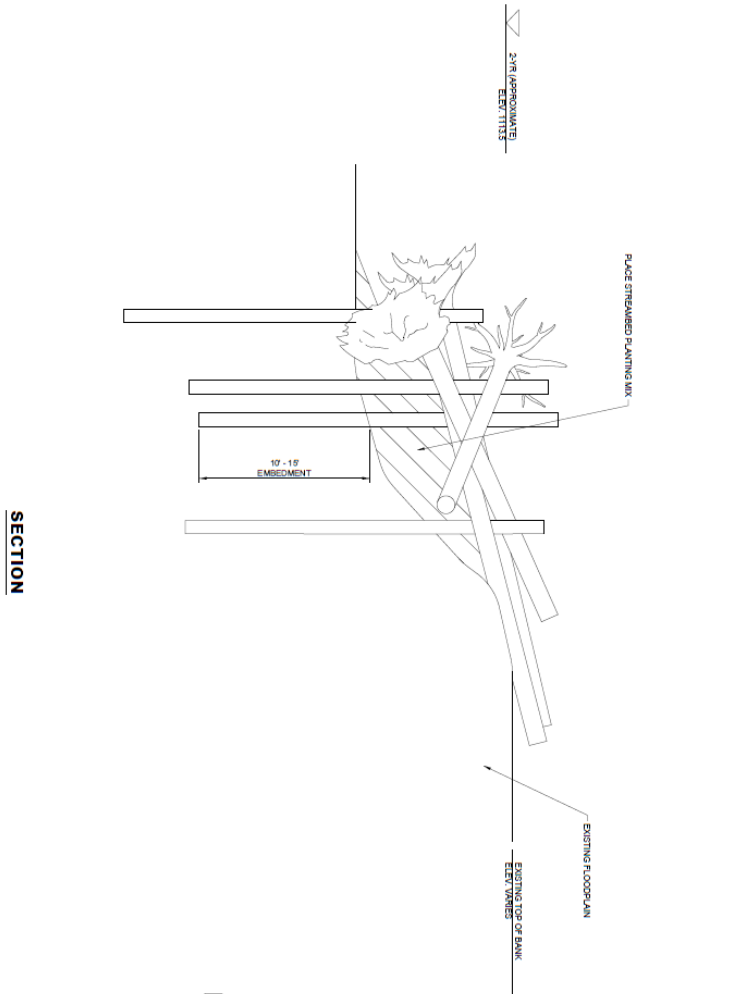
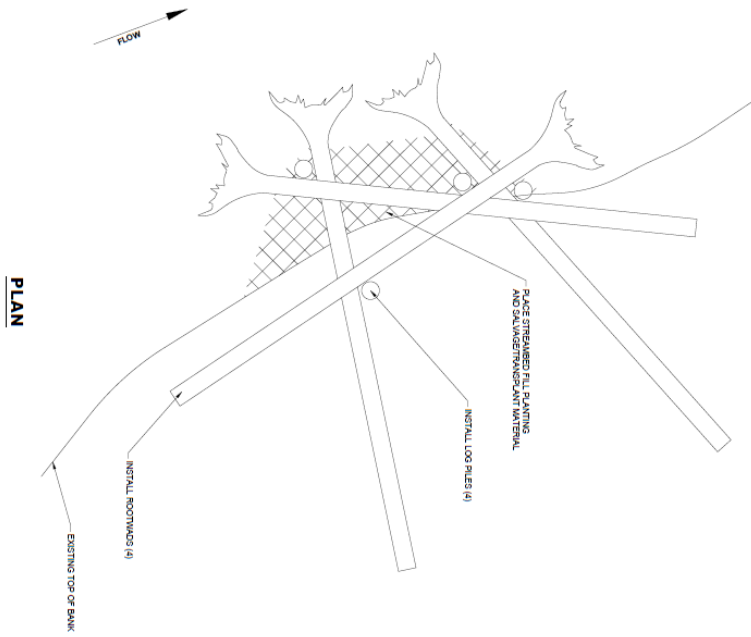
CHELAN, WASHINGTON

WA

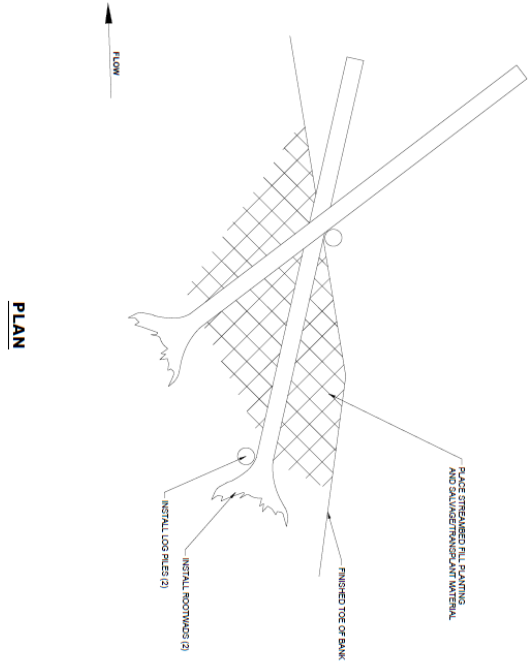
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 City State Zip Code  
 Phone XXXXXX-XXXX



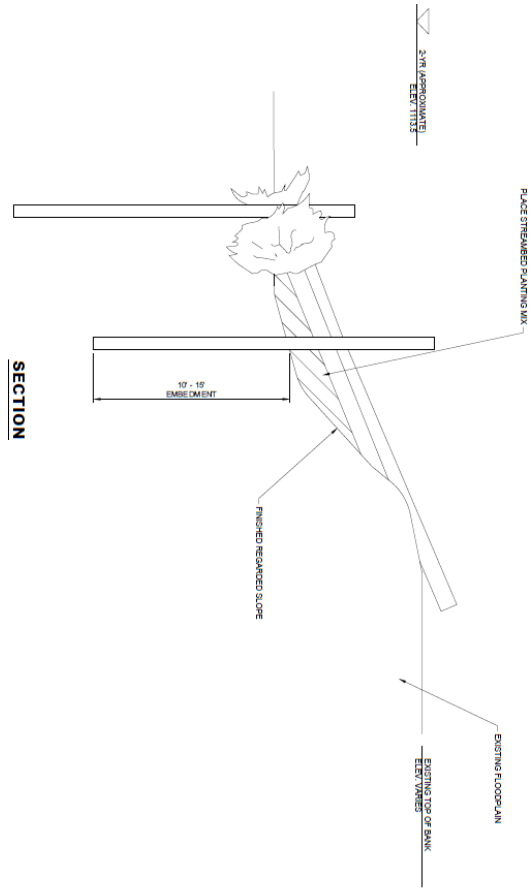
2 LOG ROOTWAD BARR STRUCTURE



3 LOG ROOTWAD BARR STRUCTURE

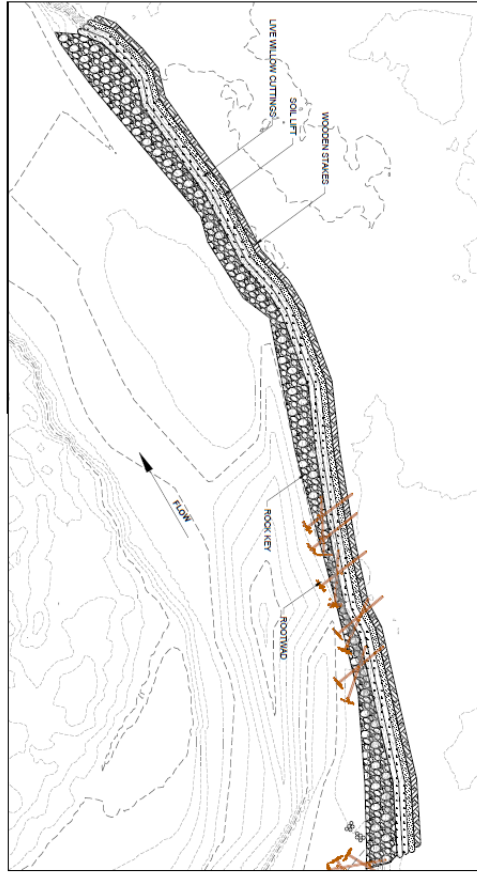


PLAN

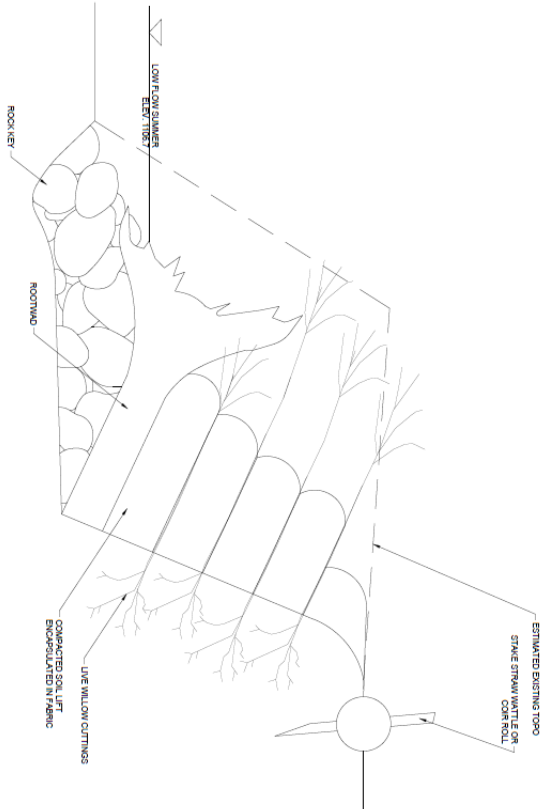


SECTION

1 ENCAPSULATED SOIL LIFTS



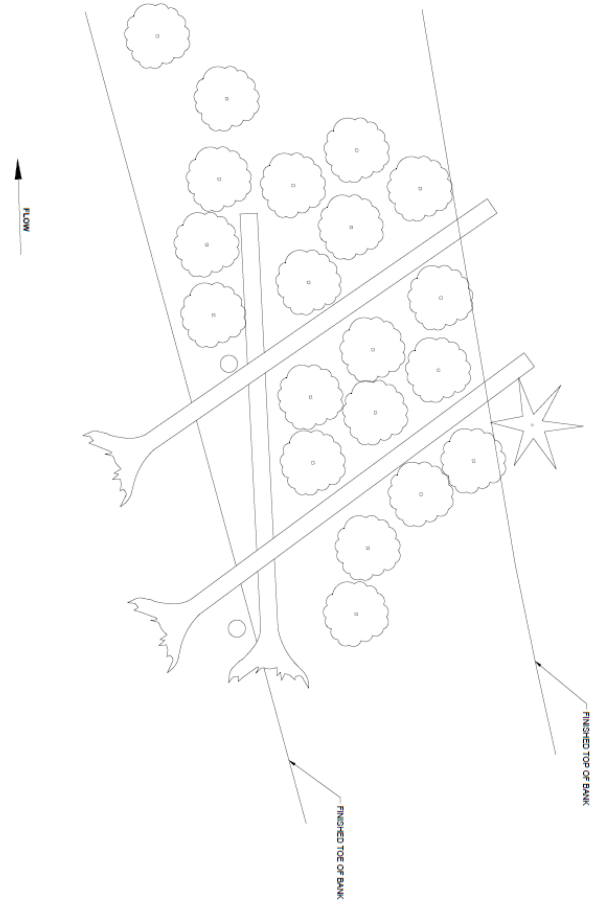
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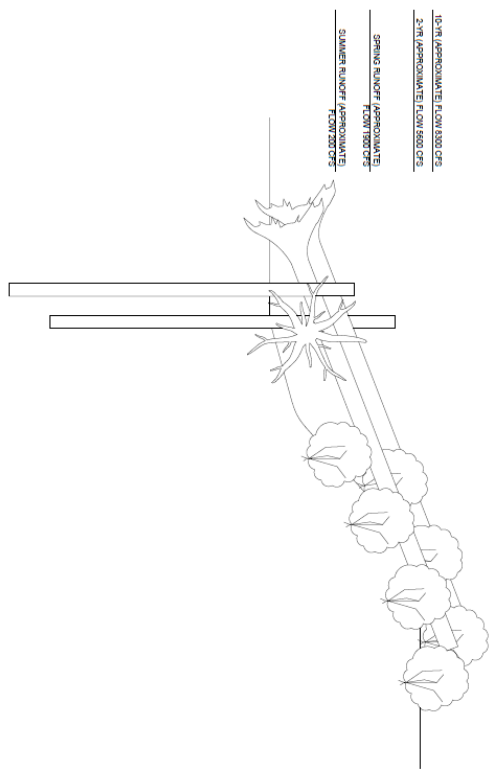
SECTION

2 PLANTING DETAIL

PLAN



SECTION



1.0M APPROXIMATE E. ON 850 C/S  
 2.7M APPROXIMATE E. ON 850 C/S  
 3.0M APPROXIMATE E. ON 850 C/S  
 3.0M APPROXIMATE E. ON 850 C/S  
 3.0M APPROXIMATE E. ON 850 C/S  
 3.0M APPROXIMATE E. ON 850 C/S

## Appendix C: Fromm Family Signed Landowner Acknowledgment

# Landowner Acknowledgement Form

### Landowner Information

Name of Landowner: Fromm Family

Landowner Contact Information:

Mr.      Ms.      Title:

First Name: Lance

Last Name: Fromm

Contact Mailing Address:

Contact E-Mail Address: frommlance@gmail.com

Property Address or Location: Parcel #241713240000, RM .8 right bank Icicle River

1. Fromm Family (Landowner or Organization) is the legal owner of property described in this grant application.
2. I am aware that the project is being proposed on my property.
3. If the grant is successfully awarded, I will be contacted and asked to engage in negotiations.
4. My signature does not represent authorization of project implementation.

  
Landowner Signature

Date

10-19-20

### Project Sponsor Information

Project Name: Fromm Bioengineered bank stabilization and riparian planting project

Project Applicant Contact Information:

Mr.      Ms.      Title: Senior Natural Resource Specialist

First Name: Erin

Last Name: McKay

Mailing Address: 411 Washington St., Suite 201 Wenatchee, WA 98801

E-Mail Address: erin.mckay@co.chelan.wa.us

## Appendix D: Ecology Funding Commitment

1

Agreement No: WQC-2021-ChCoNR-00127  
Project Title: Lower Icicle Sediment Reduction and Riparian Restoration Implementation  
Recipient Name: Chelan County Natural Resources Department



### AGREEMENT WQC-2021-ChCoNR-00127

WATER QUALITY COMBINED FINANCIAL ASSISTANCE AGREEMENT  
BETWEEN THE STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

AND

CHELAN COUNTY NATURAL RESOURCES DEPARTMENT

This is a binding Agreement entered into by and between the State of Washington, Department of Ecology, hereinafter referred to as "ECOLOGY" and the Chelan County Natural Resources Department, hereinafter referred to as the "RECIPIENT" to carry out with the provided funds, the activities described herein.

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## GENERAL INFORMATION

Project Title: Lower Icicle Sediment Reduction and Riparian Restoration Implementation

Total Cost:	\$232,585.00
Total Eligible Cost:	\$232,585.00
Ecology Share:	\$174,439.00
Recipient Share:	\$58,145.00
The Effective Date of this Agreement is:	07/01/2020
The Expiration Date of this Agreement is no later than:	06/30/2023
Project Type:	Nonpoint Source Activity

### Project Short Description: (500 character limit, includes spaces)

On the lower Icicle Creek, restoration efforts on 850 feet of bank will improve water quality through reduction of hydraulic pressure and sediment delivery, increase of shade, and by addressing geomorphic processes that lead to widening and shallowing of the river. This project will specifically slope back the banks, build planting benches, and plant a riparian buffer of at least 75 feet. The project will also conduct public outreach regarding this restoration effort and its benefits.



Agreement No: WQC-2021-ChCoNR-00127  
 Project Title: Lower Icicle Sediment Reduction and Riparian Restoration Implementation  
 Recipient Name: Chelan County Natural Resources Department

**Project Long Description: (4,000 character limit, includes spaces)**

The lower Icicle Creek has experienced multiple anthropogenic influences over the last century leading to erosion, sediment runoff, and loss of side channel and floodplain connectivity. Anthropogenic factors including a mill pond dam, bank armoring and removal of much of the riparian buffer and instream wood that historically existed here. Considering these impacts, active restoration is required to reduce erosion runoff in the lower Icicle Creek and restore the riparian buffer.

This project, the Fromm property on river mile (RM) 1.0, was subject to multiple historic actions which have led to its currently denuded, vertically eroding state. Perhaps most importantly, the Lamb-Davis Mill Dam (1904-1927) created an impoundment reaching up to about RM 1.0 on Icicle Creek. Sediment deposition during impoundment followed by incision through the accumulated sediments after the dam was removed resulted in unnaturally high, vertical banks that experience undercutting during high flow events. In addition, the land was historically cleared for agriculture, and a riparian buffer was never re-established on the lower end of the project area. This has resulted in a situation where, not only is the bank contributing excessive fine sediment and nutrients to the system, it is continually undercutting and plants cannot establish enough of a root system to resist this erosion.

This project exemplifies the type of active management that is needed to address water quality issues in the Lower Icicle that are a result of former land and aquatic management practices. A multi-facet approach across the who project area is needed here to reduce hydraulic pressure on the bank and allow establishment of a functioning riparian buffer. This project will construct the large wood elements, planting benches, and reduction of bank angle that is needed to truly stop the undercutting and establish a healthy riparian buffer. This implementation project will directly address several 303(d) listings in the Lower Icicle (temperature, pH, dissolved oxygen) through increased shading, encouragement of a defined thalweg and deeper pools, and reduction of sediment into the system. Upon implementation, this project should reduce sediment inputs by 700 pounds per year, phosphorus inputs by 600 pounds per year, and nitrogen inputs by 1,200 pounds per year, according to the Sediment Reduction Model.

This project is supported by the Icicle Work Group, a diverse coalition who's overarching goal is to restore instream flow and improve water quality and habitat in the Lower Icicle. The Icicle Work Group, under their guiding principle of habitat restoration, plans to back the project with the required 25% match for implementation.

On the Fromm property, implementation of sediment reduction Best Management Practicies (BMPs) and riparian planting along an 850-foot stretch of the right bank of lower Icicle Creek provides the greatest opportunity for water quality and habitat improvement in the this reach. The Fromm parcel on lower Icicle River was identified in both the 2018 Riparian Prioritization Report (completed by CCNRD and funded by Ecology) and the 2017 Lower Icicle Reach Assessment as a high priority parcel for riparian restoration and habitat improvement. This parcel ranks as the fifth highest priority in the Icicle area for restoration under the Riparian Prioritization Report Leveraging Ecology funding provided in 2019 to complete preliminary design, permitting, and final design, this project will implement the restoration work suggested in the documents referenced above, improving water quality and habitat, degraded by the historic impacts on the property.

## Appendix E: Icicle Work Group Standard Operating Procedures

# ICICLE CREEK WORK GROUP OPERATING PROCEDURES

**Vision:** The Icicle Creek Work Group seeks to find collaborative solutions for water management within the Icicle Creek drainage to provide a suite of balanced benefits for existing and new domestic and agricultural uses, non-consumptive uses, fish, wildlife, and habitat while protecting treaty and non-treaty fishing interests.

**Purpose:** The purpose of the Icicle Creek Work Group (“Work Group”) is to develop a comprehensive Icicle Creek Water Resource Management Strategy through a collaborative process that will achieve diverse benefits defined by all of the Guiding Principles below. The Work Group will use best available science to identify and support water management solutions that lead to implementation of high-priority water resource projects within the Icicle Creek drainage.

### Guiding Principles

1. Streamflow that:
  - a. Provides passage,
  - b. Provides healthy habitat,
  - c. Serves channel formation function,
  - d. Meets aesthetic and water quality objectives,
  - e. Is resilient to climate change.
  
2. Sustainable hatchery that:
  - a. Provides healthy fish in adequate numbers,
  - b. Is resource efficient,
  - c. Significantly reduces phosphorus loading,
  - d. Has appropriately screened diversion(s),
  - e. Does not impede fish passage.
  
3. Tribal Treaty and federally-protected fishing/harvest rights are met at all times.

4. Provide additional water to meet municipal and domestic demand.
5. Improved agricultural reliability that:
  - a. Is operational,
  - b. Is flexible,
  - c. Decreases risk of drought impacts,
  - d. Is economically sustainable.
6. Improves ecosystem health including protection and enhancement of aquatic and terrestrial habitat.
7. Comply with state and federal law.
8. Protect Non-Treaty Harvest
9. Comply with the Wilderness Act of 1964, the Alpine Lakes Wilderness Act of 1976, and the Alpine Lakes Wilderness Management Plan.

**Specific Objectives:**

- Develop and adhere to a set of guiding principles that address the issues and concerns of the Work Group.
- Identify barriers and data gaps and address them as needed to achieve the guiding principles, address Icicle Creek stakeholder issues and concerns, and implement sustainable and collaborative solutions.
- Develop a comprehensive list of potential projects that address the issues and concerns identified by the Icicle Creek stakeholders.
- Narrow the comprehensive list described above to a Base Package of feasible projects that, at a minimum, will meet all of the guiding principles.
- Endorse other related projects that are consistent with the guiding principles.
- Review recommendations from the Steering Committee on funding recommendations and a financing strategy that identifies a wide range of potential funding opportunities and coordinates the use of these funds in a way that is effective and efficient. Make formal decisions after reviewing these Steering Committee recommendations.
- Seek funding to support IWG efforts and projects.
- Conduct public outreach on this effort, facilitate public review of potential outcomes and enlist the public's input and support through a coordinated effort.

**Work Group Membership:**

- This Work Group was co-convened by the Department of Ecology Office of Columbia River and Chelan County Commission.
- The co-conveners invited organizations to participate that have a direct interest in management of water resources in Icicle Creek. Additional organizations or individuals may be added either through invitation or by request, following consensus decision of the Work Group. Once added, new Work Group members will participate in decision-making as co-equal members and as described below.
- Organizations or individuals may request to be taken off the membership list or may be taken off upon consensus decision of the Work Group.
- Work Group membership is listed in Appendix A.

**Decision Making:**

- All Work Group members have equal representation and equal participation.
- Decisions on key points and for the final project list/water resource management plan will be made by consensus. Consensus is defined as an outcome everyone in the Work Group can live with and support. If consensus cannot be met, objections must be clear and those objecting must help to offer other solutions that will meet the guiding principles. It is the intent of the Work Group that the projects and/or management plans that it recommends meet all of the objectives and not violate any of the guiding principles. The Work Group recognizes however that the projects and plans may be implemented over time and possibly in phases.
- Absence of a member or their designated alternate representative at a meeting where a decision is made cannot be used to block a consensus decision made by the members present at such a meeting.
- Where attendance at a regularly scheduled Work Group meeting is not possible, a member may designate an alternative representative to attend the meeting in their absence. Such a designated alternative representative shall have participation and decision-making rights equal to that of the absent member.
- Decisions cannot be made to obligate a member to implement a project if they do not agree.
- If full consensus cannot be reached after a dispute resolution process, a formal dissenting opinion can be filed.

**Expectations of Work Group Members:**

- Members will make every effort to attend meetings and stay actively engaged in the Work Group's efforts. Failure to do so may result in (1) notification of concern from the Work Group, and (2) being taken off the membership list by consensus of the Work Group upon recommendation of the Steering Committee.

- Members must participate in good-faith with an honest intent to find collaborative solutions to address the needs, issues, and concerns of all other Work Group members.
- Members commit to work collaboratively within the framework of the IWG in a non-litigious manner to resolve internal disputes, and respect alternate viewpoints in developing an integrated project list that accomplishes the Vision of the IWG. A Member's decision to file a lawsuit against another Member on issues before the Work Group will be regarded as a decision to seek an alternative to the IWG process, and that Member will be expected to withdraw its membership. If the Member does not voluntarily withdraw, the Member will be notified via letter from the Steering Committee Chair that its membership will be revoked by action of the IWG, provided that the party may invoke the dispute resolution procedure described below. Litigation between Members that pre-dates IWG formation, but which is stayed pending participation in the IWG, does not violate this provision.
- Participation is needs-based, meaning that members must understand their own needs and both understand and acknowledge the needs of other Work Group members. Members will represent their own views and the perspectives of their organization(s) and are responsible for coordinating with their constituencies to bring perspectives forward.
- Members must be adequately well-versed in the process and issues to articulate their organization's perspectives, needs, and preferences.
- Collaborative problem solving depends on mutual respect and careful listening among members and on active participation by all. Meetings will be conducted in a respectful atmosphere where all parties seek to foster trust and understanding.
- Members will strive for honest and direct communication and focus on interests and needs rather than positions. Members will allow for open discussion, will respect the right to disagree, and will look for collaborative solutions.
- Comments directed towards other participants or organizations must stay constructive, positive and helpful. Questions and concerns should be voiced directly within the Work Group forum or with the facilitator and/or a representative from one of the convening organizations.
- Members recognize that the scale of projects being discussed is complex and that a lot of data and information needs to be gathered to quantify all of the elements of this strategy. It is important to continue to move forward collectively with the projects in a Base Package that meet everyone's needs and these projects will continually be reviewed as more information is obtained.
- Members planning to apply for funding to accomplish IWG "Specific Objectives" will coordinate with the IWG Steering Committee by providing notice of application in advance of filing an application for funding. Copies of funding materials and scopes of work will be provided to the Steering Committee, status reports on progress will be provided, and final documents will be made available to the IWG. If the request for funds is for OCR (Ecology) funds and/or funds distributed to Chelan County by OCR to facilitate the IWG process, the funding request will be provided to the Steering

Committee for approval. Once approved by the Steering Committee, the scope of work must receive final approval by the Work Group.

- Members shall collaborate to ensure messaging (presentations, website content, outreach materials) articulates the goals and objectives of the IWG. All IWG Outreach Materials developed by OCR and/or Chelan County, including SEPA public scoping documents will be supported by the Work Group or Steering Committee prior to publication and will form the basis of official membership position statements on issues and projects. Individual member messaging will not be designed to undercut or contravene the purpose and intent of the IWG. Any Member who finds it necessary to publish materials critical of the IWG process or direction will, as a matter of good-faith membership, notify the IWG of its intentions and make such materials available for review.
- Following adoption of an Integrated Project List, IWG Members will work together to obtain necessary funding, permits and approvals.
- Work Group members who are determined by the IWG to be operating in a manner inconsistent with these expectations will be asked to withdraw from Work Group membership. The party will be notified via letter from the Steering Committee Chair. A Work Group Member may challenge its removal through the dispute resolution process.

#### **Steering Committee:**

The Work Group shall convene a Steering Committee made up of members who can represent the needs, concerns, and interests of a constituent stakeholder group or groups. Steering Committee members have the ability to participate more regularly than regular Work Group members and commit to active participation in Steering Committee meetings and functions. Steering Committee members must have a sufficiently detailed understanding of specific project and/or process elements to work on them constructively. Steering Committee members are listed in Appendix B. The Steering Committee will:

- Meet regularly and work through project and process elements in enough detail to provide recommendations to the Work Group.
- Oversee studies and assessments that will fill data gaps and support project development and design.
- Provide feedback, guidance, and recommendations to the Work Group regarding data gaps, specific projects, and decisions relating to funding recommendations and financing strategy.
- Develop agendas and formulate recommendations for Work Group meetings and schedule Work Group meetings as necessary.
- Decision making for developing recommendations will be done by consensus in the same manner as the full Icicle Work Group.
- Convene technical subcommittees to discuss specific topics and answer questions brought up by the Work Group and Steering Committee. Potential topics include: instream flow targets/benefits, LNFH facilities and related projects, storage projects, pump exchange projects, outreach, and environmental review.

- Provide direction to and collaboration with Co-Conveners. Provide oversight to the Co-Conveners regarding administrative and coordination of the overall process.
- Propose revisions to Steering Committee roles and responsibilities as defined in these Operating Procedures.

### **Co-Conveners**

The Co-Conveners of this effort consist of the Washington Department of Ecology's Office of Columbia River and Chelan County. The Co-Conveners are responsible for overall coordination and facilitation of the Iceicle Work Group's effort in close coordination with the Steering Committee. This includes making day-to-day administrative decisions; providing administrative and facilitation support to the Work Group, Steering Committee and Technical Subcommittees; providing technical support in the identification and development of projects; providing funding coordination; and working with individual Work Group members as needed.

### **Dispute Resolution:**

If the Work Group is unable to reach consensus on key decisions, the Work Group will make decisions by majority vote. Any Work Group member may dispute such a decision, and in such event, the dispute shall be referred to a three member Dispute Resolution Panel. The Panel consists of representatives from (1) Department of Ecology Office of Columbia River, (2) Chelan County and (3) Washington Department of Fish and Wildlife (WDFW). The disputant may request that the IWG select another Work Group member in lieu of WDFW. The Work Group member (other than the disputing member) would then be selected by majority vote by the Work Group members present at the Work Group session where the dispute resolution is invoked. The Panel shall resolve the dispute within 30 days. The Panel may request position papers from disputants. The Panel shall work with the disputants and will seek to resolve the dispute by consensus, but will decide by majority vote if a consensus is not achievable. This process will also be utilized when disputes arise at the Steering Committee.

### **Conflict of Interest:**

Work Group Members are individually responsible for identifying possible or actual conflicts of interest and must make the Work Group aware of the conflict before participating in any Work Group decision in which such a conflict of interest exists. For the purpose of these Operating Procedures, a conflict of interest is a circumstance or set of circumstances that create a risk that a Member's professional judgment or actions regarding Work Group recommendations for project funding will be unduly influenced by a self-serving pecuniary interest for that Member.

### **Interested Parties:**

All Work Group meetings are open to the public. Interested parties may attend Work Group meetings and make comment during the public comment portion of the agenda.

**Icicle Creek Work Group Operating  
Procedures – Appendix A  
Membership List**

**Co-Conveners**

*Tom Tebb, Director*  
Office of Columbia River  
Washington State Department of Ecology

*Bob Bugert, Commissioner*  
Chelan County Board of Commissioners

**Member Organizations and Representatives**

***Confederated Tribes of the Yakama Indian Nation***

Primary: David Blodgett II  
Alternate: Cory Kamphaus

***Washington State Department of Fish and Wildlife***

Primary: Carmen Andonaegui  
Alternate: Jeff Dengel

***Confederated Tribes of the Colville Reservation***

Primary: Chuck Brushwood  
Alternate: Casey Baldwin

***Washington State Department of Ecology***

Primary: Tom Tebb  
Alternate: Melissa Downes

***U.S. Bureau of Reclamation***

Primary: Christina Davis-Kernan  
Alternate: Dan Church

***Icicle and Peshastin Irrigation District***

Primary: Tony Jantzer  
Alternate: Dick Smithson

***U.S. Fish and Wildlife Service – Leavenworth National Fish Hatchery***

Primary: Jim Craig  
Alternate: Bill Gale

***City of Leavenworth***

Primary: Carl Florea  
Alternate: Ana Cortez

***NOAA – Fisheries***

Primary: Dale Bambrick  
Alternate: none

***Chelan County***

Primary: Bob Bugert  
Alternate: Mike Kaputa

***Cascade Orchard Irrigation Company***

Primary: Tim Walsh



*Icicle Creek Watershed Council*

Primary: Sharon Lunz

Alternate: Buford Howell

*Washington Water Trust*

Primary: Greg McLaughlin

Alternate:

*U.S. Forest Service*

Primary: Erick Walker

Alternate: Jeff Rivera

*Trout Unlimited – Washington Water  
Project*

Primary: Lisa Pelly

Alternate:

*Agricultural Representative*

Mel Weythman

*Agricultural Representative*

Daryl Harnden

*City of Cashmere*

Primary:

Alternative:

Icicle Working Group Integrated Base Package						
September 9, 2016						
<b>Total Project Benefit =84 cfs &amp; 30,500 acre-feet, Total Investment including 25% contingency = \$81.7 M, Cost/acre-foot = \$2,700 / acre-foot (85%+ to instream flow)</b>						
This Integrated Package is characterized by a project list meeting all Icicle Subbasin Guiding Principles with substantive flow benefit in the late summer/early fall in the historic channel. Key features include retaining the existing hatchery facilities with aggressive multiple-source augmentation and conservation measures, modernization of the Alpine Lakes, restoration of Eight-Mile Lake, and habitat/screening projects. IPID Pump Exchange at Dryden (50 cfs) could increase benefits by up to 25 cfs in Icicle Creek, total cost would increase to about \$100 M (\$2,800 / acre-foot).						
Project Name (Guiding Principle Met)	Description	Cost	Integrated Plan Benefits			
Alpine Lakes Reservoir Optimization, Modernization, and Automation (FLOW) (HAB)	Automate and optimize releases of the 6 Alpine Lakes (flow benefit estimated over 92 days), but can be adapted to shorter duration / higher peak flows (and winter flow benefit). Flow benefit to instream and out-of-stream uses in normal years, to IPID in drought years. <b>INTERRUPTIBLE, REACH BENEFITS BELOW LAKES TO PACIFIC OCEAN</b>	\$680K	30	cfs	5,465	ac-ft
IPID Irrigation Efficiencies (FLOW) (HAB)	Update Irrigation Comprehensive Plans and fund efficiency projects, assumes savings of 3,000 ac-ft (about 10%) at an average cost of \$2,500/ac-ft. Flow benefit is non-consumptive, reach specific, and during the irrigation season. <b>GUARANTEED, REACH BENEFITS FROM IPID DIVERSION TO WENATCHEE RIVER</b>	\$7.5 M	10.1	cfs	3,000	ac-ft
Cascade Orchards Irrigation Efficiencies (FLOW) (HAB)	Update Irrigation Comprehensive Plans and fund efficiency projects, assumes savings of 2,100 to 3,500 ac-ft and 8 to 11.9 cfs. Flow benefit is non-consumptive, reach specific, and during the irrigation season. <b>GUARANTEED, REACH BENEFITS FROM IPID DIVERSION TO WENATCHEE RIVER</b>	\$4.5 M	8.0	cfs	2,100	ac-ft
Domestic Conservation Efficiencies (DOM)	Fund domestic conservation for City of Leavenworth and Chelan County consisting of metering, pipe replacement, and rural conservation designed to achieve domestic savings at \$2,500/ac-ft. <b>GUARANTEED</b>	\$2 M	0.5	cfs	400	ac-ft
Leavenworth National Fish Hatchery Conservation, Water Quality Improvements (FLOW) (HAB) (LNFH) (LAWS)	Combination of on-site reuse, effluent pump-back, and wellfield enhancements. Flow benefit is nonconsumptive and reach-specific. <b>FIRM, REACH BENEFITS IN HISTORIC CHANNEL</b>	\$20 M	20	cfs	14,454	ac-ft
Eight-Mile Lake Reservoir Restoration Project (FLOW) (HAB) (DOM) (AG)	Restore Eight-Mile Lake from existing 1,600 ac-ft to normal permitted pool volume of 2,500 ac-ft (900 ac-ft), 60-day flow benefit, adaptive, plus winter flows. Domestic permits based on CU mitigation up to 3,600 ac-ft and 5 cfs. <b>INTERRUPTIBLE/GUARANTEED, REACH BENEFITS FROM EIGHT-MILE LAKE TO WENATCHEE RIVER</b>	\$1.6 M	12.6	cfs	3,600	ac-ft
Water Markets (AG)	Create an Icicle Water Bank, seed with an initial acquisition of 1,000 ac-ft at \$3,000 / ac-ft for for interruptible ag users during times of shortage and instream flows. <b>INTERRUPTIBLE/GUARANTEED, IN ICICLE AND/OR WENATCHEE RIVER</b>	\$3 M	3.4	cfs	1,000	ac-ft
Habitat improvements in Icicle Creek, land acquisition (HAB)	Riparian plantings, engineered log jams, conservation easements, and other habitat projects. Land acquisition coordinated with the Upper Wenatchee Community Lands Plan and opportunities identified in the Icicle Basin.	\$2.5 M	2.7	miles	2000	acres
Rehabilitate Leavenworth Hatchery Intake, Operational Improvements at Structure 2, Icicle Creek Passage, Tribal Fisheries Improvements (HAB) (TRIBAL)	Replace delapidated sections of intake piping, improve passage in Icicle Creek including to Upper Icicle Creek, reoperation of Structure 2 and Hatchery Channel, increased tribal fishing access/amenities.	\$6.5 M	Improve fish passage and hatchery operation			
LNFH / COIC Screening Improvements, IPID Screening, City of Leavenworth (HAB) (LAWS)	Improve screens to current standards. IPID & City screening project to be completed in advance of Boulder Field implementation. LNFH Screen could be in the range of \$5 to \$12 M depending on COIC and conservation.	\$17 M	Improve fish passage and hatchery operation			
Instream Flow Rule Amendment (DOM)	Modify WAC 173-545 Icicle Reserve from interim level of 0.1 cfs to final level of 0.5 cfs	\$50 K	0.4	cfs	400	ac-ft
Guiding Principles	How Does This Integrated Plan Option Meet the Guiding Principles?					
Improve Instream Flow (FLOW)	100 cfs average year goal met (~140 cfs), 60 cfs drought year goal met (~67 cfs).					
Sustainable Leavenworth National Fish Hatchery (LNFH)	Goal of source redundancy, restored capacity, fish rearing, water quality, and passage met.					
Protect Tribal Treaty and Non-Tribal Harvest (TRIBAL)	Instream flow improvement balanced by preservation of fishery, with adaptive management strategy in place, amenity and access increases.					
Improve Domestic Supply (DOM)	Peak domestic need of 2,300 ac-ft met (~4,200 available), if storage releases mitigating consumptive use when instream flows are not met (credits for natural flow availability and return flow).					
Improve Agricultural Reliability (AG)	Automation for IPID, 1,000 ac-ft for agricultural interruptibles met.					
Enhance Icicle Creek Habitat/Passage/Screens (HAB)	Goal of additional habitat improvement met with adaptive management.					
Comply with State and Federal Law, Wilderness Acts (LAWS)	Goal met through project check requirement on all permits and environmental review.					

## Appendix G: Icicle Work Group Letter of Support



November 9, 2020

Mr. Edmund Weakland  
Bureau of Reclamation  
Financial Assistance Operations  
PO Box 25007, MS 84-27814  
Denver, CO 80225

**RE: Lower Icicle Water Quality Improvement Implementation**

Dear Mr. Weakland:

On behalf of the members of the Icicle Work Group, we are pleased to submit this letter of support for the Icicle Work Group application to the Bureau of Reclamation's WaterSMART grant program for a Cooperative Watershed Management Program Phase II project.

The Icicle Work Group was formed in December 2012 to "find collaborative solutions for water management within the Icicle Creek drainage" while meeting the various needs and interests within the basin. The Icicle Work Group has made great progress and has developed a strategy that will result in lasting solutions in the basin. Chelan County and Washington State's Department of Ecology's Office of Columbia River completed a Final Programmatic Environmental Impact Statement (FPEIS) in 2019, prepared in compliance with Washington's State Environmental Policy Act (SEPA) with Chelan County and Ecology as co-lead agencies. The Plan's preferred alternative identifies a mix of projects to achieve water supplies and instream flows, improve fish and wildlife habitat and address water quality issues. This sediment reduction and riparian restoration project is included in the Icicle Strategy's preferred alternative and is a critical component of our long-term strategy.

The Icicle Work Group is made up of a diverse set of stakeholders including all four major water right holders within Icicle Creek: City of Leavenworth, Icicle-Peshastin Irrigation District, Cascade Orchard Irrigation Company and the Leavenworth National Fish Hatchery (funded by the Bureau of Reclamation and managed by the U.S. Fish and Wildlife Service). Members also include federal, state and local agencies, Tribes and environmental organizations. As a designated Co-Lead for the Icicle Work Group, Chelan County is authorized as a fiscal agent on behalf of the Icicle Work Group. Chelan County currently manages funding for the Icicle Strategy and has permission and the ability to apply for and administer federal funding on behalf of the group.

Edmund Weakland  
November 9, 2020  
Page 2 of 2

We hope that Reclamation will support this project and the efforts of the Icicle Work Group. The workgroup values the opportunity to cost share with WA Department of Ecology and Bureau of Reclamation on this habitat project to benefit fish and wildlife habitat and water quality in the Icicle Basin. Please let us know if we can provide any additional information.

Thank you for your consideration.

Sincerely,



G. Thomas Tebb, L.H.g., L.E.G.  
Director Office of Columbia River  
Co-convener, Icicle Work Group



Mike Kaputa, Director  
Chelan County Natural Resource Dept.  
Co-convener, Icicle Work Group

**Appendix H: WDFW Letter of Support**



State of Washington  
**Department of Fish and Wildlife**

Mailing Address: 3860 Chelan Hwy N, Wenatchee WA Phone: (509) 429-9285  
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia WA

November 3, 2020

Chelan County Natural Resource Department  
Erin McKay  
Senior Natural Resource and Recreation Specialist  
411 Washington St. Suite 201  
Wenatchee, WA 98801

**SUBJECT: CHELAN COUNTY NATURAL RESOURCE DEPARTMENT – LETTER  
OF SUPPORT FOR THE FROMM BIOENGINEERED BANK  
STABILIZATION AND PLANTING**

Dear Erin,

The Washington Department of Fish and Wildlife (WDFW) have reviewed your design proposal to address the loss of riparian function, over-steepened and eroding bank and sediment loading affecting Icicle Creek and the Wenatchee River on the Fromm Property. WDFW supports your project and your approach.

The bank re-sloping, bioengineered approach of wood and rock, as well as re-establishment of a riparian area will directly result in sediment reduction, greater floodplain connection and riparian habitat improvement. The decrease in stream bank pressure from high flows and the re-established riparian vegetation will provide energy dissipation and prevent further erosion. You will create a more diverse habitat, benefiting fish and wildlife, by allowing the creek to access the riparian areas, abating flood flows and erosive forces and providing greater floodplain connectivity.

Streams, with their associated floodplain and riparian ecosystems, make up the critical habitat elements for a majority of our region's native fish and wildlife. Healthy riparian habitats provide shade and improve water quality for fish, as well as benefiting the terrestrial vertebrate wildlife species that depend on riparian habitats for all or critical portions of their life histories.

If you have any questions, please call me at 509-429-9285.

Sincerely,

A handwritten signature in cursive script that reads "Amanda R. Barg".

Amanda R. Barg  
WDFW Region 2