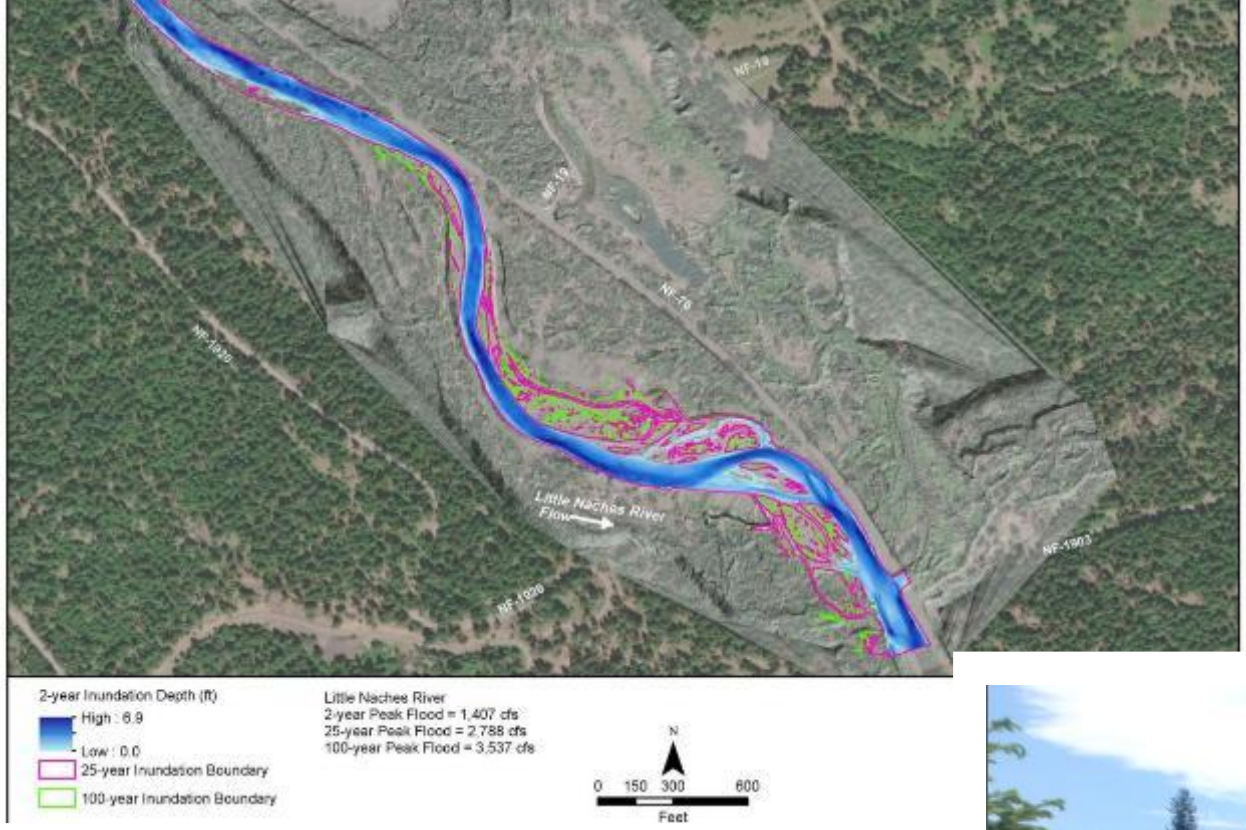
Mid-Columbia FISHERIES ENHANCEMENT GROUP

Little Naches RM 3.3 to 4.3 Floodplain Restoration

Rebecca Wassell

Eastern Washington Riparian Planting Symposium

February 26, 2026



Little Naches River

- Hosts Chinook, steelhead and bull trout
- Popular recreation destination
- Legacy of levees, wood removal and channel bed lowering via bull dozer
- Critically low flow in later summer
- River 3.3 to 4.3 prioritized in geomorphic assessment

- Working group of tribe, federal & state agencies and NGOs worked to develop project and secure funding
- Tetra Tech, Inc. selected to design project in 2019
- Project constructed in summer 2022
- Natural recruitment of riparian plant community
- Large increase in wetland acres

1980s-era Flood Rehabilitation

- Floods in the 1970's "severely damaged the channel…by widening the river bed and depositing large amounts of gravel, sand and rubble."
- USFS excavated the channel down and pushed accumulated bedload into berms on either side of the river to protect the road and campground and provide summer surface flow
- "The river was still too wide and shallow to permit satisfactory adult anadromous fish passage during low flows. The channel was still unstable and **riparian vegetation was not re-established**."

Woods, Dianna, Kent Russell, "Little Naches River Passage Project", 1989-1990 Fiscal Year, Project No. 198607500, 91 electronic pages, (BPA Report DOE/BP-60266-1)

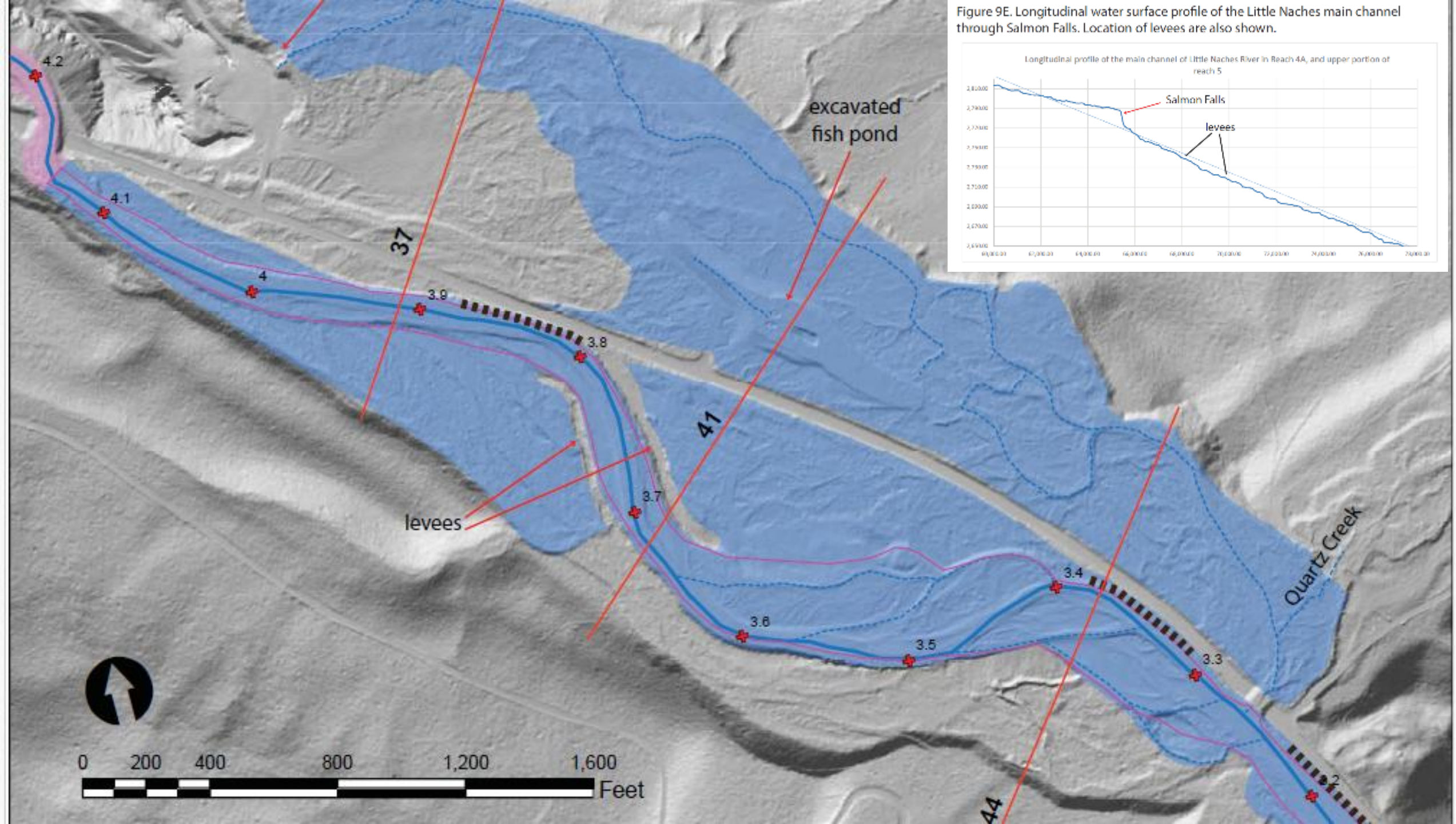
1976 - 1979 Little Naches Flood Rehabilitation Project

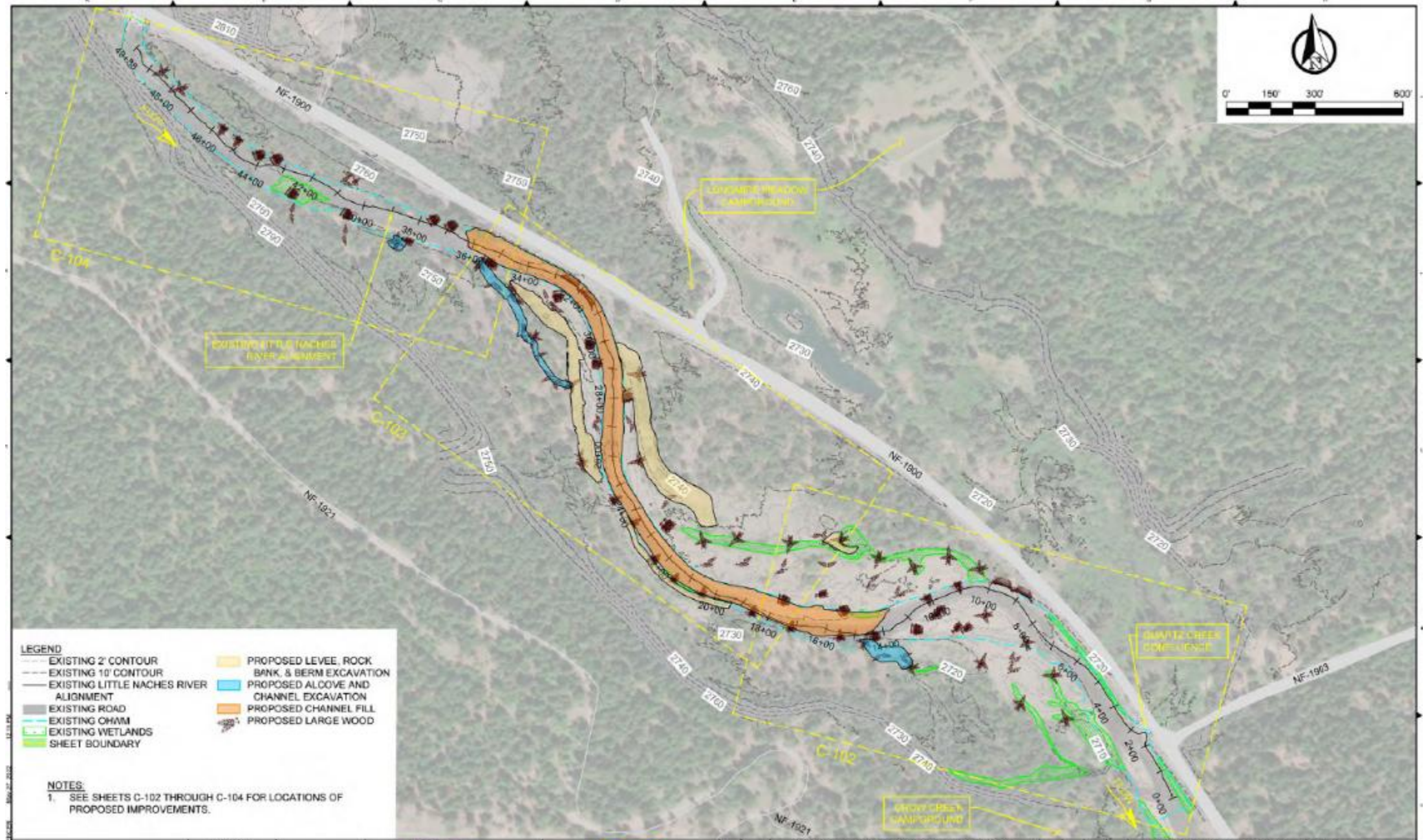
Before

Approximately 50 thousand board feet of logs were salvaged from the debris strewn river channel.

After

Figure 9E. Longitudinal water surface profile of the Little Naches main channel through Salmon Falls. Location of levees are also shown.





TETRA TECH
www.tetratech.com
19803 North Creek Parkway
Bothell, Washington 98011
Phone: 425-482-7600 Fax: 425-482-7632

Mid-Columbia Fisheries Enhancement Group

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

PLOTTED AS ANSI B (11"X 17"). PLAN SHEET FULL SIZE ANSI D (22" X 34")

REV.	DATE	REVISION DESCRIPTION	ORIG	DES	CHK	APP
0	5/27/22	ISSUED FOR CONSTRUCTION	DB	CM	JA	JT

LITTLE NACHES RIVER & FLOODPLAIN RESTORATION
RM 3.3 - 4.3

PROPOSED CONDITIONS OVERVIEW

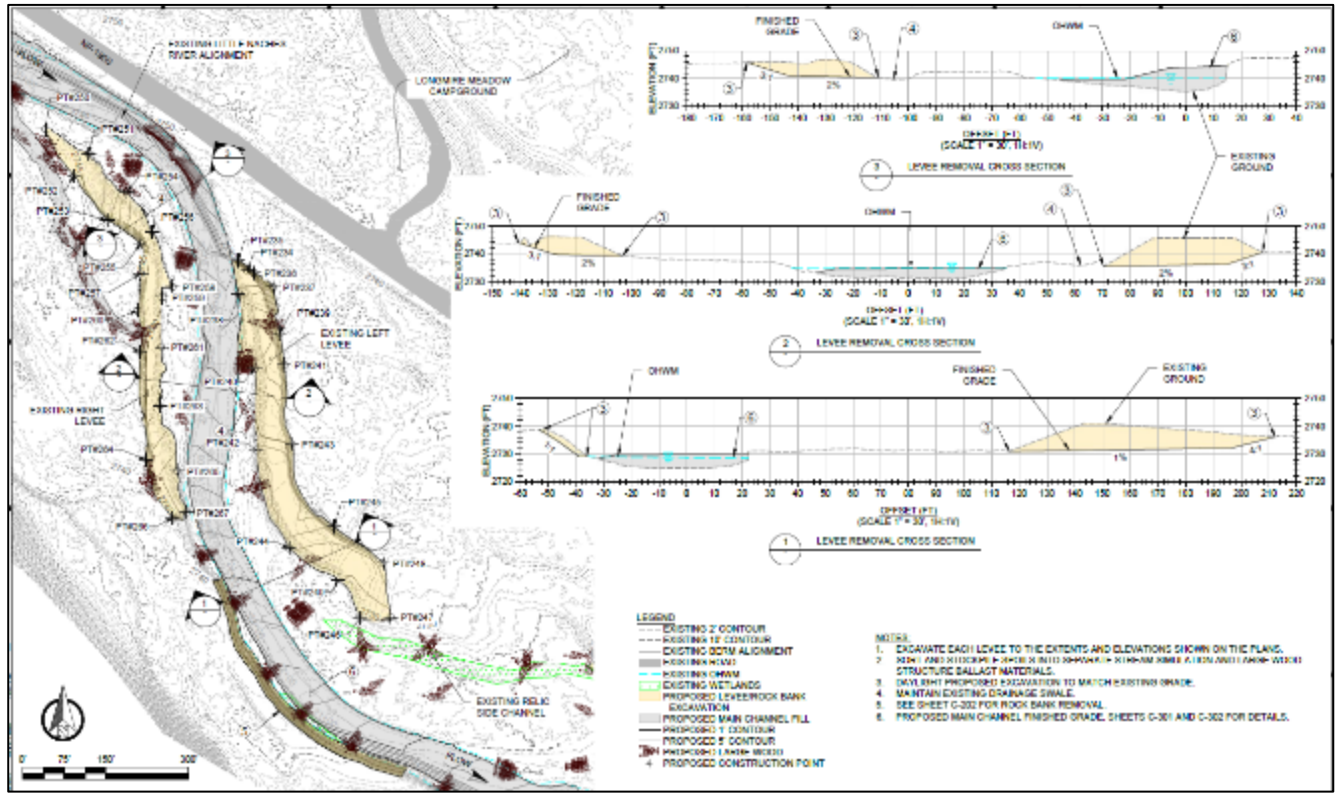
DWG NO: C-101

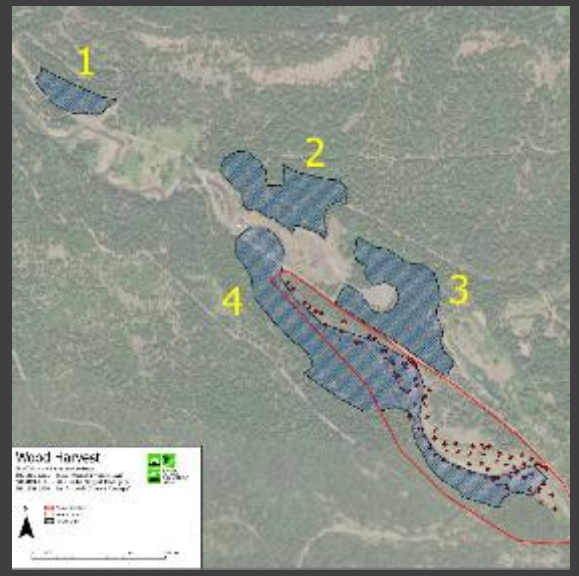
CREATED: 5/31/2022

SHEET: 12 of 40

Permitting pathway: Programmatic Environmental Compliance allows for balanced cut/fill

- Region 6 Aquatic Restoration Biological Opinion (ARBO)
- Programmatic NEPA
- USACE NW 27



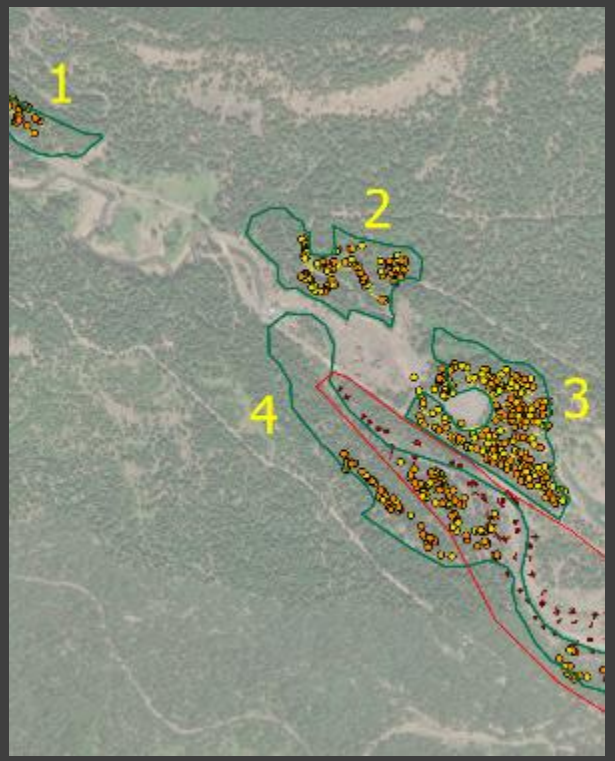


Sourcing Large Wood Locally

Location of wood to the project site is key

Identify opportunities for forest thinning near projects

Foresight to include harvest units in an EA (2020)



- Ongoing access to available wood throughout construction
- Close access, improved efficiencies
- Mapping aided both contractor and project managers
- Tree marking for quick identification: tipping and staging
- Concern from silviculturist that full prescription was not implemented

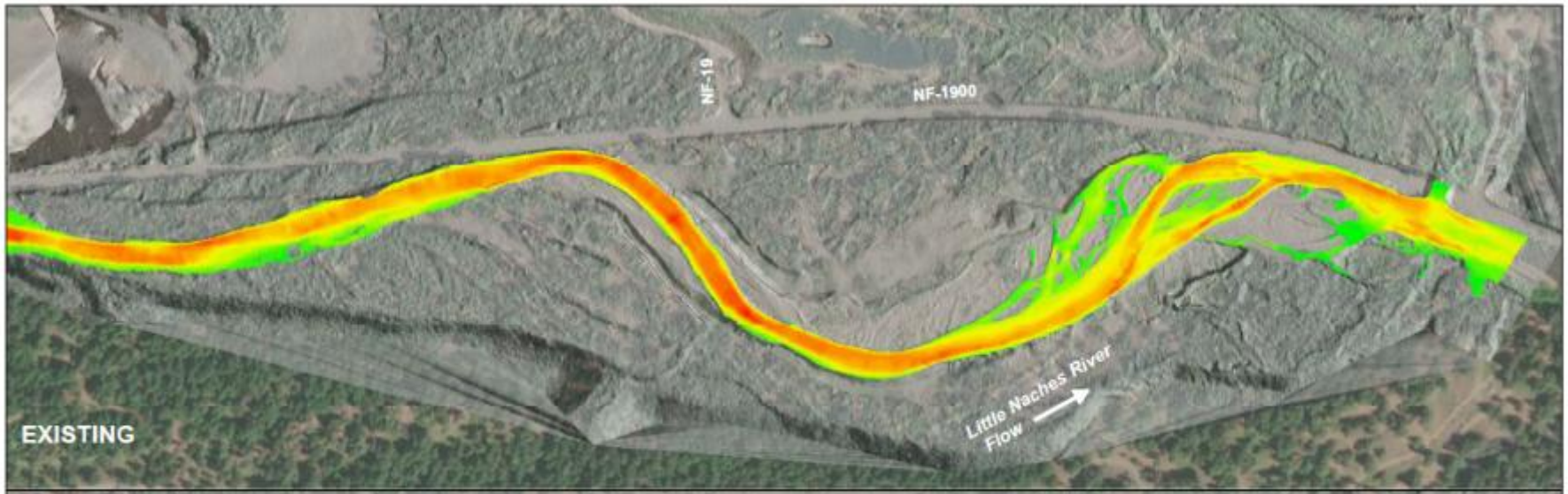

DEERE

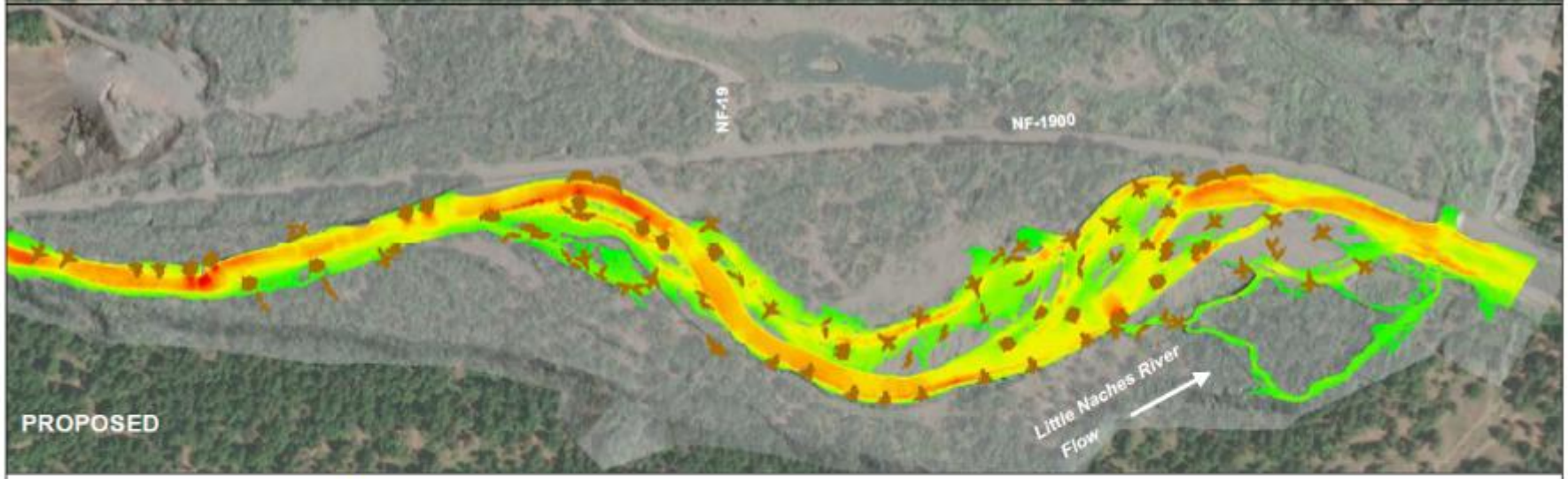

TYLER RENTAL


July 11, 2022
August 10, 2022
Sept. 6, 2022

How to approach riparian restoration?

Criteria for natural regeneration	
Will the floodplain be connected to the river?	
Will there be bare substrate?	
Will the soil be moist at the time of seed release?	
Will the flow recession rate be < the rate of root growth?	
Will depth to groundwater be 2-6ft below ground surface?	





Velocity (feet/second)

High : 11.7

Low : 0

Large Wood Structures

Little Naches River: 2,245 cfs

0 150 300 600

Feet

10 Year Flow
Velocity Comparison

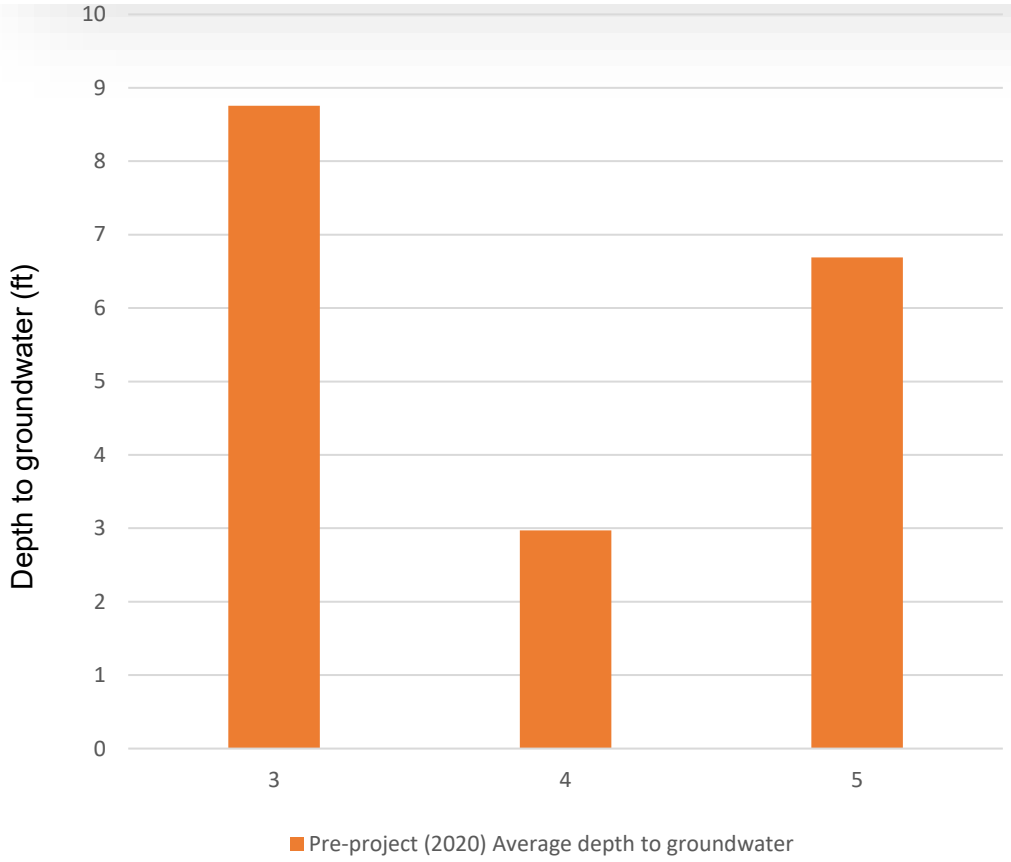
Little Naches River
Mile 3.25 - 4.49 Restoration Project
Kittitas and Yakima Counties, WA

G:\Science\Cameron\LittleNaches\GIS\MXD\Hydraulic\Modeling\compare\Compare_10yr_velocity.mxd

How to approach riparian restoration?

Criteria for natural regeneration	
Will the floodplain be connected to the river?	Yes!
Will there be bare substrate?	Definitely yes!
Will the soil be moist at the time of seed release?	Um…unknown
Will the flow recession rate be < the rate of root growth?	Also not known
Will depth to groundwater be 2-6ft below ground surface?	

Groundwater before



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Will there be bare substrate?	Definitely yes!
Will the soil be moist at the time of seed release?	Um…unknown
Will the flow recession rate be < the rate of root growth?	Also not known
Will depth to groundwater be 2-6ft below ground surface?	Probably!

Riparian restoration approach

- post-construction soil stabilization with seeding and straw;
- riparian planting trial to evaluate planting conditions and concerns;
- natural regeneration evaluated in the first growing season of the project (2023) and after winter and spring flood flows in early 2024;
- weed management; and
- management of a rare species, *Heterotheca oregana*.

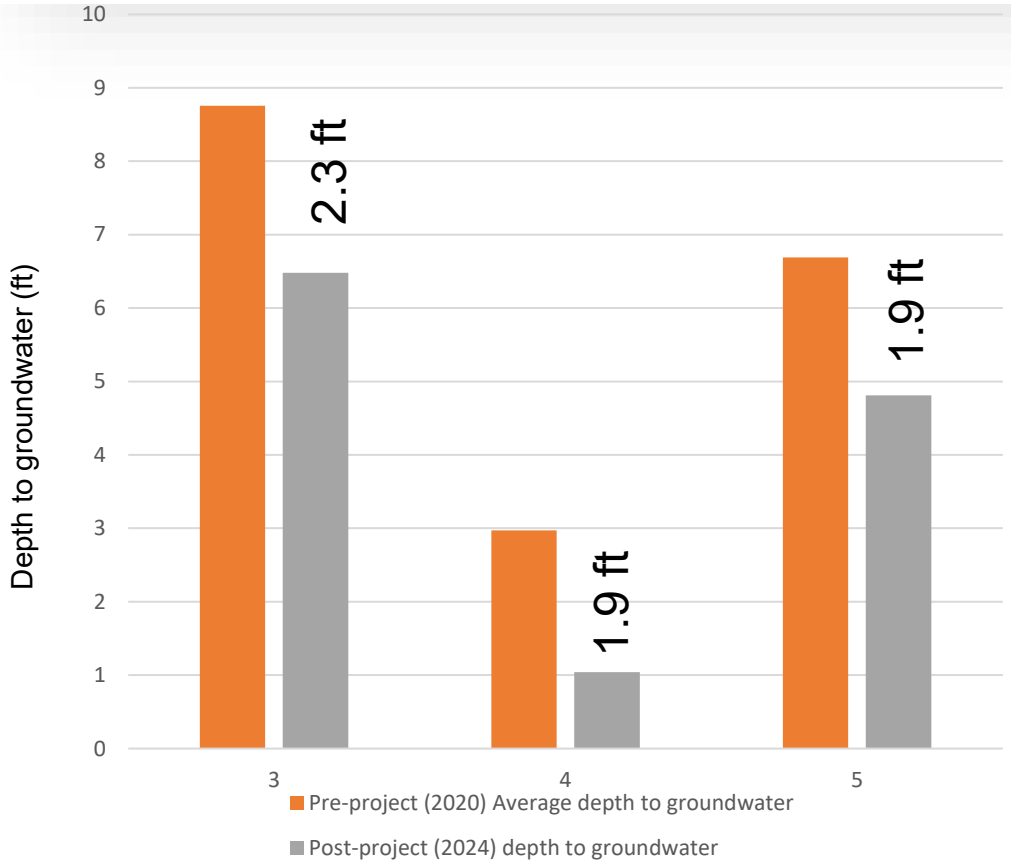
Pre-Project
~260 cfs

March 22, 2022

Post Project
~141.38 cfs

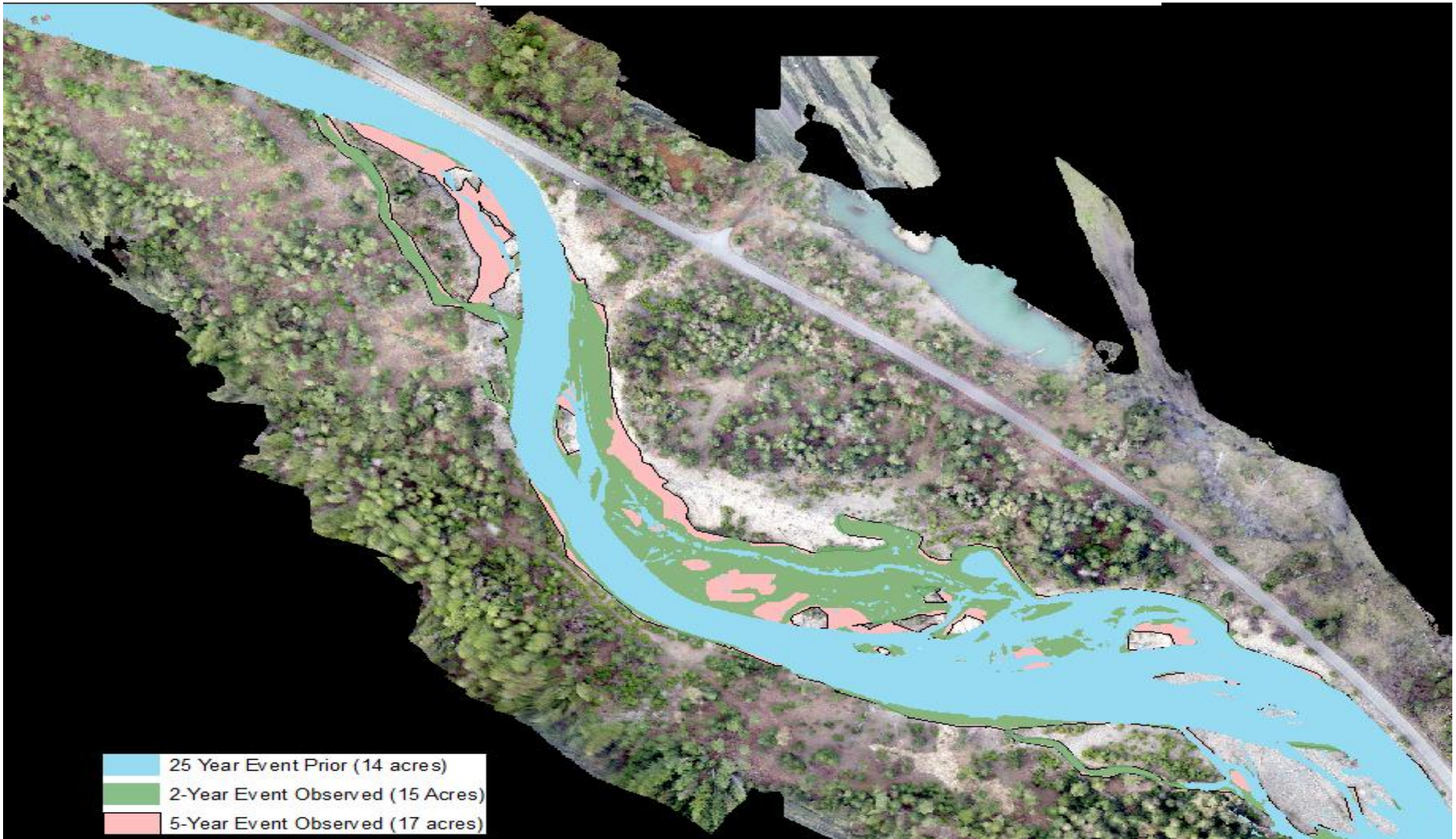
March 17, 2024

Groundwater before and after



2-year Event Model Comparison

Flood Events Pre-Post Project

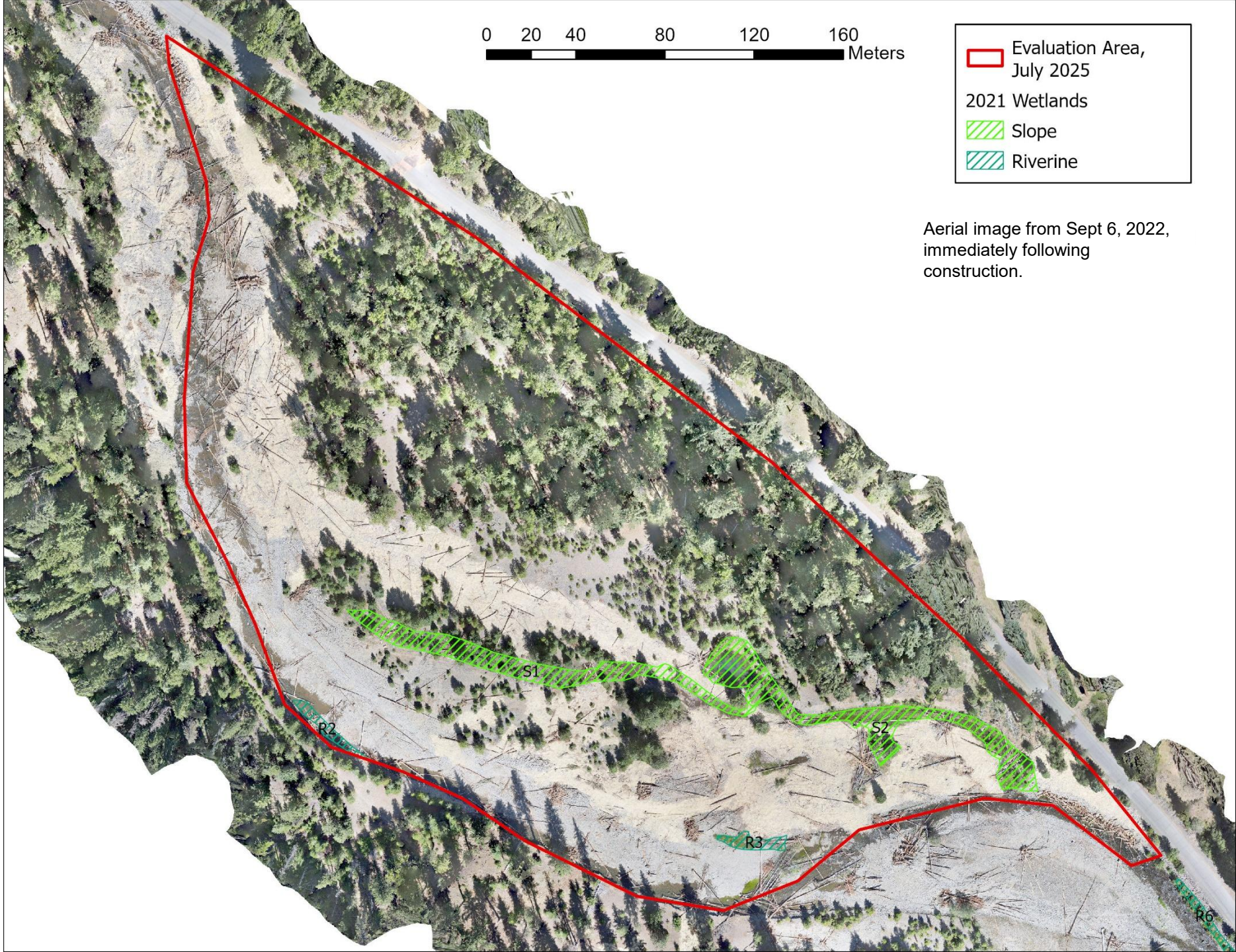


July 28, 2025:
third consecutive drought year


July 28, 2025

Wetland delineation August 26, 2025

Green polygon are the pre-project wetlands. These are shown on a drone image of the project area in 2022, immediate post-construction.



Wetlands delineated in July 2025. Blue shading indicates greatly expanded riverine wetland. Note the multiple channel threads.

July 2022 156 cfs

July 2025 56 cfs

Regeneration in year 3

July 14, 2025

Revegetation Lessons Learned

Levee Removal and Floodplain Reconnection

- Wetland expansion in primary restored floodplain
  - Pre-project wetlands = 1.2 acres
  - 3 years post-construction wetlands = 5.04 acres

    Primarily expansion of riverine wetlands due to floodplain reconnection

    Multiple channels through floodplain at low flow
- Significant cottonwood regeneration in wetlands
  - Average of 50 seedlings/square meter
  - Sparse (<6 seedlings/square meter) in half of the wetland area, moderate to dense seedlings in other half
  - Heavy elk browse; large wood is protecting some seedlings.

And the fish seem to like it too...

Chinook use up- and downstream, and
6 STEELHEAD REDDS IN THE SPRING OF 2025,
the first ever documented in the project reach

USDA Forest Service Yakama Nation U.S. Fish and Wildlife Service Yakima Basin Fish and Wildlife Recovery Board

WA Department of Fish and Wildlife Yakima Basin Integrated Plan WA Department of Ecology NOAA Fisheries Water Pushing Dirt

Tetra Tech BCI Contracting Wakefield Excavation