



ELK CREEK RESTORATION FEASIBILITY STUDY



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RIVER
ALLIANCE



Stillwater Sciences



Coastal
Conservancy



June 3rd, 2020

Technical Advisory
Committee (TAC) and
Stakeholder
Kickoff Meeting

Crescent City, CA

PREPARED BY:

Smith River Alliance
Stillwater Sciences

TECHNICAL ADVISORY COMMITTEE (TAC) AND STAKEHOLDER KICKOFF MEETING



Meeting Goals

- Introduce the Elk Creek Watershed
- Introduce The Feasibility Study
- Gather feedback on Study methods and Stakeholder Priorities
- Discuss prioritization methods
- Engage Stakeholders in the planning process

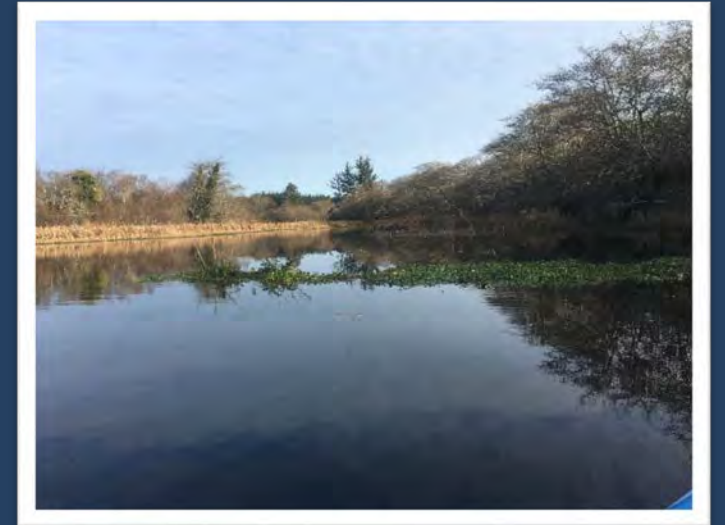
INTRODUCTIONS

- Elk Valley Rancheria
 - Kevin Mealue
- Tolowa Dee-ni' Nation
 - Erika Partee and Jennifer Jacobs
- Crescent City
 - Jon Olson
- Del Norte County Planning Department
 - Heidi Kunstal and Taylor Carsley
- California Department of Fish and Wildlife
 - Craig Zeff, Laura McLean and Shawn Fresz
- North Coast Regional Water Quality Control Board
 - Jacob Shannon
- National Oceanic and Atmospheric Administration
 - Bob Pagliuco, Dan Free
- Rural Human Services
 - Dan Burgess
- California Department of Transportation:
 - Robert Wall, Susan Leroy and Tim Nelson
- Thanks to our Stakeholders Who Couldn't Make It Today:
 - California Coastal Conservancy, California State Parks



Thanks to Our Project Funders

- Proposition 1 Funding
 - California Department of Fish and Wildlife
 - California Coastal Conservancy



WATERSHED BACKGROUND



- Annual Precipitation
 - 71 Inches
- Watershed Size:
 - 8.26 sq miles
- Urban/Rural Watershed:
 - Crescent City Population
 - 2010 Census: 7,643
- Ownership:
 - 14% State, 76% Private
- Unique Coastal Wetland Habitat
- Coastal Resilience
 - Elk Creek plays an important role in protecting Crescent City from Natural Disasters

FEASIBILITY STUDY GOALS AND OBJECTIVES

FEASIBILITY STUDY GOAL

Identify and advance high priority restoration projects that enhance coastal wetlands and achieve multiple benefits for coastal resilience, water quality and fish and wildlife

Coastal Resilience

- Enhance natural buffers to protect Crescent City from the impacts of flooding, tsunamis and climate change
- Increase storm-water infiltration and promote urban greening.

Fish and Wildlife

- Protect and improve anadromous fish habitat
- Protect and expand wetland features
- Improve hydrologic connectivity

Water Quality

- Understand the barriers to addressing legacy contamination sites.
- Identify steps needed to promote brownfield remediation.
- Find opportunities to improve water quality while enhancing coastal resilience and wildlife habitat.

STUDY APPROACH

Data Driven



Community
Supported



Scientifically
Sound



Long Term
Solutions



ELK CREEK FEASIBILITY STUDY LEADS

Feasibility Study Component	Study Leads	
	Stillwater Sciences	Smith River Alliance
Feasibility Report	Dylan Caldwell P.G.	Marisa Parish, Program Director
TAC and Stakeholder Engagement	Dylan Caldwell P.G.	Grant Werschull, Co-Executive Director Monica Scholey, Program Coordinator
Hydro-geomorphology	Dylan Caldwell P.G., Geologist Jay Stallman P.G., Geologist	-
Riparian and wetland vegetation	Emmalien Craydon, Botanist	Monica Scholey, Program Coordinator
Water and soil contamination	Dylan Caldwell P.G., Geologist	Patty McCleary, Co-Executive Director Monica Scholey, Program Coordinator
Fish passage and engineering design	Dylan Caldwell P.G., Geologist Joel Monschke P.E., Engineer	Jolyon Walkley, Project Coordinator
Aquatic habitat use and availability	Abel Brumo, Fisheries Biologist	Jolyon Walkley, Project Coordinator Marisa Parish, Program Director

EXISTING CONDITIONS ASSESSMENTS

- Hydro-geomorphology
- Riparian and wetland vegetation
- Water and soil contamination
- Fish passage and engineering design
- Aquatic habitat use and availability

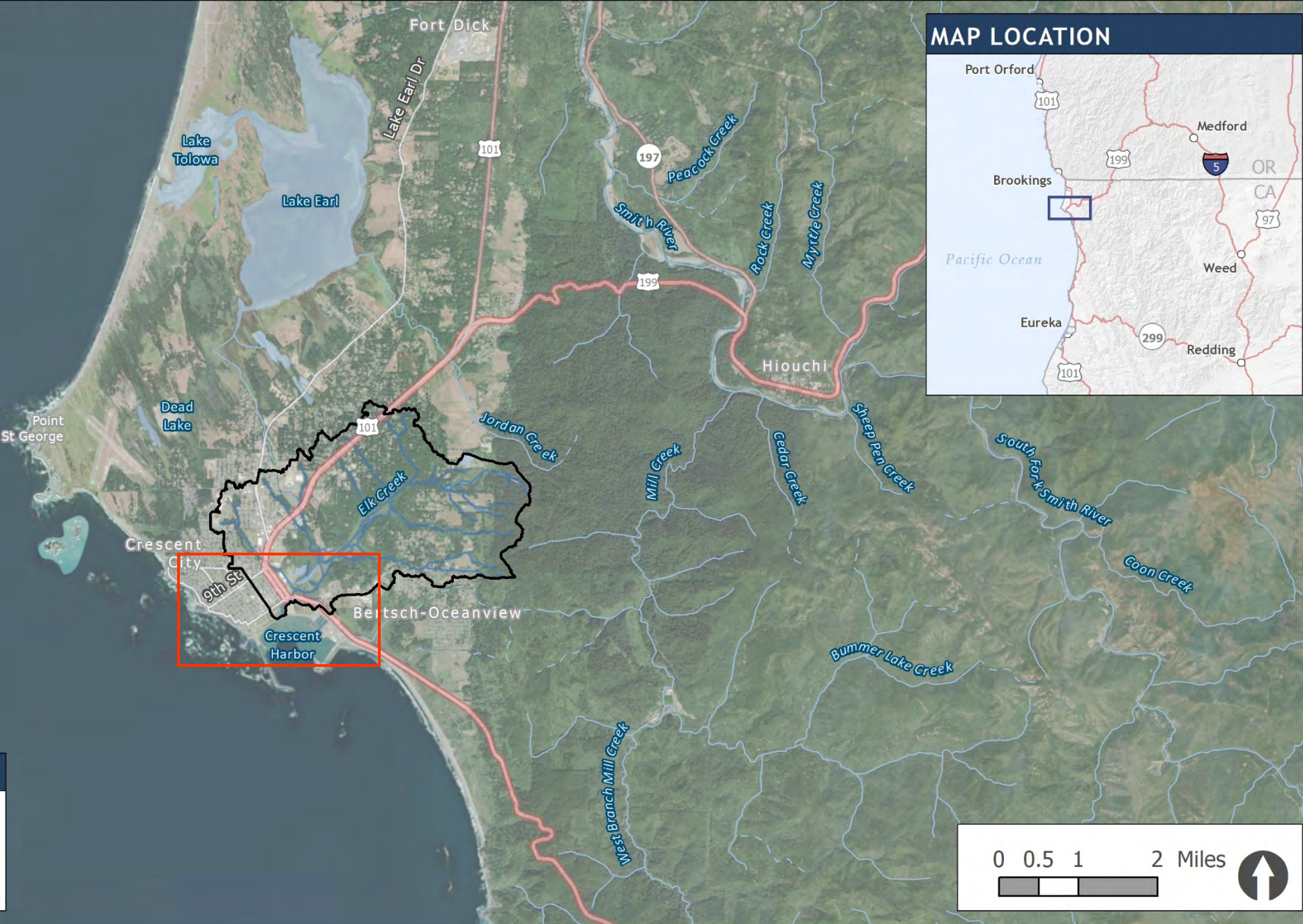
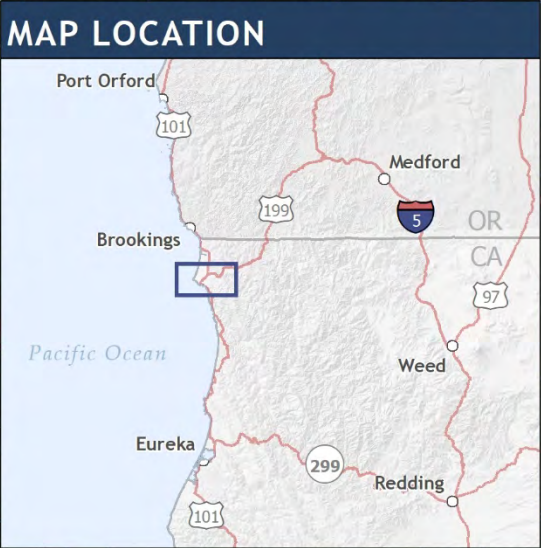
Studies began summer 2019 – expected completion in winter 2021.

Results will inform restoration project identification and prioritization.

HISTORICAL CONTEXT

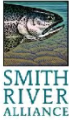
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Watershed Vicinity



LEGEND

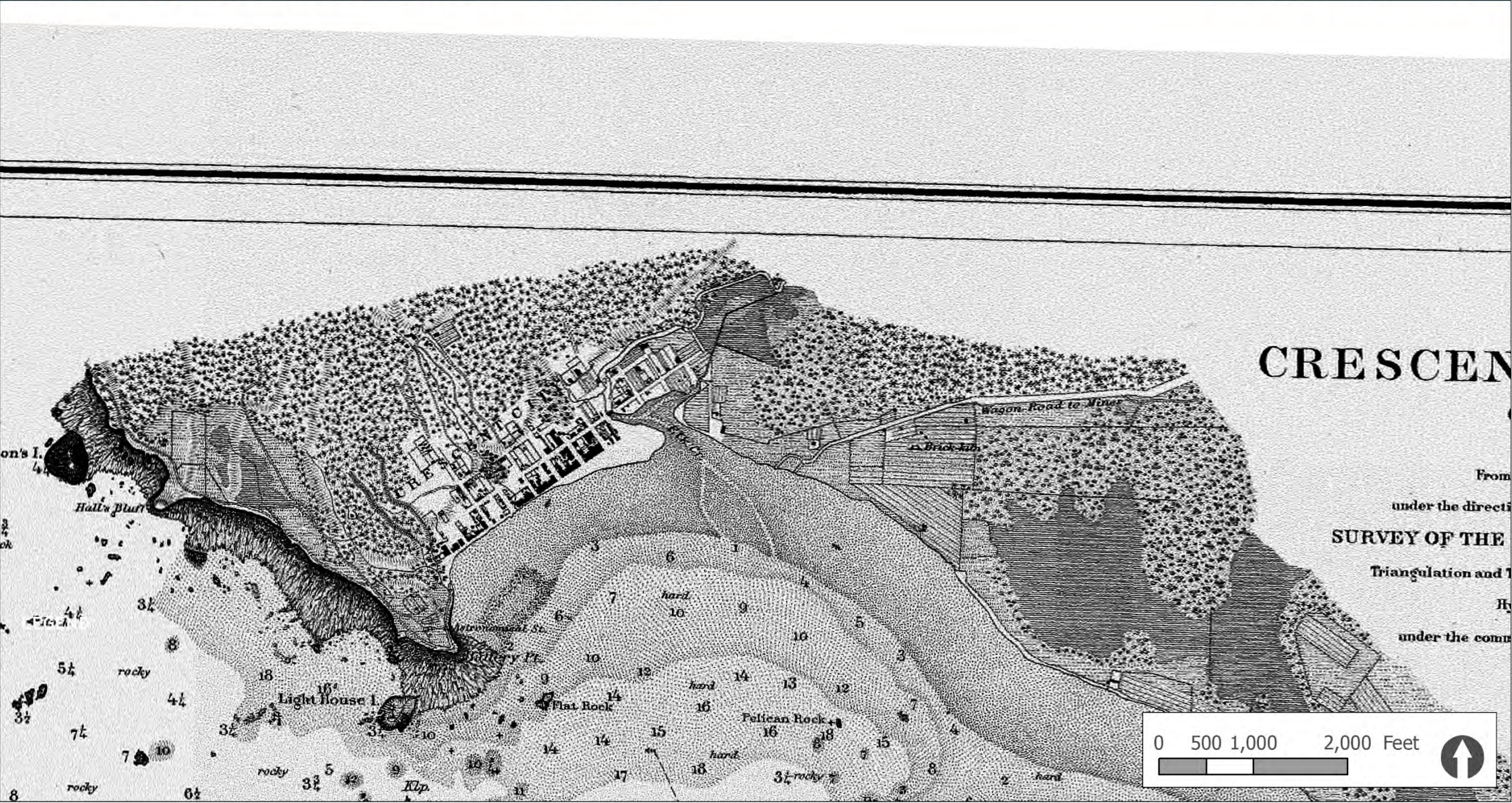
- Elk Creek watershed
- Elk Creek streams

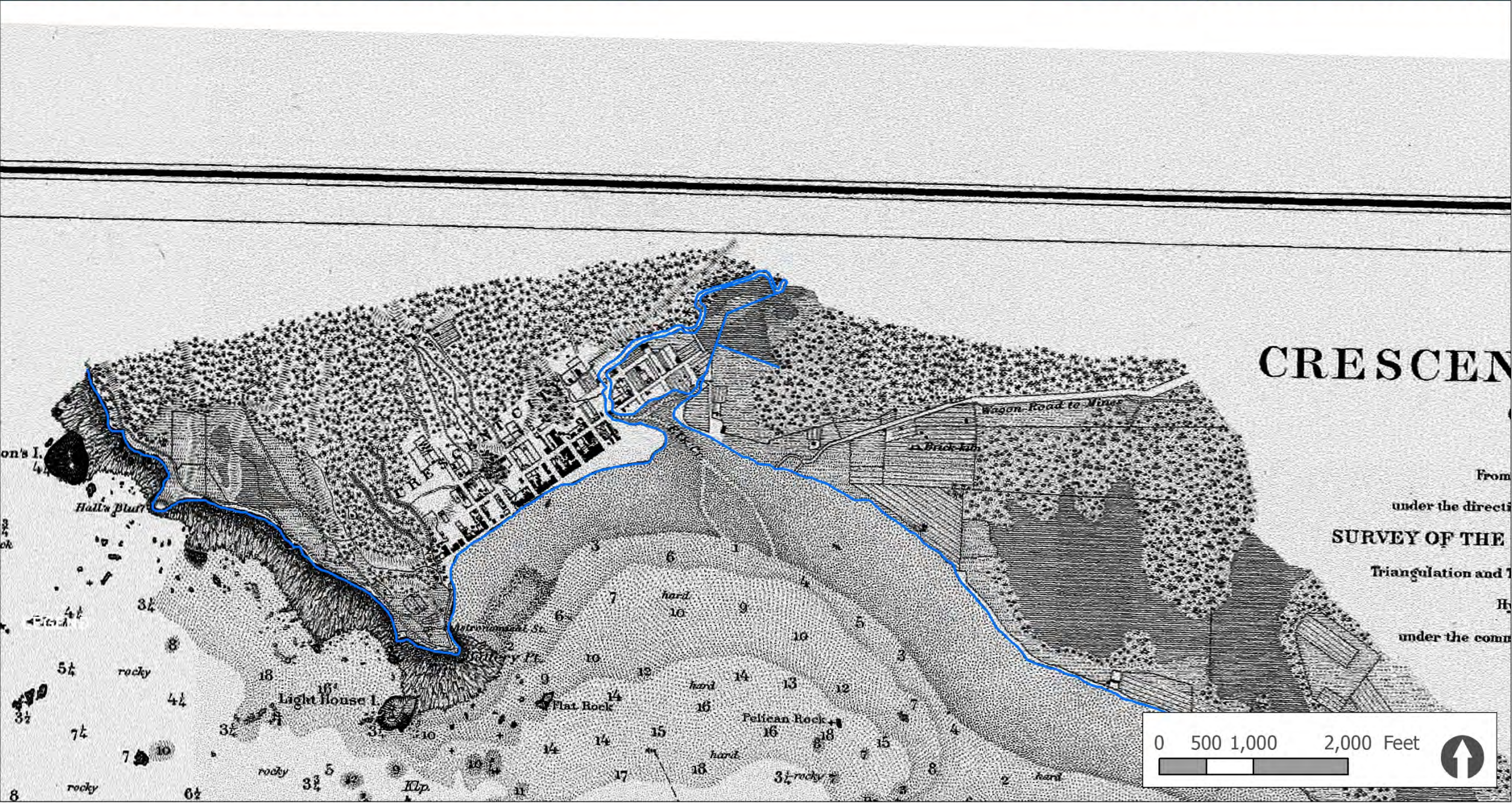


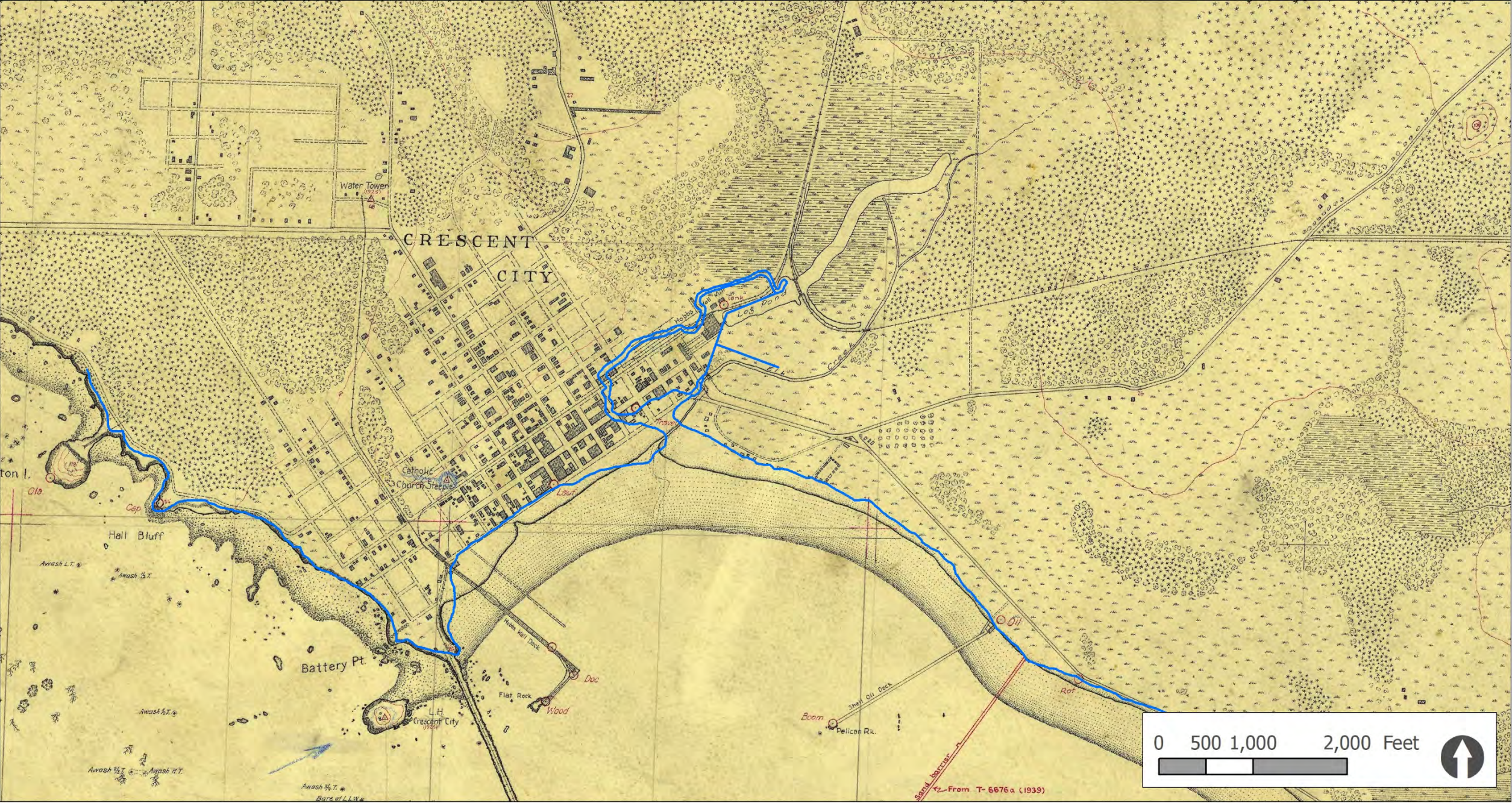
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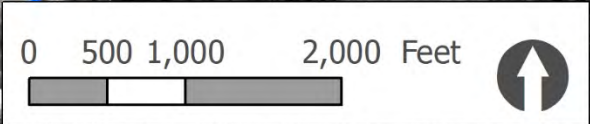
0 0.5 1 2 Miles





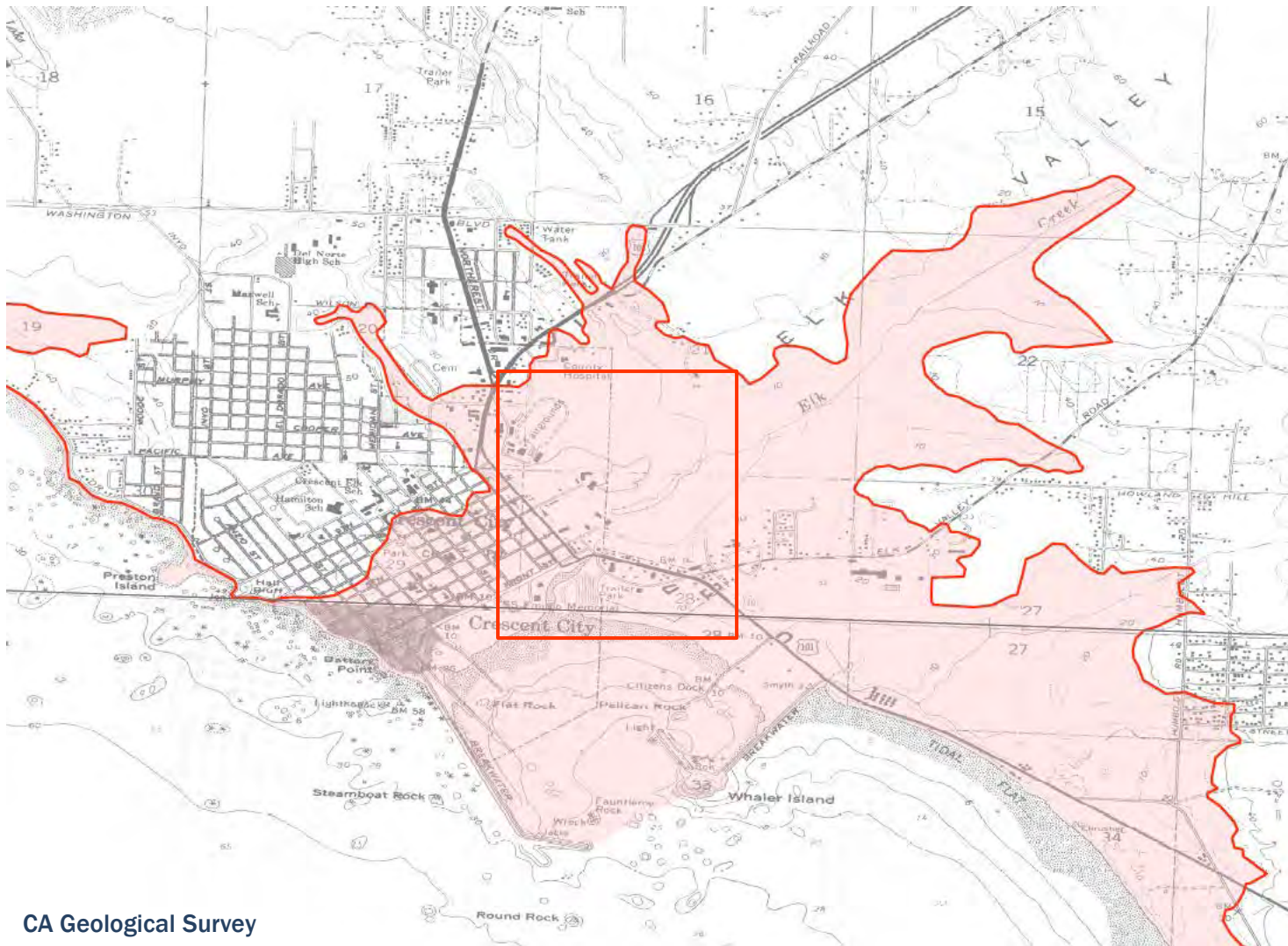






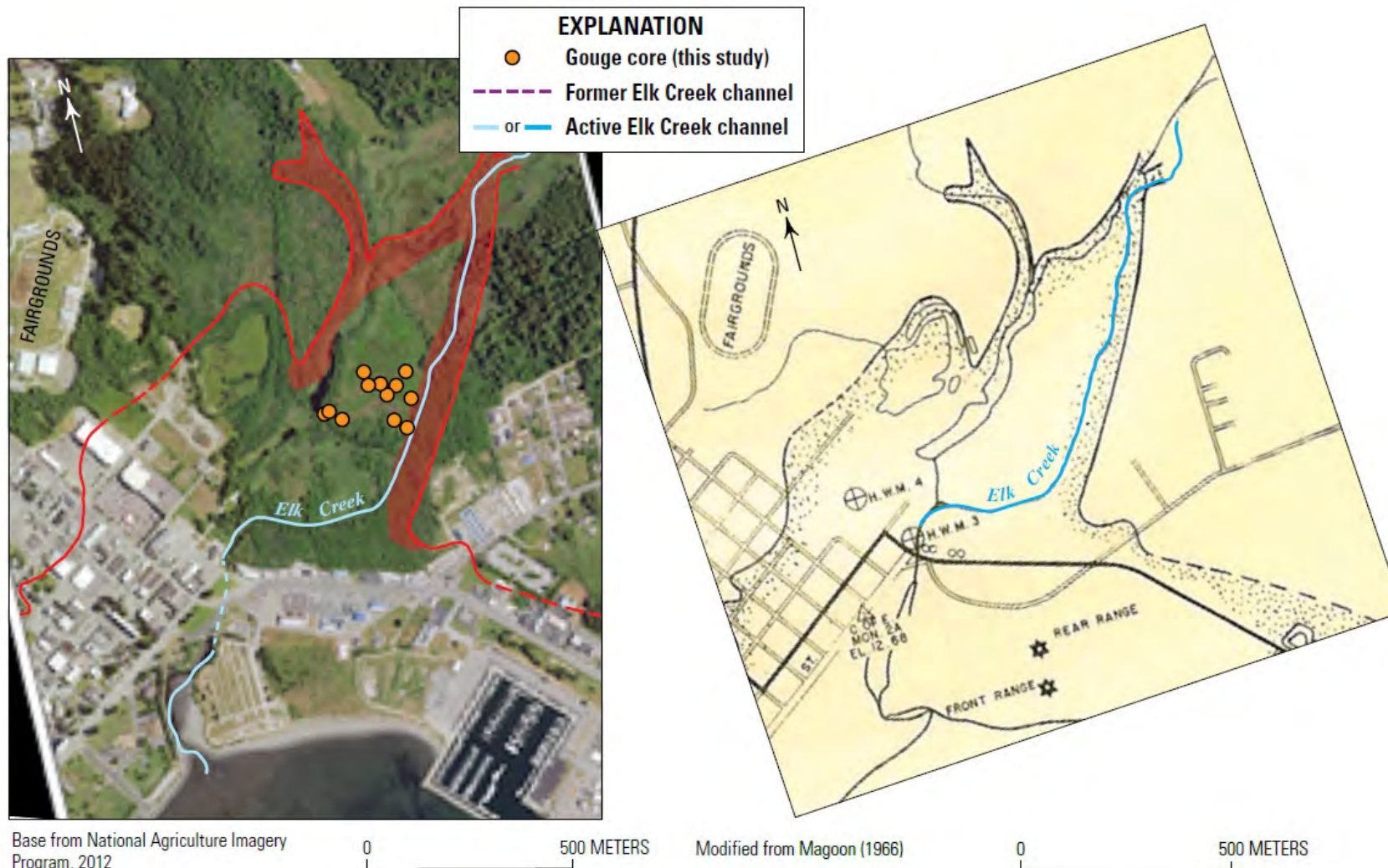


TSUNAMI INUNDATION



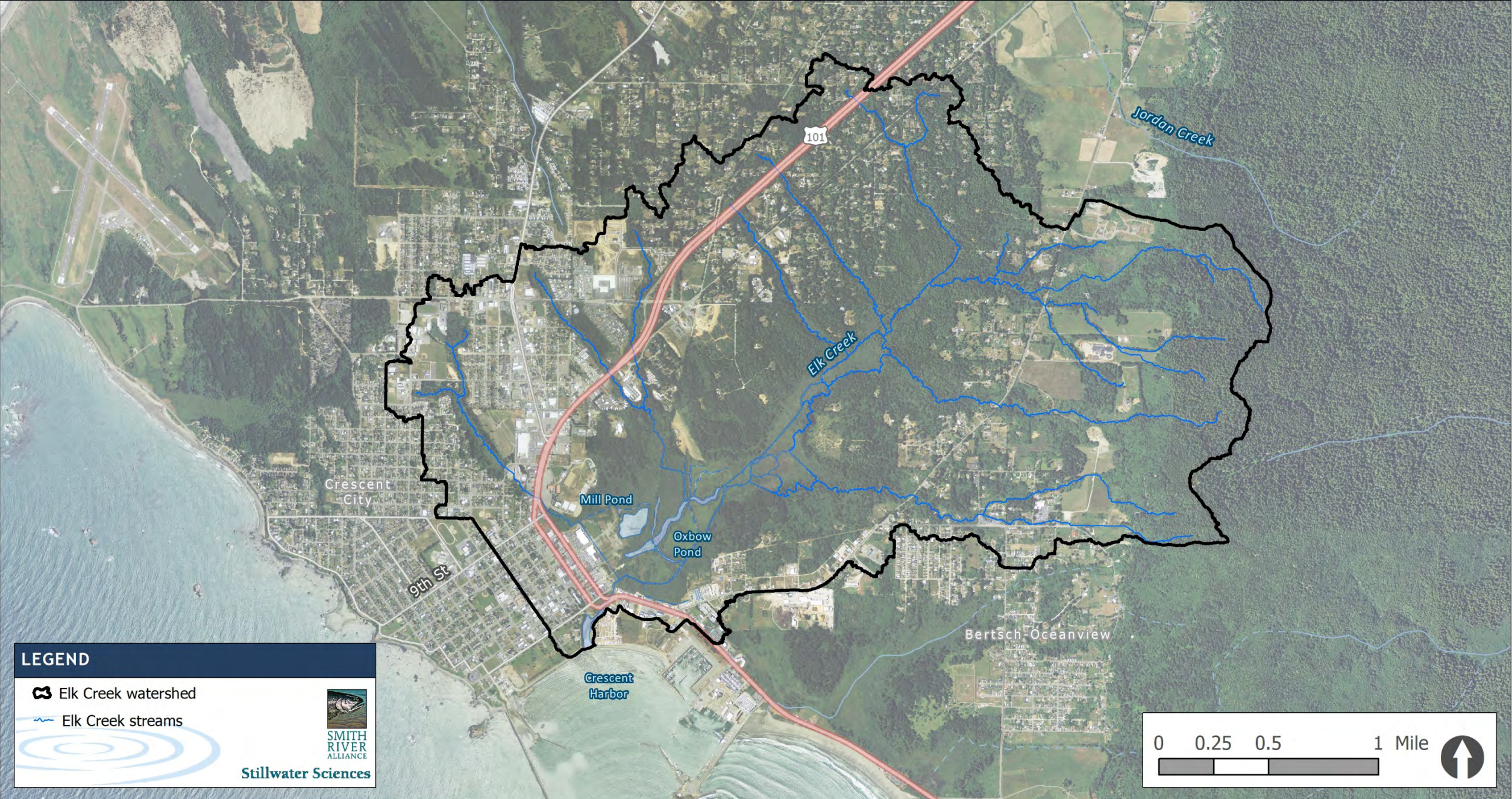
- Modeled tsunami inundation from local source (i.e., Cascadia subduction zone earthquake)
- Has not occurred since 1700 (320 years)
- Distant source tsunamis also a concern (Alaska, Chile, Russia, or Japan earthquake)

TSUNAMI INUNDATION





- 1964 tsunami
- Distant source (Alaska earthquake)
- Tsunami inundated harbor, downtown Crescent City, and lower Elk Creek project area

WATERSHED OVERVIEW



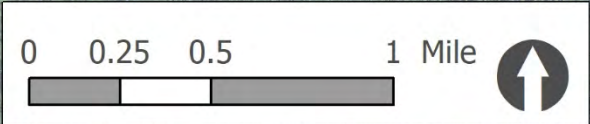
LEGEND

-  Elk Creek watershed
-  Elk Creek streams

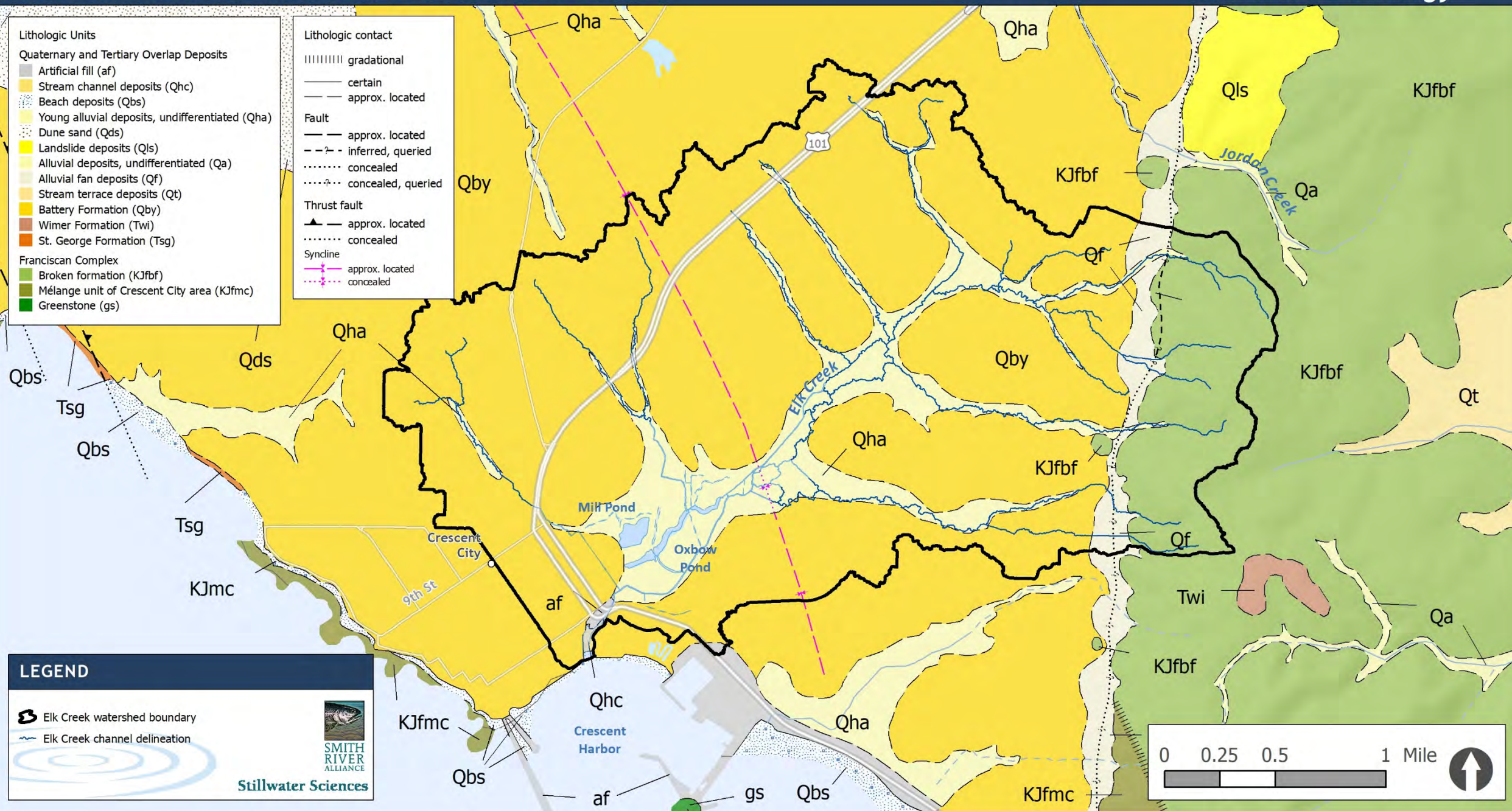


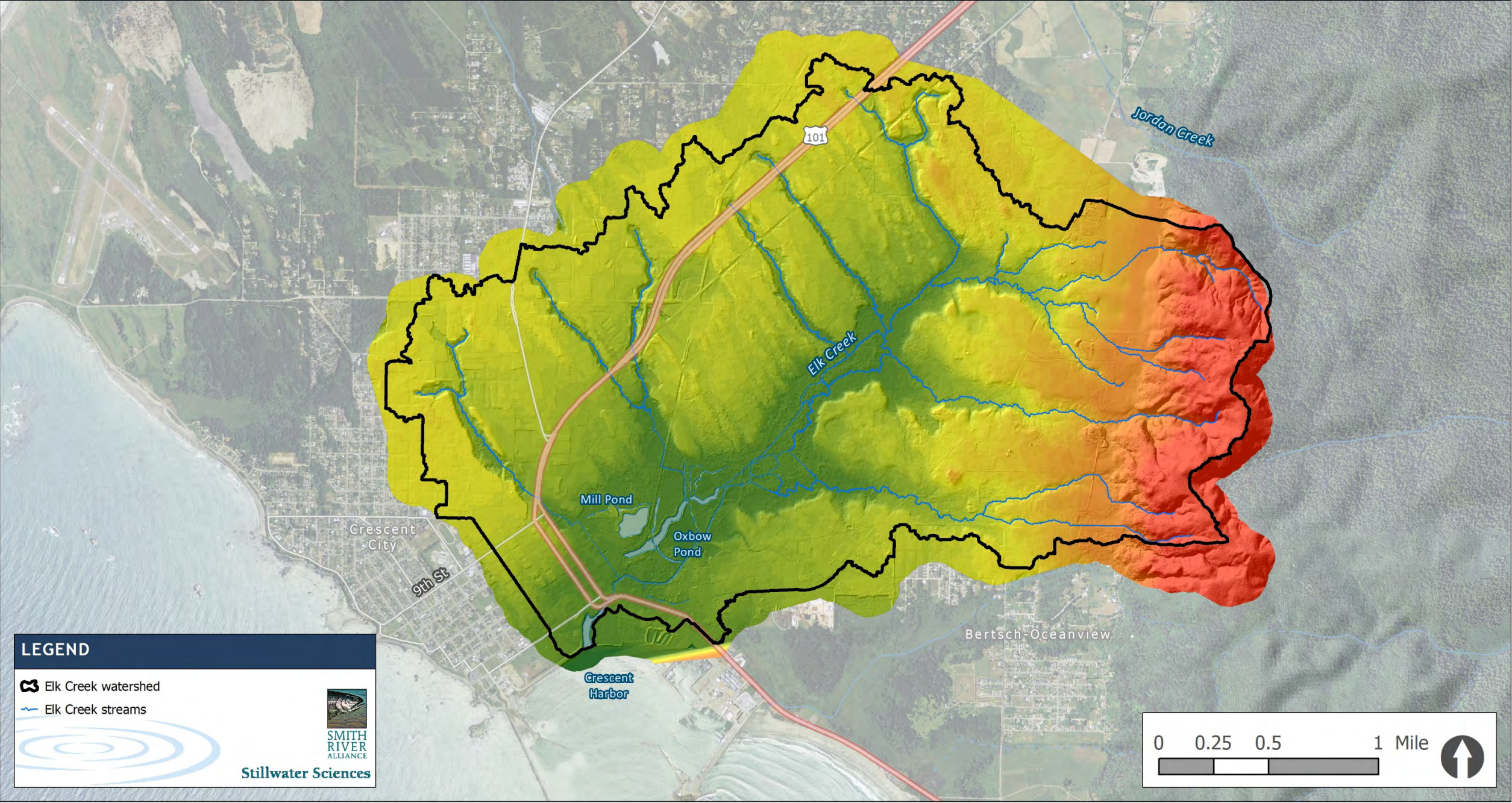
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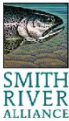
Watershed Geology





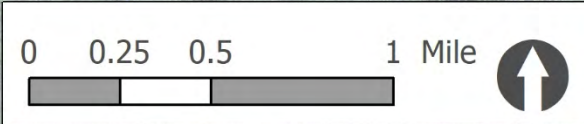
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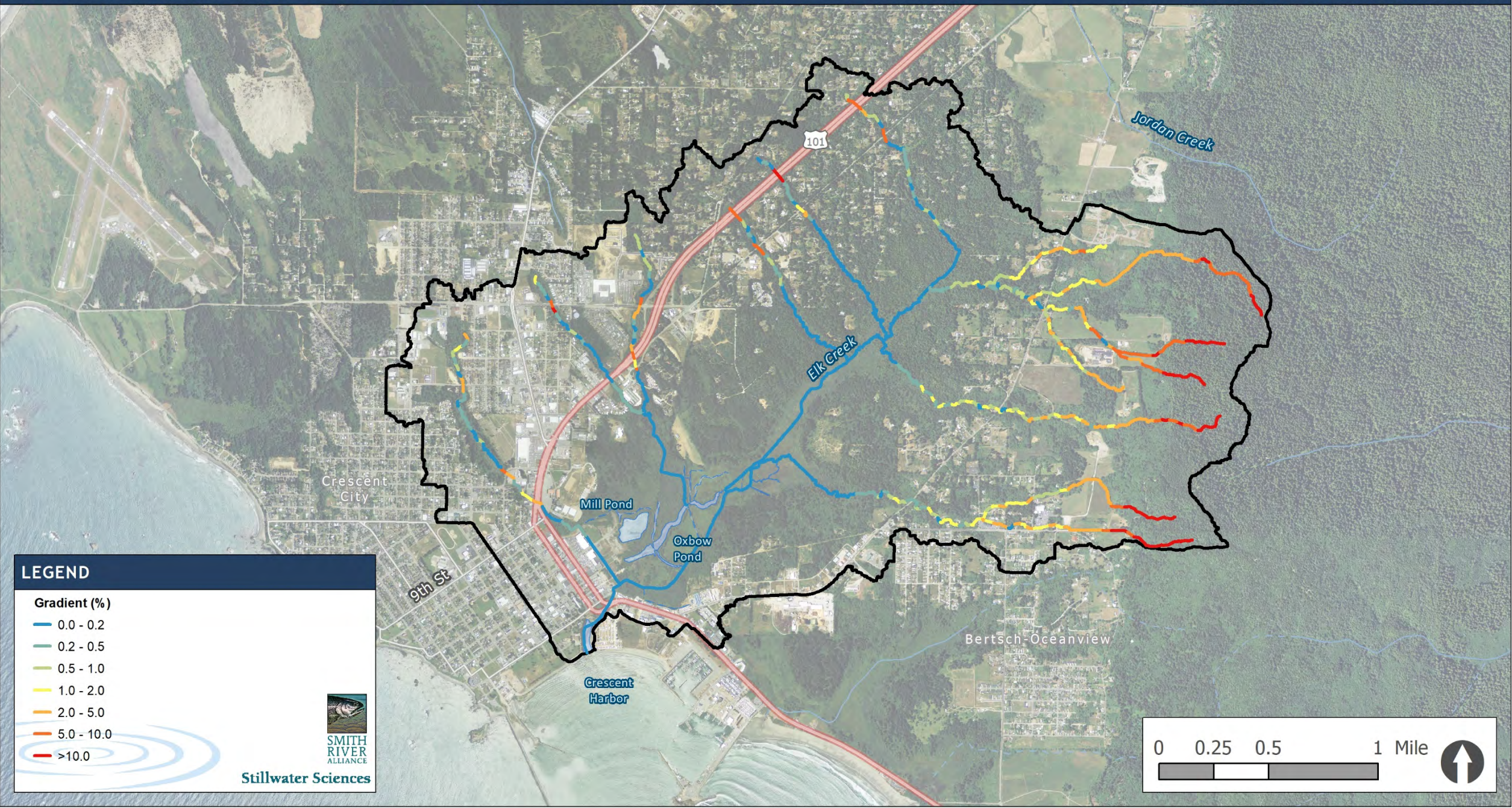
-  Elk Creek watershed
-  Elk Creek streams



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LEGEND

Gradient (%)

- 0.0 - 0.2
- 0.2 - 0.5
- 0.5 - 1.0
- 1.0 - 2.0
- 2.0 - 5.0
- 5.0 - 10.0
- >10.0



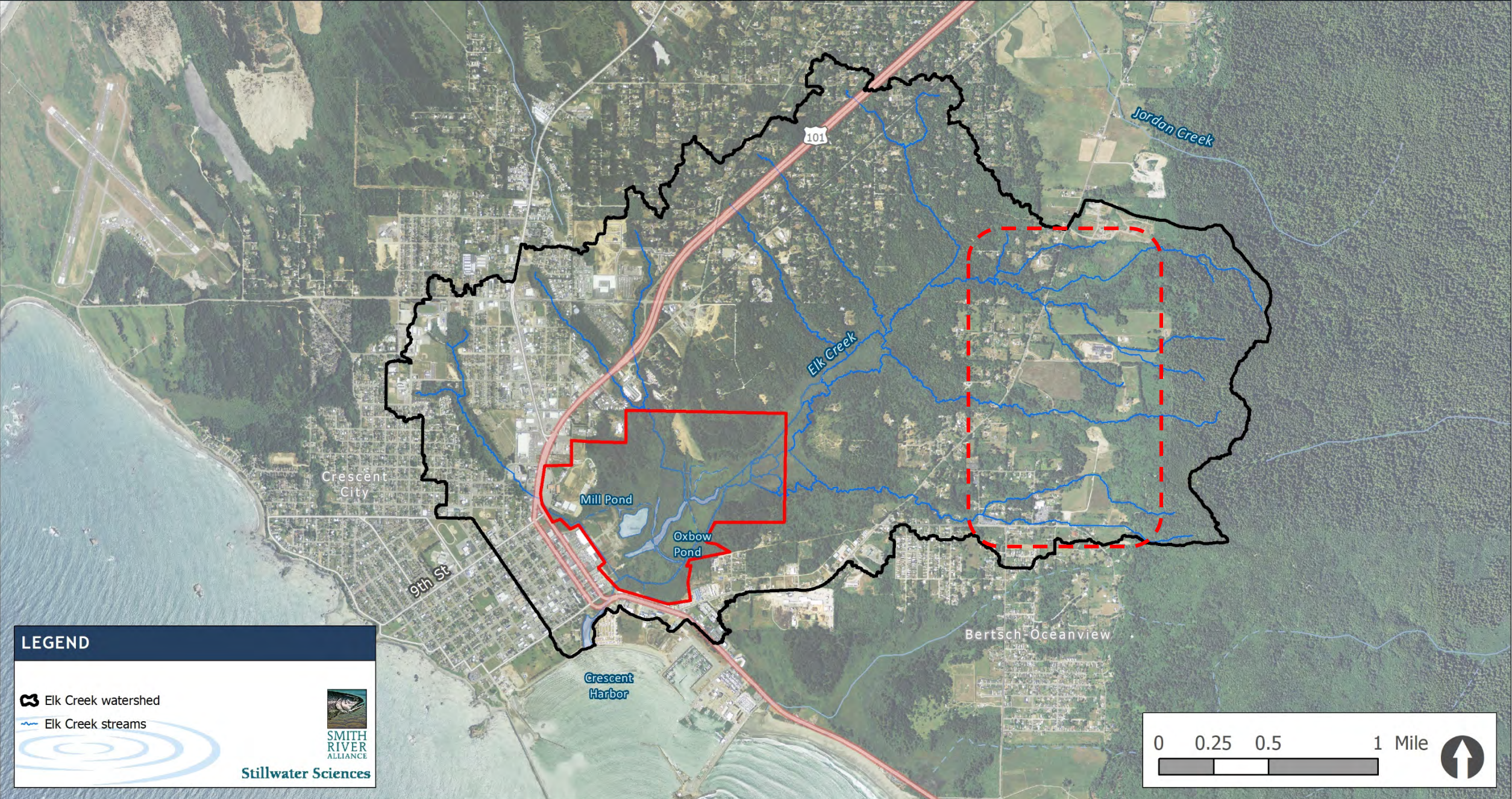
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0 0.25 0.5 1 Mile





HYDRO-GEOMORPHOLOGY





LEGEND

-  Elk Creek watershed
-  Elk Creek streams

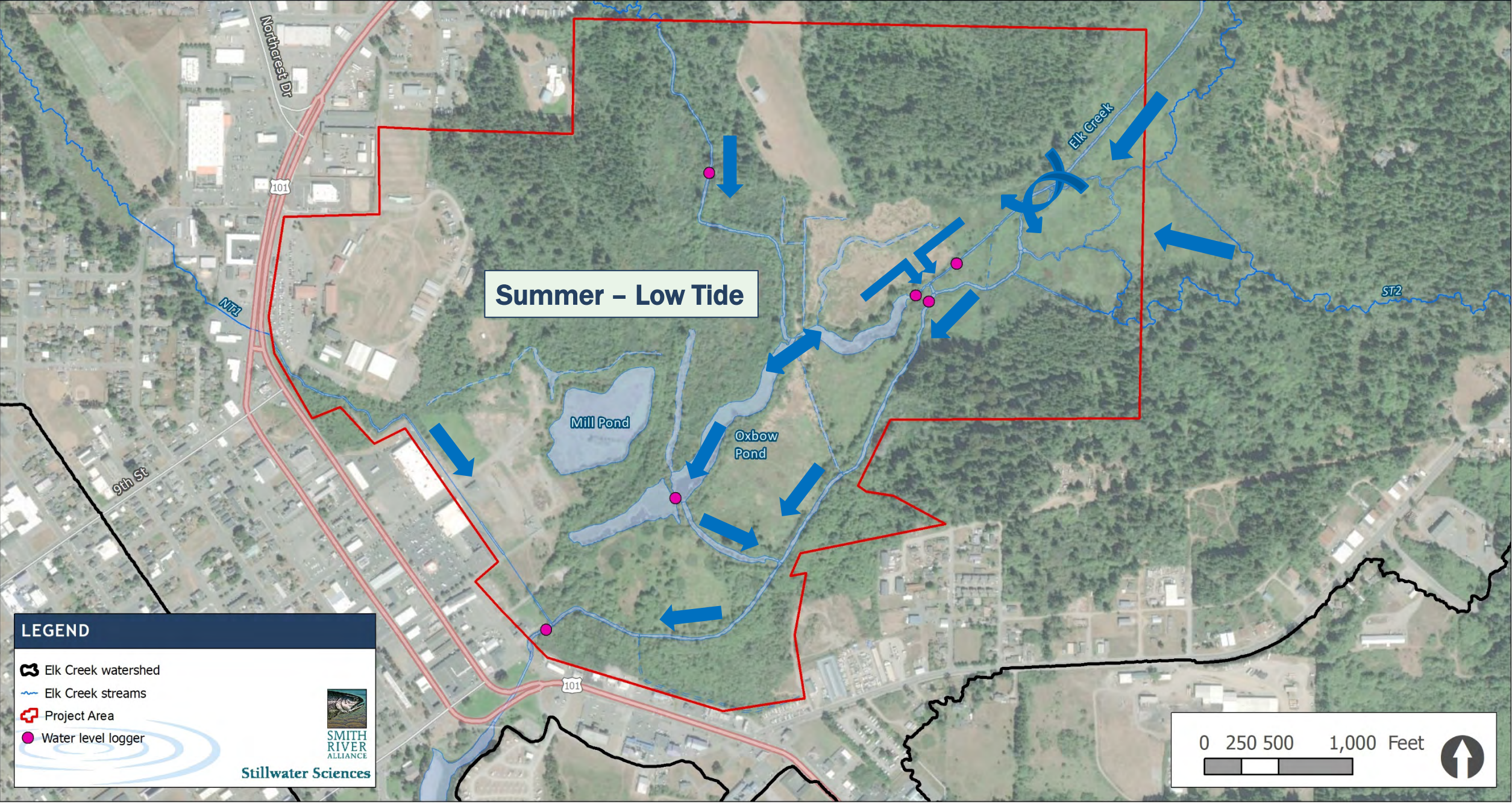


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0 0.25 0.5 1 Mile





LEGEND

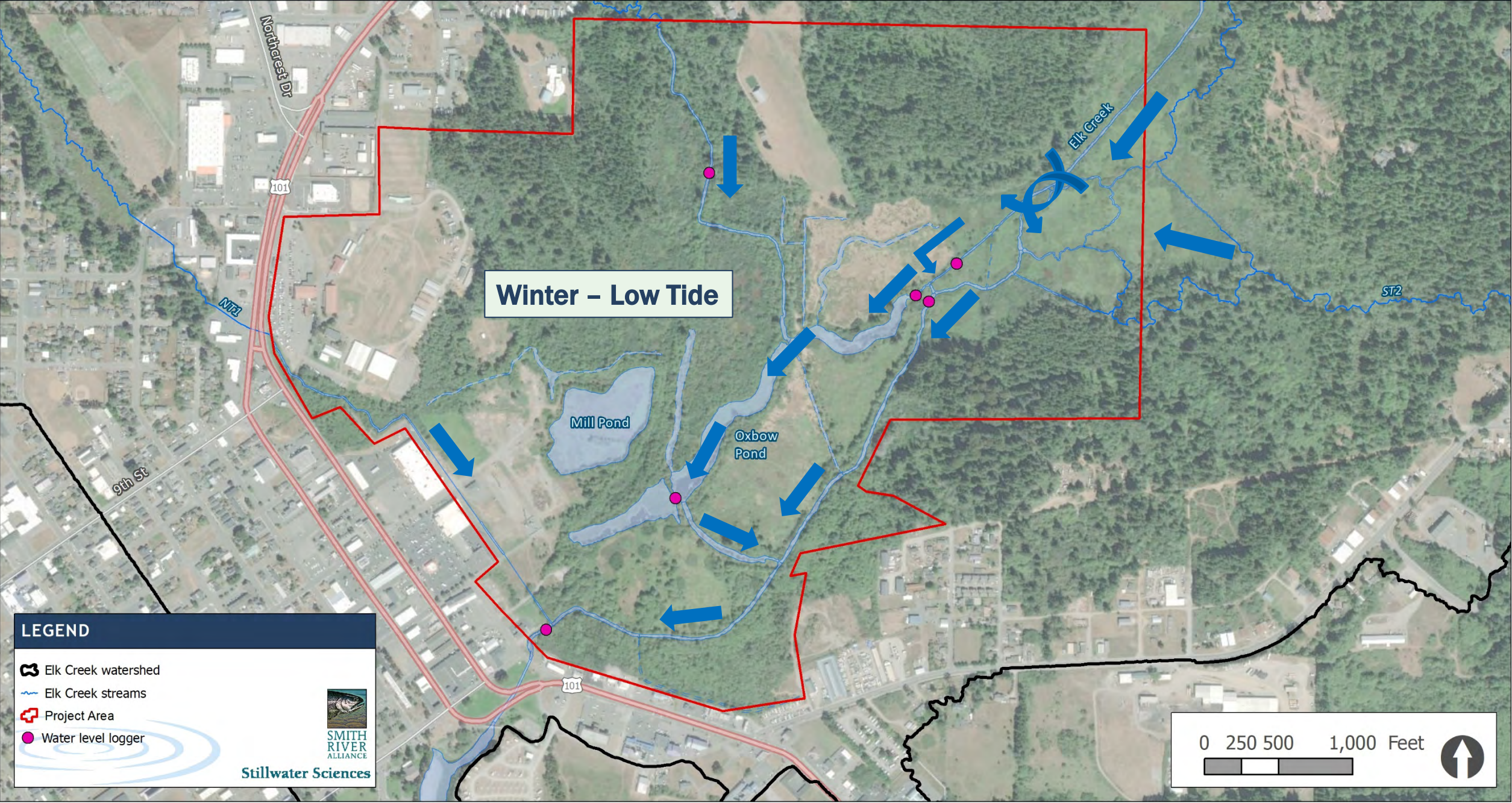
- Elk Creek watershed
- Elk Creek streams
- Project Area
- Water level logger

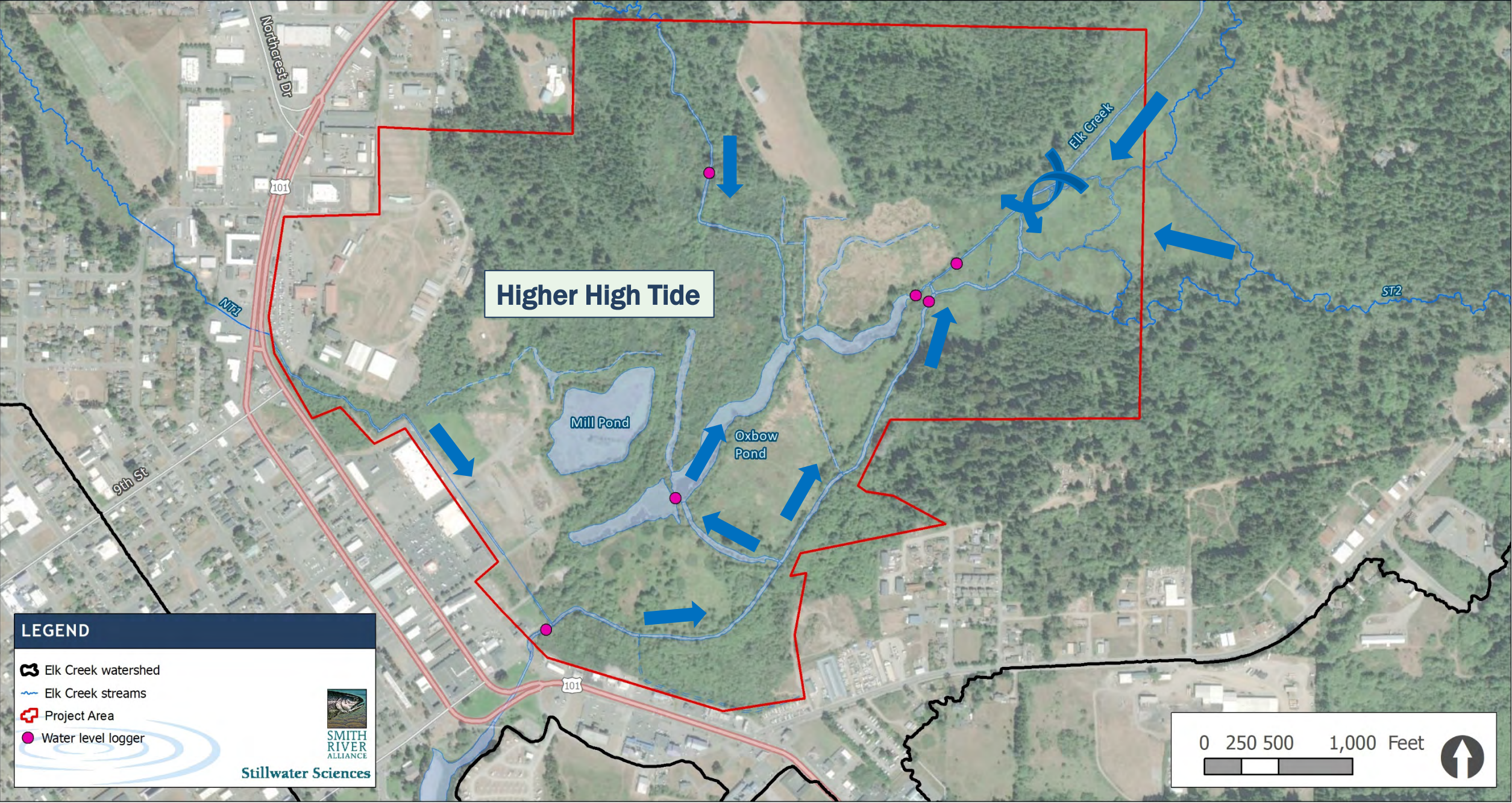


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0 250 500 1,000 Feet







LEGEND

-  Elk Creek watershed
-  Elk Creek streams
-  Project Area
-  Water level logger

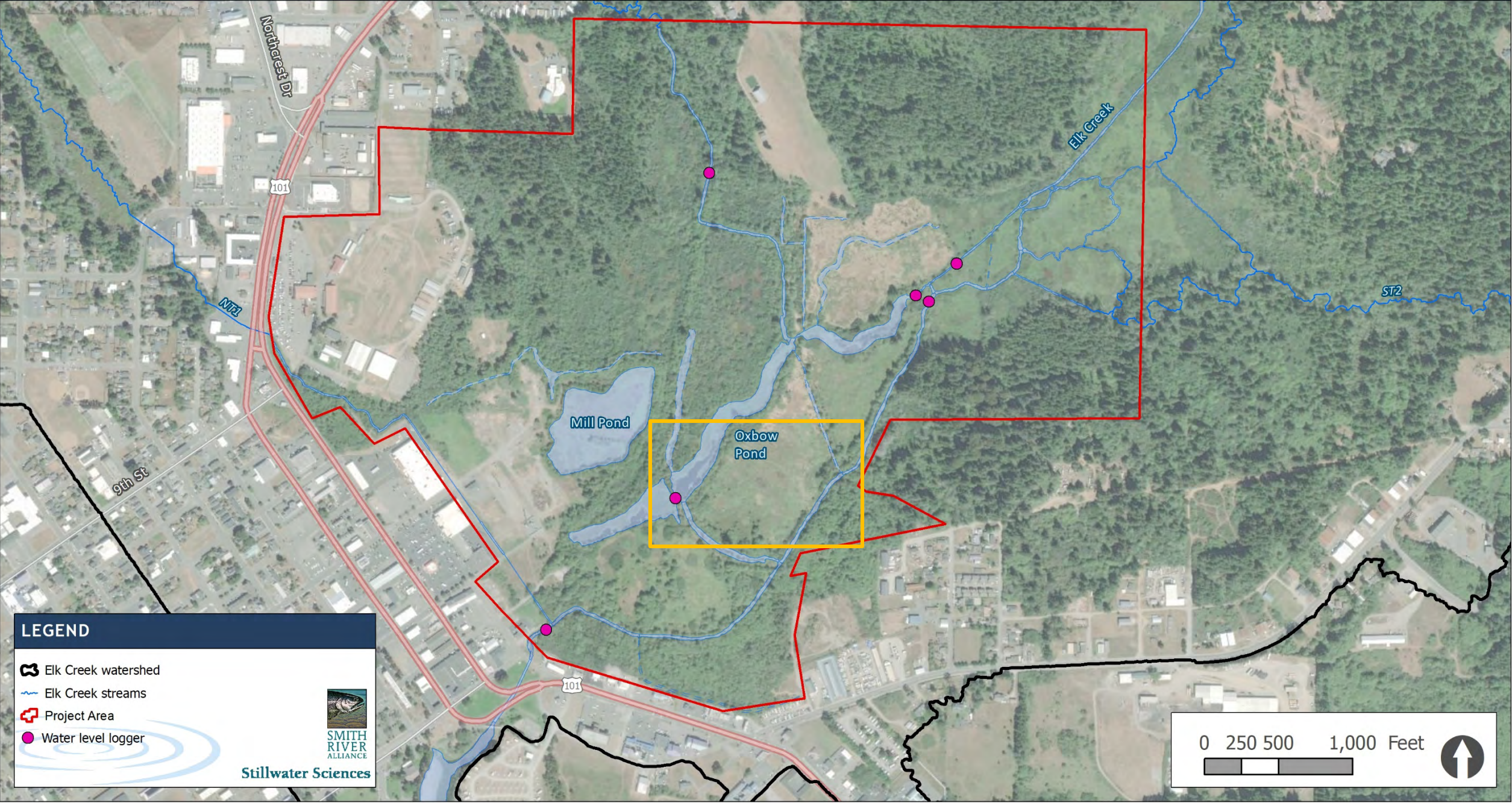


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0 250 500 1,000 Feet





LEGEND

- Elk Creek watershed
- Elk Creek streams
- Project Area
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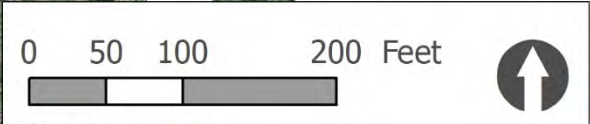
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0 250 500 1,000 Feet



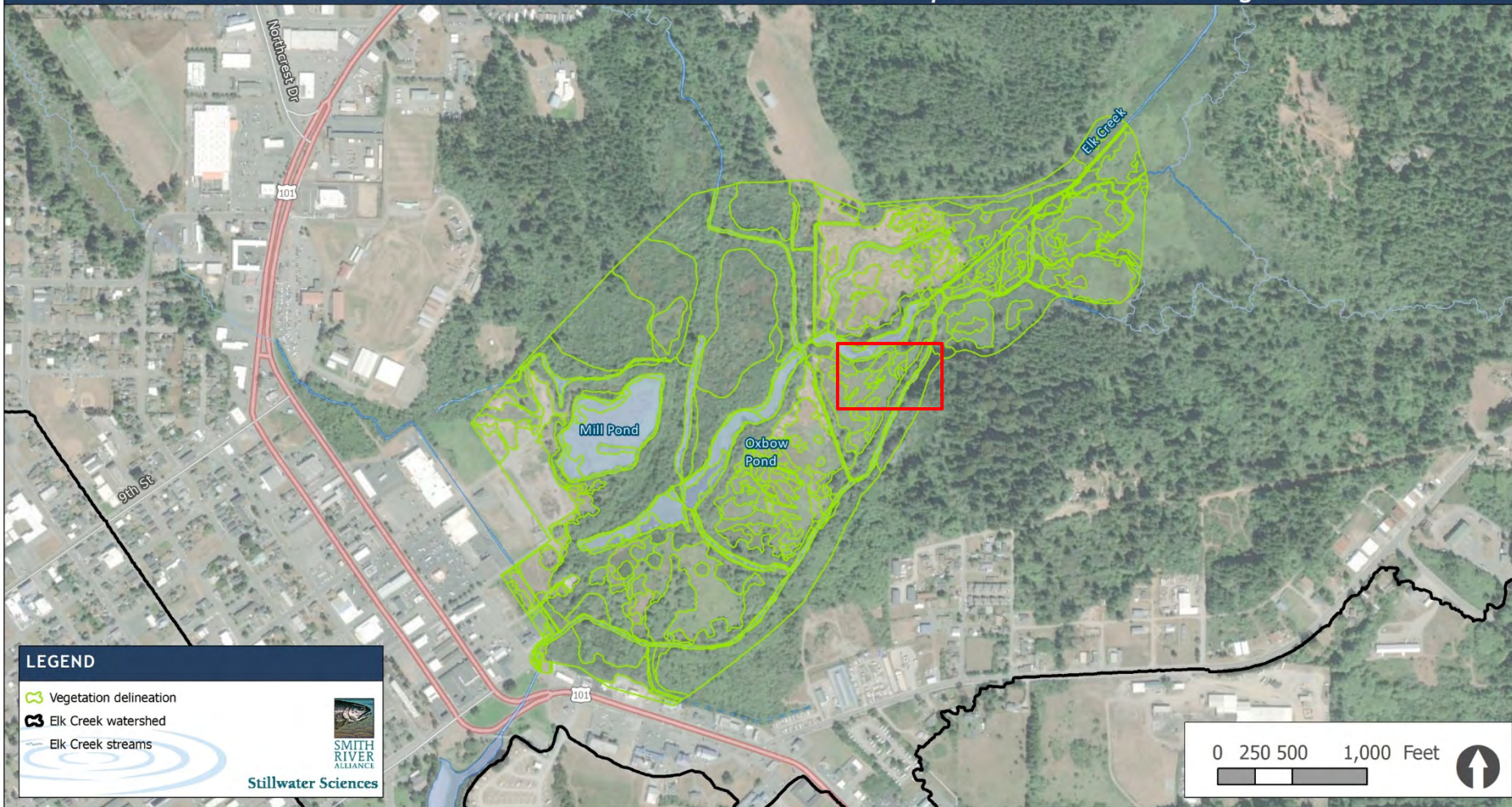




RIPARIAN AND WETLAND VEGETATION

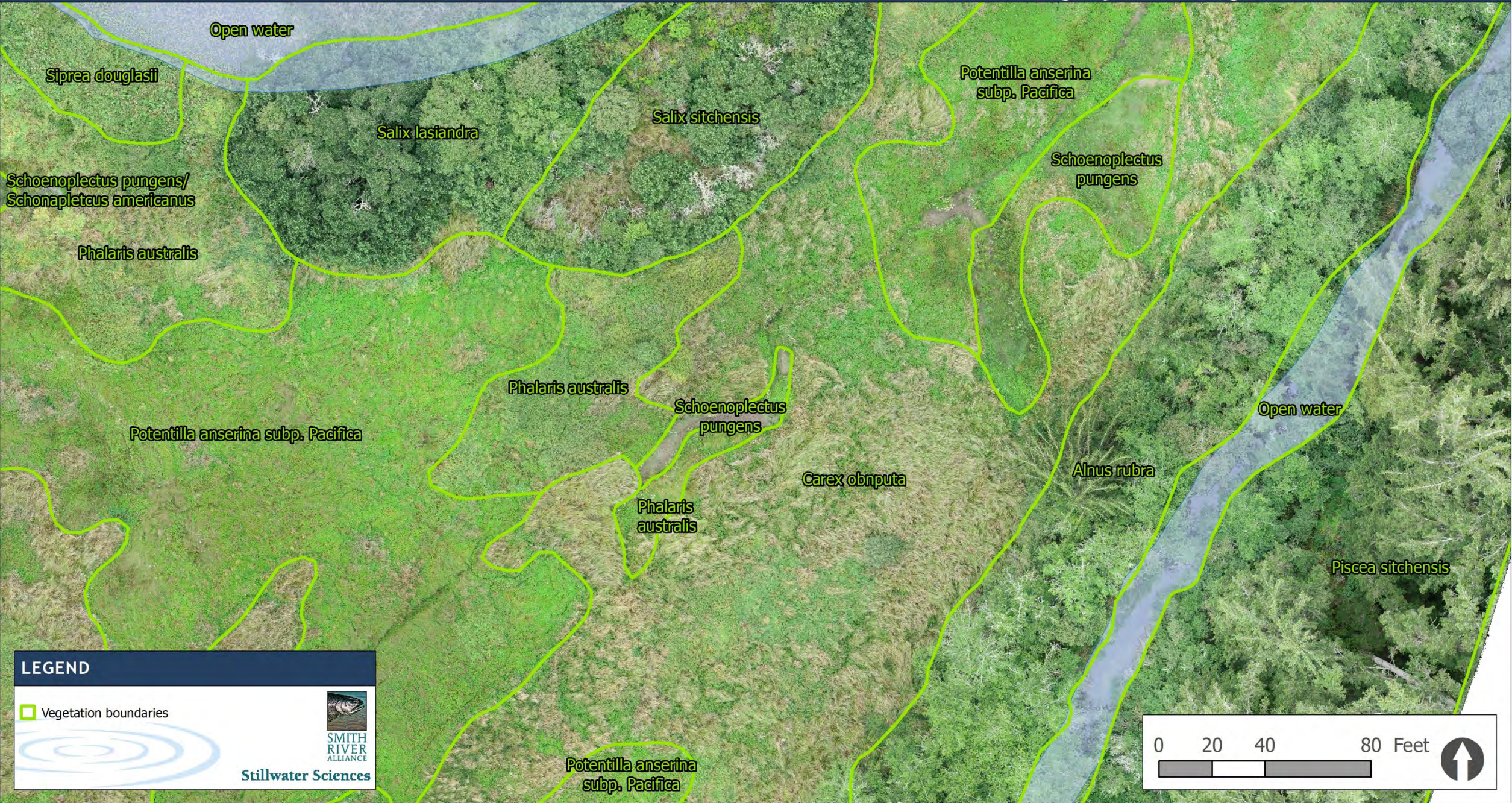
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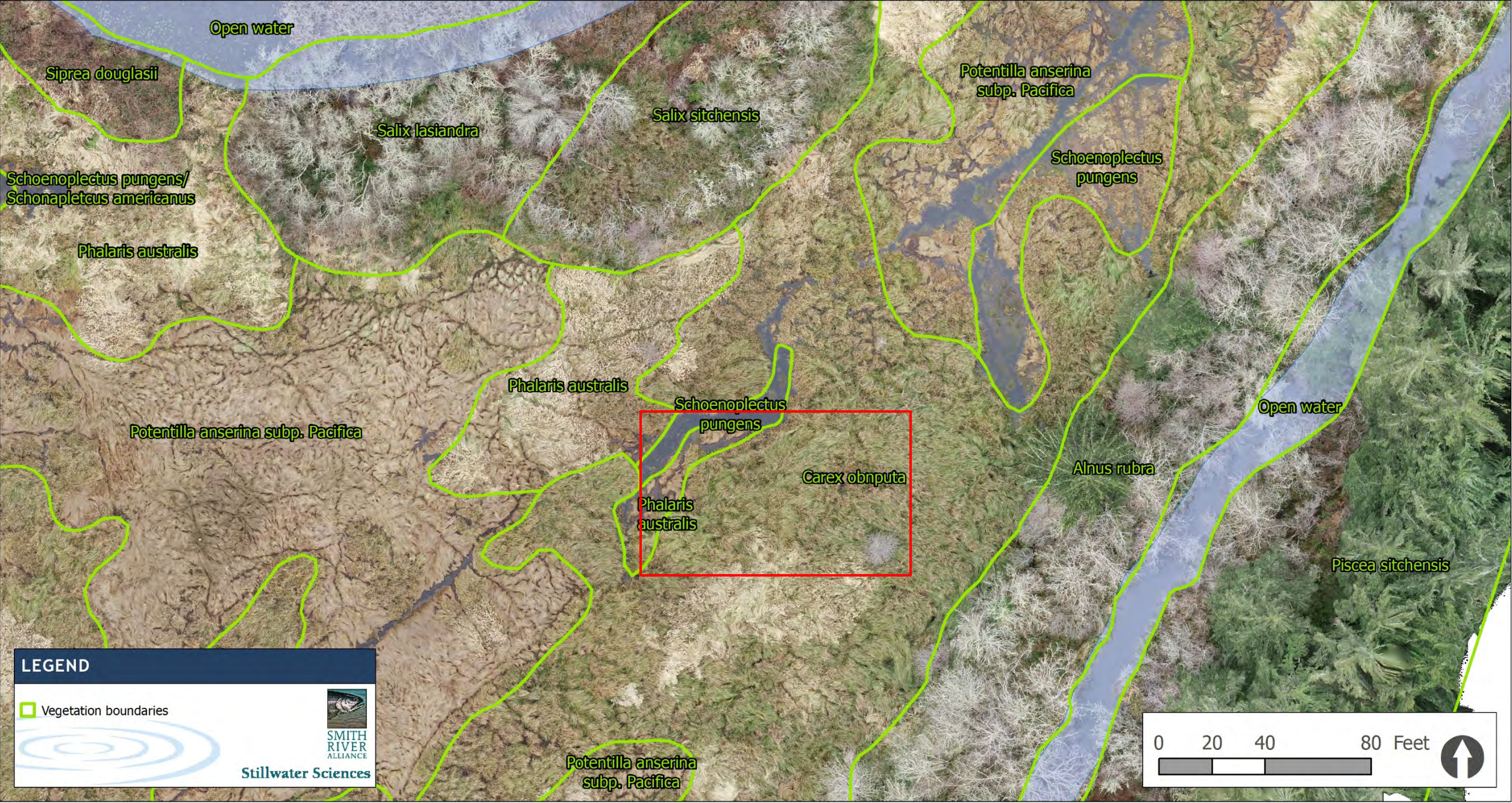
Riparian and Wetland Vegetation Assessment




- Focus is in lower project area
- Assess and map current vegetation communities
- ID and map invasive weeds
- Develop planting plans for potential restoration actions







LEGEND

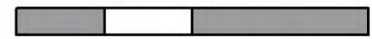
 Vegetation boundaries



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0 20 40 80 Feet





LEGEND

 Vegetation boundaries



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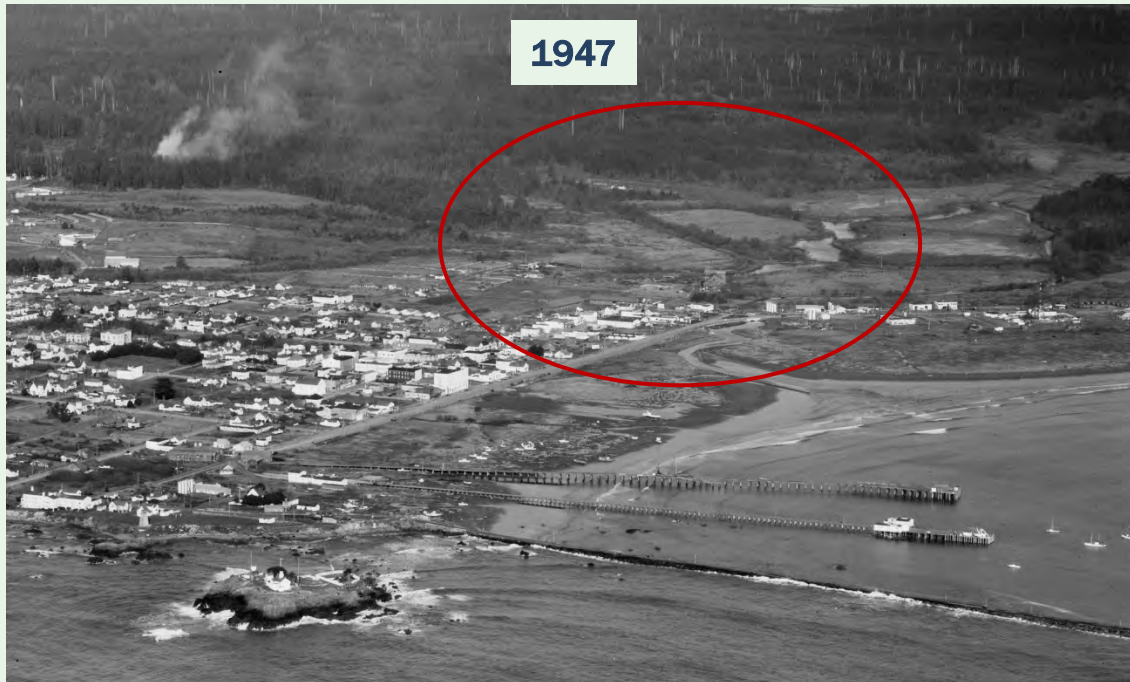
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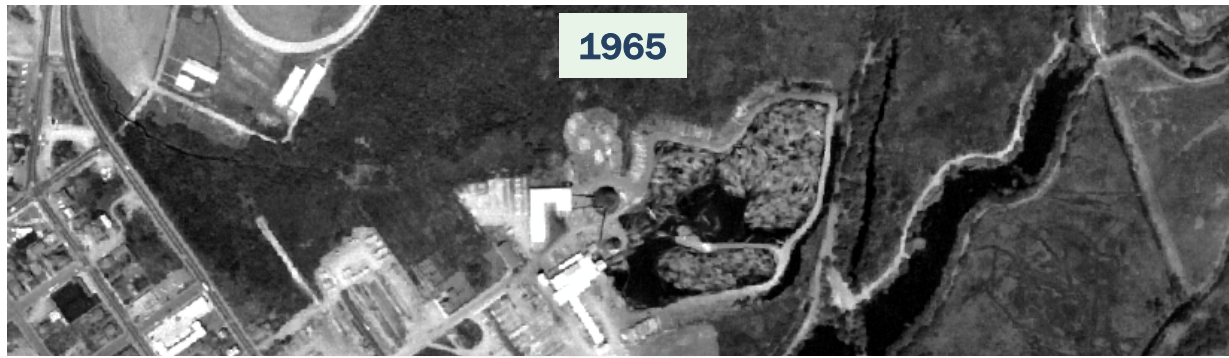


WATER AND SOIL CONTAMINATION

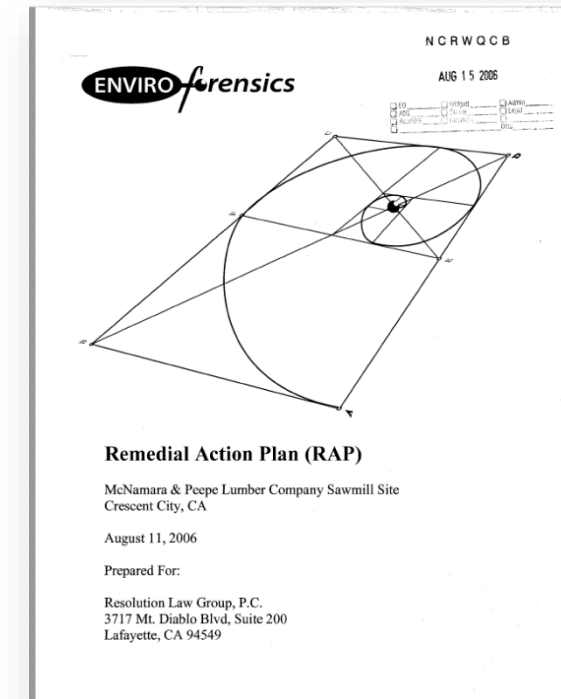
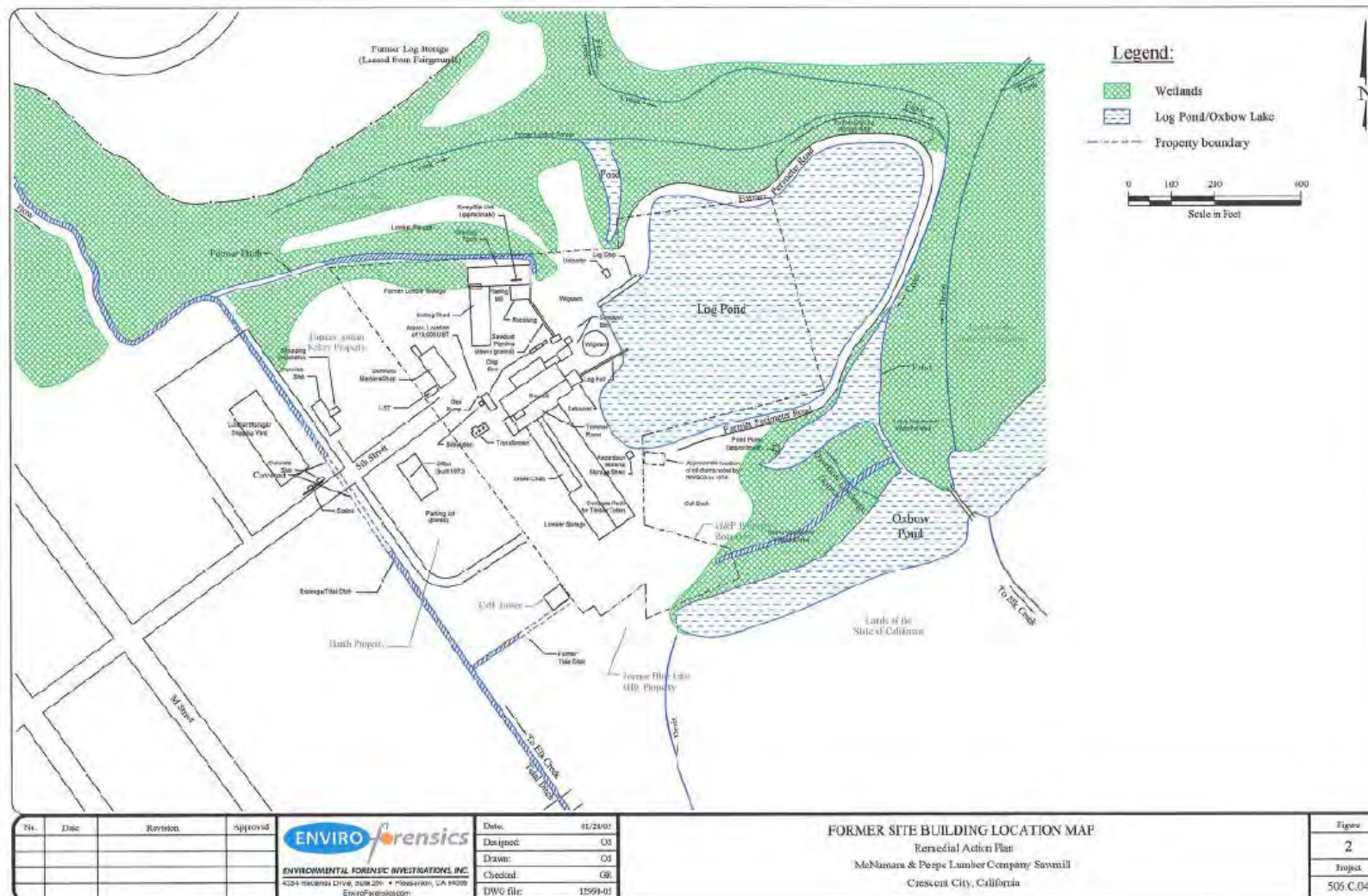
Assessment focused on lower valley project area. Primary concerns associated with:

- Former mill sites
 - Hobbs, Wall & Co.
 - McNamara & Peepe Lumber Co.
- Mill pond and levee embankment construction





1965



Remedial Action Plan (RAP) Enviro-forensics 2006

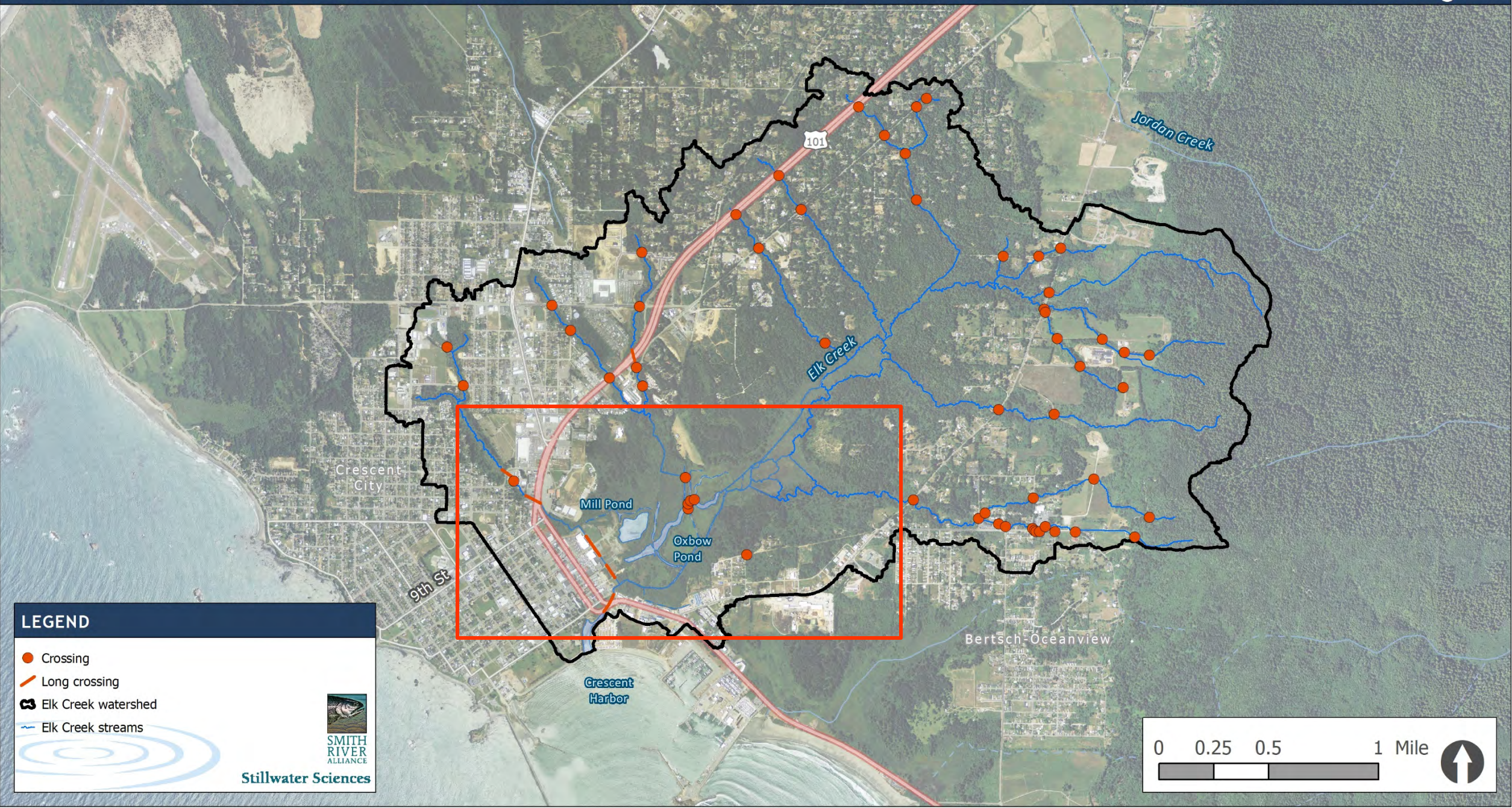
- Phase I – Site Preparation
 - Conducted in 2005
- Phase II – Interim Soil Excavation & Removal
 - Has not occurred
- Phase III – Site Development, Capping, & Institutional Controls
 - Has not occurred

FISH PASSAGE AND STREAM CROSSING ENGINEERING DESIGN

Fish passage constraints

- Lower valley project area
 - Undersized and long culverts
 - Reed canary grass
 - Creek and pond “dead ends”
- Upper valley project area
 - Undersized, poorly constructed, and failing culverts





LEGEND

- Crossing
- Long crossing
- Elk Creek watershed
- Elk Creek streams

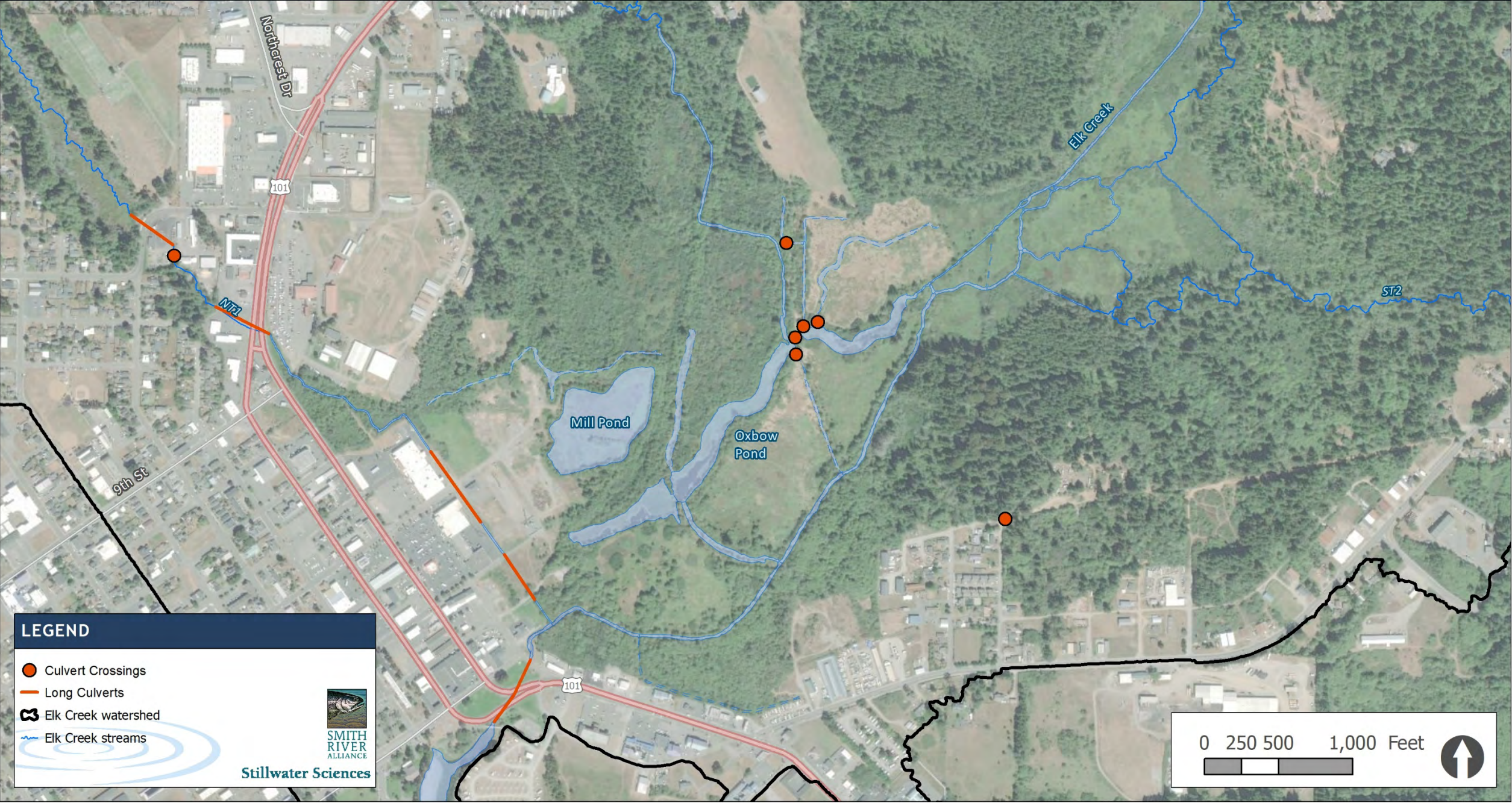


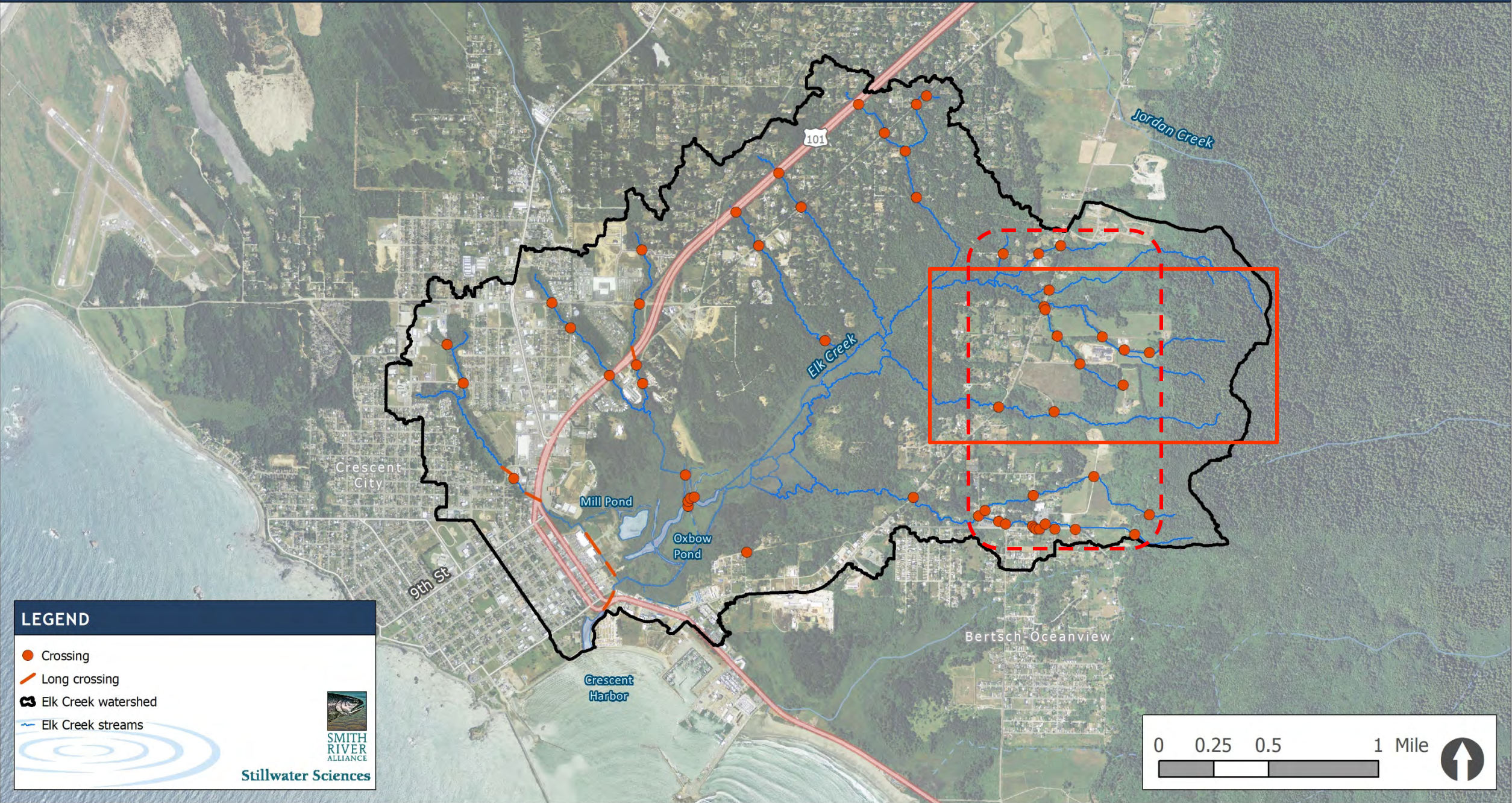
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0 0.25 0.5 1 Mile







LEGEND

- Crossing
- Long crossing
- Elk Creek watershed
- Elk Creek streams

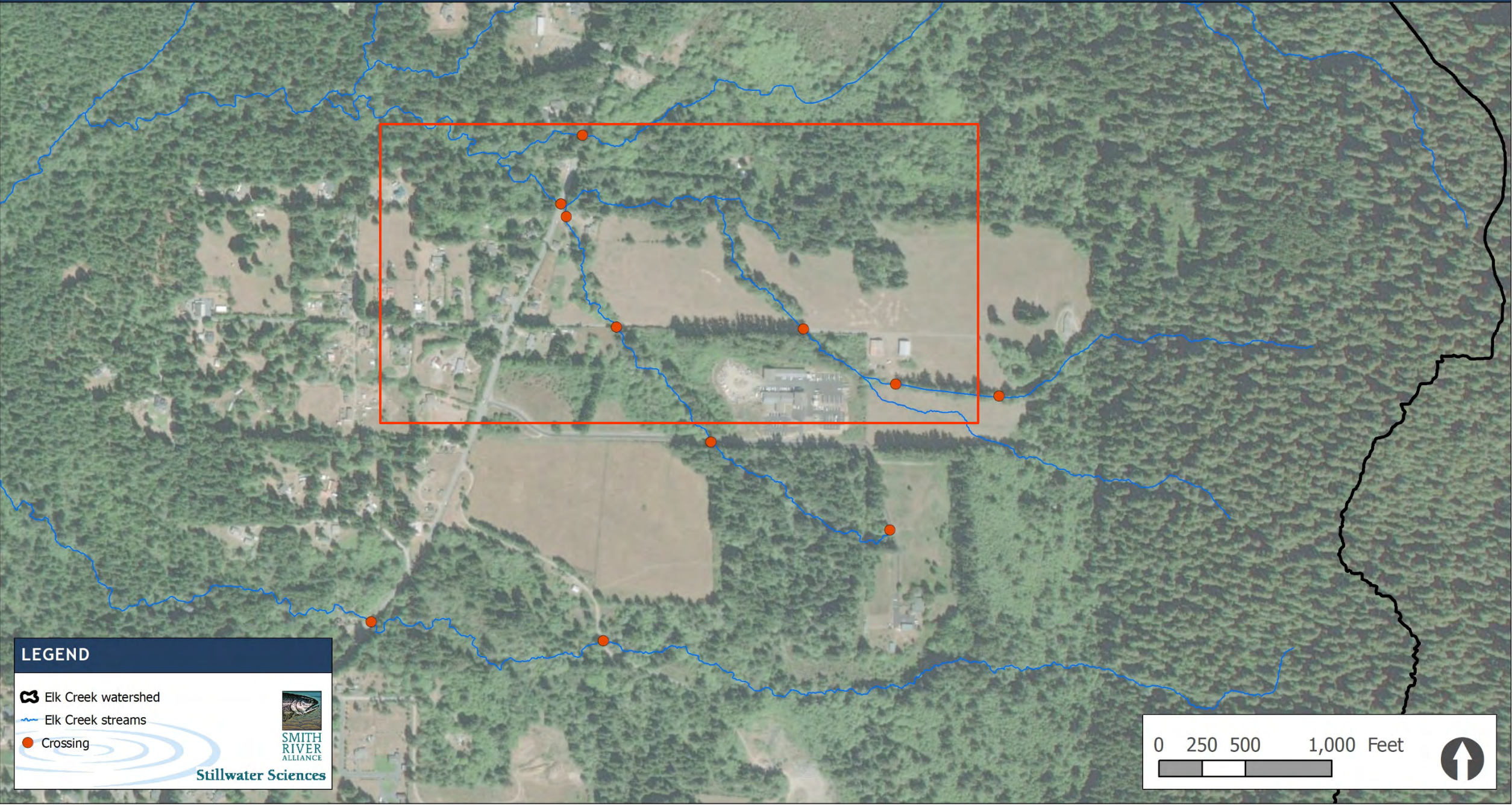


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0 0.25 0.5 1 Mile





LEGEND

-  Elk Creek watershed
-  Elk Creek streams
-  Crossing



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0 250 500 1,000 Feet



- Funded to develop 100% engineered designs for upgrading 3 crossings on critical spawning tributaries – *to be completed spring 2021*
- Next apply for implementation funding for construction
- Already applied for funding to re-design 3 additional crossings on Elk Valley Road – in partnership with Del Norte County

LEGEND

- Crossing Design Sites
- Crossing
- ~ Elk Creek channel delineation



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0 125 250 500 Feet



AQUATIC HABITAT USE & AVAILABILITY



Past fisheries observations from Department of Rural Human Services (1998 – 2002) and CDFW (2011 – 2017) had a limited distribution, scope and were largely based on incidental observations.






Recent CDFW report documented 16 fish species use the basin, and 7 consecutive brood years of coho salmon in Elk Creek (Garwood 2019)

Goal: Build upon previous survey efforts to develop a comprehensive understanding of:

- Seasonal habitat availability
- Seasonal habitat use
- Water Quality impacts on habitat availability



LEGEND

-  Suitable spawning habitat
-  Suitable rearing habitat
-  Undetermined habitat type
-  Elk Creek watershed
-  Elk Creek streams



FISH HABITAT UTILIZATION: LOW FLOW VS HIGH FLOW HABITATS



LEGEND

2019-20 Redd Observations

- ▲ Coho salmon
- ▲ Coastal cutthroat trout

2019-20 Salmonid Detections

- △ Sampled Location: No detection
- Chinook salmon
- Coastal cutthroat trout
- Coho salmon
- Unidentified trout

2013 to 2018 Salmonid Detections

- Chinook salmon
- Coastal cutthroat trout
- Coho salmon
- Unidentified trout


~~~~~ Suitable Rearing Habitat

~~~~~ Suitable Spawning Habitat

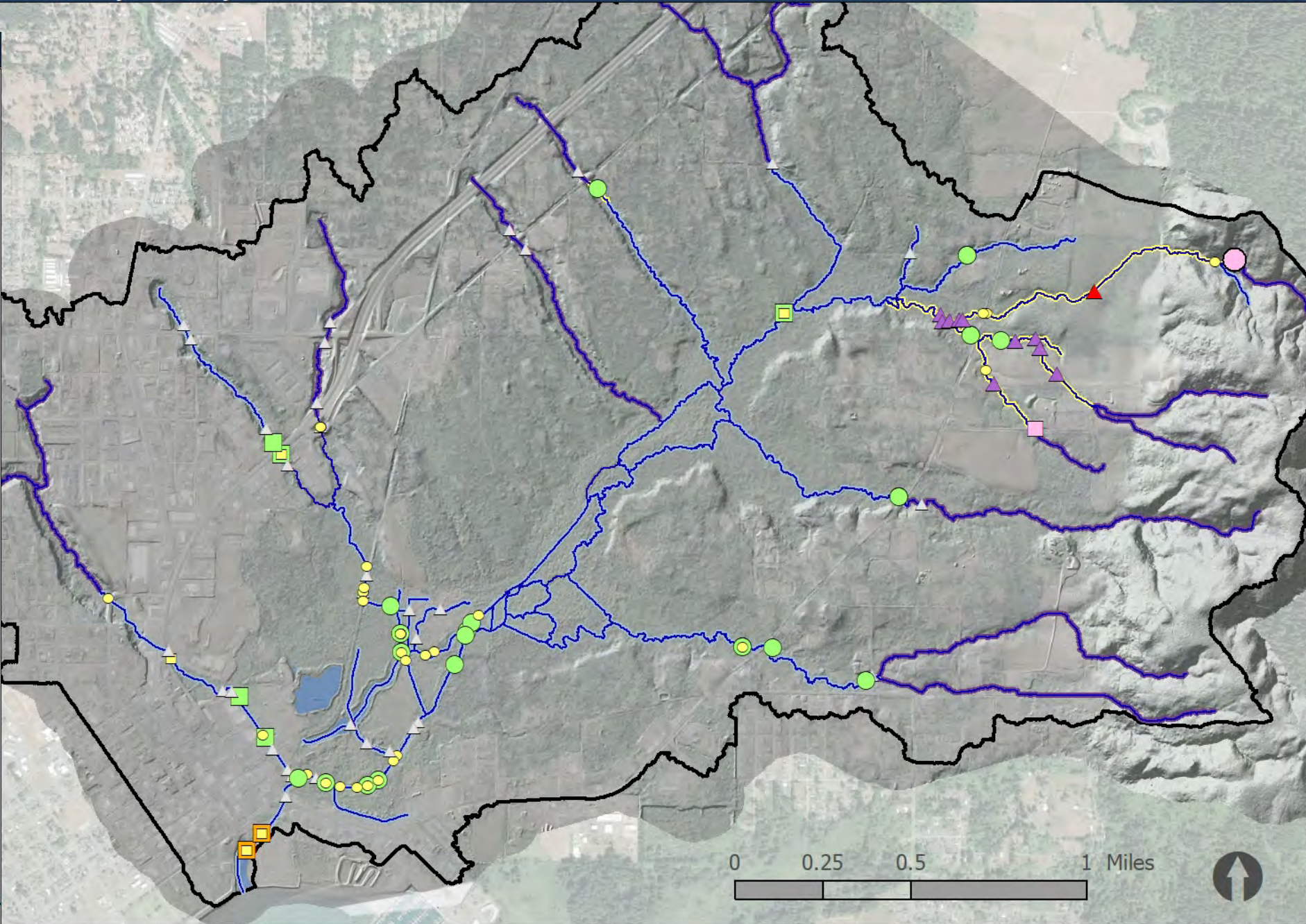
~~~~~ Undetermined Habitat Type

Elk Creek watershed

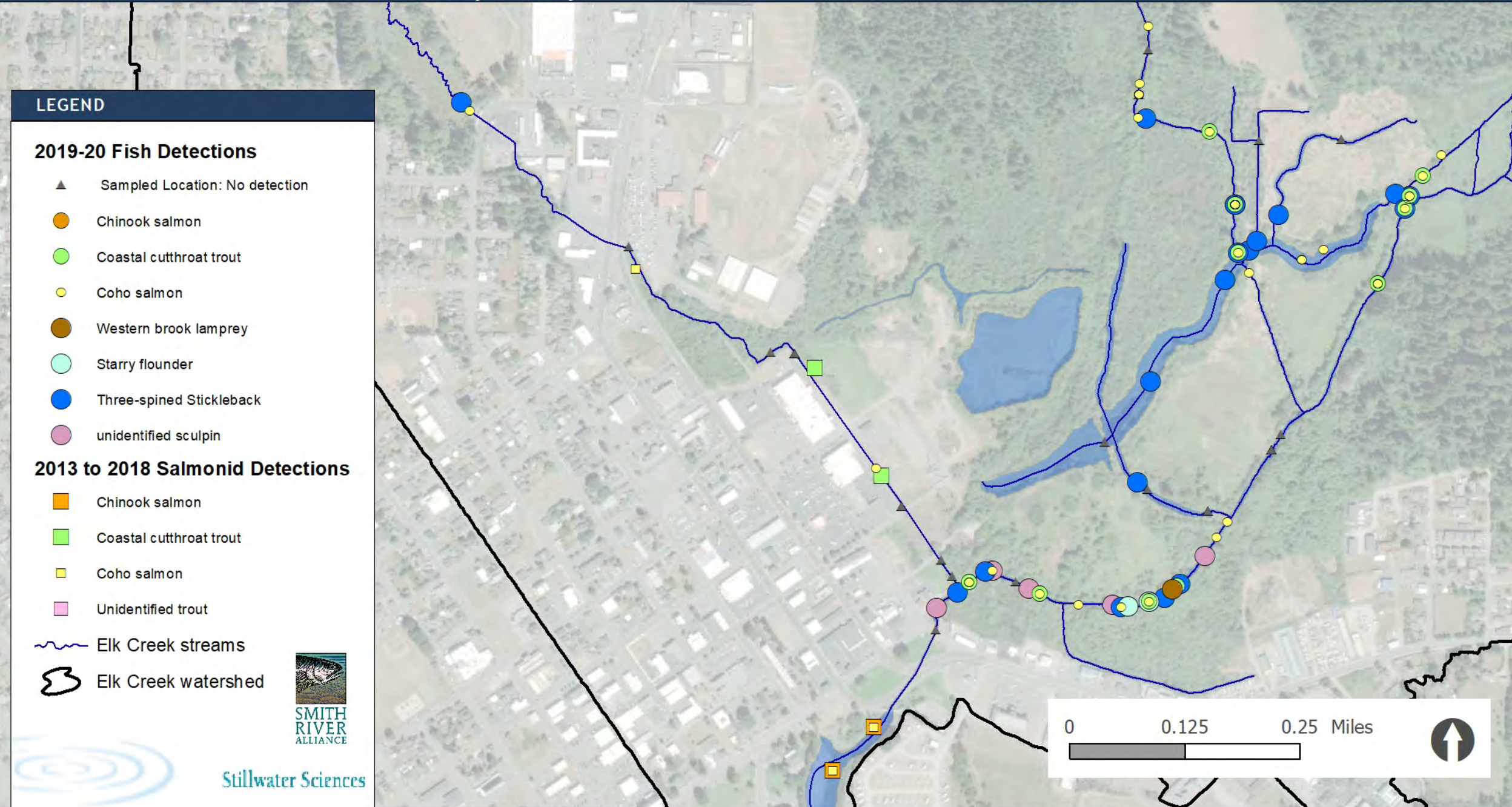
Elk Creek streams



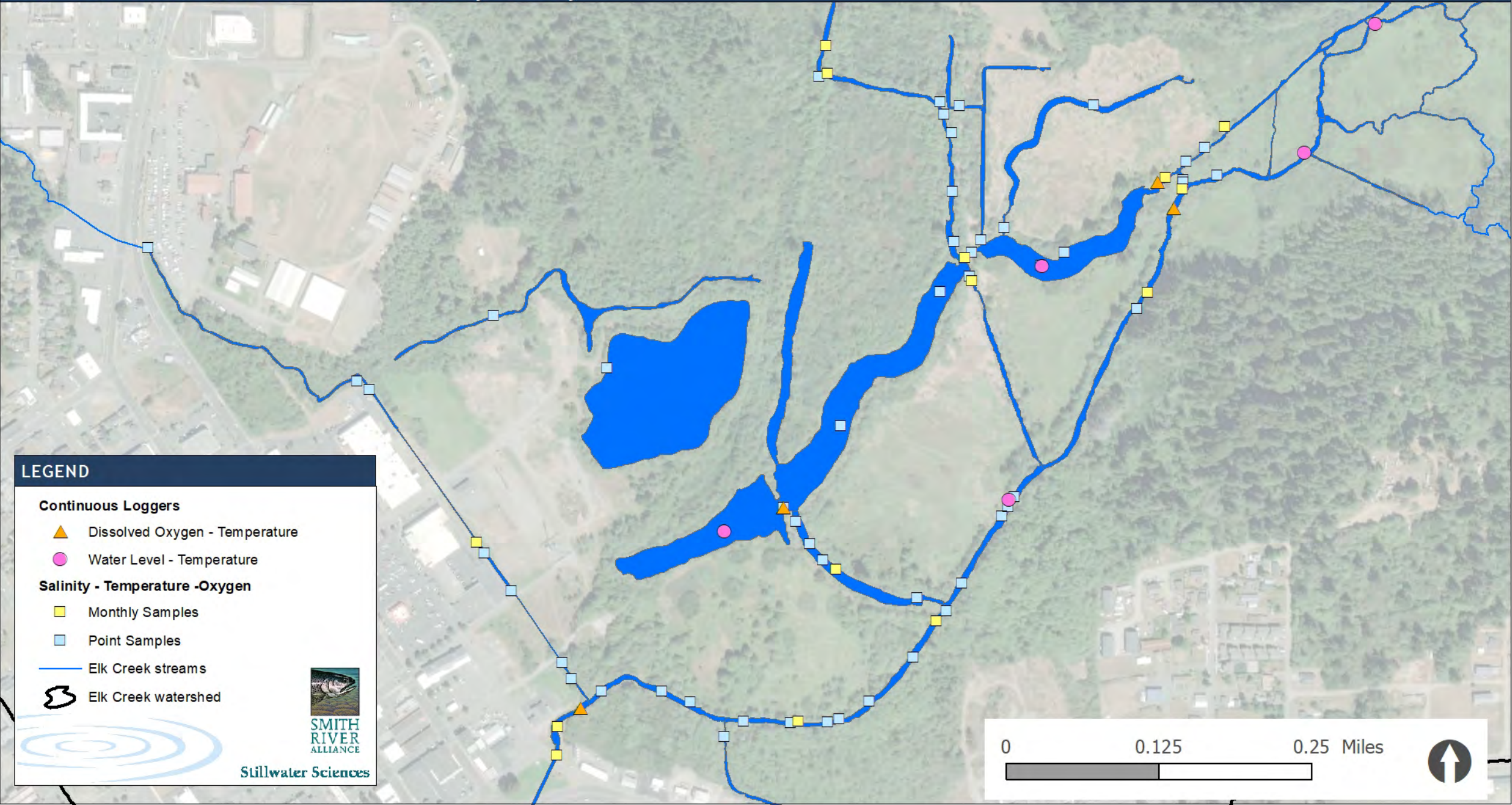
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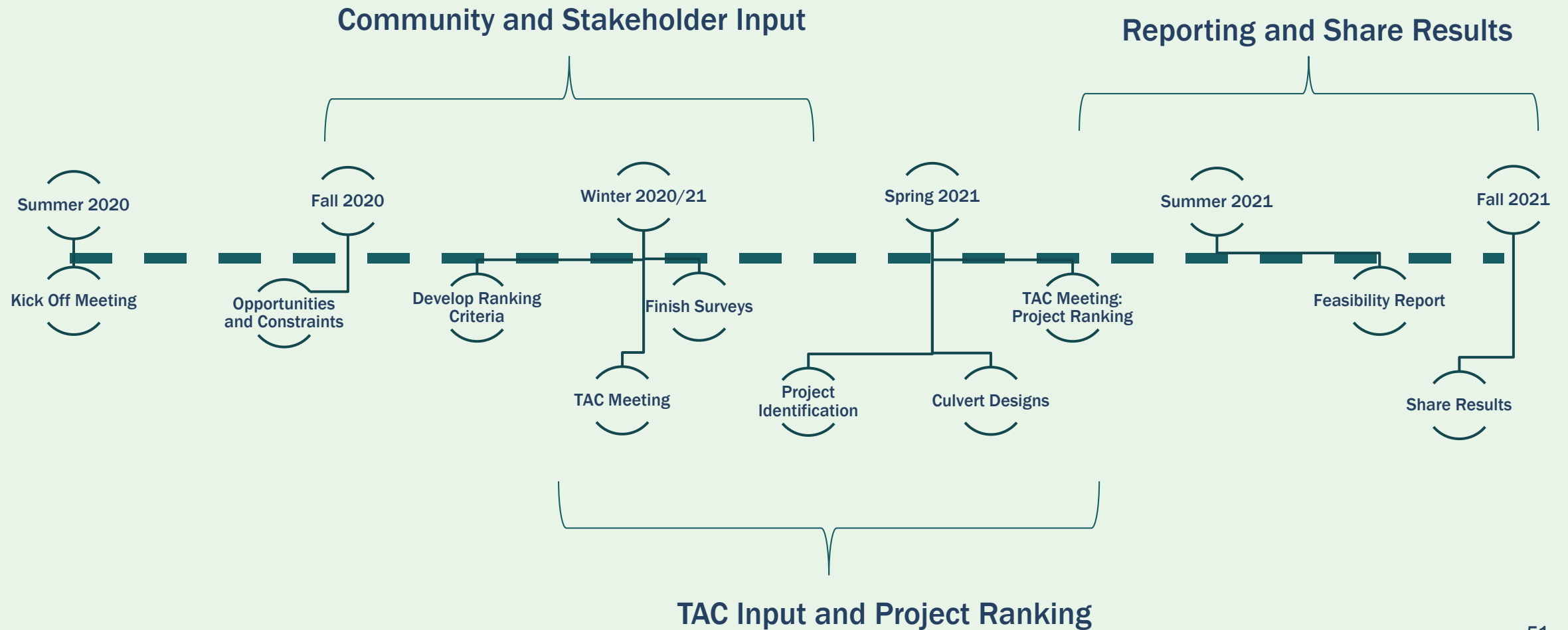


# EXISTING CONDITIONS: Q AND A





# FEASIBILITY STUDY TIMELINE





# THANK YOU!



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