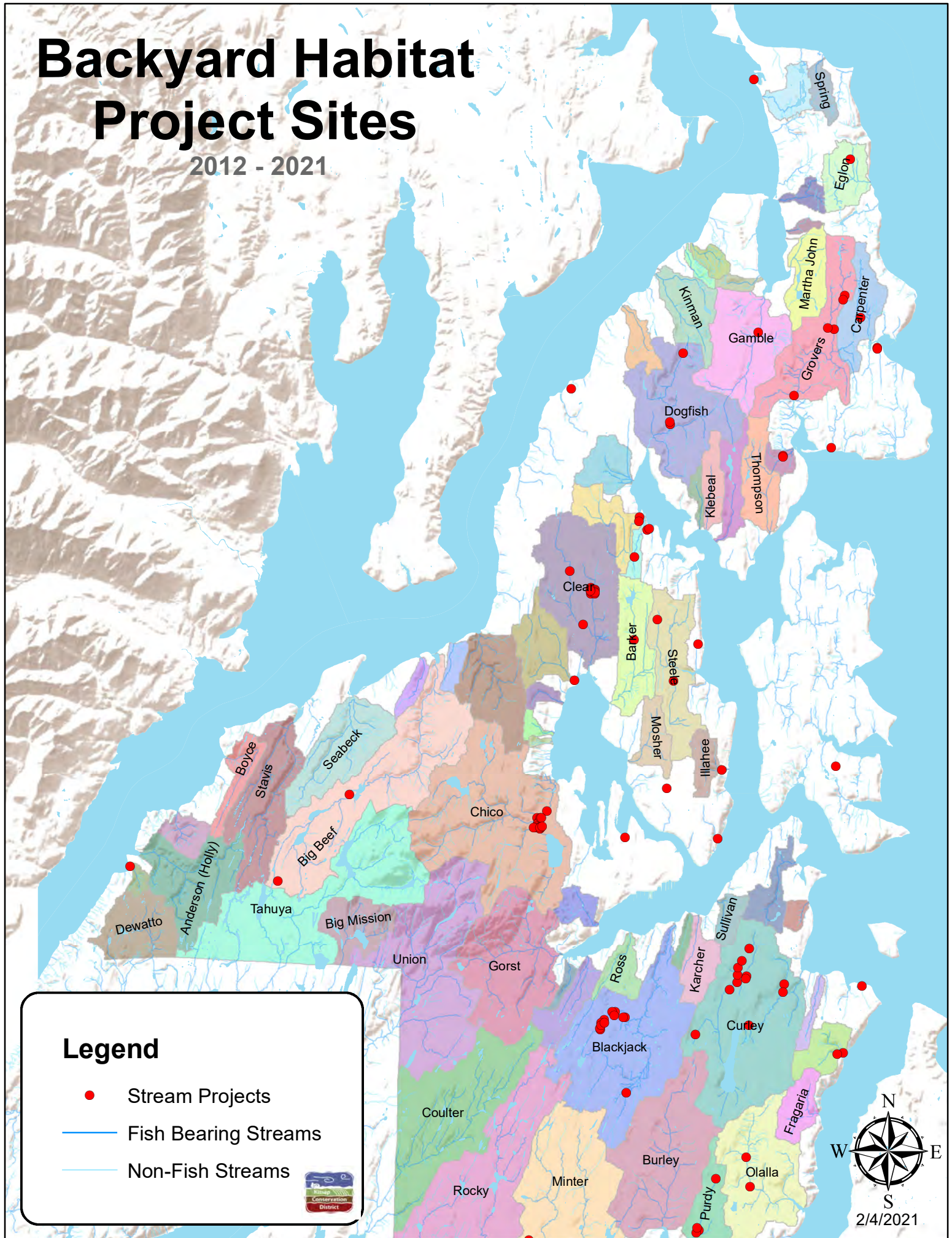


# Backyard Habitat Project Sites

2012 - 2021













Project Name	Washington Conservation Corps Crew for Riparian Restoration Projects
Enter your project summary. Include your goals and objectives.	The Kitsap Conservation Districts stream restoration program has restored stream and riparian areas throughout the County over the last 10 years through the Backyard Habitat program. Previously KCD has utilized the Mission Creek Department of Correction Women's Crew annually to maintain these sites and restore new sites, however Covid has put a stop to this program and KCD is unable to achieve maintenance of these projects without a labor source. This funding will be utilized to obtain a Washington Conservation Corps Crew of 5, for a year, to conduct weed removal and planting on streamside areas throughout Kitsap County.
Category	Restoration
Please list all other related projects.	
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	Removing invasive weeds and establishing native trees and shrubs in riparian areas is critical for maintaining water quality, stabilizing banks, improving aquatic and terrestrial interactions, as well improve stream morphology in the long term by adding organics and large woody debris. Our projects include priority sites called out in the Chico Watershed Assessment, Blackjack Watershed Assessment and Curley Creek Watershed Assessment.
Has the landowner acknowledged the project?	Yes
Explain your answer here	Our landowners have signed agreements allowing site access for four years following a restoration practice.
Which species will benefit from this project?	All salmon and steelhead species will benefit from this project.
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian	This project will reduce noxious weeds and improve riparian cover and complexity along streams in Kitsap County. This will aid in restoring and protecting riparian habitats from being overtaken with noxious weeds and will protect past investments..

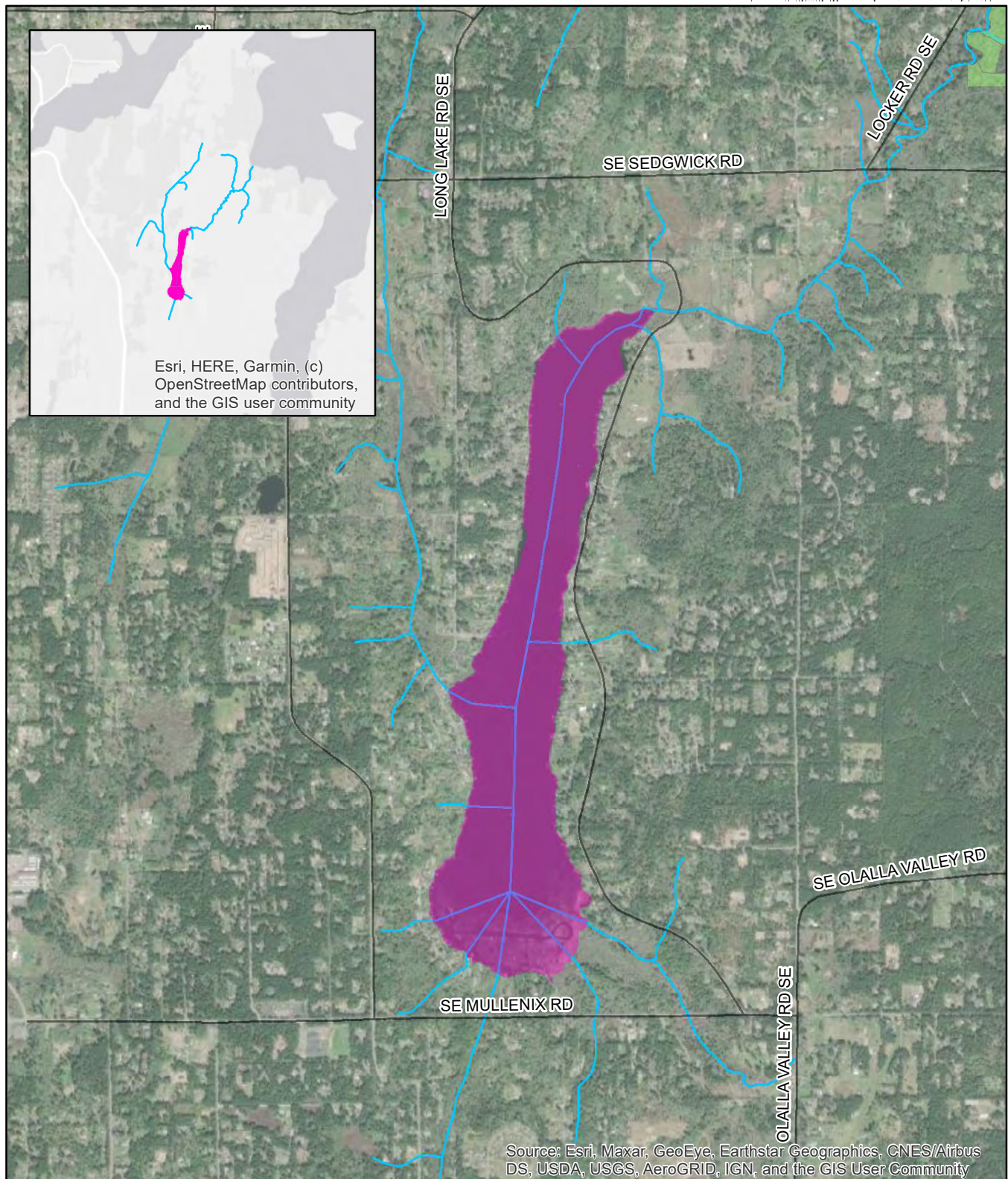


conditions, water quality and quantity, and climate change).	
Project Sponsor	Kitsap Conservation District
Primary Contact	Carin Anderson
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	No
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$230,000
What is the total request of the grant?	\$200,000
What are the available matching funds?	\$30,000



# Project Location

## Long Lake Predation Assessment



### Protected Lands

- GPC Protected or Proposed
- Howe Farm Park
- Wetlands Reserve Program

Project Location

0 0.25 0.5 Miles





## Long Lake Predation Assessment Site Photo





Project Name	Long Lake Predation Assessment
Enter your project summary. Include your goals and objectives.	<p>This project will assess the current extent of predation of native salmonids by non-native species in Long Lake.</p> <p>A 2004 study (Bonar et. al.) of predation in Western Washington Lakes concluded that large mouth bass are likely a substantial impact on coho smolt production from the Curley Creek watershed and are an impediment to improving coho production from the watershed. Analysis of data collected from 1998 to 2000 indicated that a third to half of coho smolt produced in the watershed were consumed by largemouth bass.</p> <p>The Curley Creek Watershed Assessment and Protection and Restoration Plan (Suquamish Tribe 2017) recommends an updated assessment of predation in Long Lake, along with management actions to reduce the abundance of primary non-native predators in the lake, if findings are consistent with the 2004 study.</p> <p>In 2021, a group of partners from 10 organizations worked together to rank the Watershed Assessment recommendations in order of priority. The recommendation to address issues in Long Lake, including water quality, riparian conditions and predation, was ranked as the highest priority for recovering salmon in the Curley Creek Watershed.</p> <p>A literature review and communications with the Department of Fish and Wildlife and Suquamish Tribe indicated that no further predation studies have been undertaken in Long Lake since the 2004 Bonar report, although anecdotal accounts suggest predation continues to be an issue.</p> <p>This project will design and complete an assessment of the impacts of predation by non-native fish on native salmonids (in particular steelhead and coho), and provide management recommendations.</p> <p>A separate project is proposed to improve riparian conditions on the Long Lake Shoreline, as recommended in the Watershed Assessment.</p>
Category	Planning - Assessment & Inventory
Please list all other related projects.	Long Lake Riparian Enhancement (LOI submitted)
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes



Please identify which and explain.	<p>The Curley Creek Watershed Assessment and Protection and Restoration Plan (Suquamish Tribe 2017) recommends an updated assessment of predator effects on coho salmon in the watershed, along with management actions to reduce the abundance of primary non-native predators, if findings are consistent with the 2004 study (Action Area 28, page 124).</p> <p>The Puget Sound Steelhead East Kitsap DIP Recovery Plan (Suquamish Tribe 2020) identifies reducing predation in freshwater lakes as a recovery strategy, and lists Long Lake as a Geographic Focus Area for the strategy (Section 5.6.1, page 63). A substrategy is to work with WDFW to develop a bounty on non-native species that are documented to prey on steelhead in East Kitsap. This assessment will be the first step in forming such a strategy.</p>
Has the landowner acknowledged the project?	No
Explain your answer here	The Curley Creek Partner Group is supportive of this project and includes participants from the Department of Fish and Wildlife, and Kitsap County.
Which species will benefit from this project?	Steelhead, Coho, Chum, coastal cutthroat trout
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	<p>This project will address predation by non-native fish in Long Lake. As described above, a 2004 study (Bonar et. al.) of predation in Western Washington Lakes concluded that large mouth bass are likely a substantial impact on coho smolt production from the Curley Creek watershed.</p> <p>The Puget Sound Steelhead East Kitsap DIP Recovery Plan (Suquamish Tribe 2020) identified non-native fish species as a priority pressure with High to Very High severity.</p> <p>This assessment is required to understand current non-native predator impacts on native salmonid populations and develop management recommendations.</p>
Project Sponsor	Mid Sound Fisheries Enhancement Group (Co-sponsor Wild Fish Conservancy)
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound	No



Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	
For which grants are you applying?	Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$88,500
What is the total request of the grant?	\$75,000
What are the available matching funds?	\$13,500

# Long Lake Riparian Enhancement Project

## Example Long Lake Residential Property Photos

Source: Department of Ecology, Washington State Lakes Environmental Data Version 1.0













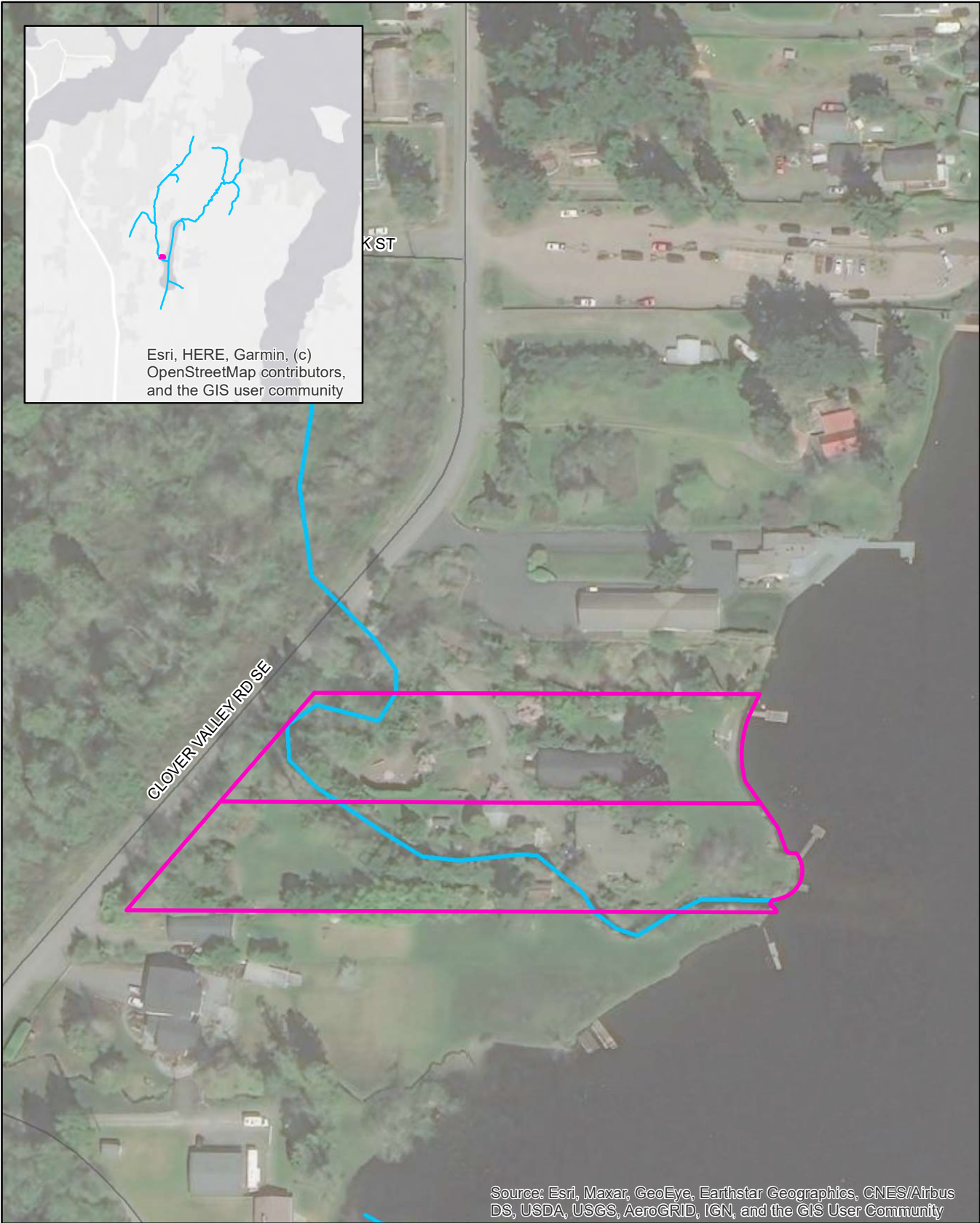
Project Name	Long Lake Residential Riparian Enhancement
Enter your project summary. Include your goals and objectives.	<p>This project will reach over 200 lakefront landowners with information about salmon friendly backyards, and will offer ecologically functional native plant landscaping at no cost to shoreline landowners. The project will design and implement 3-5 private property riparian enhancement projects, including weed control, native tree and shrub installation, 1-2 years of direct maintenance, and maintenance training for landowners to continue long term maintenance. Project designs will maximize habitat benefits, including shading of the lake edge and improved salmonid food sources, while also supporting landowner objectives.</p> <p>In addition to identifying riparian enhancement projects to be completed with this grant funding, site visits will be used to identify opportunities for larger scale shoreline improvement projects that could be pursued with future grant funding.</p> <p>Outreach activities will build landowner relationships through face to face site visits and phone calls. These relationships will be valuable in communicating other lake improvement activities, for example the ongoing aquatic weed and phosphorous control through the Lake Management District, and the proposed Long Lake predation assessment.</p>
Category	Restoration
Please list all other related projects.	Long Lake Predation Assessment (LOI submitted)
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	<p>Riparian enhancement along Long Lake is included in the East Kitsap Steelhead DIP Recovery Plan 10 Year Start List (Action ID 28), and will contribute to the Recovery Plan strategy 'Restore and improve Functional Riparian Corridors' (page 58). The Recovery Plan highlights that Tier 1 steelhead drainages, including Curley Creek, should be prioritized for riparian restoration, including both direct implementation of riparian projects and education and outreach to streamside property owners.</p> <p>Riparian enhancement along the Long Lake shoreline was recommended in the Curley Creek Watershed Assessment and Protection and Restoration Plan (Action Area 28, page 124, Suquamish Tribe 2017). In 2021, The Curley Creek Partner Group ranked</p>

	recommendations from the watershed assessment in order of priority. Improving conditions in Long Lake, particularly through addressing predation, improving water quality and improving riparian conditions, was identified as the single highest priority for recovering salmon in the Curley Creek Watershed.
Has the landowner acknowledged the project?	No
Explain your answer here	This project will include outreach to more than 200 private landowners to engage landowners in shoreline riparian restoration, with a goal of installing projects on 3 – 5 private properties.
Which species will benefit from this project?	Steelhead, Coho, Chum
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	<p>This project will enhance riparian functions across 3 to 5 private properties. Installation of native trees and shrubs, with a focus on vegetation overhanging the lake edge, will create pockets of cool water refuge, increase terrestrial food sources available to juvenile salmon, and provide shelter from predators.</p> <p>In addition, outreach to all private properties on Long Lake about salmon friendly landscaping will help to reduce pesticide and nutrients inputs to the lake. Long Lake is listed as Category 5 for Total Phosphorous, Category 4C for Invasive Exotic Species and Category 2 for bacteria. This project can complement the current work of the Lake Management District to improve water quality in Long Lake.</p>
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	No
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total	\$77,000

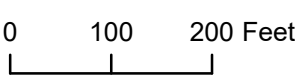


cost of the project?	
What is the total request of the grant?	\$65,000
What are the available matching funds?	\$12,000

# Project Location: Salmonberry Creek Outlet Stream Restoration Design



 Project Location



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



# Salmonberry Creek Outlet Stream Restoration Design

## Site Photos



Aerial view of the project site. Source: Department of Ecology, Washington State Lakes Environmental Data Version 1.0



Stream and riparian conditions on upstream parcel.





Mix of native and invasive plants on upstream parcel.





Downstream landowner showing area manually cleared of reed canary grass and iris that was clogging the stream.







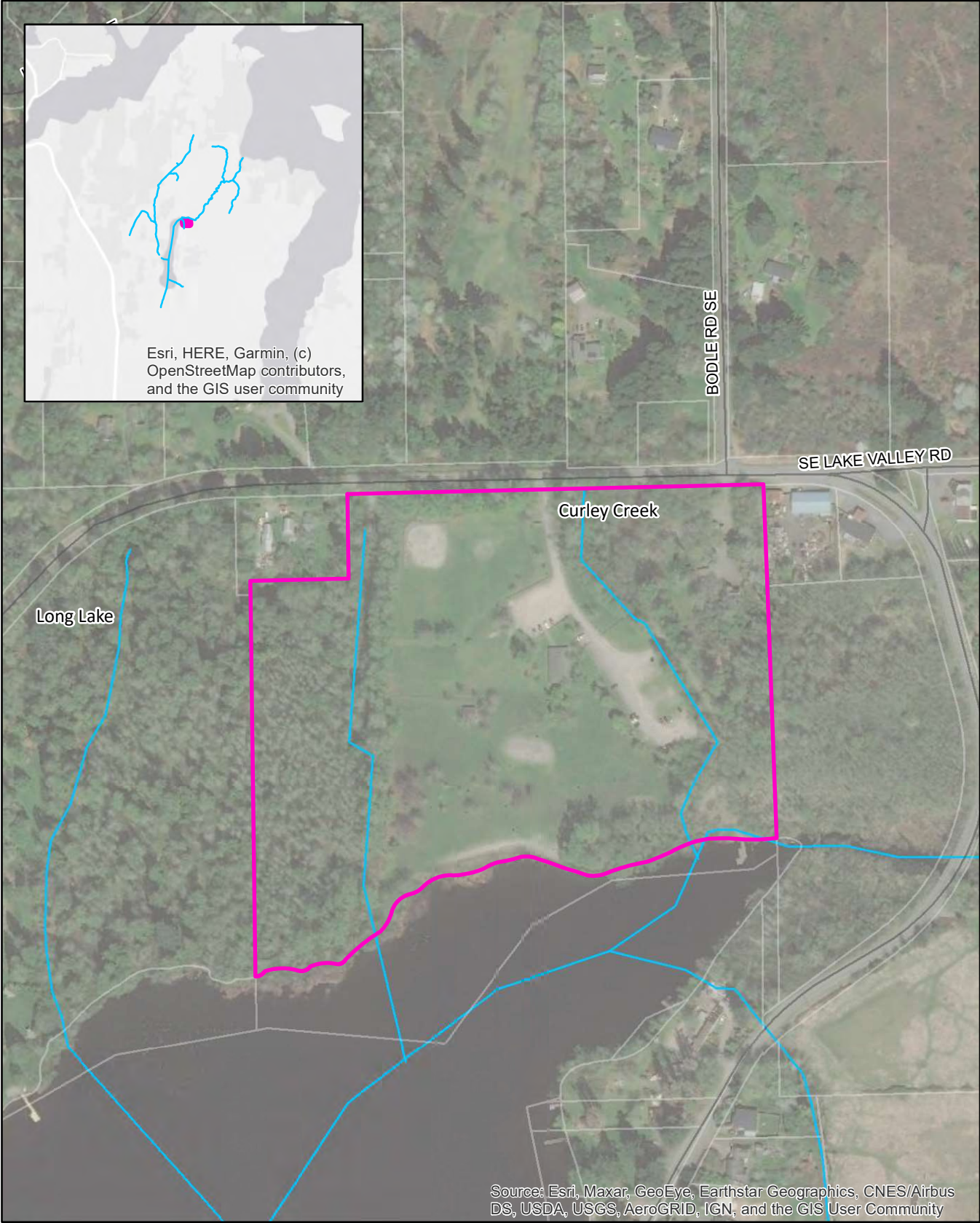
Downstream property conditions.

Project Name	Salmonberry Creek Outlet Stream Restoration Design
Enter your project summary. Include your goals and objectives.	<p>This project will design and permit a stream restoration project across two private properties spanning the downstream-most 750 feet of Salmonberry Creek to the outlet to Long Lake. The site provides an important transition zone for adult salmon migrating upstream and juvenile salmon seeking rearing habitat near the lake shore (Suquamish Tribe 2017).</p> <p>The project goal is to improve juvenile salmonid habitat at the outlet of salmonberry creek. The project will create a conceptual, preliminary and construction-ready final design for the project, and secure permits.</p> <p>The design will incorporate large wood installation and riparian enhancement to create improved sheltering and foraging habitat for juvenile salmonids.</p> <p>The two landowners are excited to improve salmon habitat on their properties, and have already been working on riparian invasive weed control.</p>
Category	Planning - Design
Please list all other related projects.	NA
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	This project is identified in the Curley Creek Watershed Assessment and Protection and Restoration Plan (Action Area 11, page 108, Suquamish Tribe 2017).
Has the landowner acknowledged the project?	Yes
Explain your answer here	A site visit was held with the landowners in summer 2021, and they are supportive of the project. The downstream landowner has been working to manually control reed canary grass and invasive iris in the stream, but needs additional support. The upstream landowner is excited to improve sheltering habitat on his property.
Which species will benefit from this project?	Steelhead, Coho, Chum, coastal cutthroat trout

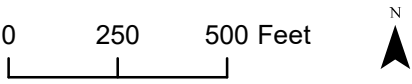


Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	This project will increase channel complexity, stream shading and food sources through large woody debris installation and riparian enhancement. This can provide a valuable refuge to rearing juvenile salmon near the lake shore. High quality habitat at this location will become increasingly valuable as climate change continues to increase water temperatures in Long Lake and surrounding streams.
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	No
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$80,000
What is the total request of the grant?	\$70,000
What are the available matching funds?	\$10,000

# Project Location: Long Lake Tributary Private Property Restoration Design



 Project Location





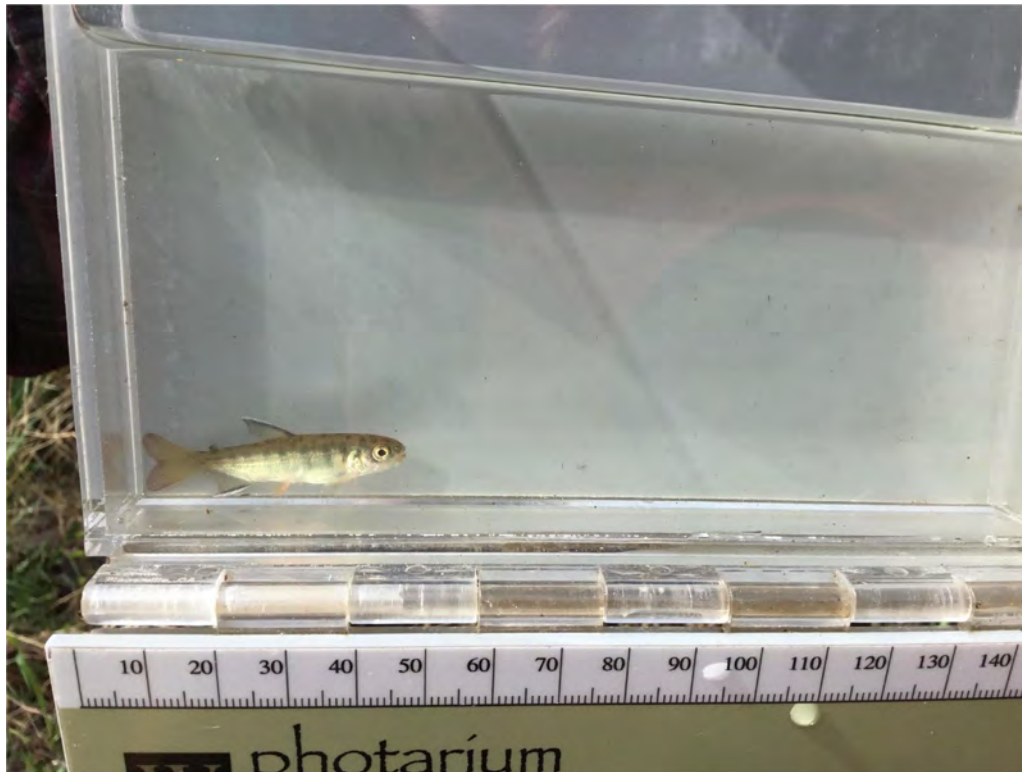
# Long Lake County Park Tributary Restoration Design

Photos from 2021 Wild Fish Conservancy Water Typing Surveys



Eastern tributary





Juvenile salmonid recorded in eastern tributary



Eastern tributary





Fish barrier on eastern tributary



Outlet of western tributary into Long Lake

Project Name	Long Lake County Park Tributary Restoration Design
Enter your project summary. Include your goals and objectives.	<p>This project will create a restoration design and secure permits for enhancement of 800 feet of tributary to Long Lake flowing through Long Lake County Park.</p> <p>The tributary was mapped as part of Wild Fish Conservancy water typing surveys in 2021. There are two failed culverts within the park that limit upstream fish passage. Numerous juvenile coho were observed below the failed culverts during WFC's site visit. The stream flows through the park in a narrow riparian corridor lined with alder. A gravel access road follows along the left bank with a gravel parking area located beyond the narrow riparian corridor on the right bank.</p> <p>This project will improve fish passage through the park, establish a wider riparian corridor, and improve habitat complexity within the channel.</p>
Category	Planning - Design
Please list all other related projects.	NA
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	No
Please identify which and explain.	The Curley Creek Watershed Assessment and Protection and Restoration Plan (Suquamish Tribe 2017) recommends further evaluation of riparian and channel conditions in tributaries draining to Long Lake (Action Area 30, page 125). Evaluation of this parcel by Wild Fish Conservancy in 2021 identified restoration potential based on current juvenile salmonid use and potential to improve habitat conditions.
Has the landowner acknowledged the project?	No
Explain your	Kitsap County Parks will be engaged in early 2022 and if interested in

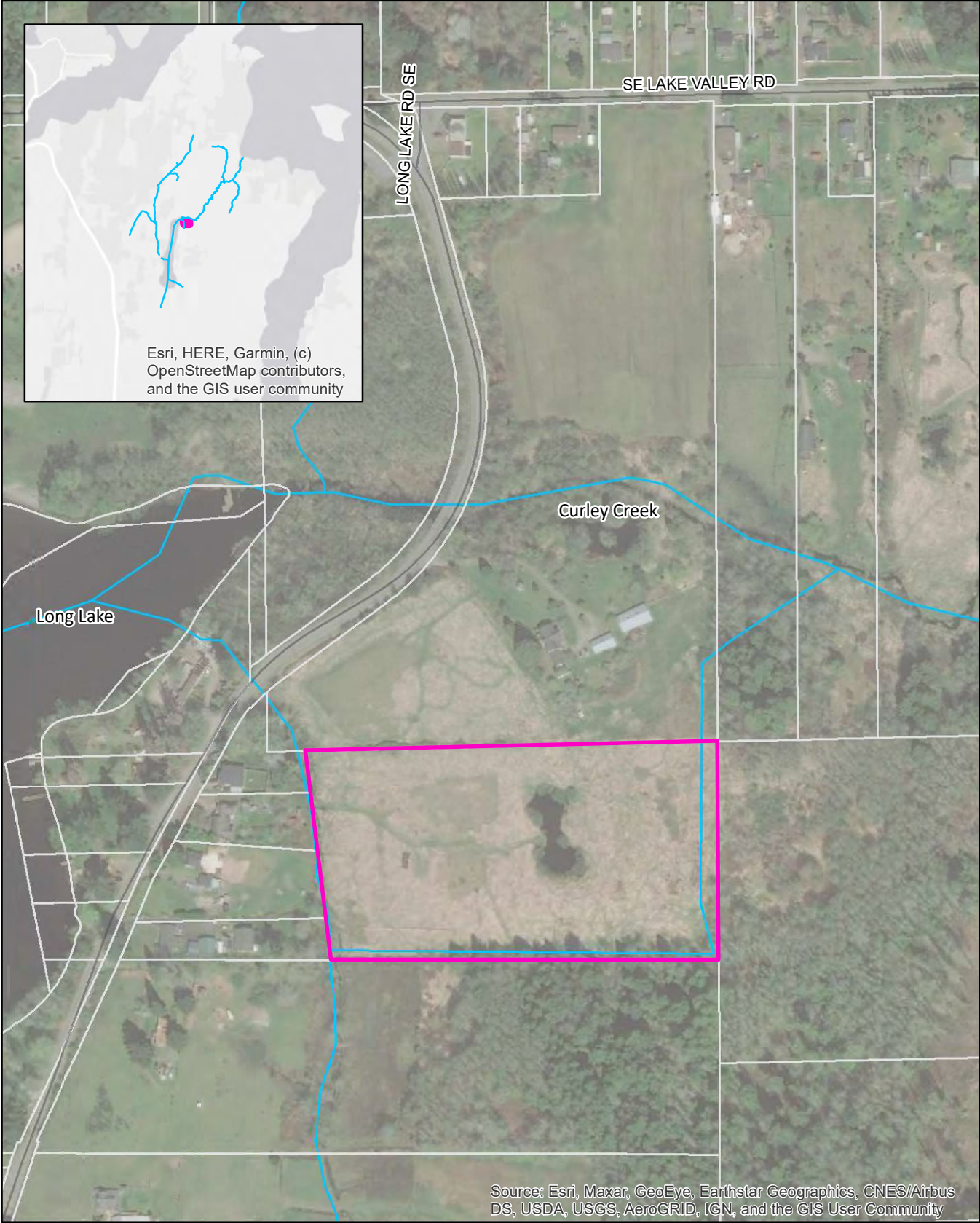


answer here	pursuing a project a conceptual design can be developed with currently available matching funds.
Which species will benefit from this project?	Steelhead, Coho
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	This project will increase the area of available stream habitat by removing a fish passage barrier and improve the quality of juvenile rearing habitat by increasing channel complexity and widening the riparian corridor.
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	No
For which	Salmon Recovery Funding Board (available September 2022) Budget

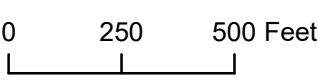
grants are you applying?	Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$80,000
What is the total request of the grant?	\$68,000
What are the available matching funds?	\$12,000



# Project Location: Long Lake Tributary Private Property Restoration Design



 Project Location



# Long Lake Tributary Site Photos

Photos from 2021 Wild Fish Conservancy Water Typing Surveys

## Eastern Channel



Looking downstream on the eastern ditched channel



Juvenile coho and unspecified juvenile salmonid caught in the eastern ditched channel



## Western Channel



Juvenile coho and unspecified juvenile salmonid caught in the western channel



Looking upstream on the western ditched channel

## Southern Channel



Juvenile coho caught in the southern channel.



Southern channel looking downstream.



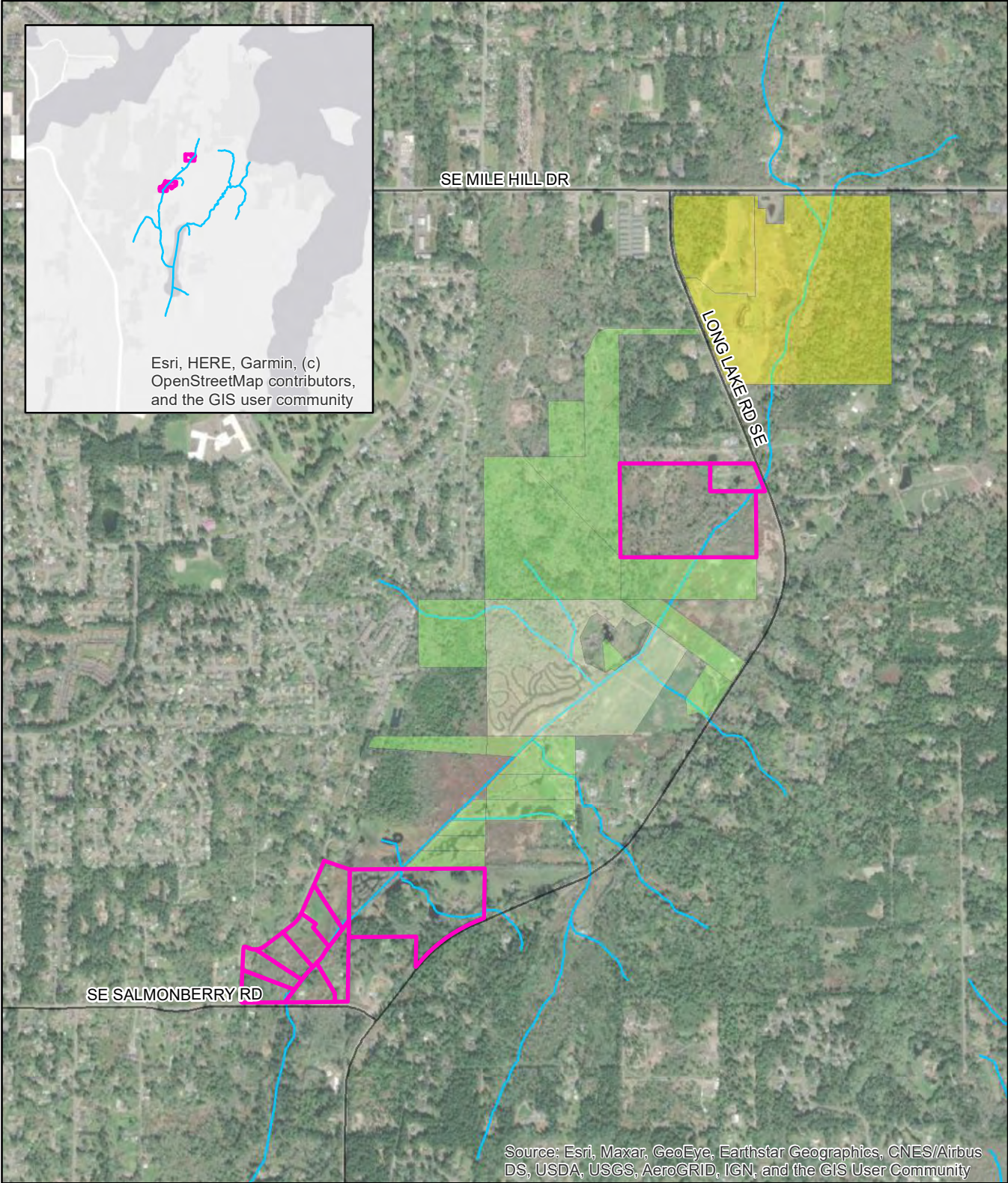
Project Name	Long Lake Tributary Restoration Design
Enter your project summary. Include your goals and objectives.	<p>This project will create a design and secure permits to improve juvenile salmonid habitat along 1600 feet of ditched stream channels draining to Curley Creek. The ditched stream channels are located on the eastern, western and southern boundaries of a private property. The eastern channel drains to Curley Creek, the western channel to Long Lake.</p> <p>The site currently provides low quality salmonid habitat, with no woody debris, and riparian cover dominated by non-native grasses and blackberries. However, Wild Fish Conservancy identified numerous juvenile salmonids using the site during 2021 water typing surveys.</p> <p>The project design will incorporate stream realignment to expand available habitat, install large wood to create channel complexity and shelter, and plant native trees and shrubs to improve sheltering and foraging resources.</p>
Category	Planning - Design
Please list all other related projects.	NA
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	The Curley Creek Watershed Assessment and Protection and Restoration Plan (Suquamish Tribe 2017) recommends further evaluation of riparian and channel conditions in tributaries draining to Long Lake (Action Area 30, page 125). Evaluation of this parcel by Wild Fish Conservancy in 2021 identified good restoration potential based on current juvenile salmonid use and significant potential to improve habitat conditions.
Has the landowner acknowledged the project?	No
Explain your answer here	The landowner granted permission to Wild Fish Conservancy to survey the site in 2021. The landowner will be contacted in January 2022 to discuss habitat improvement concepts for their property. If the landowners is willing, a conceptual design can be prepared with currently available matching funds.
Which species will benefit from this	Steelhead, Coho

project?	
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	The site currently provides poor quality salmonid habitat. The stream is confined to a ditch with no woody debris and very limited riparian vegetation cover. This project will create a design and secure permits to improve habitat conditions by re-meandering the channel, increasing channel complexity and establishing a riparian buffer.
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	No
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$80,000
What is the total request of the grant?	\$68,000
What are the available matching funds?	\$12,000



# Project Location

## Salmonberry Creek Restoration Design



### Protected Lands

- GPC Protected or Proposed
- Howe Farm Park
- Wetlands Reserve Program

Project Location

0 0.25 0.5 Miles





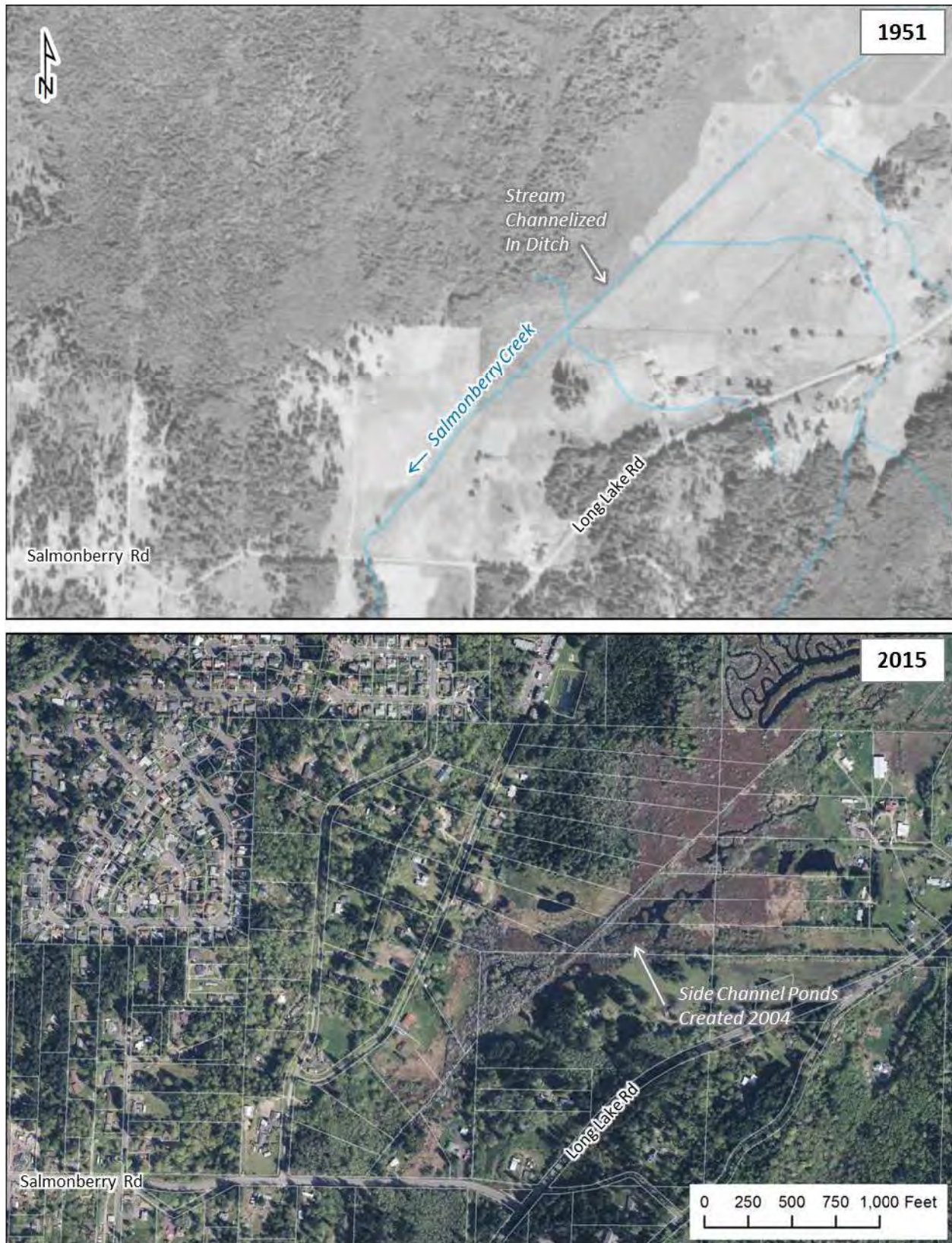


Figure 6-12. Historic (1951) and recent (2015) aerial imagery of Salmonberry Creek upstream of Salmonberry Road.



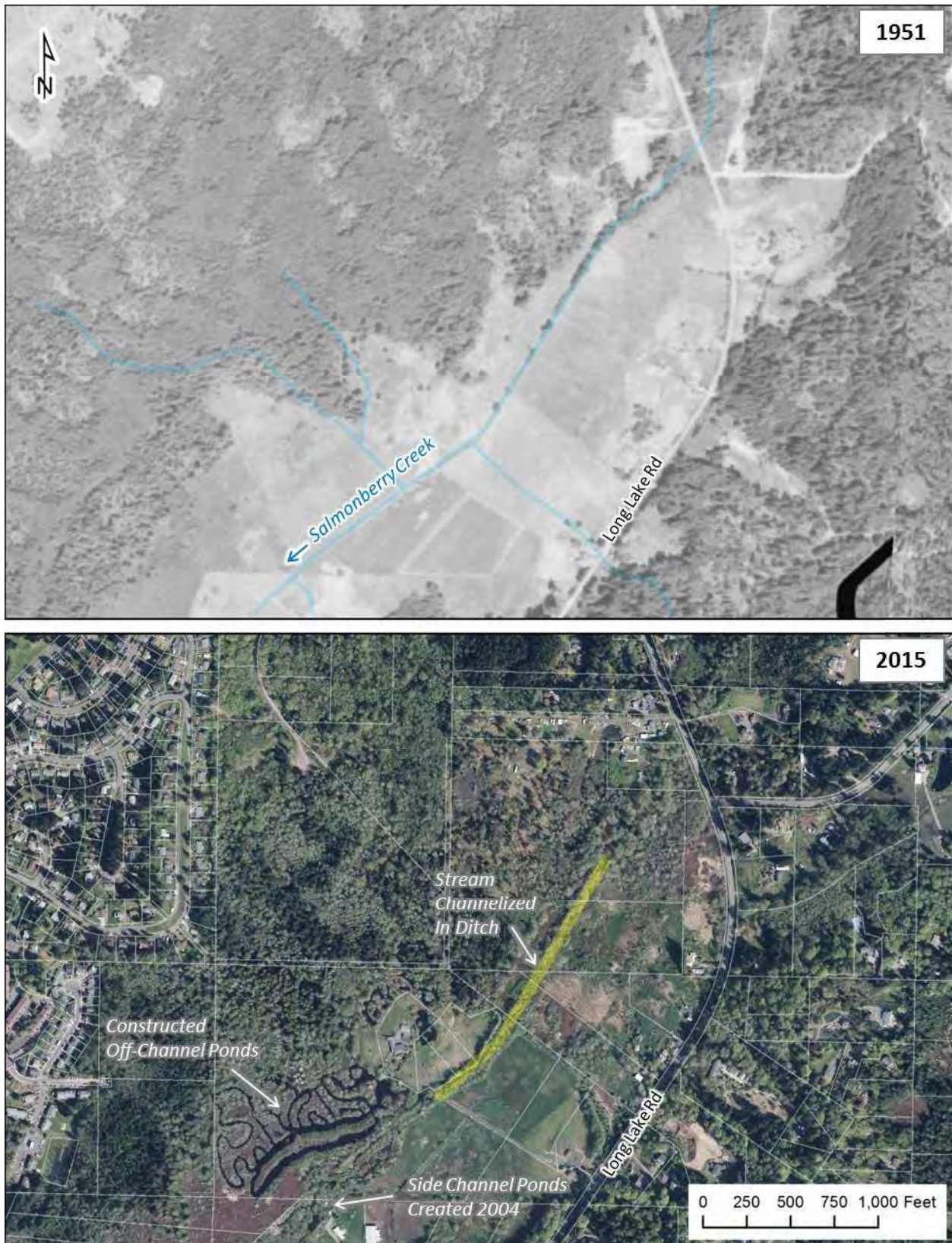


Figure 6-13. Historic (1951) and recent (2015) aerial imagery of Salmonberry Creek downstream of Long Lake Road.

Project Name	Salmonberry Creek Restoration Design
Enter your project summary. Include your goals and objectives.	<p>The Curley Creek Watershed Assessment and Protection and Restoration Plan (Suquamish Tribe 2017) and East Kitsap DIP Steelhead Recovery Plan identify a need to fill gaps in habitat restoration along Salmonberry Creek between SE Salmonberry Road and Long Lake Road SE.</p> <p>This reach is the main coho rearing and overwintering habitat in the watershed, and provides important headwater functions. Habitat in the middle portion of this reach has been improved through past stream restoration projects, and Great Peninsula Conservancy holds conservation easements on a number of private properties. However the upstream and downstream ends of the reach have been cleared of riparian vegetation and ditched to support past agricultural uses.</p> <p>This project will reach out to 11 landowners in the 3000 feet of the stream that has not yet been restored to enroll landowners in restoration; create a conceptual, preliminary and final restoration design in collaboration with landowners; and secure construction permits. Landowner outreach will occur in early 2022 with currently available matching funds.</p> <p>The restoration design will aim to improve sheltering and foraging resources for juvenile steelhead and coho by increasing channel complexity and channel length, and enhancing riparian functions.</p>
Category	Planning - Design
Please list all other related projects.	<p>A number of restoration and projects have been completed in this reach. This proposal will fill gaps in restoration through the reach. Existing projects include:</p> <p>Construction of beaver ponds by Mid Sound Fisheries Enhancement Group, 2006 (SRP# SK Salmonberry 00-1729)</p> <p>Kitsap Conservation District Backyard Habitat Project at the Shandera Property, 2018 (SRP# BYH 2018-13)</p> <p>Kitsap Conservation District Backyard Habitat Project at the Childers Property, 2014 (SRP# BYH-2014-03)</p> <p>Great Peninsula Conservancy protection (SRP# 2020-6)</p>
Is this project identified in a salmon or steelhead recovery	Yes

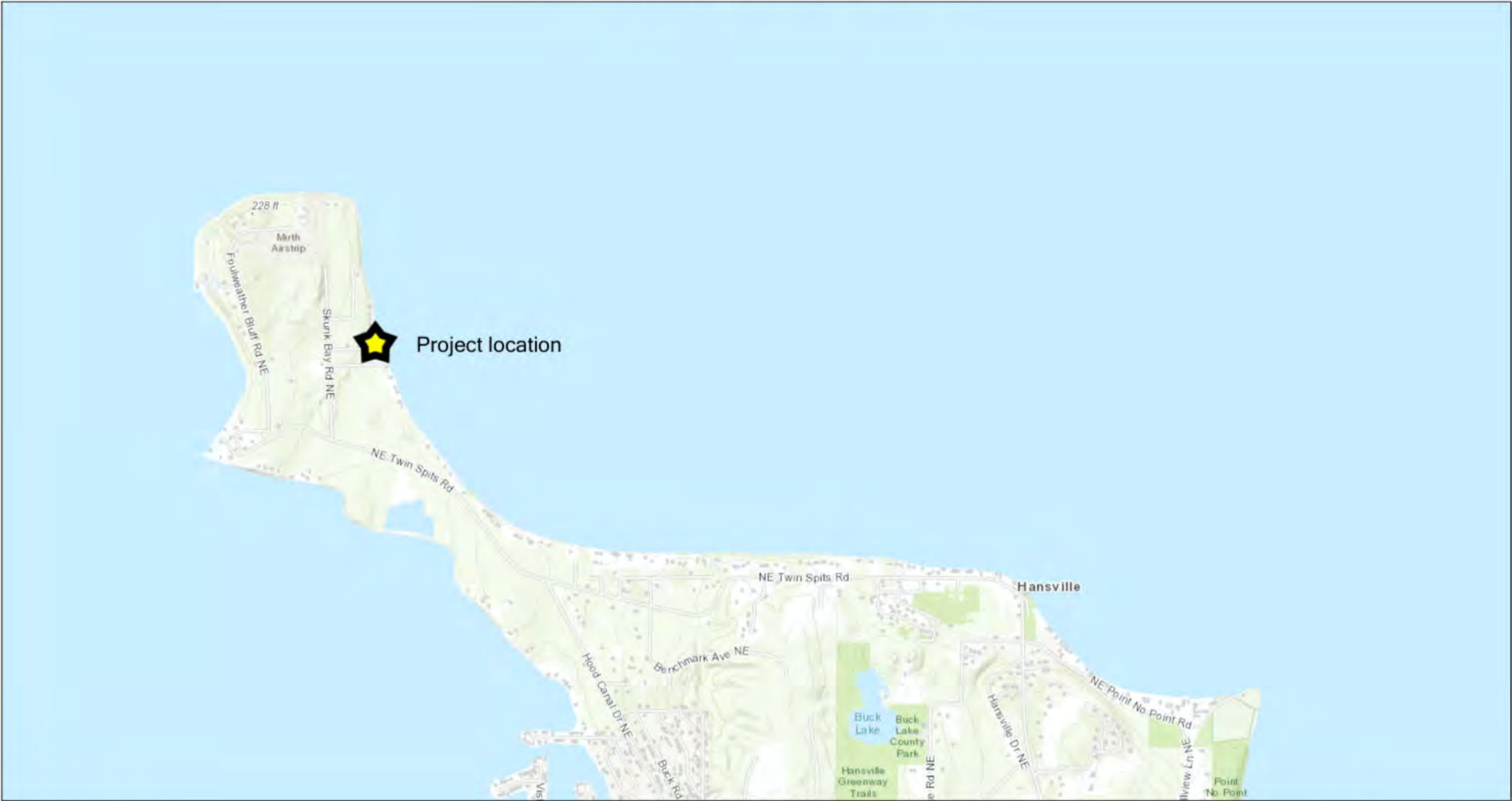


plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	
Please identify which and explain.	Curley Creek Watershed Assessment and Protection and Restoration Plan (Action Area 19 and 20, page 115)  East Kitsap DIP Steelhead Recovery Plan 10 Year Start List (Action IDs 19 and 20)
Has the landowner acknowledged the project?	No
Explain your answer here	Landowner outreach will be completed in early 2022 with existing grant funding.
Which species will benefit from this project?	Coho, Steelhead
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	The Watershed Assessment assigned poor conditions ratings for Salmonberry Creek for the following Key Ecological Attributes: stream sinuosity, channel stability, wood loading and riparian forest maturity. This project will address these condition ratings by creating a design that will re-meander the ditched channel, increase channel complexity through wood installation, and establish a riparian buffer through weed control and native tree and shrub planting.
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem	No

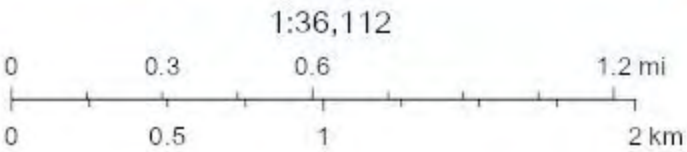
Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$80,000
What is the total request of the grant?	\$68,000
What are the available matching funds?	\$12,000



# Skunk Bay Armor Removal



January 11, 2022



County of Kitsap, Island County, Bureau of Land Management, Esri  
Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA,  
EPA, USDA



Existing Conditions

3-061

NE Moonstone Way

Existing bulkhead

3-029

3-027

3-025

3-026

3-062

3-022

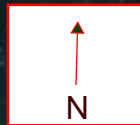
3-023

High tide mark

109'-0"

114'-1/4"

Groin/pier  
(approximately 70  
feet in length).  
Scattered debris to  
south within red  
polygon







3-061

NE Moonstone Way

Bulkhead to remain

3-029

3-024

Staging area

3-025

Land access for  
machinery

3-023

Approximately  
9.5-feet of the stem  
wall to remain.

109'-0"

114'-1/4"

High tide mark

Groin portion to be  
removed (60 feet in  
length). All loose  
debris to be also be  
removed.

10-20 CY of 'fish mix'  
to be added in any  
depressions left after  
removal.

N



**Fredrick's pier/groin photos (Derelict pier to be removed)**



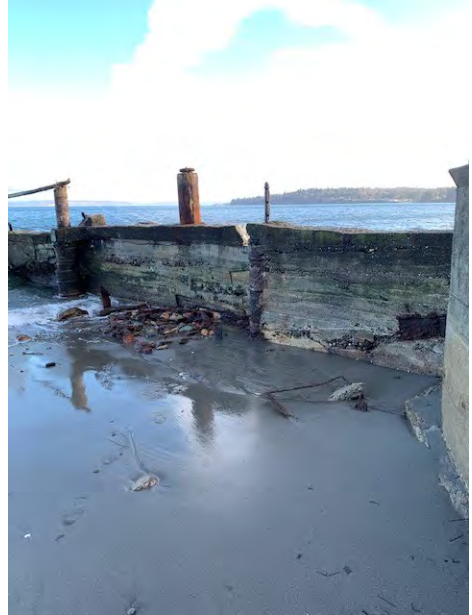
Looking northwest at south, waterward side of groin



Looking west at most waterward part of groin



South side of pier



North side of pier





Oblique air photo taken by the Washington Department of Ecology in 2016.

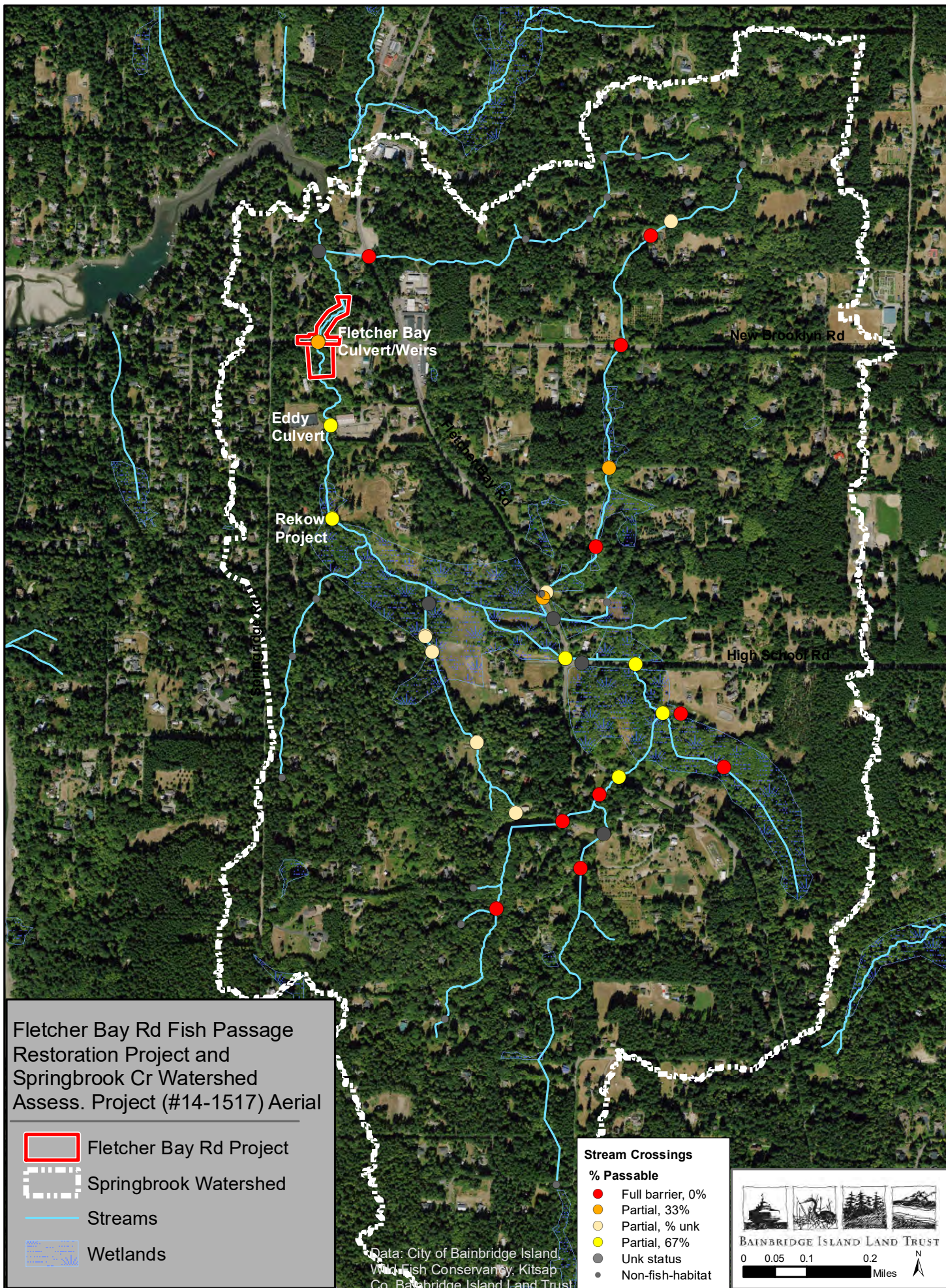
Title	Skunk Bay
Project Name	Skunk Bay Armor Removal
Enter your project summary. Include your goals and objectives.	This project will remove 60 feet of concrete groin, three creosoted wood piles, and scattered concrete debris to restore sediment transport processes and nearshore habitat along a high-priority segment of shoreline on the northern Kitsap Peninsula. The project is construction-ready, with the feasibility report, site plan, and permitting completed with support from Shore Friendly Kitsap. The project will improve nearshore habitat conditions for outmigrating juvenile salmonids, forage fish, and eelgrass beds.
Category	Restoration
Please list all other related projects.	18-1837 Kitsap Nearshore Armor Removal Design & Readiness; Shore Friendly Kitsap; The project is near to two other high-priority nearshore restoration projects: Point No Point Estuary Restoration and Finn Creek Restoration.
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	Kitsap County Nearshore Prioritization Framework: high-priority drift cell, priority reach for restoration; East Kitsap Nearshore Assessment: restore, protect, and restore site processes; West Sound Nearshore Integration & Synthesis: adjacent to Tier 1 and Tier 2 projects, within a high-priority drift cell for restoration efforts addressing sediment supply and transport.
Has the landowner acknowledged the project?	Yes
Explain your answer here	The landowner has worked with Shore Friendly Kitsap to develop project upland and submit permit applications. The neighbor to the south is supportive of the project and willing to allow construction access for land-based removal.
Which species will benefit from this project?	Non-natal juvenile Chinook and other salmonids, forage fish, eelgrass
Describe the limiting factors and/or ecological concerns that your project will	Shoreline armoring, sediment transport, nearshore habitat conditions



address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Email	<a href="mailto:sarah@midsoundfisheries.org">sarah@midsoundfisheries.org</a>
Work Phone	(206) 948-7206
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	No
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022)
Temp	
What is the total cost of the project?	\$50,000
What is the total request of the grant?	\$42,500
What are the available matching funds?	\$3,750 landowner cost share/\$3,750 Shore Friendly Kitsap

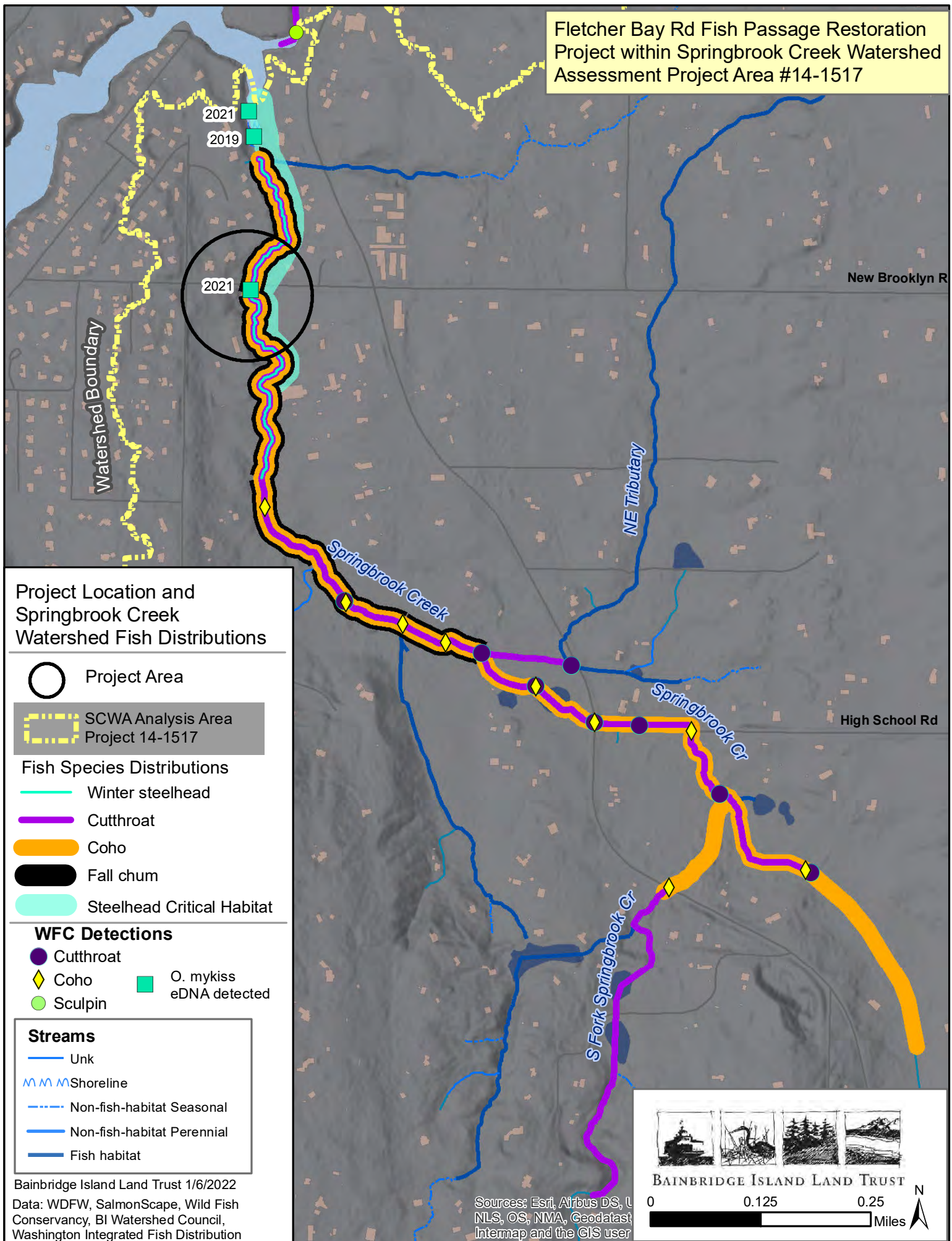








Fletcher Bay Rd Fish Passage Restoration  
Project within Springbrook Creek Watershed  
Assessment Project Area #14-1517



Project Location and  
Springbrook Creek  
Watershed Fish Distributions



Project Area



SCWA Analysis Area  
Project 14-1517

Fish Species Distributions



Winter steelhead



Cutthroat



Coho



Fall chum



Steelhead Critical Habitat

WFC Detections

Cutthroat

Coho

Sculpin

O. mykiss

eDNA detected

Streams

Unk

Shoreline

Non-fish-habitat Seasonal

Non-fish-habitat Perennial

Fish habitat

Bainbridge Island Land Trust 1/6/2022

Data: WDFW, SalmonScape, Wild Fish  
Conservancy, BI Watershed Council,  
Washington Integrated Fish Distribution

Sources: Esri, Airbus DS, L  
NLS, OS, NMA, Geodataset  
Intermap and the GIS user



BAINBRIDGE ISLAND LAND TRUST

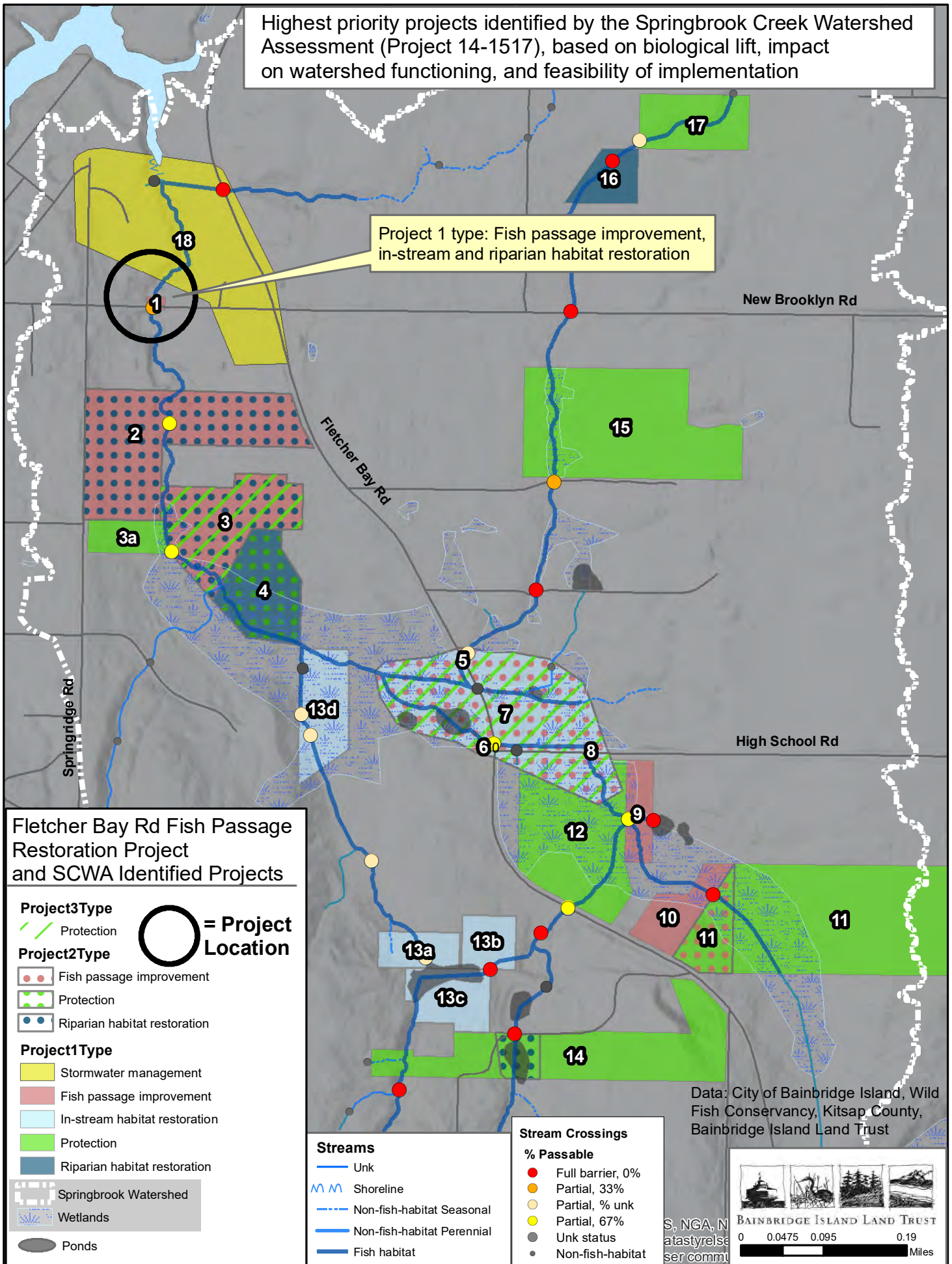
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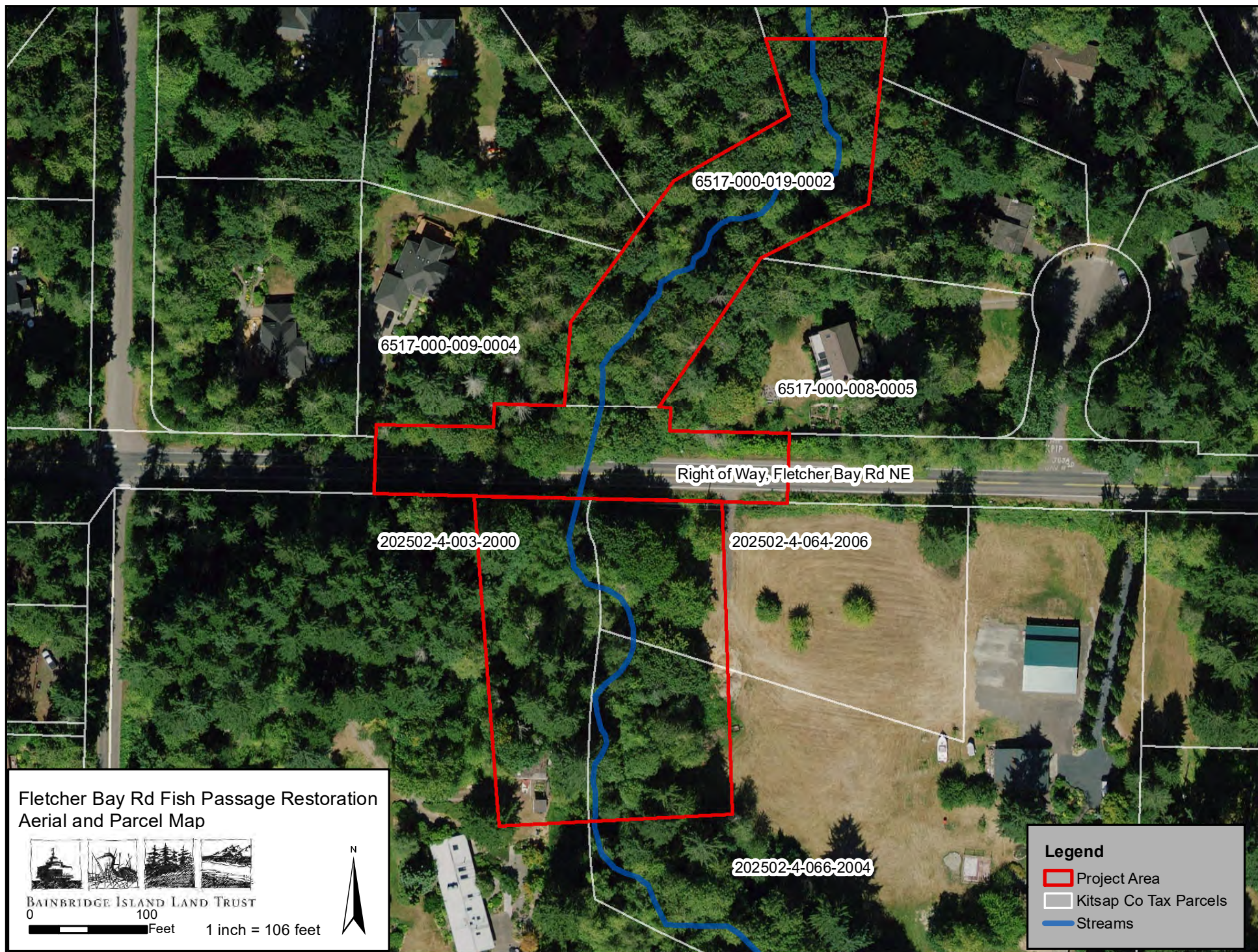


Highest priority projects identified by the Springbrook Creek Watershed Assessment (Project 14-1517), based on biological lift, impact on watershed functioning, and feasibility of implementation

Project 1 type: Fish passage improvement, in-stream and riparian habitat restoration

























Title	Fletcher Bay
Project Name	Fletcher Bay Road Fish Passage Restoration
Enter your project summary. Include your goals and objectives.	<p>The Fletcher Bay Road Fish Passage Restoration project will remove an undersized fish passage barrier culvert (5' wide x 100' wide), a series of concrete fishway/weirs located up and downstream of the culvert, and streamside armoring. A bridge and streamside vegetation will be installed, restoring over 400 feet of stream channel and allow for fish passage and utilization of over 3.95 miles of upstream habitat on Springbrook Creek, federally designated as critical habitat for ESA listed Puget Sound Steelhead. The project will not only improve fish passage, but also allow for the transport of sediment and woody debris. This is the construction phase of this multi-year project building off of the Springbrook Creek Watershed Assessment (Project # 14-1571), the conceptual design developed as part of the Assessment and the final design (Project currently underway, # 21-1058) developed by Mid-Sound Fisheries Enhancement, City of Bainbridge Island and other partners. At stream mile .20, this fish passage barrier is the lowest barrier in the 999 acre Springbrook Creek Watershed, and the project was identified as the highest priority project to benefit salmonid populations and improve the capacity of the stream to accommodate hydrologic changes associated with climate change. The project provides an opportunity for public education about the importance of improving the health of Springbrook Creek in order to support the recovery of the iconic Puget Sound steelhead. In addition to steelhead, the project supports Coho, chum, and cutthroat trout, and may also benefit non-natal juvenile Chinook salmon rearing in Fletcher Bay.</p>
Category	Restoration
Please list all other related projects.	<p>This project is the final phase of a project born from the Wild Fish Conservancy Stream Assessment (SRFB Project 13-1143) and the Springbrook Creek Watershed Assessment (SCWA) (SRFB Project 14-1547). This project was ranked the #1 priority for helping restore fish habitat and watershed functions in the SCWA and a conceptual design was developed by Wild Fish Conservancy as part of that project, with input from the City of Bainbridge Island. This project will implement the final design being produced as of result of the Fletcher Bay Rd Culvert Removal Design (SRFB Project 21-1058). A Brian Abbott Fish Passage Barrier Removal Board grant (Project 21-1529) grant is also being submitted to support the implementation of this project.</p>
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery	Yes

strategy?	
Please identify which and explain.	<p>The Puget Sound Steelhead East Kitsap DIP Recovery Plan (Suquamish Tribe 2020) speaks to the freshwater environments needed to support federally listed Puget Sound Steelhead and other salmonids and resident fish and that fish passage barriers are one of the highest priorities to address in the recovery of steelhead. Springbrook Creek is federally designated as critical habitat for ESA federally listed threatened Puget Sound Steelhead. With the creation of the steelhead plan, the identification of pressures, stressors and strategies for species recovery in the fresh water environment are identified. The plan indicates that Springbrook Creek has by far the greatest intrinsic potential for steelhead in the Bainbridge Island Watershed, as well as the most stream miles that currently support spawning, rearing, and migrating steelhead. Appendix C (Implementation Strategy) identifies this project (5.3.1) as an opportunity to remove a fish passage barrier for fish passage and longitudinal connectivity. The Springbrook Creek Watershed Assessment (SCWA) (SRFB Project # 14-1517) is a Near Term Action in Puget Sound Partnerships Action Agenda and identified this project as the #1 top priority for restoration in the watershed. In 2019 and 2021, Wild Fish Conservancy detected O. mykiss through eDNA in proximity of the project location.</p>
Has the landowner acknowledged the project?	Yes
Explain your answer here	<p>The landowners involved, the City of Bainbridge Island and the Loverich family, have been in discussions relative to this project and have executed Landowner Acknowledgment forms. The City of Bainbridge Island will be a project co-sponsor.</p>
Which species will benefit from this project?	<p>ESA threatened Puget Sound steelhead. In addition to steelhead, the project supports Coho, chum, and cutthroat trout, and may also benefit non-natal juvenile Chinook salmon rearing in Fletcher Bay.</p>
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	<p>Project team rationale for recommending this project as the #1 project to be done in the Springbrook Creek Watershed was that it addresses the following limiting factors: fish passage, riparian habitat, sediment transport, in stream complexity (large wood transport and restoring stream to its historical profile and gradient), water quality (temperature), stream hydrology, and landowner (COBI/Loverich) willingness. Additionally, the project team focused on sequencing projects moving upstream from Fletcher Bay. This project is the lowest barrier in the creek system, making it a priority to address in the near term in order to provide access to upstream habitat.</p>
Project Sponsor	Mid Sound Fisheries Enhancement Group
Primary Contact	Sarah Heerhartz
Is this project on the Salmon Recovery	Yes

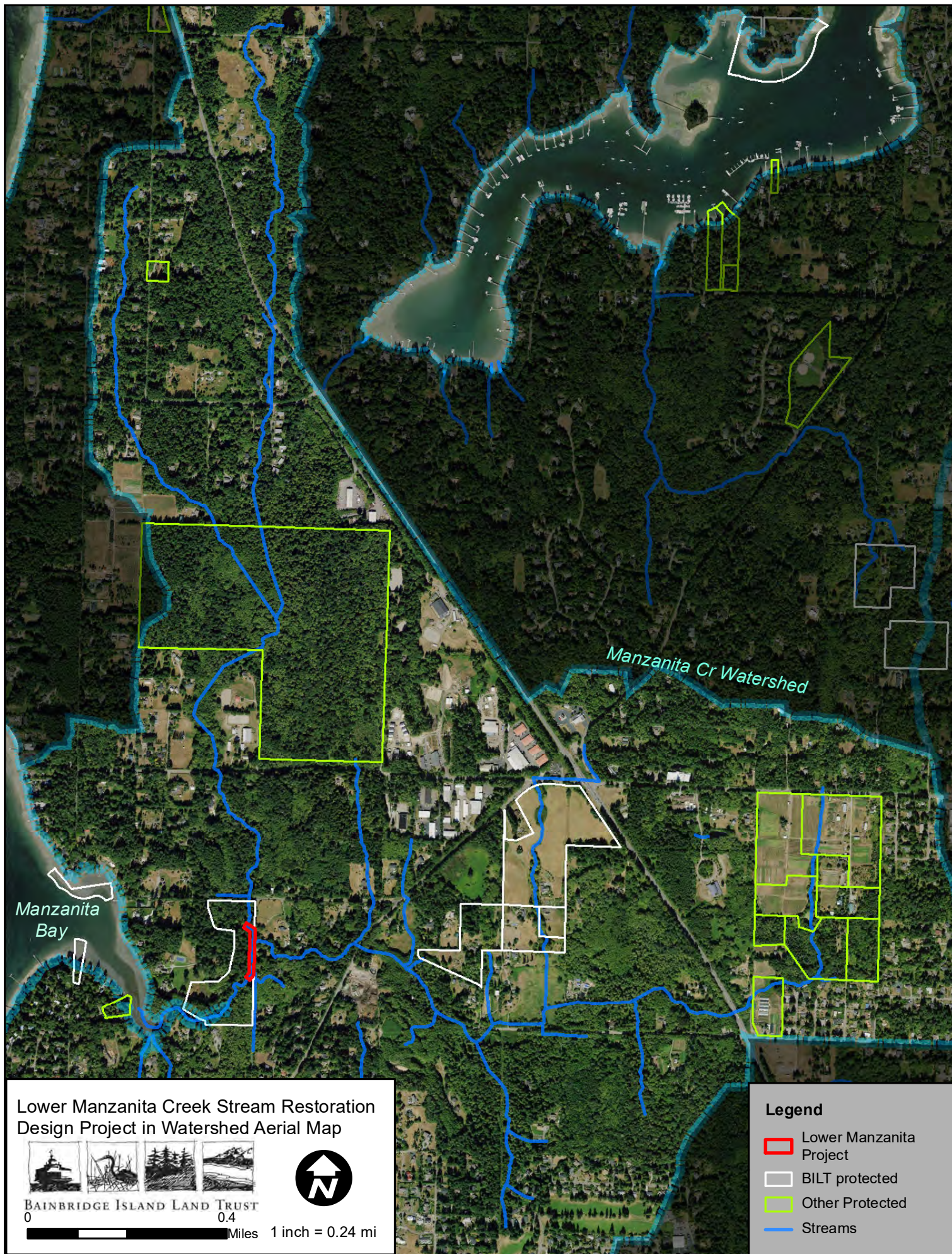


Portal (formerly known as Habitat Work Schedule)?	
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	Yes
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
Temp	
What is the total cost of the project?	\$1,500,0000
What is the total request of the grant?	\$500,0000
What are the available matching funds?	\$1,000,000












## Legend

 Project Area

## Fish Distributions

### Species

 Cutthroat

 Coho

 Chum

### Streams

 Unk

 Shoreline


 Non-Fish Hab Seasonal

 Non-Fish Hab Permanent


 Fish habitat


 N/A(Type N) culvert

 Unknown status culvert


 full barrier culvert

 non barrier culvert

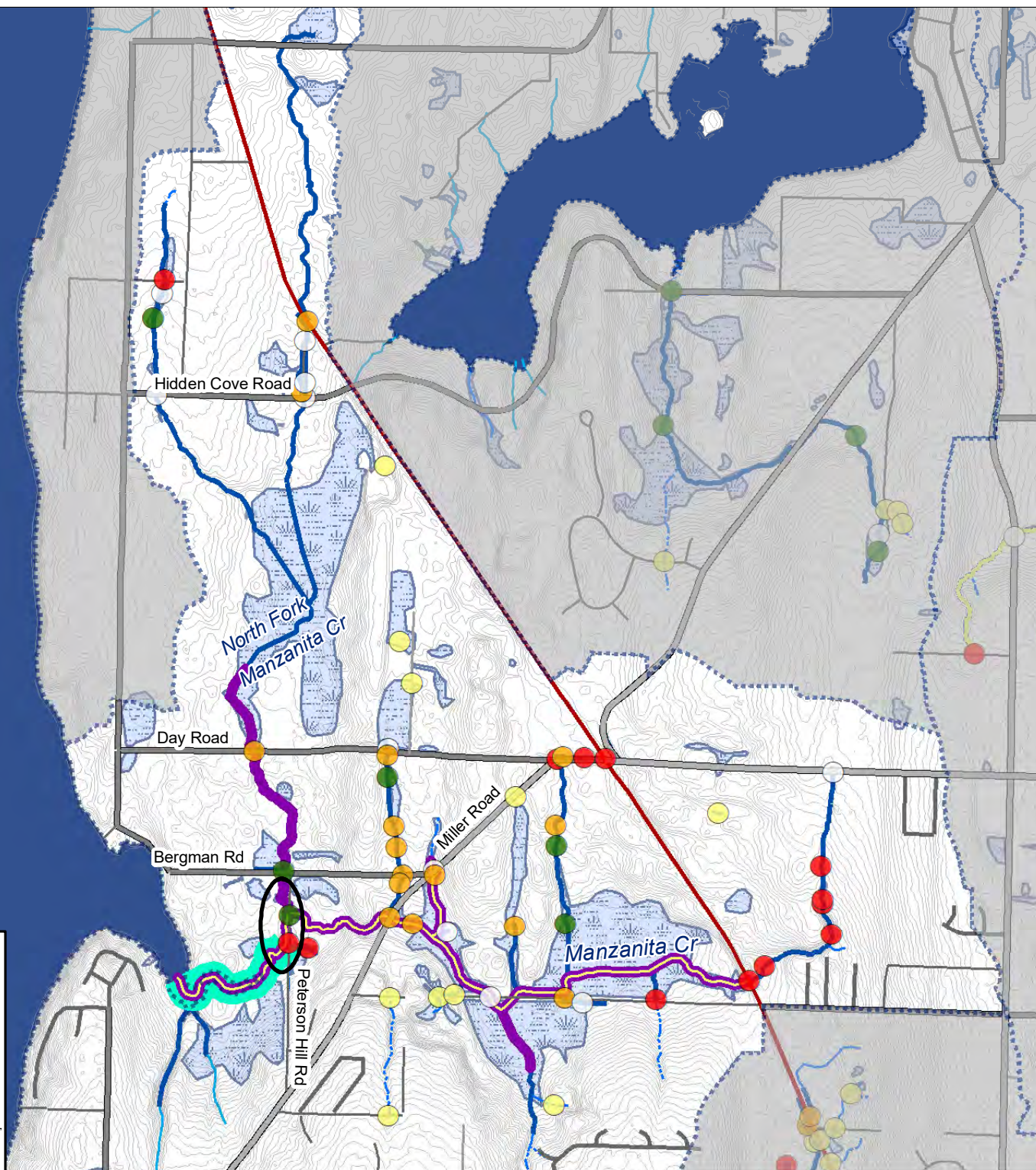
 partial barrier culvert

 5 ft Contour

 Wetlands

 Other watersheds

 Manzanita watershed



## Lower Manzanita Cr Stream Restoration Design Project Fish Distributions and Passage Barriers



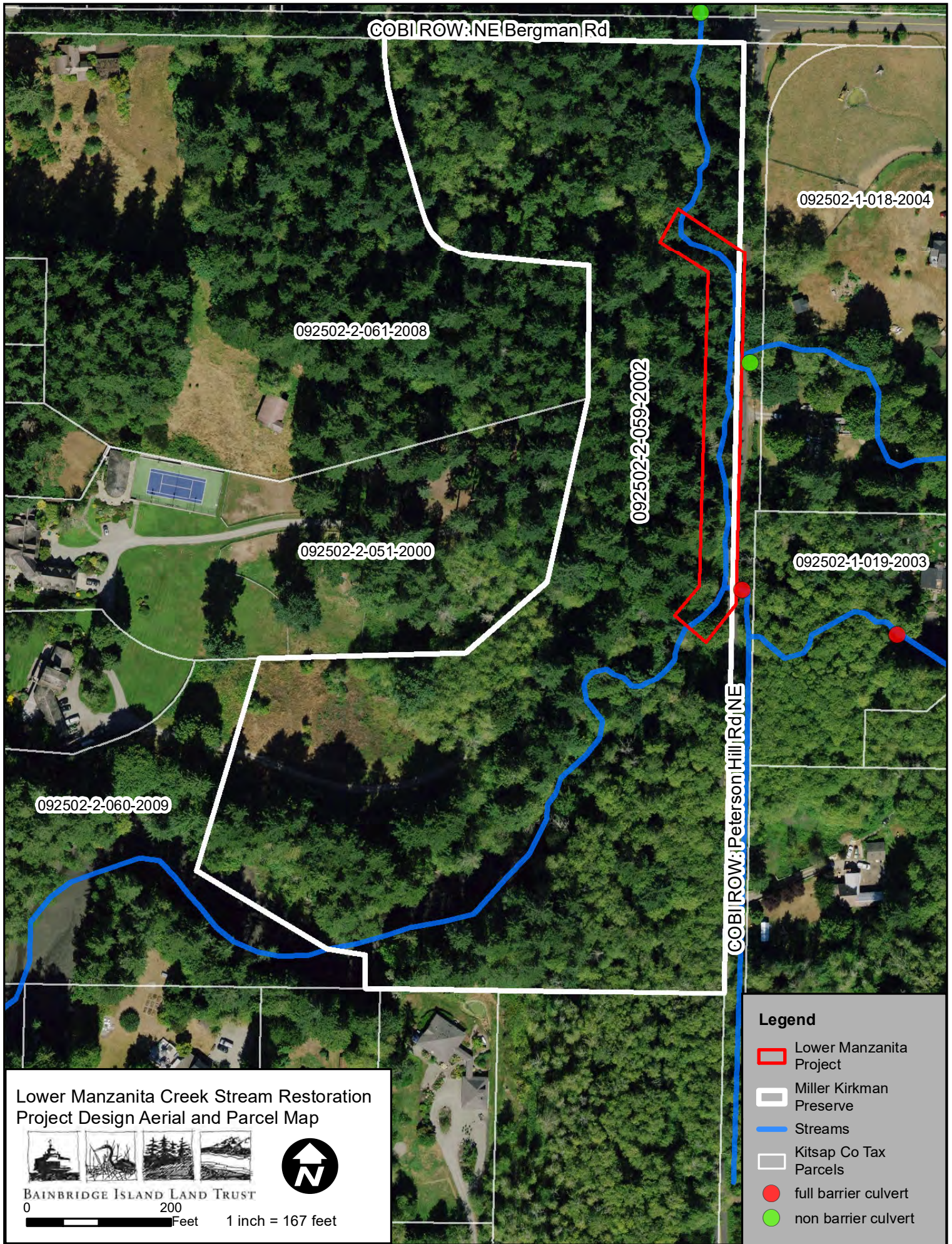
BAINBRIDGE ISLAND LAND TRUST

0 0.125 0.25 0.5 Miles

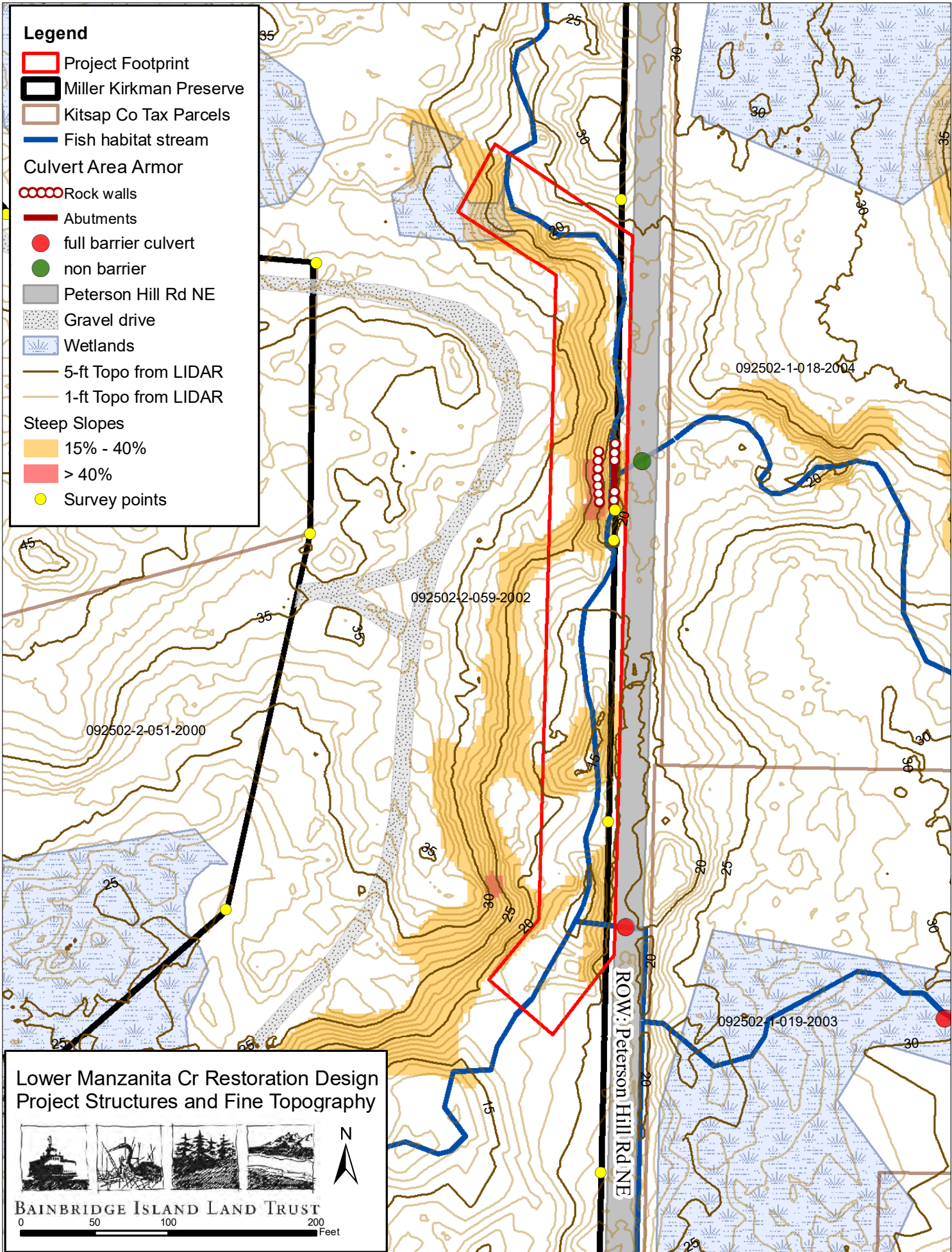


Map by BILT  
Gina King











## Lower Manzanita Creek Stream Restoration Project Photos

Looking NNE: Peterson Hill Rd NE culvert outlet: cement wall with rock wall to N. This shows the main stem Manzanita Creek (flowing under the culvert) entering the Manzanita Creek North



Coho caught at culvert outlet 11/4/2013 (Wild Fish Conservancy)







N: North Fork Manzanita Cr immediately upstream of culvert: 10' BFW, 8' WW with hard armoring on both sides.



S: North Fork Manzanita Cr immediately downstream of culvert: 9' BFW, 6' WW with hard armoring on both sides.



NNW: Cement wall around culvert on right, rock wall on W bank on left.



N: North of culvert, stream constrained along road, and recently mowed to the water as part of routine roadside mowing operations.





N: North Fork Manzanita Cr natural conditions upstream of Project Area.

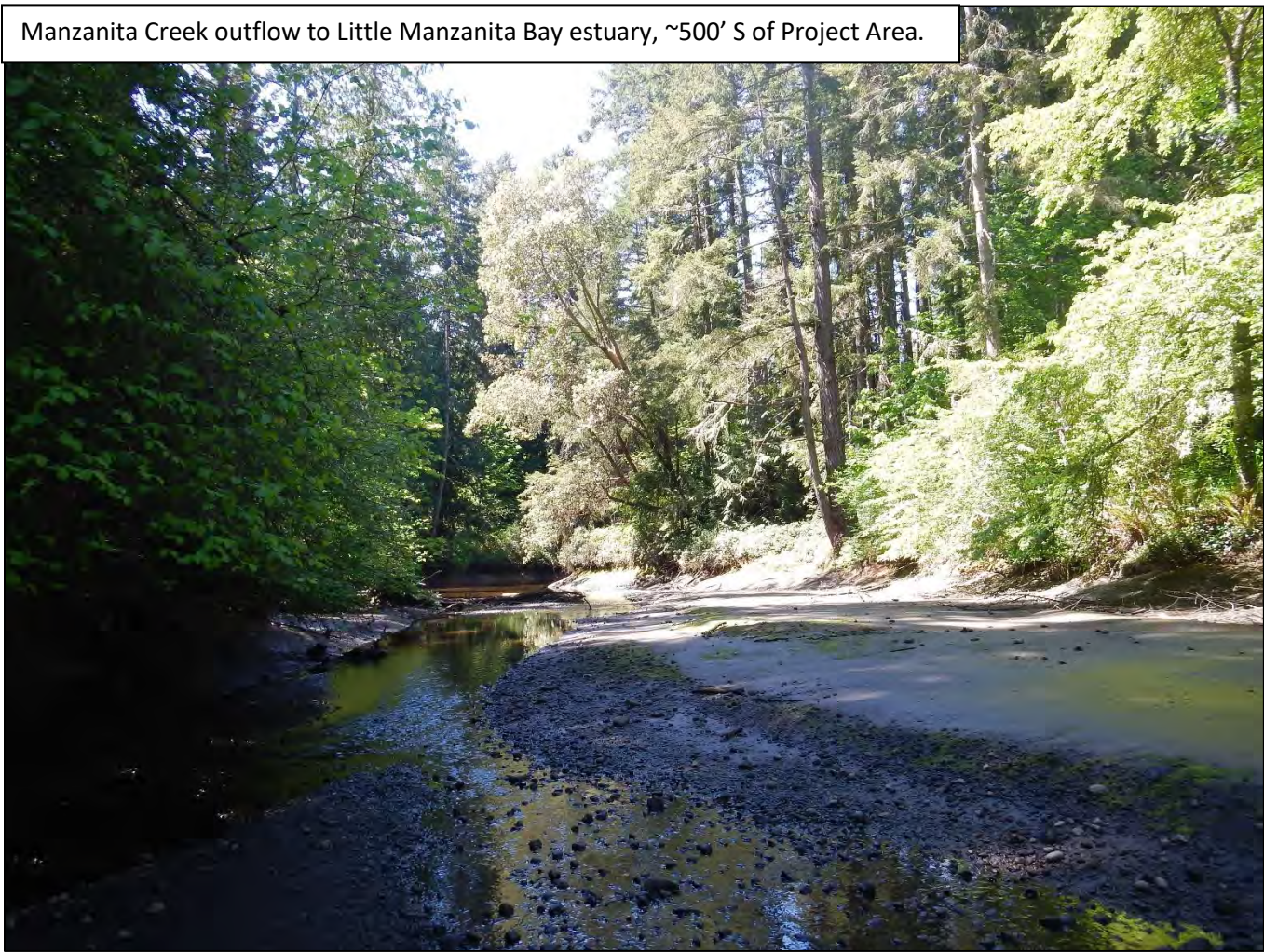


N: North Fork Manzanita Cr natural conditions upstream of Project Area.





Manzanita Creek outflow to Little Manzanita Bay estuary, ~500' S of Project Area.



"Romp" of 7 otters caught on trail camera at this location.





Project Name	Lower Manzanita Creek Restoration Design Project
Enter your project summary. Include your goals and objectives.	<p>This project will complete a preliminary design to help guide the restoration of approximately 500 feet Manzanita Creek currently constrained by rock armor, channelization, and a public road. The design will focus on removing rock armor to widen the stream channel to mimic natural stream conditions currently present above and below the project area in order to and enhance stream and riparian habitat complexity. The project takes place on the Manzanita Creek located on the Land Trust owned Miller Kirkman Preserve (Project 18-1471) approximately .16 miles upstream from where the creek enters Little Manzanita Bay. This project will further enhance stream conditions important for Coho, chum and cutthroat fish inhabiting the preserve's estuary and stream. Within the project area (approximately 50 feet wide x 500 feet long), a rock wall and roadside armor was installed in 2005/2006 by the City of Bainbridge Island within the preserve and is failing as part of a culvert improvement project under Peterson Hill Road. Some portions of dislodged rock armor threaten to impeded fish passage by blocking the stream channel. The armored all blocks sediment and wood recruitment into the stream. The entire east bank of the creek in the project area adjoins Peterson Hill Road, a paved public road, and is void of vegetation. Manzanita Watershed is approximately 2, 295 acres with about 1,500 acres draining through the project area. 8.23 miles of stream exist above the project area with 7.14 miles being designated fish habitat. There are no fish passage barriers below the project are on the main stem of Manzanita Creek. The lower segment of Manzanita Creek, where the project is located, is the only creek on Bainbridge Island to have adult Coho and chum recorded consecutively over the past six years by Bainbridge Island Salmon Monitoring volunteers and has historically been the most prevalent Coho stream on Bainbridge Island. Coordination of the design will take place with the City of Bainbridge Island who manages Peterson Hill Road, the public paved road adjacent to the project area, as well as fish passable culverts under Peterson Hill Road and Bergman Roads.</p>
Category	Planning - Design
Please list all other related projects.	<p>The Lower Manzanita Creek Restoration Design Project focuses on a segment of stream and land within the Bainbridge Island Land Trust owned Miller-Kirkman Preserve, which was purchased with the assistance of SRFB/PSAR Funds (Project 18-1471) for its intact estuary, upland and stream conditions. The stream was assessed by Wild Fish Conservancy during the West Sound Water Typing Project 13-1143. The Manzanita Watershed is the topic of a current Watershed Assessment being conducted by the City of Bainbridge Island. Little Manzanita Bay was identified in the West Sound Nearshore Integration and Synthesis Project as a top priority for projection of important habitat.</p>
Is this project identified in a salmon or steelhead recovery	Yes

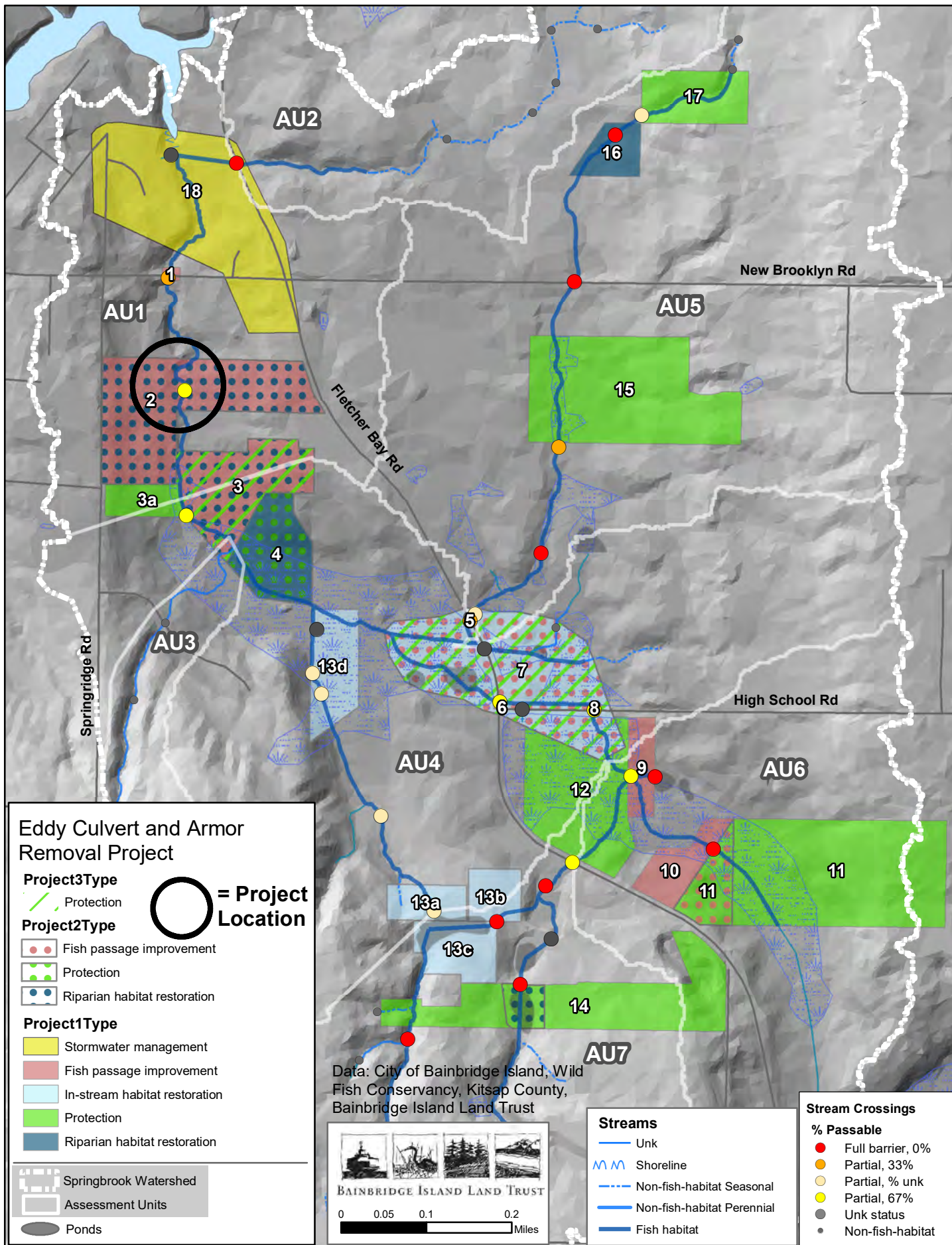


plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	
Please identify which and explain.	The Bainbridge Island Land Trust strategic conservation plan identified the Miller Kirkman Preserve and areas of Manzanita Watershed for protection due to its intact cover and mostly natural stream conditions. The Puget Sound Action Agenda prioritizes the protection of all remaining salmon habitat to optimize a net gain in ecosystem function and habitat productivity as well as continuing to restore degraded habitat as key priorities for recovery of Chinook and all salmon species.
Has the landowner acknowledged the project?	Yes
Explain your answer here	Bainbridge Island Land Trust, the project sponsor, owns the property where the project is being proposed.
Which species will benefit from this project?	Coho, chum and cutthroat trout
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	Constrained channel, limited riparian habitat, and potential fish passage barrier will be limiting factors addressed when the design is implemented. In addition, the design will hopefully be able to also address contaminate run off from the adjacent roads.
Project Sponsor	Bainbridge Island Land Trust
Primary Contact	Brenda Padgham
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	Yes
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	Yes
For which grants are	Salmon Recovery Funding Board (available September 2022)



you applying?	Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$45,000.00
What is the total request of the grant?	\$35,000.00
What are the available matching funds?	\$10,000.00 Bainbridge Island Land Trust







## **Barbara Eddy Culvert and Armor Removal, Bridge Replacement, Stream Restoration**

### **Site Description**

At river mile 0.39 Springbrook Creek crosses a field access road on a 14.58 acre parcel belonging to Barbara Eddy. Above the crossing, Springbrook Creek runs through a forested valley with an average bankfull width of 9.5 ft. and the average gradient of 2%. 3.4 miles of fish habitat exist upstream from this crossing. The stream is carried beneath the field access road in a 4 ft. round corrugated steel pipe 40 ft. in length. WDFW has identified it as a 67% passable partial barrier culvert due to the fact that it is undersized and has a slope of 1.68% and has established a priority index (PI) of 19.86. Approximately 100 ft. downstream from the culvert there is a long section of riprap armament protecting a picnic area on the right bank. This armored section of channel is artificially narrow and has caused substantial scour of the unprotected left bank. The armored channel also lacks instream complexity forming a 70 ft. long continuous riffle with neither pools nor large woody debris. A foot bridge at the upper end of the right bank riprap has additional armor protecting its left bank foundation. Below the armored section of the channel, Springbrook Creek enters a lush forested valley with excellent pool-riffle habitat.

### **Specific Goals**

The primary objective is to replace the undersized culvert with a crossing structure that improves fish passage and the transport of sediment and large woody debris. A secondary goal is to remove the downstream armoring from the right bank, increase instream habitat complexity, and widen this section of channel to reflect natural stream conditions. This project improves connectivity between the intact stream reaches adjacent to the existing undersized culvert.

Negative impacts from the undersized culvert and constrained stream (from the armor) are likely to exacerbate in the coming decades as a result of climate change impacts on hydrology (higher flows/storm events).

Design Development: Topographical and stream condition surveys were performed on site with the permission of the landowner by Wild Fish Conservancy. Conceptual drawings and project narrative were presented to the landowner for review and revised based on her feedback.

### **Option 1 (Sheet 2)**

Option 1 replaces the undersized barrier culvert with a 40' x 12' bridge and regrades the channel under the newly installed bridge. This option also removes the riprap armoring on the downstream right bank as well as removing the foot bridge and its associated riprapped abutments. Once the armoring is removed from the downstream channel, the right stream bank should be pulled back to reflect natural stream conditions and the bank should be reconstructed using coir-wrap bioengineering techniques. Root wads gathered from alders removed during the bridge construction are to be installed downstream of the foot bridge in the section of channel



lacking instream complexity. The bioengineering will protect the stream bank until the planted vegetation takes root. All construction is to be done during the dry summer months. The following winter, during plant dormant season, the coir wrapped stream banks and the old picnic area are to be replanted with native vegetation. A new picnic area on the left bank of the stream is to be provided to replace the picnic area no longer accessible with the removal of the footbridge.

#### Pros

Replacing the undersized culvert with a bridge would benefit fish migration and restore stream migration and natural wood and sediment transport processes. A bridge will accommodate a larger range of flows and will require less long term maintenance. Removing the downstream footbridge and bank armoring, and widening the channel to reflect the natural stream would enhance fish habitat and reduce erosion and sedimentation associated with the exacerbated scouring of the left bank.

#### Cons

Installing a bridge is expensive. There is a large amount of fill that would need to be removed if a bridge was built.

#### Option 2 (Sheet 3)

Option 2 is similar to Option 1, but instead of removing the footbridge to the picnic area it is replaced with a longer footbridge with footings protected by bioengineering (coir lifts), not riprap, so that flows are not constricted at the structure. In Option 2, the new left bank picnic area is not constructed; instead, the existing right-bank picnic area is retained and partially vegetated.

#### Pros

Option 2 provides similar benefits as Option 1, with the addition of not requiring development of a new picnic area on the left bank. The landowner has a sentimental attachment to the existing right bank picnic area, which would be maintained in Option 2.

#### Cons

Under Option 2 there will be impacts associated with the replacement footbridge and coir lifts, although these will be less impactful to stream processes than the existing footbridge and armoring.

#### Option 3 (Sheet 4)

Option 3 is identical to Option 1, except a 14 ft wide arch culvert is proposed instead of a 40' long steel bridge.

#### Pros



Option 3 provides benefits similar to those afforded by Option 1. A 14' arch culvert will likely be slightly less expensive to purchase and install compared to a 40' steel bridge.

#### Cons

A 14' wide arch culvert is more likely to constrict flows during large storm events , may require more maintenance, and will likely have a shorter life span, compared to a 40' steel bridge.

#### Selected Option

The project team and the landowner preferred the conceptual channel modifications described in Option 2 in order to restore fish passage, remove substantial bank armoring, and restore natural processes to the extent possible within this reach while also achieving landowner goals. The steel bridge is preferable to the arch culvert due to the bridge's ability to accommodate potentially higher flow patterns in the watershed anticipated in the coming decades as a result of climate change. The landowner deliberated the footbridge options at length and in the end decided she was more comfortable maintaining the picnic area in its present location, though without the hard rock armoring and with the addition of riparian vegetation. Replacing the existing footbridge with a longer one will remove the flow constriction and hydromodification associated with the current footbridge.

The project team rationale for recommending this project as the #2 project within the Springbrook Creek Watershed included: project's location low in the watershed, its adjacency to project #1 (Fletcher Bay Culvert/Weir Removal ) and project #3 (Rekow Stream Restoration), improving the following limiting factors: fish passage, riparian habitat, sediment transport, instream complexity designed to support fish life stages (large wood transport and restoring stream to its historical profile and gradient and more pools and riffle), stream hydrology, and landowner willingness. Additionally, the project team focused on sequencing projects moving upstream from Fletcher Bay. This project is the second lowest barrier in the creek system, making it a priority to address in the near term order to provide access to 3.4 miles of upstream fish habitat.





Photo 1

Photos of Project Area: **Photo 1:** Good conditions upstream of culvert existing with excellent spawning gravels. Bankfull width is 9.5 ft. and an average gradient of 2%. **Photo 2:** Undersized 4 foot round corrugated culvert, 67% passable, 1.68% gradient. **Photo 3:** Illustration of armor located approximately 100 feet below the culvert. To the left is the landowner's picnic area. **Photo 4:** Existing footbridge will be replaced with a longer version to allow the stream channel to expand and existing armor will be removed.



Photo 2



Photo 4

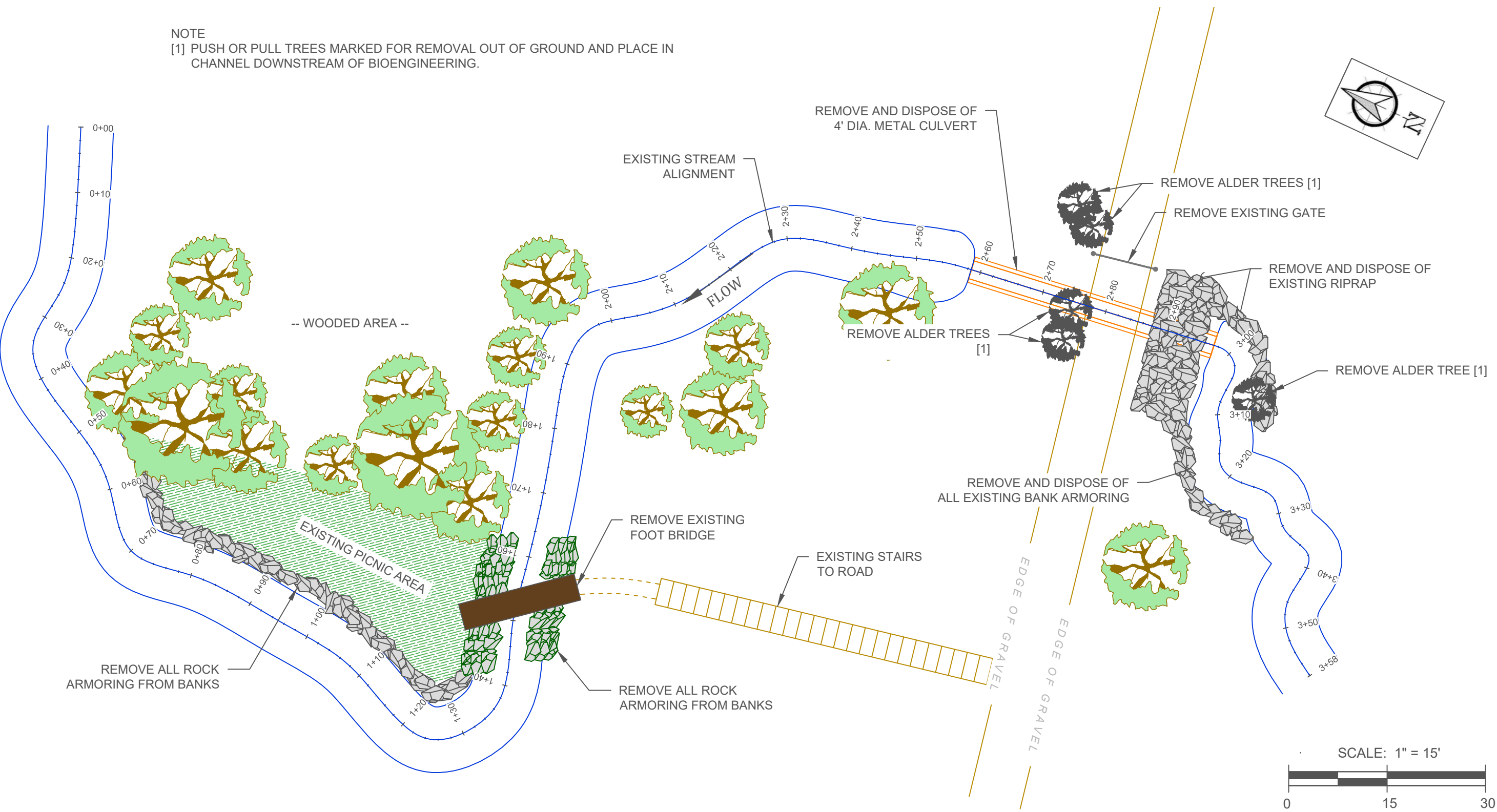


Photo 3



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Mod: 08/28/2018, 07:23 | Plotted: 08/28/2018, 07:28 | Layout: 4

NOTE  
[1] PUSH OR PULL TREES MARKED FOR REMOVAL OUT OF GROUND AND PLACE IN CHANNEL DOWNSTREAM OF BIOENGINEERING.



DATE:	08-27-2018
DRAWN BY:	S. KROPP
DESIGNED BY:	A. STONKUS, P.E.
CHECKED BY:	
JOB NO. :	



**Wild Fish  
Conservancy**  
  
15629 Main Street NE  
Duvall, WA 98019  
Phone: 425-788-1167

EXISTING CONDITIONS
<b>BARB EDDY CULVERT REPLACEMENT</b>
BAINBRIDGE ISLAND, WA

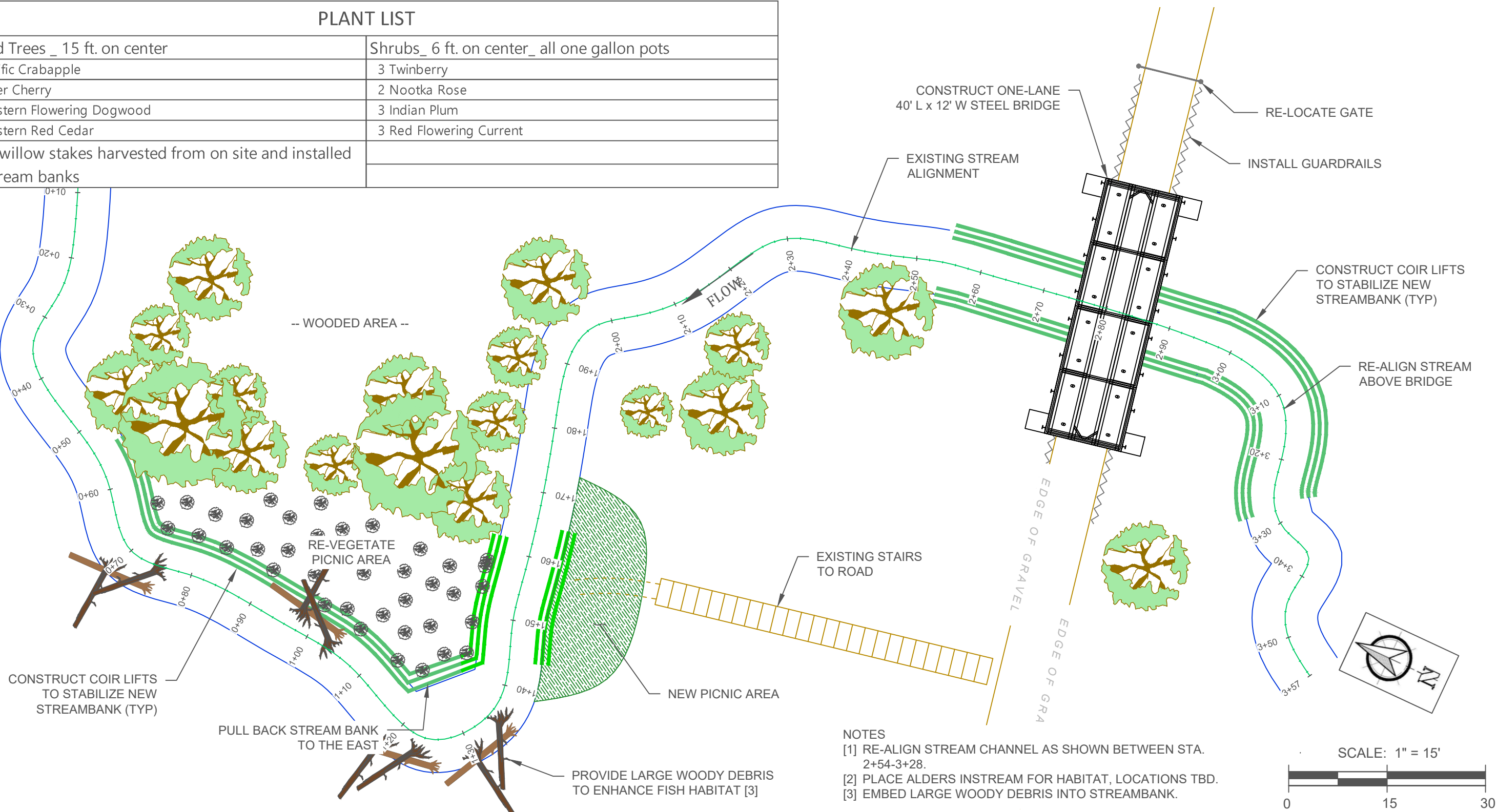
REVISIONS	DATE

SHEET NO.  
  
**1**  
  
SHEET \_\_\_\_ of \_\_XX\_\_



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PLANT LIST	
Potted Trees _ 15 ft. on center	Shrubs_ 6 ft. on center_ all one gallon pots
1 Pacific Crabapple	3 Twinberry
1 Bitter Cherry	2 Nootka Rose
1 Western Flowering Dogwood	3 Indian Plum
1 Western Red Cedar	3 Red Flowering Current
100 willow stakes harvested from on site and installed in stream banks	



- NOTES
- [1] RE-ALIGN STREAM CHANNEL AS SHOWN BETWEEN STA. 2+54-3+28.
  - [2] PLACE ALDERS INSTREAM FOR HABITAT, LOCATIONS TBD.
  - [3] EMBED LARGE WOODY DEBRIS INTO STREAMBANK.

DATE:	08-27-2018
DRAWN BY:	S. KROPP
DESIGNED BY:	A. STONKUS, P.E.
CHECKED BY:	
JOB NO. :	



**Wild Fish  
Conservancy**

15629 Main Street NE  
Duvall, WA 98019  
Phone: 425-788-1167

RESTORATION PLAN: OPTION 1	
BARB EDDY CULVERT REPLACEMENT	
BAINBRIDGE ISLAND, WA	

REVISIONS	DATE

SHEET NO.

2

SHEET \_\_\_\_ of \_\_XX\_\_



PLANT LIST	
Potted Trees _ 15 ft. on center	Shrubs_ 6 ft. on center_ all one gallon pots
1 Pacific Crabapple	2 Twinberry
1 Bitter Cherry	1 Nootka Rose
1 Western Flowering Dogwood	2 Indian Plum
1 Western Red Cedar	2 Red Flowering Current
100 willow stakes harvested from on site and installed in stream banks	

- INSTALL GUARDRAILS

Technical drawing of a bridge structure. The drawing includes a plan view (top) and a cross-section view (bottom). The plan view shows a rectangular bridge deck divided into three sections with dimensions 2+70, 2+80, and 2+90. The cross-section view shows a trapezoidal shape with a central arch and side slopes.

RE-ALIGN STREAM  
ABOVE BRIDGE

FLOW<sup>+</sup>

CONSTRUCT NEW FOOT BRIDGE

EDGE OF GRAVEL

- [1] RE-ALIGN STREAM CHANNEL AS SHOWN BETWEEN STA. 2+54-3+28.
- [2] PLACE ALDERS INSTREAM FOR HABITAT, LOCATIONS TBD.
- [3] EMBED LARGE WOODY DEBRIS INTO STREAMBANK.

PULL BACK STREAM BANK  
TO THE EAST

 $3+5$ 

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DATE:	08-27-2018
DRAWN BY:	S. KROPP
DESIGNED BY:	A. STONKUS, P.E.
CHECKED BY:	
JOB NO. :	



**Wild Fish  
Conservancy**  
15629 Main Street NE  
Duvall, WA 98019  
Phone: 425-788-1167

# BARB EDDY CULVERT REPLACEMENT

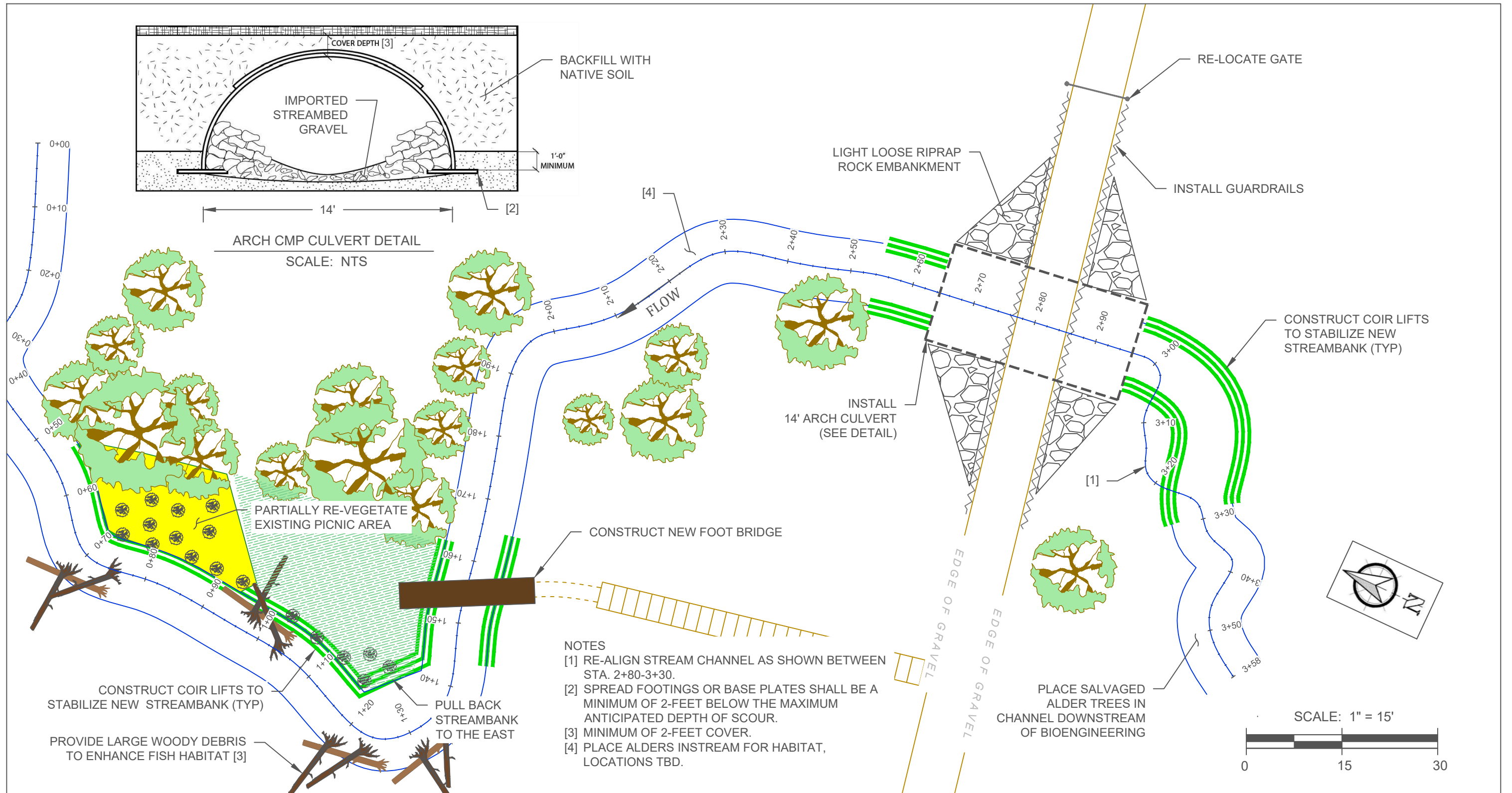
BAINBRIDGE ISLAND, WA

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3

SHEET \_\_\_\_\_ of XX

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Mod: 08/28/2018, 07:27 | Plotted: 08/28/2018, 07:29 | Layout: 2



DATE:	08-27-2018
DRAWN BY:	S. KROPP
DESIGNED BY:	A. STONKUS, P.E.
CHECKED BY:	
JOB NO. :	



**Wild Fish  
Conservancy**  
  
15629 Main Street NE  
Duvall, WA 98019  
Phone: 425-788-1167

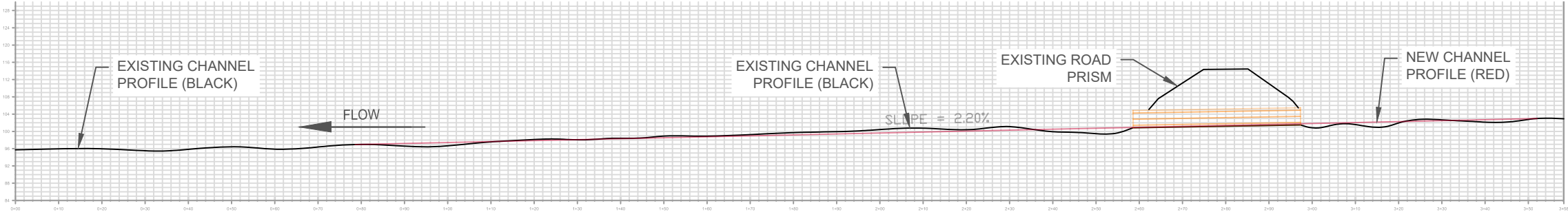
ARCH CULVERT OPTION
<b>BARB EDDY CULVERT REPLACEMENT</b>
BAINBRIDGE ISLAND, WA

REVISIONS	DATE

SHEET NO.  
  
**4**  
  
SHEET \_\_\_\_ of \_\_XX\_\_




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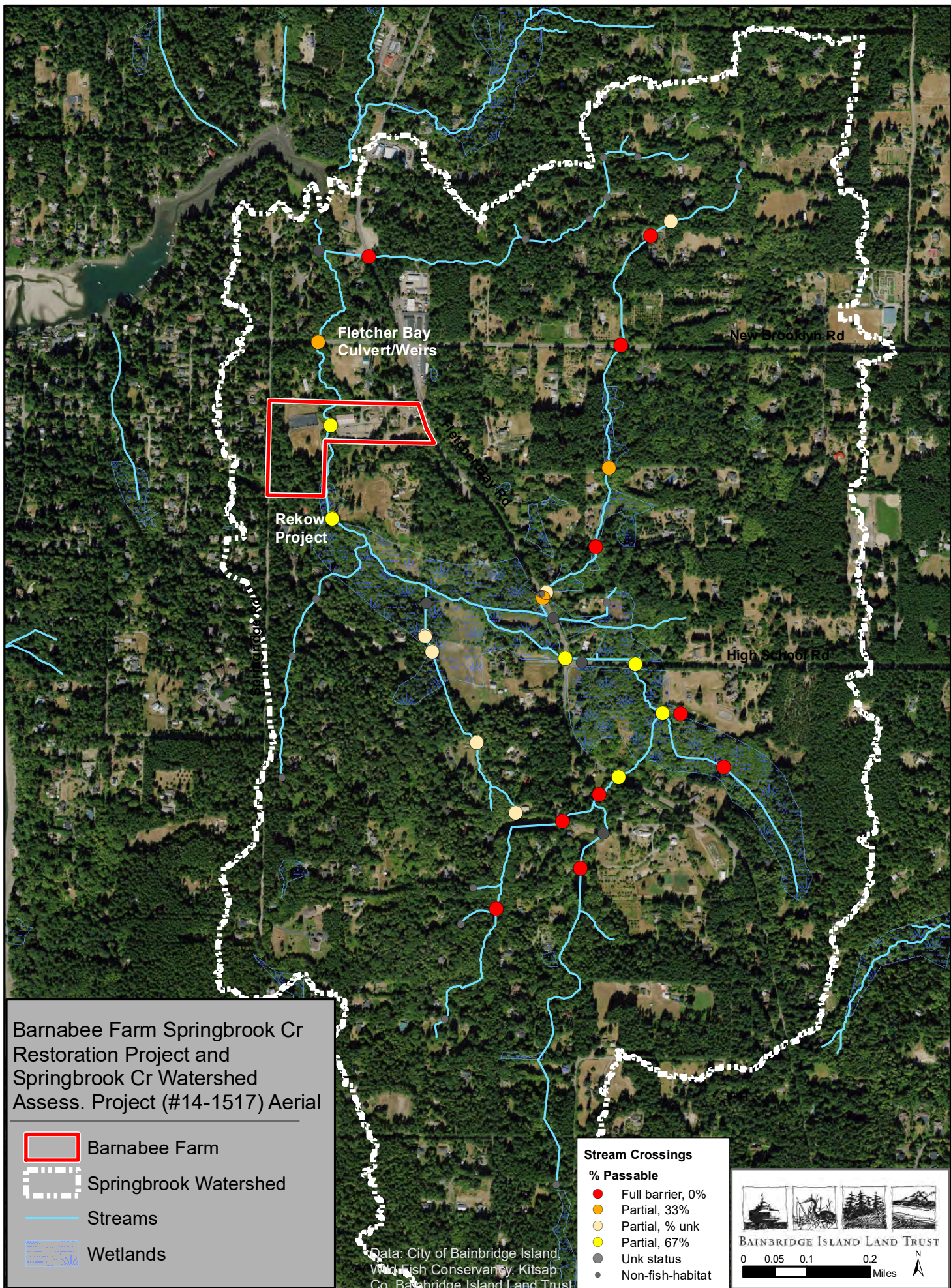
STREAM PROFILE

SCALE: 1H:1V

DATE: 08-27-2018	 <div>Wild Fish Conservancy</div> <div>15629 Main Street NE Duvall, WA 98019 Phone: 425-788-1167</div>		STREAM PROFILE			REVISIONS	DATE	SHEET NO.  5  SHEET ____ of __XX__
DRAWN BY: S. KROPP			BARB EDDY CULVERT REPLACEMENT					
DESIGNED BY: A. STONKUS, P.E.								
CHECKED BY:								
JOB NO. :						BAINBRIDGE ISLAND, WA		

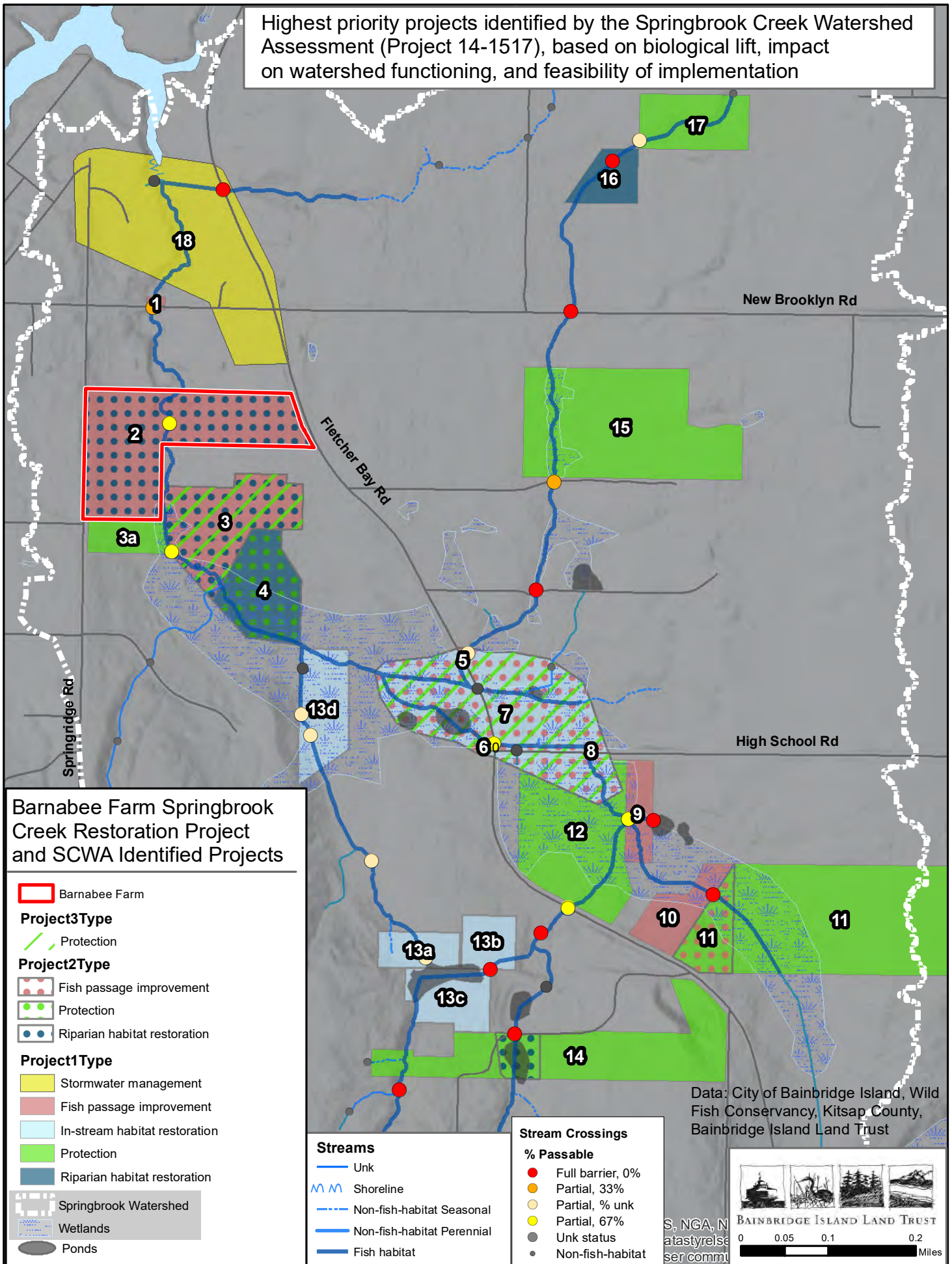






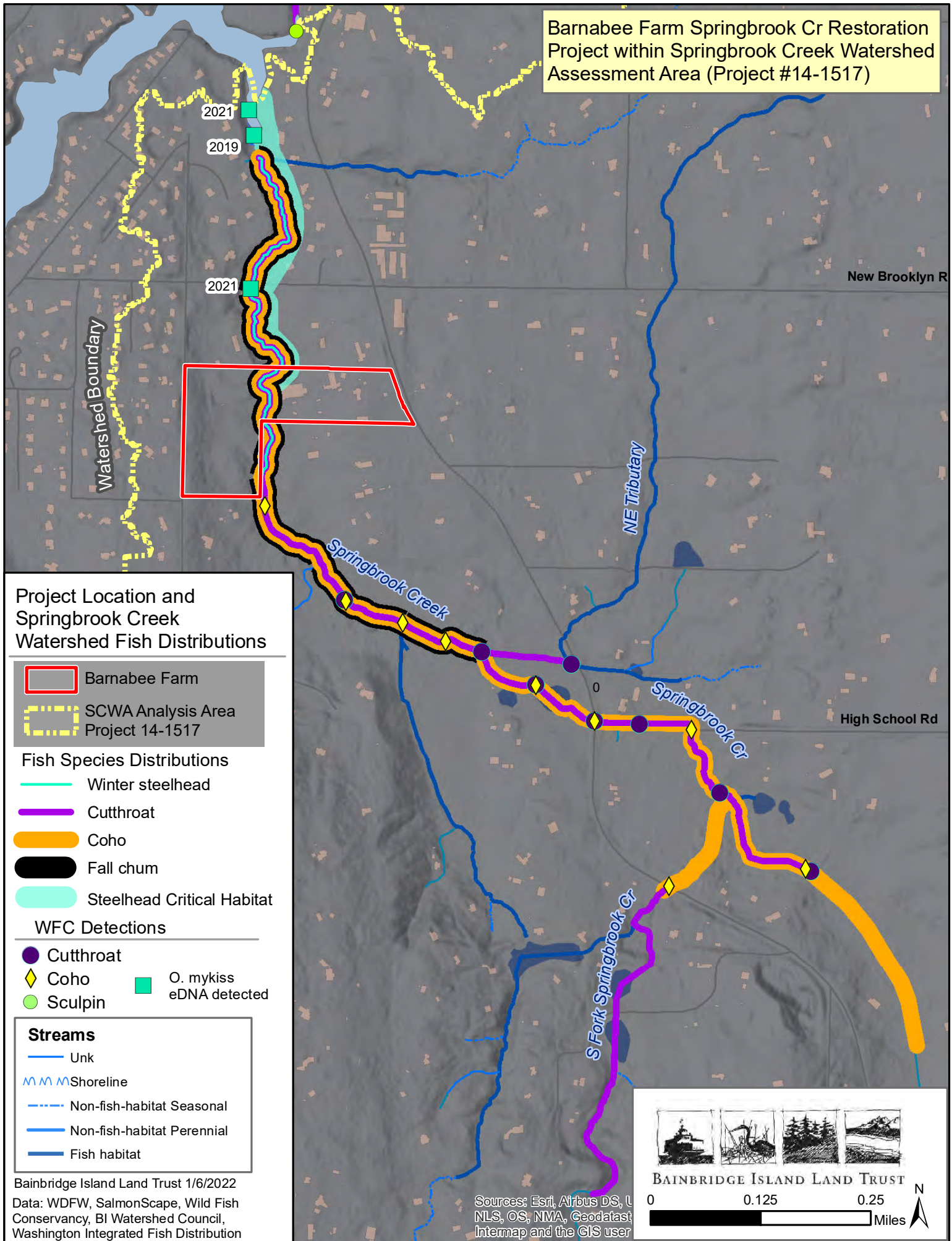


Highest priority projects identified by the Springbrook Creek Watershed Assessment (Project 14-1517), based on biological lift, impact on watershed functioning, and feasibility of implementation

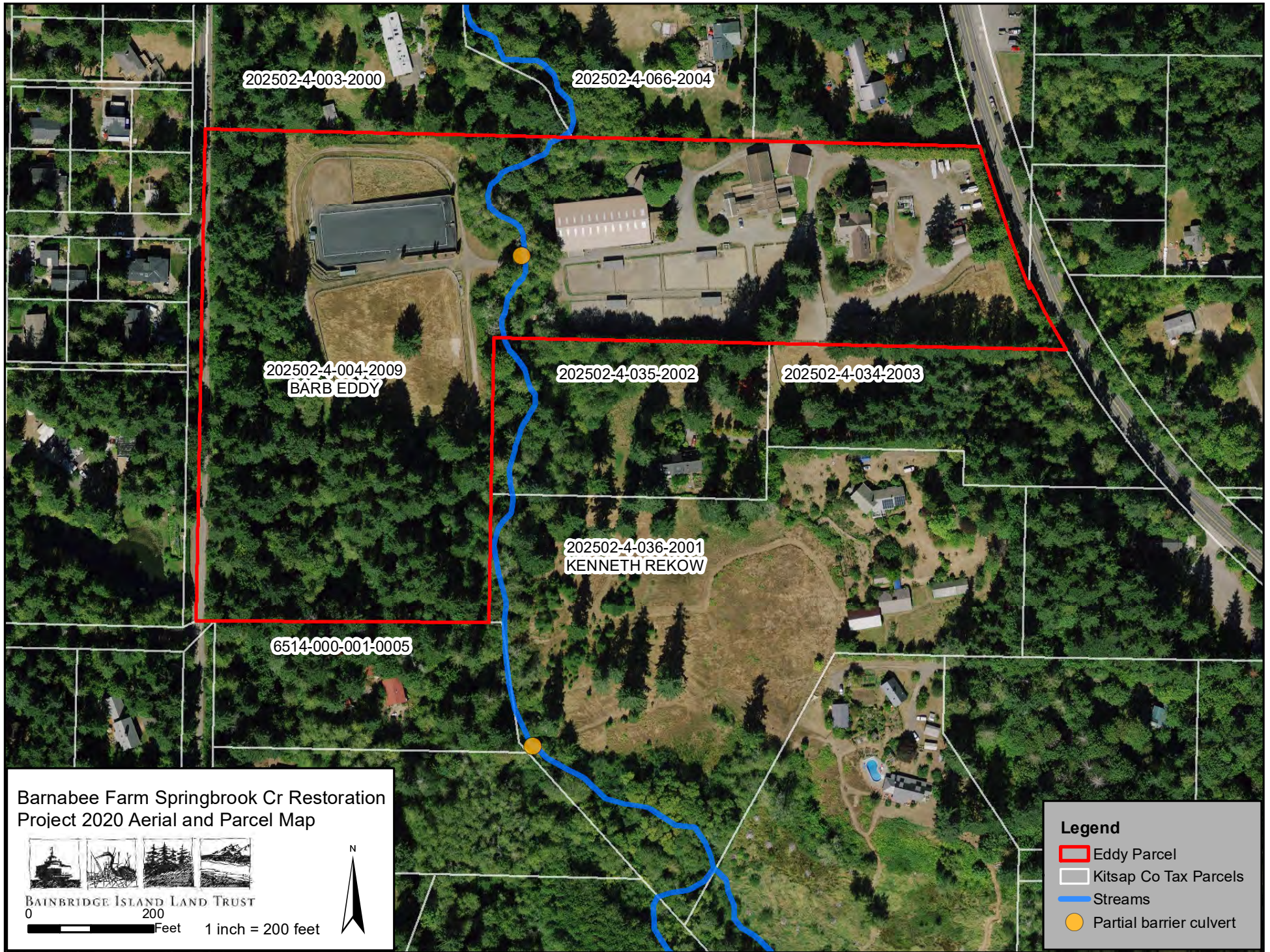




Barnabee Farm Springbrook Cr Restoration  
Project within Springbrook Creek Watershed  
Assessment Area (Project #14-1517)

















Project Name	Barnabee Farm Springbrook Creek Restoration
Enter your project summary. Include your goals and objectives.	<p>The Barnabee Farm Springbrook Stream Restoration project will result in a final engineered design, permitting and removal of a 67% fish passage barrier undersized culvert and over 80 linear feet of rock armor on Springbrook Creek, a stream federally designated as critical habitat for ESA threatened Puget Sound Steelhead. A bridge crossing will be installed, large wood will be installed along the bank and native vegetation will be installed along the stream where armor is removed. The Barnabee Farm project takes place on private land and was identified in the Springbrook Creek Watershed Assessment (SCWA) (Project 14-1547) as the second highest priority stream restoration project at stream mile 0.39 to address fish access to over 3.76 miles of upstream fish habitat, to widen this section of channel to reflect natural stream conditions, improve connectivity between intact stream reaches adjacent to the existing undersized culvert, allow for the ability for the stream to withstand anticipated higher flows anticipated in a changing climate, and allow for wood and sediment transport. Using the conceptual design developed by Wild Fish Conservancy (WFC) as part of the SCWA, a final design will be developed in consultation with the landowner, WFC, and other stakeholders working in the watershed, permitting will be completed, a construction bid package will be developed, and construction will be implement. Project success monitoring will take place for up to three years following implementation.</p> <p>Above the crossing, Springbrook Creek runs through a forested valley with an average bankfull width of 9.5 ft. and the average gradient of 2%. 3.76 miles of fish habitat exist upstream from this crossing. The culvert is a 4 ft. round corrugated steel pipe 40 ft. in length. WDFW has identified it as a 67% passable partial barrier culvert due to the fact that it is undersized and has a slope of 1.68% and has established a priority index (PI) of 19.86. Approximately 100 ft. downstream from the culvert there is a long section of riprap armament protecting a picnic area on the right bank. This armored section of channel is artificially narrow and has caused substantial scour of the unprotected left bank. The armored channel also lacks instream complexity forming a 70 ft. long continuous riffle with neither pools nor large woody debris. A foot bridge at the upper end of the right bank riprap has additional armor protecting its left bank foundation. Below the armored section of the channel, Springbrook Creek enters a lush forested valley with excellent pool-riffle habitat.</p> <p>The number one priority restoration project in the watershed, Fletcher Bay Road Restoration, is adjacent downstream (at stream mile .20) of this project and is currently undergoing final design (Project 21-1058) and funds are being pursued for construction of that project.</p>
Category	Restoration; #Planning - Design



Please list all other related projects.	<p>This project is the final phase of a project born from the Wild Fish Conservancy Stream Assessment (Project 13-1143) and the Springbrook Creek Watershed Assessment (SCWA) (14-1547). The SCWA was performed to identify high priority restoration and protection projects to improve the condition of Springbrook Creek, federally designated as critical habitat for ESA listed threatened Puget Sound Steelhead and this project is an opportunity to continue to implement projects within the watershed. 5 high priority projects were identified in the SCWA and conceptual plans were developed for each of these projects. The Barnabee Farm project was identified as the #2 restoration priority project and is the second lowest fish barrier in the 999 acre watershed. The Fletcher Bay Rd Culvert Removal Design (SRFB Project 21-1058) is funded and underway and addresses the #1 priority culvert just downstream. The Springbrook Creek Preserve Protection and Restoration Project (21-1052) has been funded and is underway to protect the #1 priority parcel in the upper watershed and remove a full fish passage barrier. The City of Bainbridge Island has listed the Fletcher Bay Rd Culvert and a complex of fish passage barrier at High School Road and Springbrook Creek in their 2021-2025 Capital Improvement Plan and has allocated funds to address those projects.</p>
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	<p>The Puget Sound Steelhead East Kitsap DIP Recovery Plan (Steelhead Plan) (Suquamish Tribe 2020) speaks to the freshwater environments needed to support federally listed Puget Sound Steelhead and other salmonids and resident fish and that fish passage barriers are one of the highest priorities to address in the recovery of steelhead (Priority Pressure 4.2)). Springbrook Creek is federally designated as critical habitat for ESA federally listed threatened Puget Sound Steelhead as is identified as a Tier 3 watershed in the Steelhead Plan and is the only steelhead stream on Bainbridge Island. With the creation of the Steelhead Plan, the identification of pressures, stressors and strategies for species recovery in the fresh water environment are identified. The plan indicates that Springbrook Creek has by far the greatest intrinsic potential for steelhead in the Bainbridge Island Watershed, as well as the most stream miles that currently support spawning, rearing, and migrating steelhead. Appendix C (Implementation Strategy) identifies this project (5.3.2) as an opportunity to remove a fish passage barrier for fish passage and longitudinal connectivity, widen the stream channel and improve transport of sediment and woody debris. The project addresses the priority stressor of roads and culverts, called out as a high severity stressor for all life stages of</p>

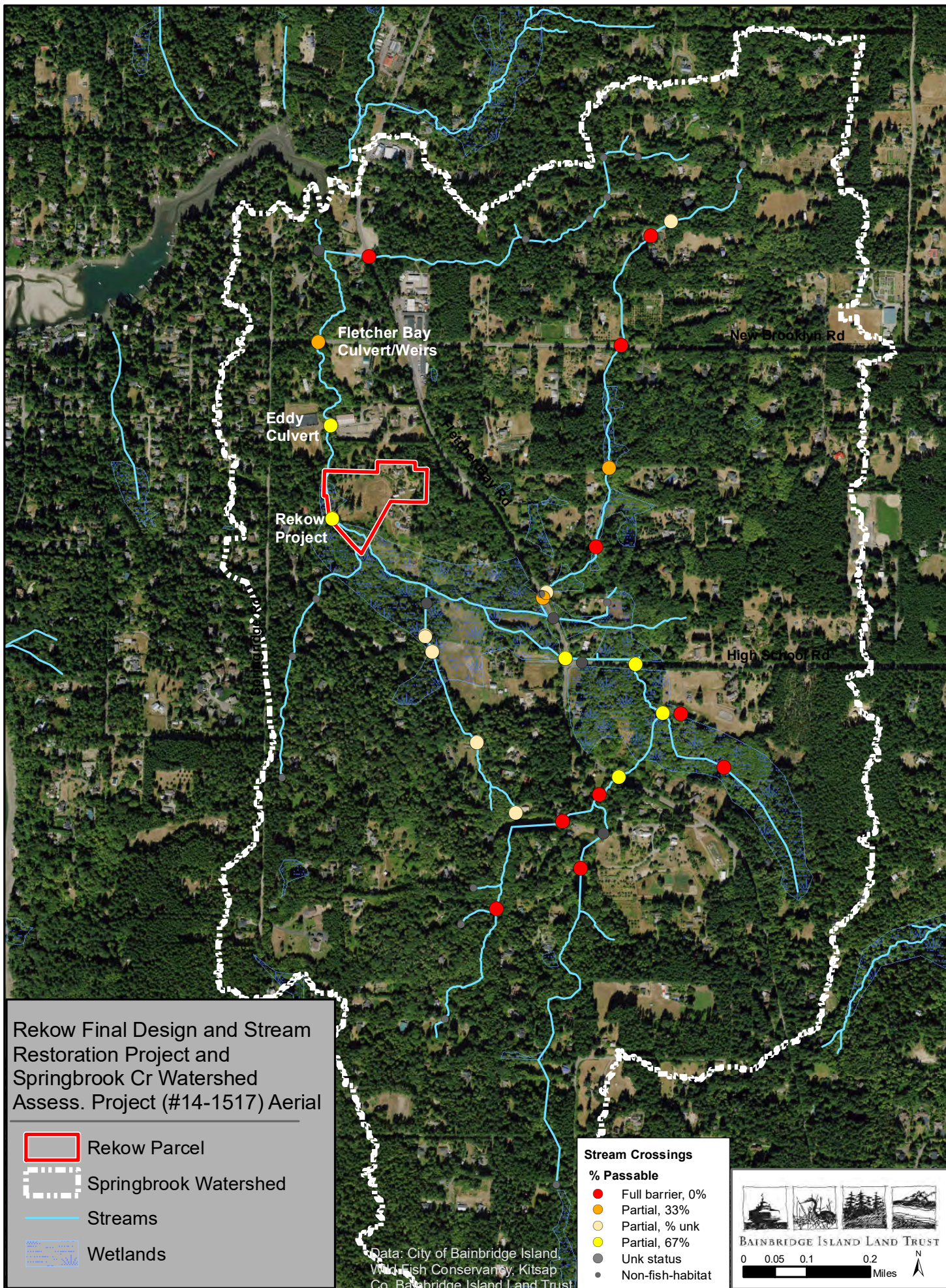
	<p>steelhead (p. 36-37). The project includes several recovery strategies identified in the plan, including: Remove barriers to fish passage and longitudinal connectivity; Increase channel complexity; Restore and improve functional riparian corridors; Increase hydrologic function and improve water quality (p. 54-60; Table 5-1).</p> <p>The Puget Sound Salmon Recovery Plan - East Kitsap Watershed Chapter: This project addresses a fish passage barrier, one of the recommended management actions for the Bainbridge Island watershed.</p> <p>The Project is Included in WSPER Planned Project Forecast List for 2021-2022 (Page 1 project 5.3.2)</p> <p>In 2019 and 2021, Wild Fish Conservancy detected <i>O. mykiss</i> through eDNA in proximity of the project location.</p>
Has the landowner acknowledged the project?	Yes
Explain your answer here	Landowner (Barbara Eddy) of Barnabee Farm was very involved in the Springbrook Creek Watershed Assessment (SCWA) and worked closely with Wild Fish Conservancy and the Land Trust to develop and approve the conceptual design that was included in the SCWA (Project #3). The landowner and is supportive of efforts to improve the conditions of Springbrook Creek and she is aware of the attempts to find funding to support restoration efforts.
Which species will benefit from this project?	ESA listed threatened Puget Sound Steelhead, coho, chum, searun cutthroat, cutthroat
Describe the limiting factors and/or ecological concerns that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	This project will improve the following limiting factors: fish passage, riparian habitat, sediment transport, instream complexity designed to support fish life stages (large wood transport and restoring stream to its historical profile and gradient and more pools and riffle), restoring and improving riparian conditions, stream hydrology, and includes landowner willingness.
Project Sponsor	Bainbridge Island Land Trust
Primary Contact	Brenda Padgham
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	No
Is this project on West Sound Partners for	No



Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	
For which grants are you applying?	
What is the total cost of the project?	\$375,109.00
What is the total request of the grant?	\$200,000.00
What are the available matching funds?	\$150,000.00 is being sought through the Brian Abbott Fish Barrier Removal Board, \$25,109 is provided by in-kind contributions (volunteers, planting, maintenance, etc.)

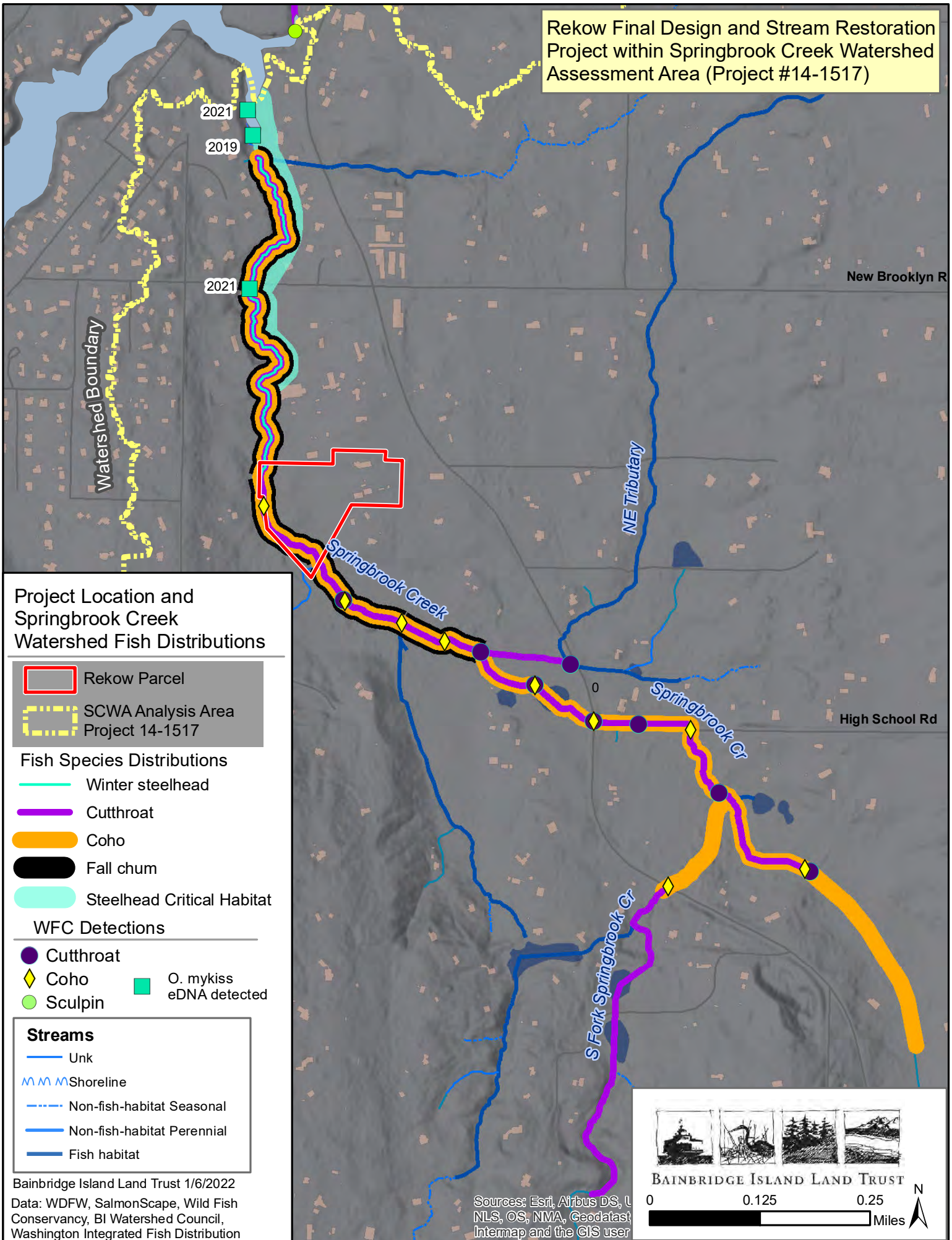






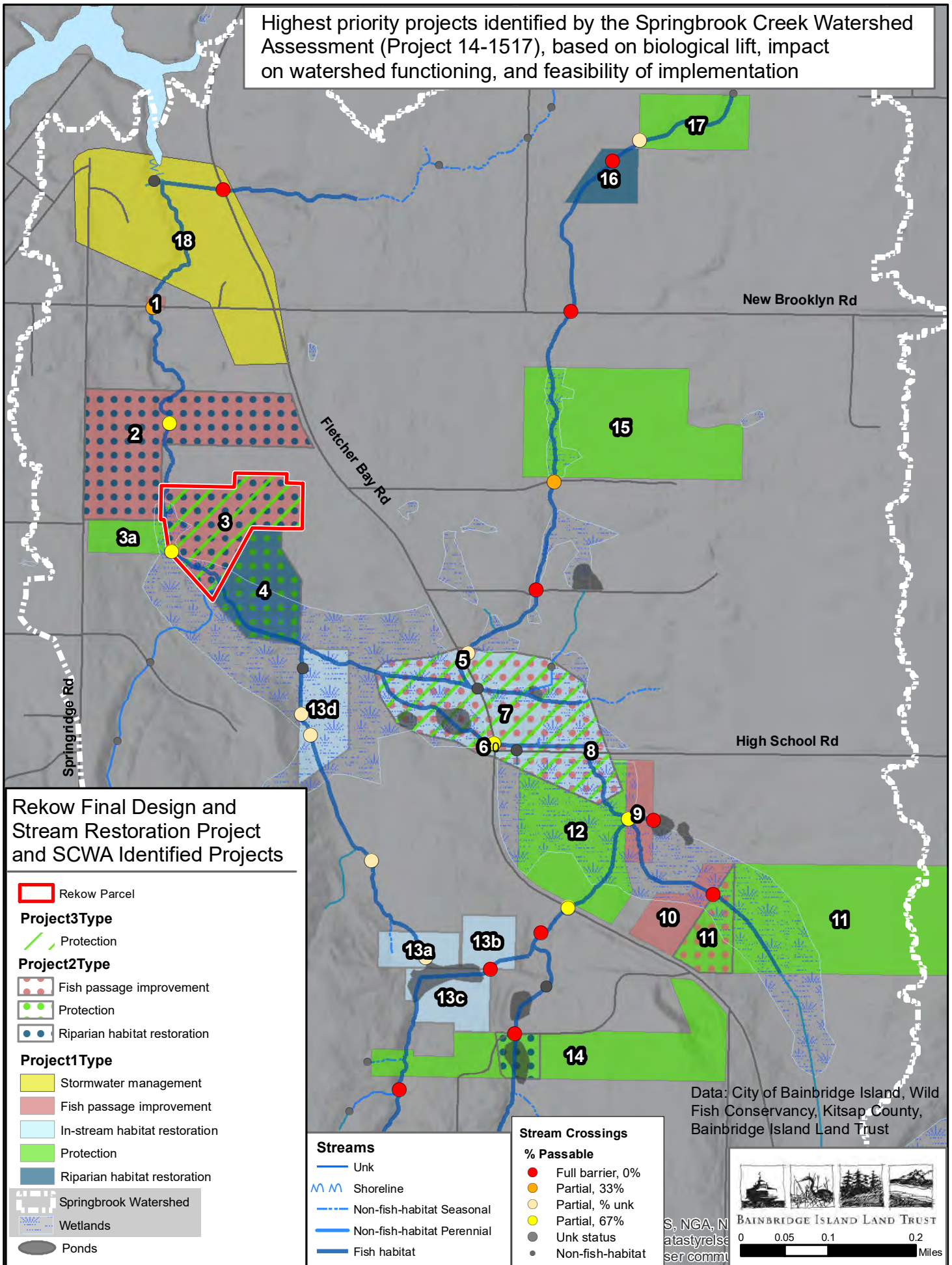


Rekow Final Design and Stream Restoration  
Project within Springbrook Creek Watershed  
Assessment Area (Project #14-1517)

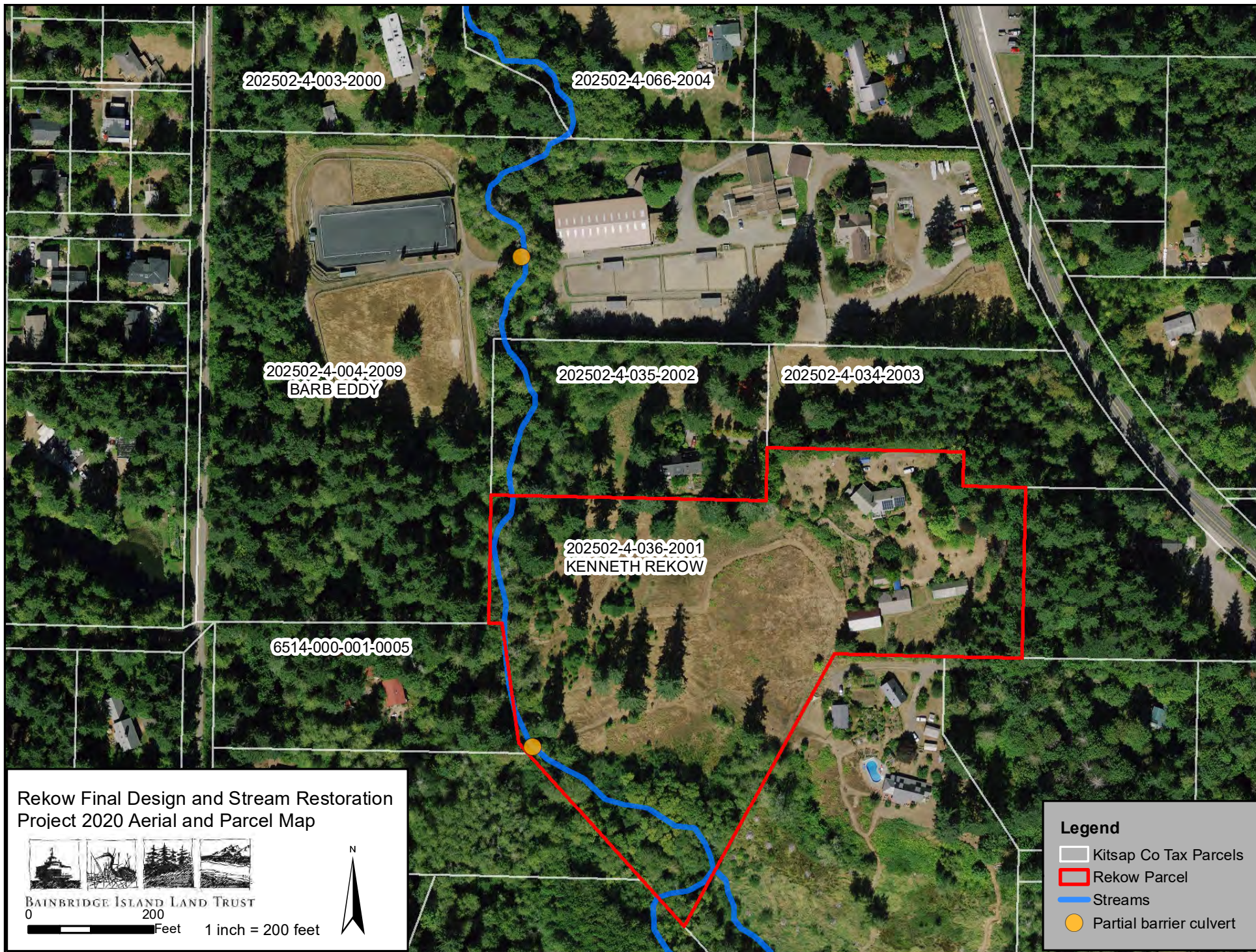




Highest priority projects identified by the Springbrook Creek Watershed Assessment (Project 14-1517), based on biological lift, impact on watershed functioning, and feasibility of implementation



























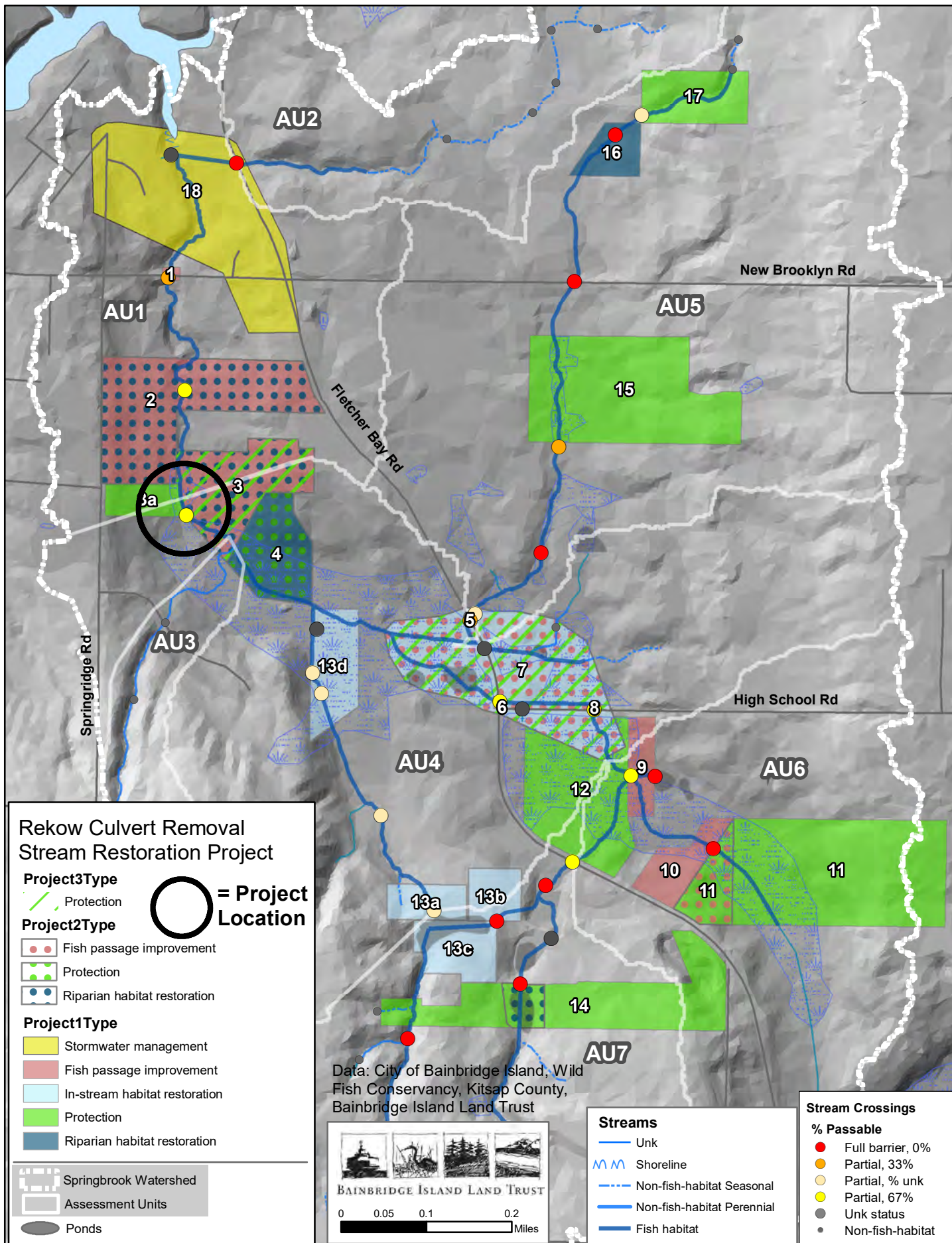


## Appendix III Project 3

### **Rekow Stream and Riparian Restoration**

#### **Conceptual Design**





## **Rekow Stream and Riparian Restoration**

### **Site Description**

At river mile 0.55 Springbrook Creek crosses under a derelict field access road on the western edge of an 8.48 acre parcel belonging to Kenneth Rekow. At this crossing the top of a culvert is now fully exposed yet it still passes 100% of stream flow. The culvert is a 2 ft. round concrete pipe 9 ft. in length. There is a 3 ft. square concrete box at the culvert inlet which has become disconnected from the pipe. The combined length of the inlet box, the three inch gap, and the culvert is 13.3 ft. The combined slope of the culvert and the inlet box is 1.38% making it 67% passable. Washington Department of Fish and Wildlife has assigned a priority index of 21.82 to this culvert. A small type F stream feeds into the left bank of Springbrook Creek at the culvert outlet. Above the culvert crossing Springbrook Creek meanders down an unconfined valley bottom through adjacent forested wetlands with a bankfull of 6.8 ft. Below the culvert crossing the valley becomes more confined. The left bank of the downstream valley below the culvert is forested with a mixed stand of conifers and deciduous trees. The right bank valley below the culvert is primarily a grassy field with scattered pockets of skunk cabbage and other wetland vegetation, trees and a thin strip of shrubs growing along the creek. Some reed canary grass and other invasive plants are mixed in with native vegetation. Some native vegetation has been mowed or reduced on the right bank (perhaps by past livestock use).

### **Specific Goals**

The primary objective of this project is to restore stream processes by removing the derelict culvert from the stream channel. The secondary objective is to improve the riparian habitat along the right bank of the stream by removing invasive plants and planting native tree and shrub species.

**Limiting Factors Addressed:** This project lies within Reach SB01-1 in the middle section of Springbrook Creek. Restoring channel complexity and fish passage and providing for stream complexity are addressed through the implementation of this project.

**Design Development:** Stream assessment and on site topographical surveys were conducted by Wild Fish Conservancy with permission of the landowner. Site visit with the landowners and review of stream history and land use took place with Bainbridge Island Land Trust. Conceptual plans were reviewed by the landowner. Adjustments to the proposed concepts were made after landowner input received.

### **Option 1**

Option 1 is to remove the derelict culvert as it no longer serves as a functional crossing structure. We recommend removal take place during the summer dry season, after fish



have been excluded from the vicinity using block nets and electrofishing. If necessary, flows should be routed around the site so work can be performed in the dry. We recommend breaking the culvert into manageable pieces using hand tools avoiding the need for heavy equipment. The refuse will be removed from the site utilizing the adjacent field access road. Using hand shovels the stream banks will be pulled back to match the natural stream bankfull. The raw banks will be revegetated in early winter during the plant dormant season. We recommend invasive plants be removed within 200 feet of the stream and extending the planting area to encompass a 100 ft. buffer of Springbrook Creek on the entirety of the Rekow Property. This would result in a planting area of approximately .60 acres at the culvert site and below the culvert on the right bank valley. We also recommend removing a derelict pump and other metal debris by hand within the project reach.

#### Pros

Removing this culvert benefits fish migration and restores stream migration, and natural wood and sediment transport processes at a very low cost. The riparian planting will benefit the stream by increasing shade, providing a future source of large woody debris, and protecting the channel from future erosion. Native vegetation will help shade out and compete with invasive plants. The project location within the watershed attends to a number of limiting factors within this assessment unit. The landowner is supportive of the restoration efforts and is willing to adopt land use practices in support of the health of the stream and to consider protection options in the future.

#### Cons

This culvert is 67% passable and not as high of a fish passage priority as other man-made barriers in the Springbrook Creek basin. Maintaining planted vegetation and managing invasives long-term will take ongoing resources.

#### Selected Option

The project team and the landowner preferred the conceptual channel modifications described in Option 1. This relatively inexpensive restoration project will remove derelict culverts and debris from the stream and riparian area, and will substantially revegetate the affected project reach, while addressing a number of limiting factors within this stream reach.

1.



Photo 1: Culvert Outlet.

Photo 2: Culvert inlet – box is disconnected from concrete culvert pipe.

Photo 3: Riparian Stream condition below culvert

Photo 4: Reed canary grass on right bank of stream below culvert

2.



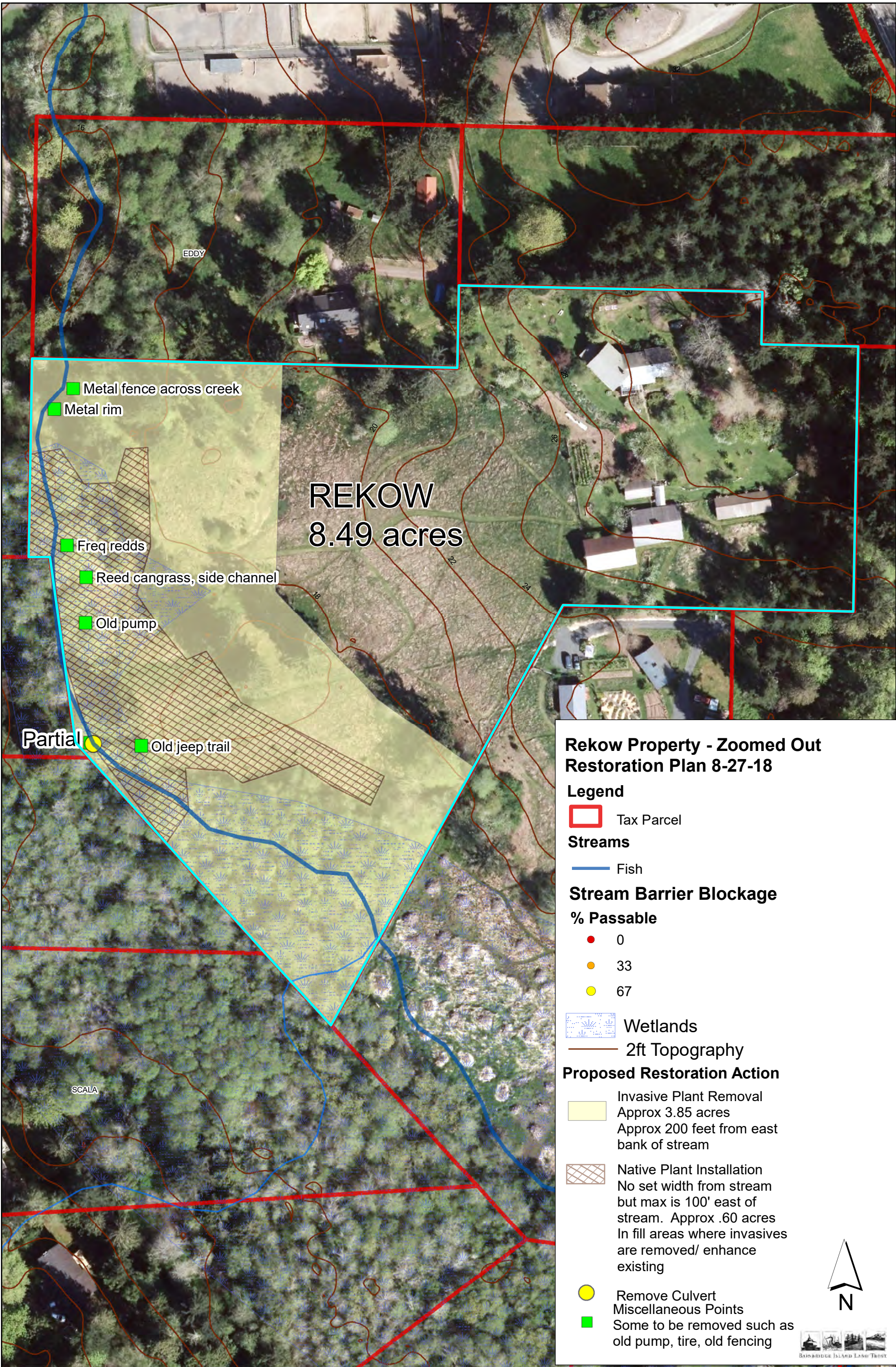
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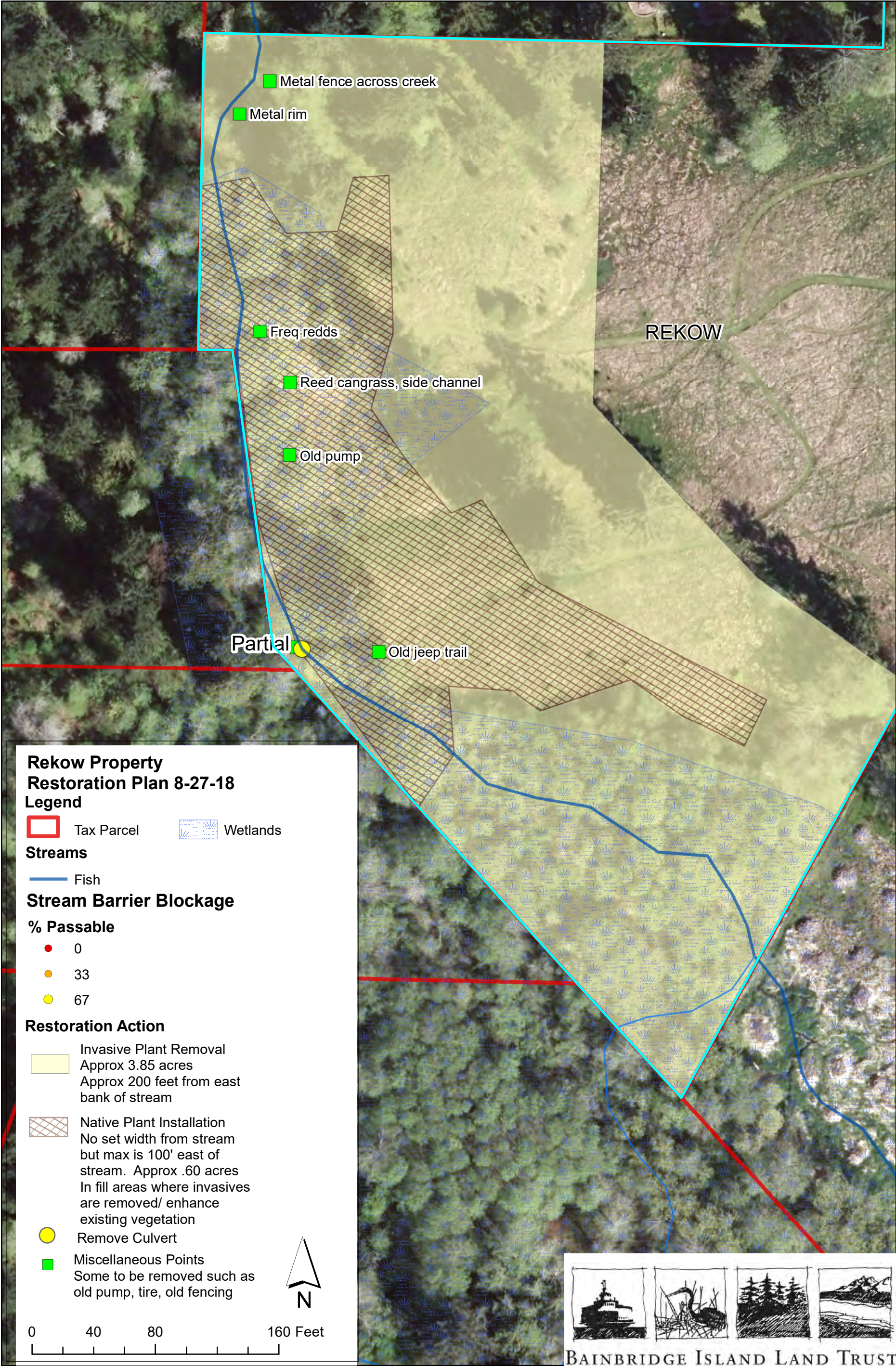
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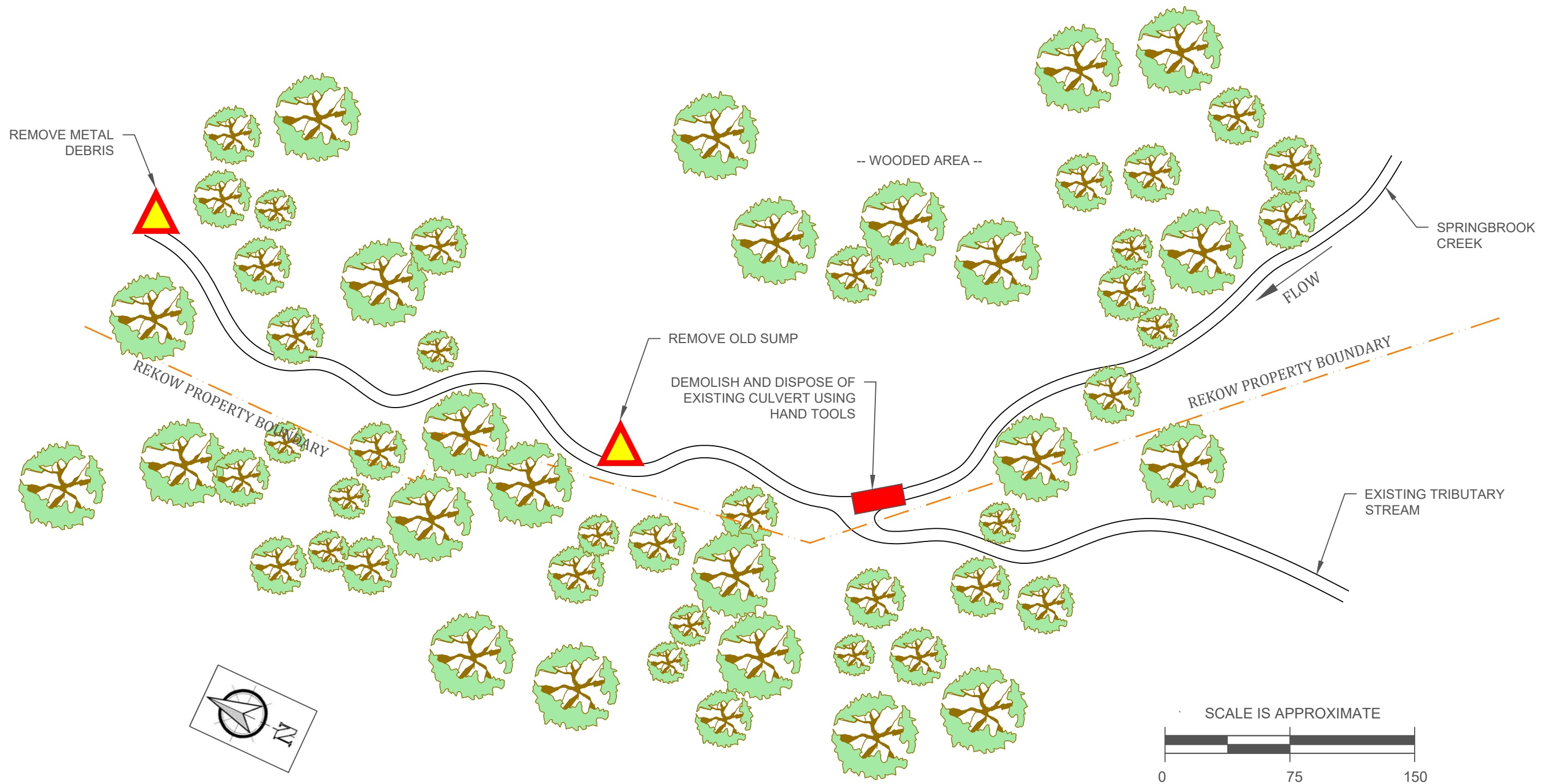








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DATE: 08-27-2018  
DRAWN BY: S. KROPP  
DESIGNED BY: A. JORGENSON  
CHECKED BY:  
JOB NO. :



**Wild Fish  
Conservancy**  
  
15629 Main Street NE  
Duvall, WA 98019  
Phone: 425-788-1167

EXISTING CONDITIONS

REKOW CULVERT REPLACEMENT

BAINBRIDGE ISLAND, WA

REVISIONS

DATE

SHEET NO.

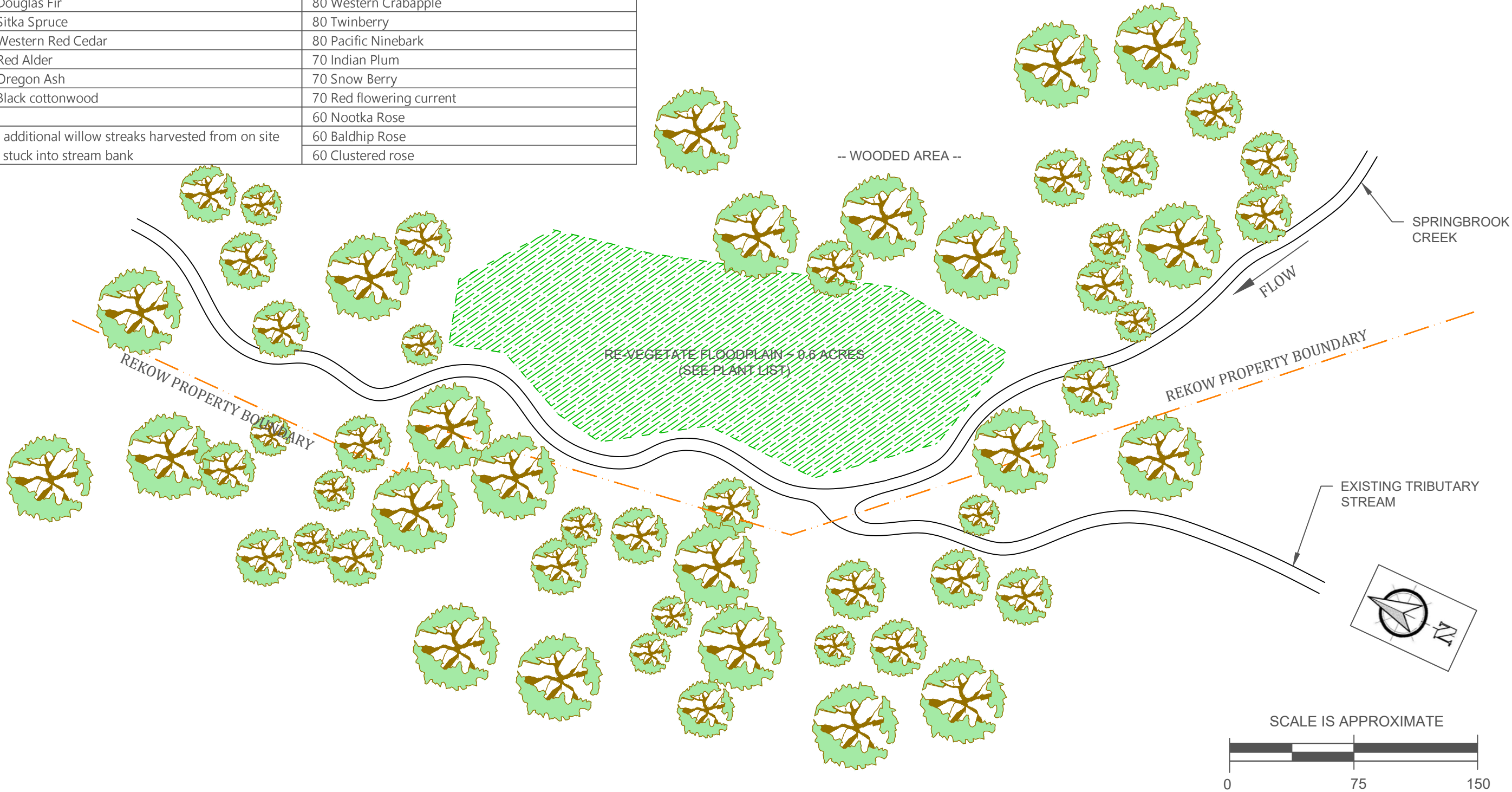
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PLANT LIST	
Potted Trees _ 15 ft. on center	Shrubs_ 6 ft. on center_ all one gallon pots
20 Douglas Fir	80 Western Crabapple
20 Sitka Spruce	80 Twinberry
20 Western Red Cedar	80 Pacific Ninebark
30 Red Alder	70 Indian Plum
15 Oregon Ash	70 Snow Berry
15 Black cottonwood	70 Red flowering current
	60 Nootka Rose
300 additional willow streaks harvested from on site and stuck into stream bank	60 Baldhip Rose
	60 Clustered rose



DATE: 08-27-2018	 <div>Wild Fish Conservancy 15629 Main Street NE Duvall, WA 98019 Phone: 425-788-1167</div>	SITE PLAN			REVISIONS	DATE	SHEET NO.  2  SHEET ____ of __XX__
DRAWN BY: S. KROPP		REKOW CULVERT REPLACEMENT					
DESIGNED BY: A. JORGENSON							
CHECKED BY:							
JOB NO. :		BAINBRIDGE ISLAND, WA					



Project Name	Rekow Stream and Riparian Restoration
Enter your project summary. Include your goals and objectives.	<p>The Rekow Stream and Riparian Restoration Project will result a final design, permitting and implementation of the removal of a derelict culvert fish passage barrier, removal of invasive plants in the riparian area, planting of new plants in the riparian area, and fencing of the riparian area to exclude livestock on privately held land. The primary objective of this project is to restore stream processes by removing the derelict culvert from the stream channel. The secondary objective is to improve riparian habitat along the right bank of the stream by removing invasive plants and planting native tree and shrub species, and installing fencing to exclude livestock. At river mile 0.55 (low in the stream system) Springbrook Creek crosses under a derelict field access road on the western edge of an 8.48 acre parcel belonging to Ken Rekow. The top of a culvert is fully exposed, is a 67% fish passable structure, yet it passes 100% of stream flow. The culvert is a 2 ft. round steel pipe 9 ft. in length. There is a 3 ft. square concrete box at the culvert inlet and outlet which has become disconnected from the pipe. The combined length of the inlet box, the three inch gap, and the culvert is 13.3 ft. Removing this culvert benefits fish migration and restores stream migration, and natural wood and sediment transport processes. The combined slope of the culvert and the inlet box is 1.38% making it 67% passable. Washington Department of Fish and Wildlife has assigned a priority index of 21.82 to this culvert. A small type F stream feeds into the left bank of Springbrook Creek at the culvert outlet. Above the culvert crossing Springbrook Creek meanders down an unconfined valley bottom through adjacent forested wetlands with a bankfull of 6.8 ft. Below the culvert crossing the valley becomes more confined. The left bank of the downstream valley below the culvert is forested with a mixed stand of conifers and deciduous trees. The right bank valley below the culvert is primarily a grassy field with scattered pockets of skunk cabbage and other wetland vegetation, trees and a thin strip of shrubs growing along the creek. Some reed canary grass and other invasive plants are mixed in with native vegetation. Some native vegetation has been mowed or reduced on the right bank (perhaps by past livestock use). Invasive Plant removal and riparian planting will benefit the stream by increasing shade, providing a future source of large woody debris, and protecting the channel from future erosion, while also helping shade out invasive plants. The project location within the watershed attends to a number of limiting factors within this assessment unit. The landowner is supportive of the restoration efforts and willing to adopt land use practices in support of the health of the stream. The project was identified in the Springbrook Creek Watershed Assessment Potential as priority restoration project #3, and is directly upstream from the Fletcher Bay Rd Project (at stream mile .20 and currently under final design) and the Eddy Stream Restoration project (downstream at stream mile .39). Project partners are the landowner, Wild Fish Conservancy and others and the project. The final design will build off the conceptual design by Wild Fish Conservancy as part of the SCWA.</p>



	The project provides an opportunity for community engagement through education and assistance with restoration activities, such as invasive plant removal, native plantings and fence installation.
Category	Restoration
Please list all other related projects.	<p>This project is the final phase of a project born from the Wild Fish Conservancy Stream Assessment (Project 13-1143) and the Springbrook Creek Watershed Assessment (SCWA) (14-1547). The SWCA was performed to identify high priority restoration and protection projects to improve the condition of Springbrook Creek, federally designated as critical habitat for ESA listed threatened Puget Sound Steelhead and this project is an opportunity to continue to implement projects within the watershed. 5 high priority projects were identified in the SCWA and conceptual plans were developed for each of these projects. The Rekow project was identified as the #3 restoration priority project and is the third lowest fish barrier in the 999 acre watershed. Other projects in the watershed include: Fletcher Bay Rd Culvert Removal Design (SRFB Project 21-1058) funded and underway and addresses the #1 priority culvert as stream mile .20. The Springbrook Creek Preserve Protection and Restoration Project (21-1052) has been funded and is underway to protect the #1 priority parcel in the upper watershed and remove a full fish passage barrier. Efforts to address a 67% culvert barrier downstream at river mile .39 on the Eddy property are being pursued. The City of Bainbridge Island has listed the Fletcher Bay Rd Culvert and a complex of fish passage barrier at High School Road and Springbrook Creek (upstream) in their 2021-2025 Capital Improvement Plan and has allocated funds to address those projects.</p>
Is this project identified in a salmon or steelhead recovery plan, watershed assessment and restoration plan, nearshore recovery plan, or recovery strategy?	Yes
Please identify which and explain.	<p>Project was listed as #3 priority restoration project in the Springbrook Creek Watershed Assessment. The Puget Sound Steelhead East Kitsap DIP Recovery Plan (Steelhead Plan) (Suquamish Tribe 2020) speaks to the freshwater environments needed to support federally listed Puget Sound Steelhead and other salmonids and resident fish and that fish passage barriers are one of the highest priorities to address in the recovery of steelhead (Priority Pressure 4.2)). Springbrook Creek is federally designated as critical habitat for ESA federally listed threatened Puget Sound Steelhead as is identified as a Tier 3 watershed in the Steelhead Plan and is the only steelhead stream on Bainbridge Island. With the creation of the Steelhead Plan, the identification of pressures, stressors and strategies for species recovery in the</p>



	<p>fresh water environment are identified. The plan indicates that Springbrook Creek has by far the greatest intrinsic potential for steelhead in the Bainbridge Island Watershed, as well as the most stream miles that currently support spawning, rearing, and migrating steelhead. Appendix C (Implementation Strategy) identifies this project (5.3.3) as an opportunity to remove a fish passage barrier for fish passage and longitudinal connectivity, and improve riparian conditions, improve transport of sediment and woody debris. The project addresses the priority stressor of roads and culverts, called out as a high severity stressor for all life stages of steelhead. The project includes several recovery strategies identified in the plan, including: Remove barriers to fish passage and longitudinal connectivity (5.4.1) - This strategy addresses migration barriers to both juvenile and adult steelhead to allow full access to spawning and rearing habitat. Improved connectivity also benefits steelhead by improving natural processes related to sediment and wood transport and nutrient cycling. The project also addresses Strategy 5.4.4 Restore and improve functional riparian corridors; by improving the lack of shade, wood recruitment, and nutrient inputs resulting from development, agriculture, and other pressures. This strategy also addresses locations where invasive vegetation is the predominant feature of the riparian zone, resulting in a variety of impacts on water quality, channel migration, nutrient inputs, and shading This project will remove invasive species and plant native vegetation in riparian areas; include diverse native species in planting palettes so that riparian zones adapt to climate change over time.</p> <p>The Project is Included in WSPER Planned Project Forecast List for 2021-2022 (5.3.3)</p> <p>In 2019 and 2021, Wild Fish Conservancy detected <i>O. mykiss</i> through eDNA in proximity of the project location.</p>
Has the landowner acknowledged the project?	Yes
Explain your answer here	Landowner Ken Rekow was very involved in the Springbrook Creek Watershed Assessment (SCWA) and worked closely with Wild Fish Conservancy and the Land Trust to develop and approve the conceptual design that was included in the SCWA. Mr Rekow is still the landowner and is supportive of efforts to improve the conditions of Springbrook Creek. He was supportive of past grant applications to implement this project and continues to support the improvement of Springbrook Creek.
Which species will benefit from this project?	ESA listed threatened Puget Sound Steelhead, coho, chum, searun cutthroat, cutthroat
Describe the limiting factors and/or ecological concerns	The primary objective of this project is to restore stream processes by removing the derelict culvert from the stream channel. The secondary objective is to improve the riparian habitat along the

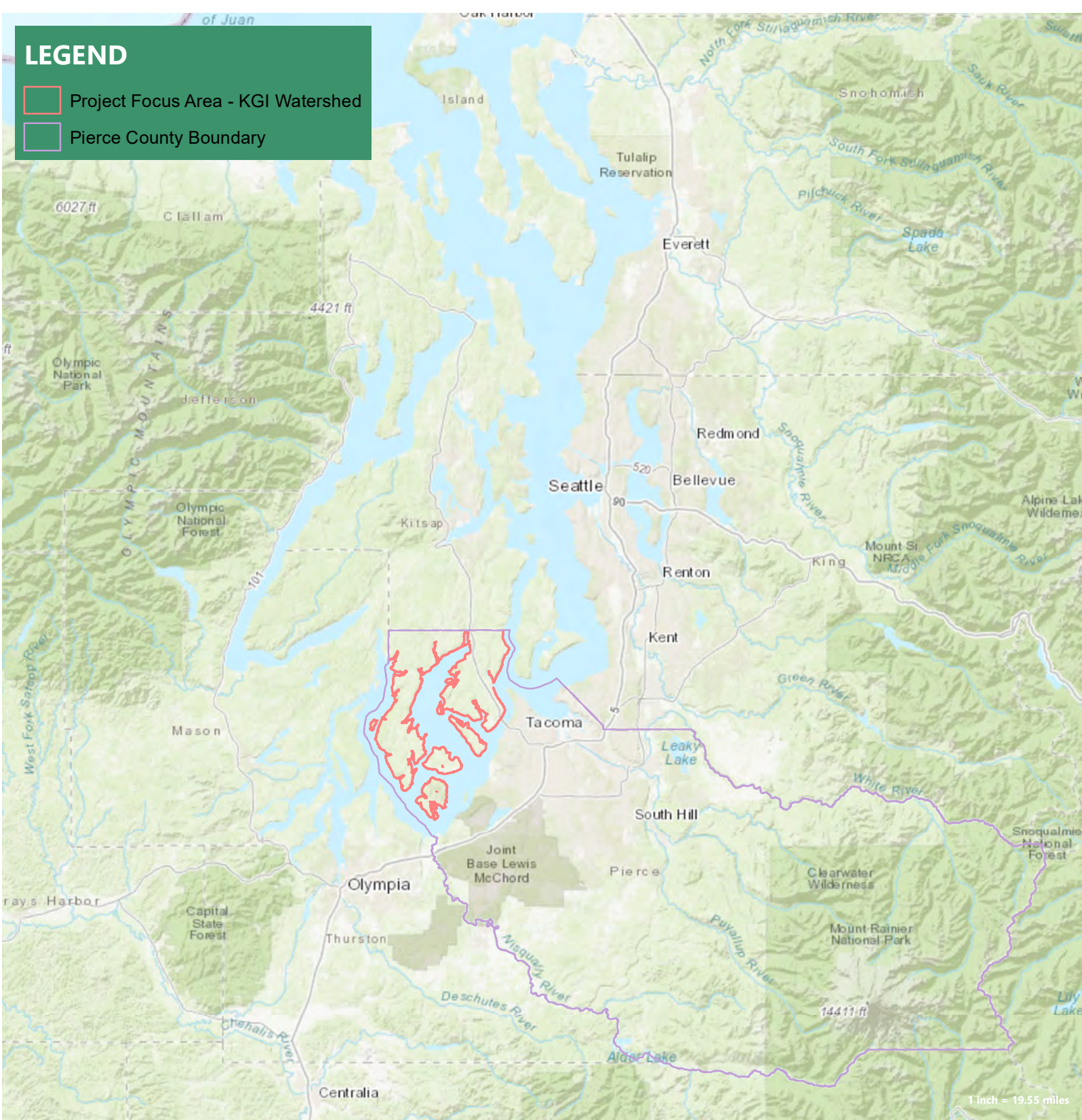


that your project will address (e.g., issues related to fish passage, riparian conditions, water quality and quantity, and climate change).	right bank of the stream by removing invasive plants and planting native tree and shrub species. Limiting Factors Addressed: This project lies (within Reach SB01-1) in the middle section of Springbrook Creek. Restoring channel complexity and fish passage and providing for stream complexity, enhanced riparian conditions, and fencing out livestock are addressed through the implementation of this project.
Project Sponsor	Bainbridge Island Land Trust
Primary Contact	Brenda Padgham
Is this project on the Salmon Recovery Portal (formerly known as Habitat Work Schedule)?	Yes
Is this project on West Sound Partners for Ecosystem Recovery's 2021-2022 Planned Project Forecast List (PPFL)?	Yes
For which grants are you applying?	Salmon Recovery Funding Board (available September 2022) Puget Sound Acquisition and Restoration Fund (tentatively available July 2023)
What is the total cost of the project?	\$34,450.00
What is the total request of the grant?	\$28,950.00
What are the available matching funds?	Match anticipated: (include amount and sources) \$5,500 contributed in volunteer or landowner labor for planting, debris removal, follow up watering, weed removal and suppression and fence installation.



## LEGEND

- Project Focus Area - KGI Watershed
- Pierce County Boundary



**PIERCE CONSERVATION DISTRICT**  
Over 70 Years of Conservation

0 30 60 Miles



## PIERCE SHORELINE ARMOR REMOVAL READINESS PROJECT FOCUS AREA

DATE: 1/10/2022

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# Kitsap County

## Letter of Intent

[View full entry at CognitoForms.com.](#)

### Entry Details

#### PROJECT NAME

Pierce Shoreline Armor Removal Readiness

#### ENTER YOUR PROJECT SUMMARY. INCLUDE YOUR GOALS AND OBJECTIVES.

Pierce Conservation District proposes to accelerate shoreline armor removal from residential properties by seeking funds for project design and permitting for properties identified through the Shore Friendly Pierce program. This proposed SRFB project follows the model of Kitsap County's "Kitsap Nearshore Armor Removal Design & Readiness" project (RCO #18-1837).

This project would produce 2-3 preliminary designs for armor removal. Shoreline armor removal is identified as a priority in the Puget Sound Action Agenda and the WSPER Ecosystem Recovery Plan. Removal of armor can restore natural sediment processes that build and maintain beaches, which provide spawning habitat for forage fish, a key prey item for Puget Sound Chinook. The Shore Friendly Pierce program has identified some potential armor removal sites in our focus area in the Key Peninsula-Gig Harbor-Islands watershed. These and other sites identified through Shore Friendly technical assistance would be eligible for design funds under this project. We propose to bring individual sites before the WSPER TAG for approval.

#### CATEGORY

Planning - Design

#### PLEASE LIST ALL OTHER RELATED

PRISM # 19-1703 South Sound Shore Friendly



**PROJECTS.****Initiative**

**IS THIS PROJECT IDENTIFIED IN A SALMON OR STEELHEAD RECOVERY PLAN, WATERSHED ASSESSMENT AND RESTORATION PLAN, NEARSHORE RECOVERY PLAN, OR RECOVERY STRATEGY?**

Yes

**PLEASE IDENTIFY WHICH AND EXPLAIN.**

Removal of shoreline armor was identified under Goal WC.3B in the West Sound Lead Entity (WRIA 15) Ecosystem Recovery Plan published in 2016.

**HAS THE LANDOWNER ACKNOWLEDGED THE PROJECT?**

No

**EXPLAIN YOUR ANSWER HERE**

This project will support preliminary design and permitting expenses for armor removal from sites identified through Shore Friendly Pierce outreach. The Shore Friendly model engages residential landowners directly. Between 2019-2021, Shore Friendly Pierce has engaged 135 landowners in education and outreach and provided site visits to 51. We expect landowner engagement to continue at a similar rate during the funding period, allowing for identification of armor removal sites to be supported by these funds.

The Shore Friendly Pierce program has identified some potential armor removal sites in our focus area in the Key Peninsula-Gig Harbor-Islands watershed. These and other sites identified through Shore Friendly technical assistance would be eligible for design funds under this project pending landowner agreements. Once we have willing landowners and feasible projects with clear benefits for salmon, we propose to bring 2-3 individual sites before the WSPER TAG for approval.

**WHICH SPECIES WILL BENEFIT FROM THIS PROJECT?**

Puget Sound Chinook Forage Fish

**DESCRIBE THE LIMITING FACTORS AND/OR ECOLOGICAL CONCERNS THAT YOUR PROJECT WILL ADDRESS (E.G., ISSUES RELATED TO FISH**

This project aims advance shoreline armor removal projects on residential properties on the shoreline of Puget Sound. Shoreline armor interrupts natural



**PASSAGE, RIPARIAN CONDITIONS, WATER QUALITY AND QUANTITY, AND CLIMATE CHANGE).**

sediment processes, degrades upper beach habitat, and disconnects beaches from critical marine riparian vegetation. Through the Shore Friendly Pierce program, conservation district staff engage residential shoreline landowners in armor prevention, reduction, and removal. On properties where restoration of a natural shoreline is feasible and landowners are willing, the cost of design, permitting, and implementation is the biggest hurdle to armor removal. This project would support development of armor removal projects in the design and permitting phase.

**PROJECT SPONSOR**

Pierce Conservation District

**PRIMARY CONTACT**

Mary Krauszer

**EMAIL**

[maryk@pierced.org](mailto:maryk@pierced.org)

**WORK PHONE**

(253) 845-9770

**IS THIS PROJECT ON THE SALMON RECOVERY PORTAL (FORMERLY KNOWN AS HABITAT WORK SCHEDULE)?**

No

**IS THIS PROJECT ON WEST SOUND PARTNERS FOR ECOSYSTEM RECOVERY'S 2021-2022 PLANNED PROJECT FORECAST LIST (PPFL)?**

Yes

**UPLOAD PROJECT SITE LOCATION MAPS AT WATERSHED SCALE.**

Pierce Shoreline Armor Removal  
Readiness\_Project Focus Area\_KGI Shoreline.pdf

**UPLOAD PROJECT SITE PHOTOS.**

Pierce Shoreline Armor Removal  
Readiness\_Example project site.jpg

**WHAT IS THE TOTAL PROJECT COST?**

\$209,550.00

**WHAT IS THE TOTAL PROJECT**



**COST?**

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**WHAT ARE THE MATCHING FUNDS AVAILABLE?**      \$31,433.00

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**FOR WHICH GRANTS ARE YOU APPLYING?**      Salmon Recovery Funding Board (available September 2022)

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