Naselle Hatchery Renovation - Phase 2

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Fish Hatchery Operations, Region 6

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Willapa Watershed

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Fish Hatchery Operations, Region 6, Naselle Hatchery

Doug Wiedemeier – Planner/Permitter
Capital & Asset Management Program

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Capital & Asset Management Program

Washington Department of FISH and WILDLIFE

2023 Public Information Meeting
Naselle, Washington

The original hatchery was constructed in 1979 and includes trapping, holding and spawning facilities as well as incubation and juvenile rearing infrastructure.

Current program goals are 5,000,000 Chinook, 1,400,000 Coho, 500,000 Chum and 75,000 Steelhead.

Phase 1 – Completed in 2021, Crusher Creek Pipeline, Settling Ponds, Distribution Box

Phase 2 – 2023-2024 Naselle River Intake, Weir, and Fish Collection $15,000,000

Phase 3 – 2024-2025 Crusher Creek Intake, Uplands Improvements & Mitigation $18,500,000

Photo of Naselle Weir Looking Upstream

REFERENCE: NWS-2021-462

APPLICANT: Washington Department of Fish and Wildlife

ADJACENT PROPERTY OWNERS:
1. See included spreadsheet for additional property owner information.

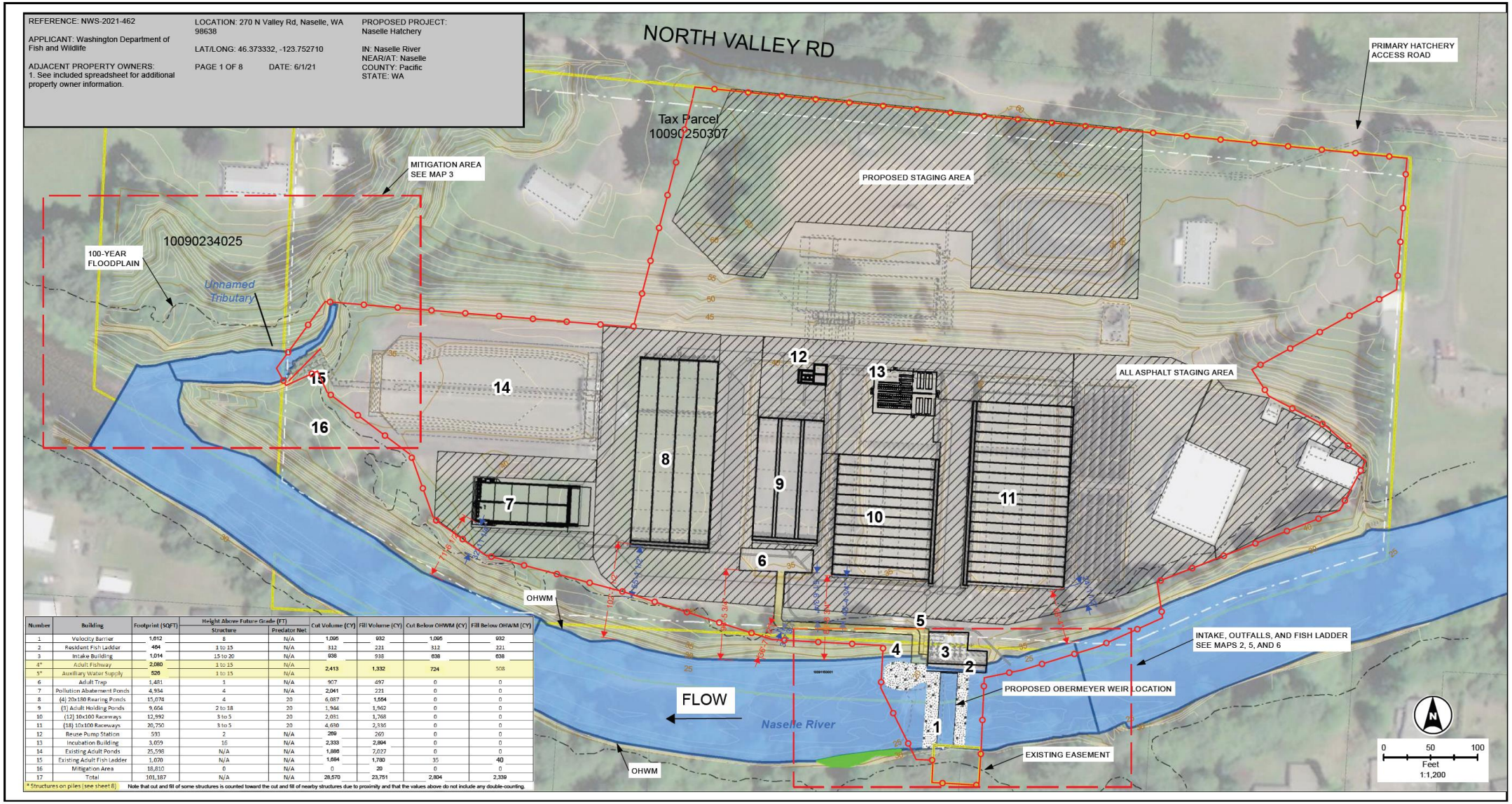
LOCATION: 270 N Valley Rd, Naselle, WA 98638

LAT/LONG: 46.373332, -123.752710

PAGE 1 OF 8 DATE: 6/1/21

PROPOSED PROJECT:
Naselle Hatchery

IN: Naselle River
NEAR/AT: Naselle
COUNTY: Pacific
STATE: WA



Number	Building	Footprint (SQFT)	Height Above Future Grade (FT)		Cut Volume (CY)	Fill Volume (CY)	Cut Below OHWM (CY)	Fill Below OHWM (CY)
			Structure	Predator Net				
1	Velocity Barrier	1,612	8	N/A	1,095	932	1,095	932
2	Resident Fish Ladder	464	1 to 15	N/A	312	221	312	221
3	Intake Building	1,014	15 to 20	N/A	938	938	638	638
4*	Adult Fishway	2,080	1 to 15	N/A	2,413	1,332	724	508
5*	Auxiliary Water Supply	526	1 to 15	N/A				
6	Adult Trap	1,481	1	N/A	907	497	0	0
7	Pollution Abatement Ponds	4,934	4	N/A	2,041	221	0	0
8	(4) 20x180 Rearing Ponds	15,074	4	20	6,087	1,554	0	0
9	(3) Adult Holding Ponds	9,664	2 to 18	20	1,944	1,962	0	0
10	(12) 10x100 Raceways	12,992	3 to 5	20	2,081	1,768	0	0
11	(18) 10x100 Raceways	20,750	3 to 5	20	4,630	2,336	0	0
12	Reuse Pump Station	590	2	N/A	260	260	0	0
13	Incubation Building	3,059	16	N/A	2,333	2,804	0	0
14	Existing Adult Ponds	25,596	N/A	N/A	1,886	7,022	0	0
15	Existing Adult Fish Ladder	1,020	N/A	N/A	1,684	1,780	35	40
16	Mitigation Area	18,810	0	N/A	0	20	0	0
17	Total	101,187	N/A	N/A	28,570	23,751	2,804	2,339

* Structures on piles (see sheet 8)

Note that cut and fill of some structures is counted toward the cut and fill of nearby structures due to proximity and that the values above do not include any double-counting.

Washington Department of FISH and WILDLIFE

NAD 1983 StatePlane WA South FIPS 4602 Ft US

Source: Pacific County, Wilson Engineering, McMillen Jacobs Associates
Imagery: DigitalGlobe August 2017

Legend

- Delineated Wetland
- Proposed Structures
- Existing Facilities
- Ordinary High Water Mark (OHWM)
- Proposed Staging Area
- State of Washington Parcel
- Rip Rap
- Distance from OHWM
- Distance from 100-Year Flood
- Construction Limits/Fencing

Notes:
1) Approximate distances and structure locations for permitting and planning purposes only. See Design Drawing Package for additional information.

May 2021

Map 1 - Site Map

Naselle Fish Hatchery Renovation Project

Purpose

- Update on Project Status
- Frequently Asked Questions
  - → Fish Sorting & Diversion
  - → Backwater Rise
  - → Boat Passage & Portage

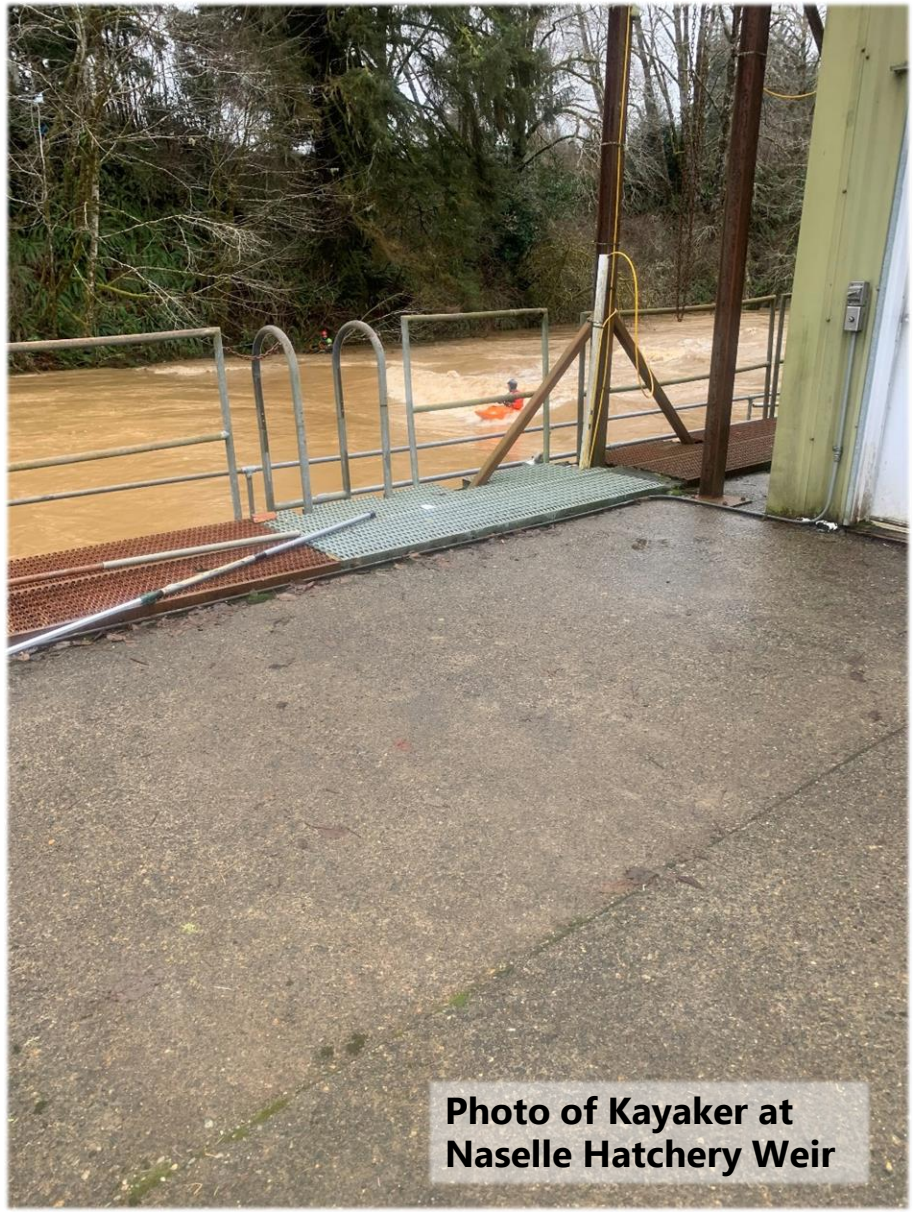


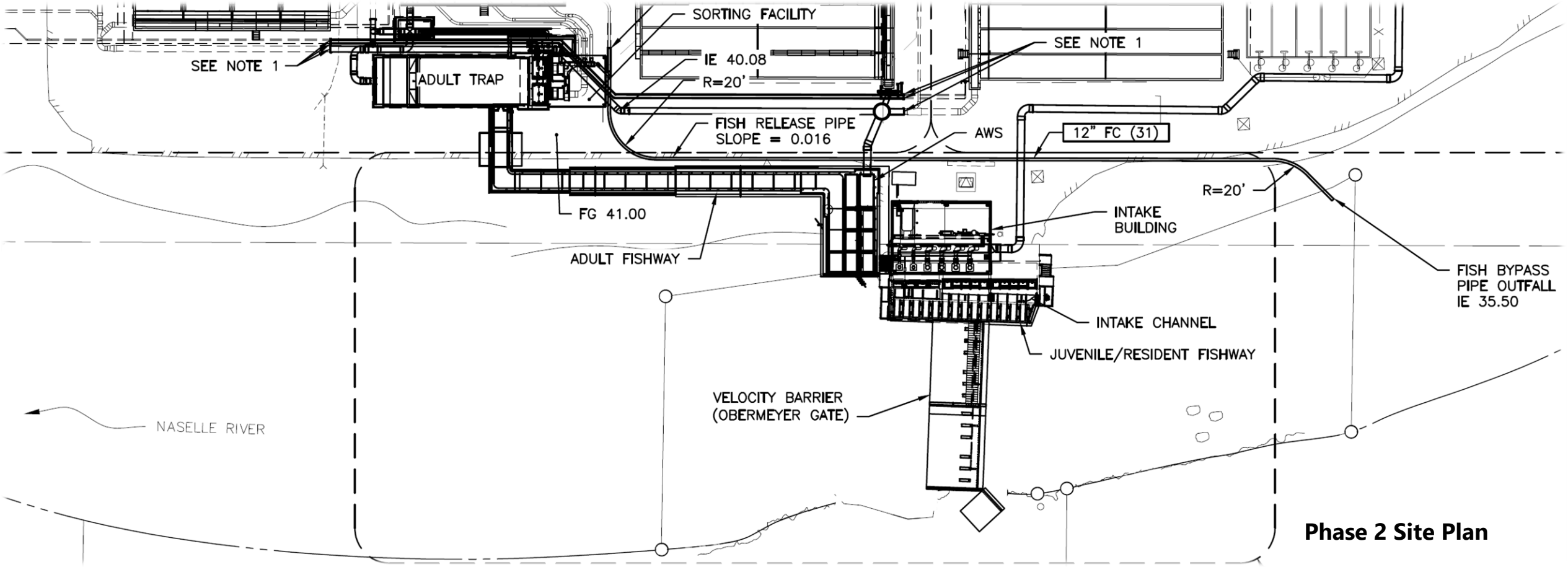
Photo of Kayaker at Naselle Hatchery Weir

Project Status

- Phase 2 Plans are 90%
  - Obermeyer Adjustable Exclusion Weir
  - Juvenile & Resident Fish Ladder
  - Adult Fishway and Trap
  - Fish Sorting Station and Delivery Tubes
  - Intake Building, River Screens and Pumps and New Back-up Generator
  - Boat Passage and or Portage TBD

Photo of Phase 1 Sediment Ponds Under Construction

Phase 2 Plan



Phase 2 Site Plan

Fish Sorting & Diversion

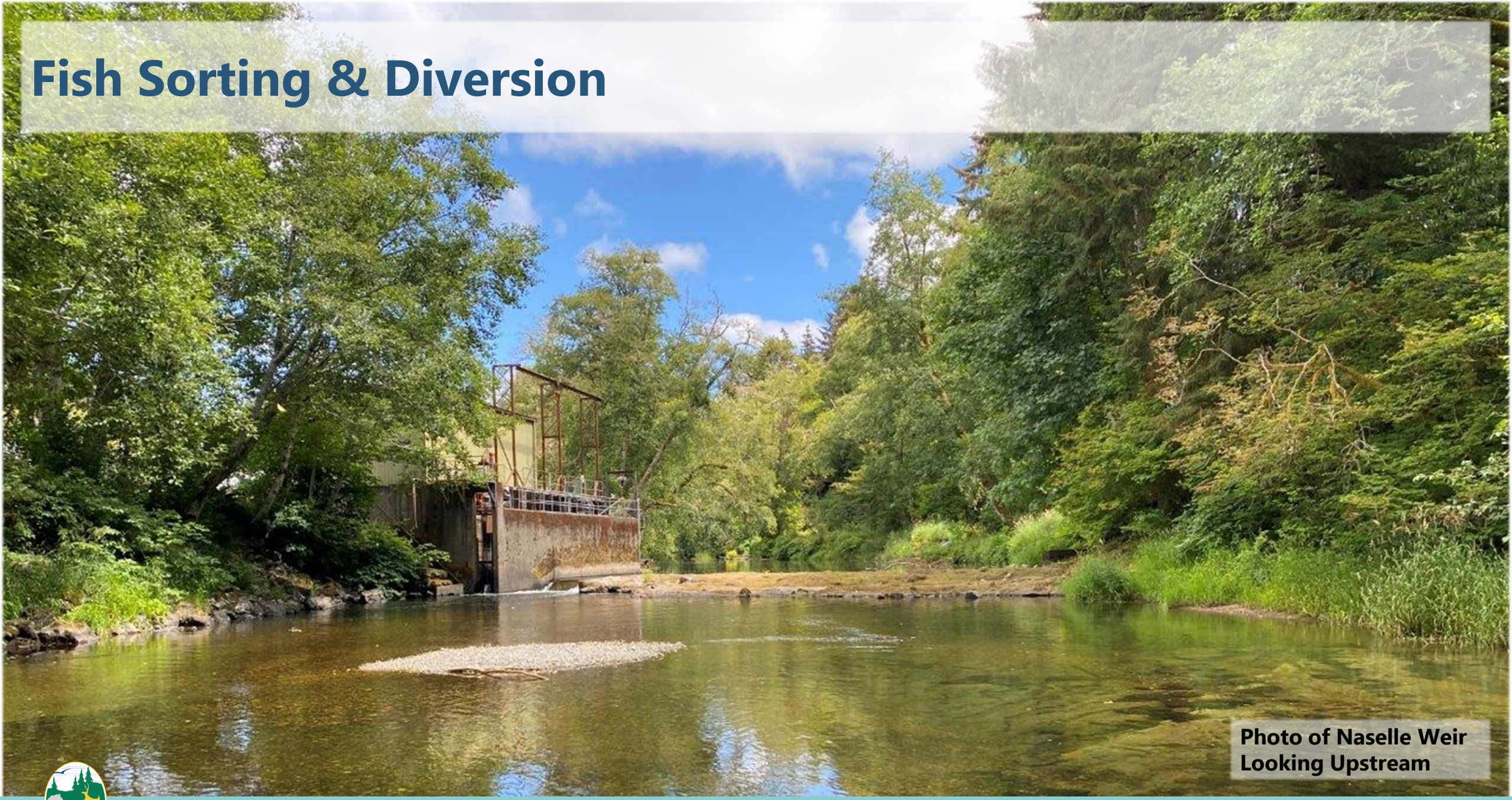


Photo of Naselle Weir
Looking Upstream

Current Facility Pictures

Current Temporary Weir

- Incapable of meeting current fish management objectives. Poor trapping efficiency during high flows
- Very difficult/unsafe to maintain
- Only a viable option during the late summer months
- Doesn’t direct adults to current sorting facilities effectively

Current Adult Sorting

- Outdated design, not made for current fish management objectives
- Time consuming process
- Difficult to separate adults by species, sex, origin (wild/hatchery), etc.
- Very stressful on the fish, leading to high pre-spawn mortality, poor egg quality, etc.
- In 2022/2023, Naselle Hatchery staff handled over 45,000 adults doing this ←

New Fish Sorting & Diversion Benefits

- Adjustable fish exclusion weir and sorting station give more options to meet current fish management objectives

Obermeyer Adjustable Fish Exclusion Weir at Samish Hatchery

Fish Sorting & Diversion Benefits

- Daily sorting offers efficient handling lowering fish stress & pre-spawn mortality for both natural origin and hatchery origin
- Fish transfer tubes deliver fish to any adult holding pond or back to the river in real time
- Higher trapping efficiency, allowing for accurate enumeration of upstream adults

Photo of Fish Sorting Station at Minter Creek Hatchery

Backwater Rise: Landowner Considerations

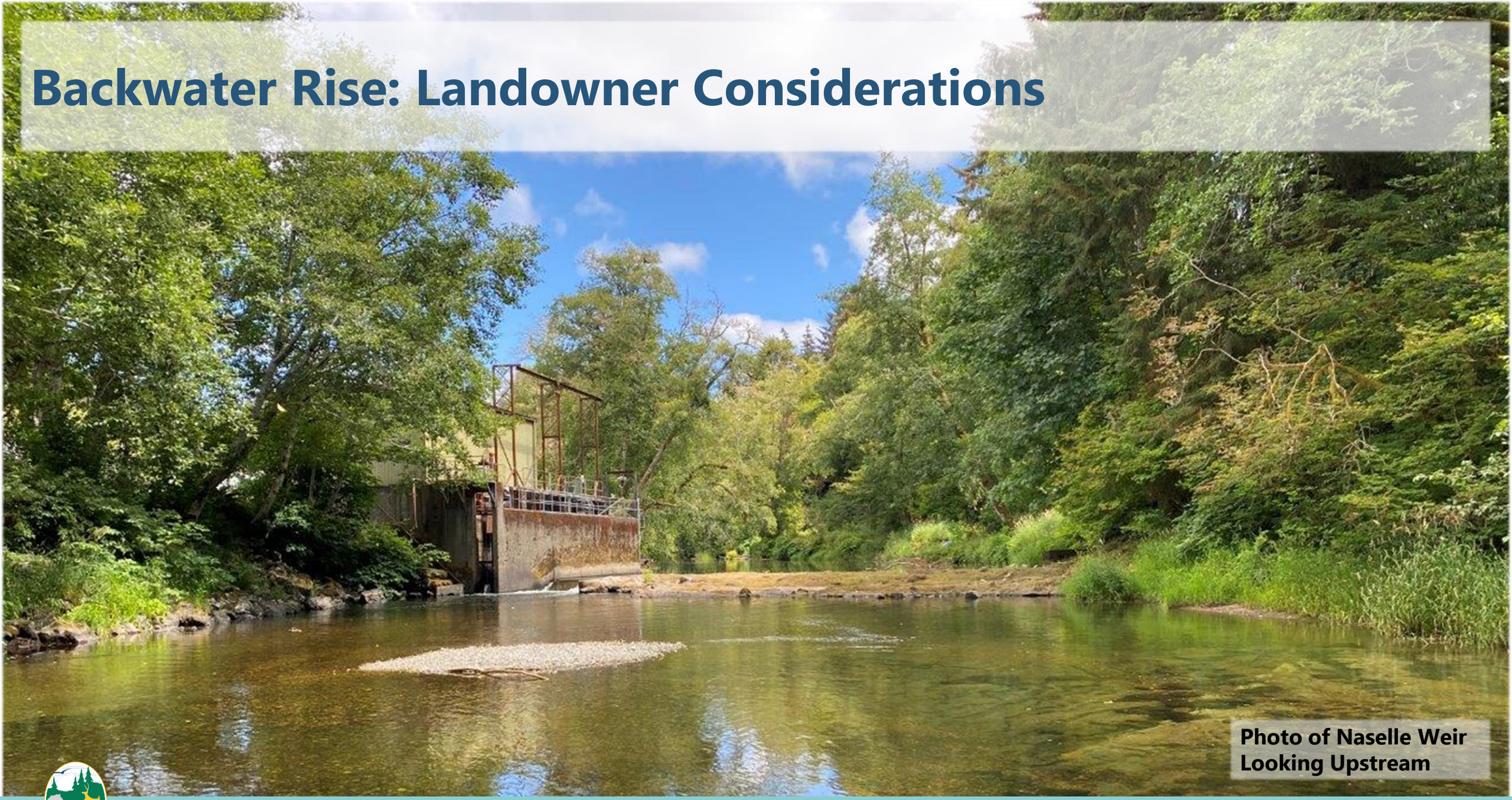


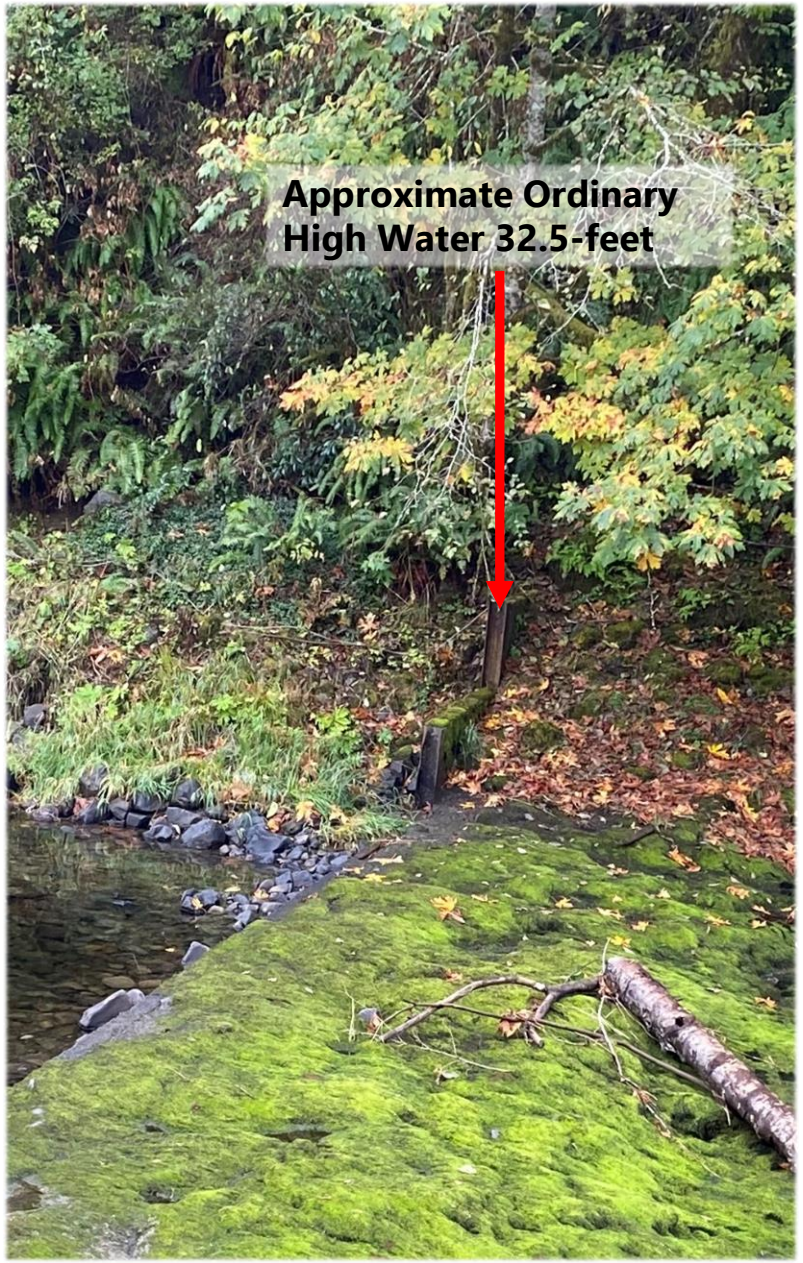
Photo of Naselle Weir
Looking Upstream

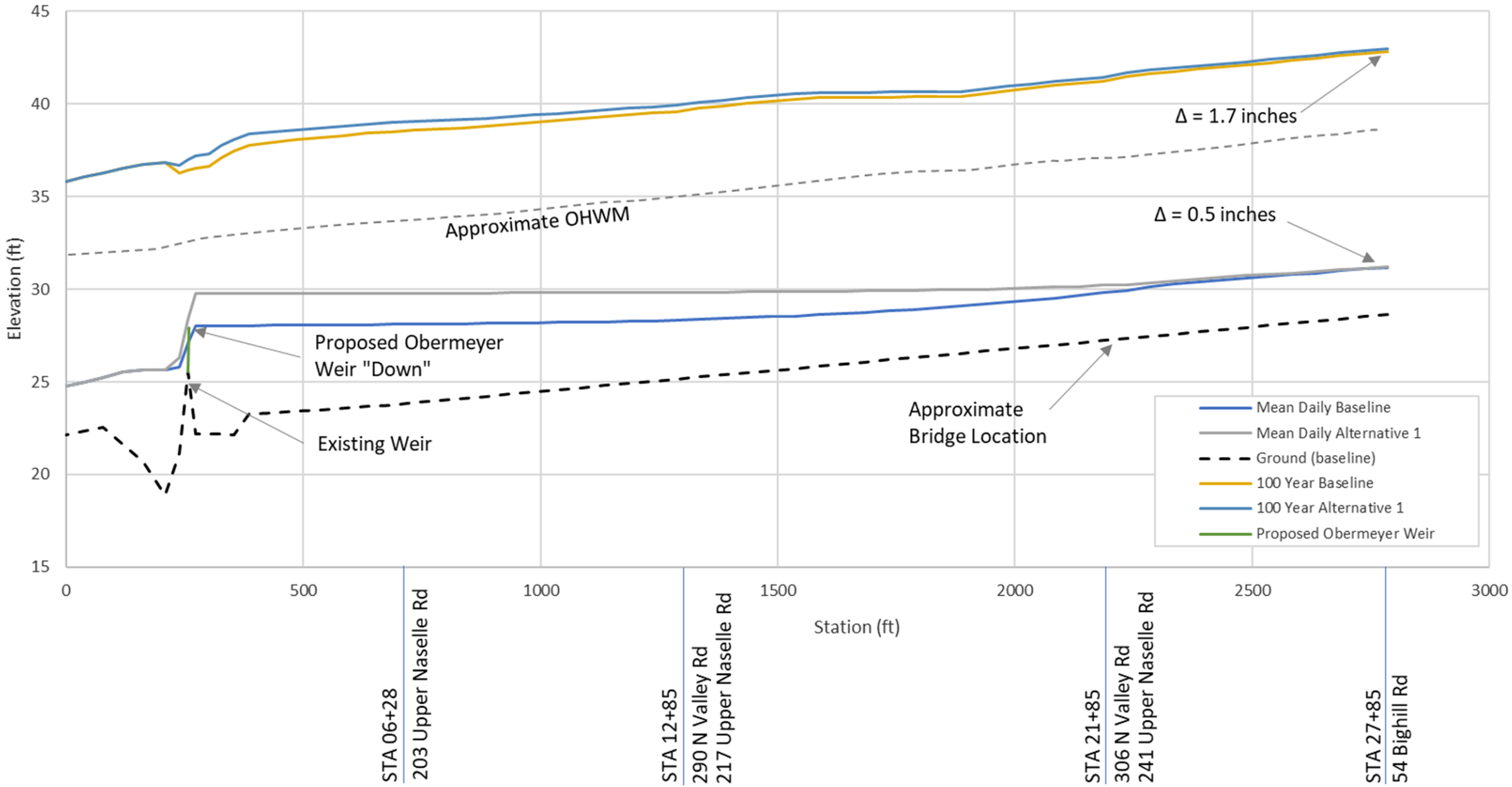
Backwater Rise Landowner Considerations

- DFW's designer modeled rise over the new weir
  - 100 Year Flood
  - Average Daily and Monthly Flows
    - 5% and 95% Percentile Exceedance

- New weir 1-feet higher than old weir. Hinged Obermeyer gates adjustable up 3.5-feet more (31.4-feet elevation)

- Adjustable fish exclusion weir gives more options to manage the river level on demand



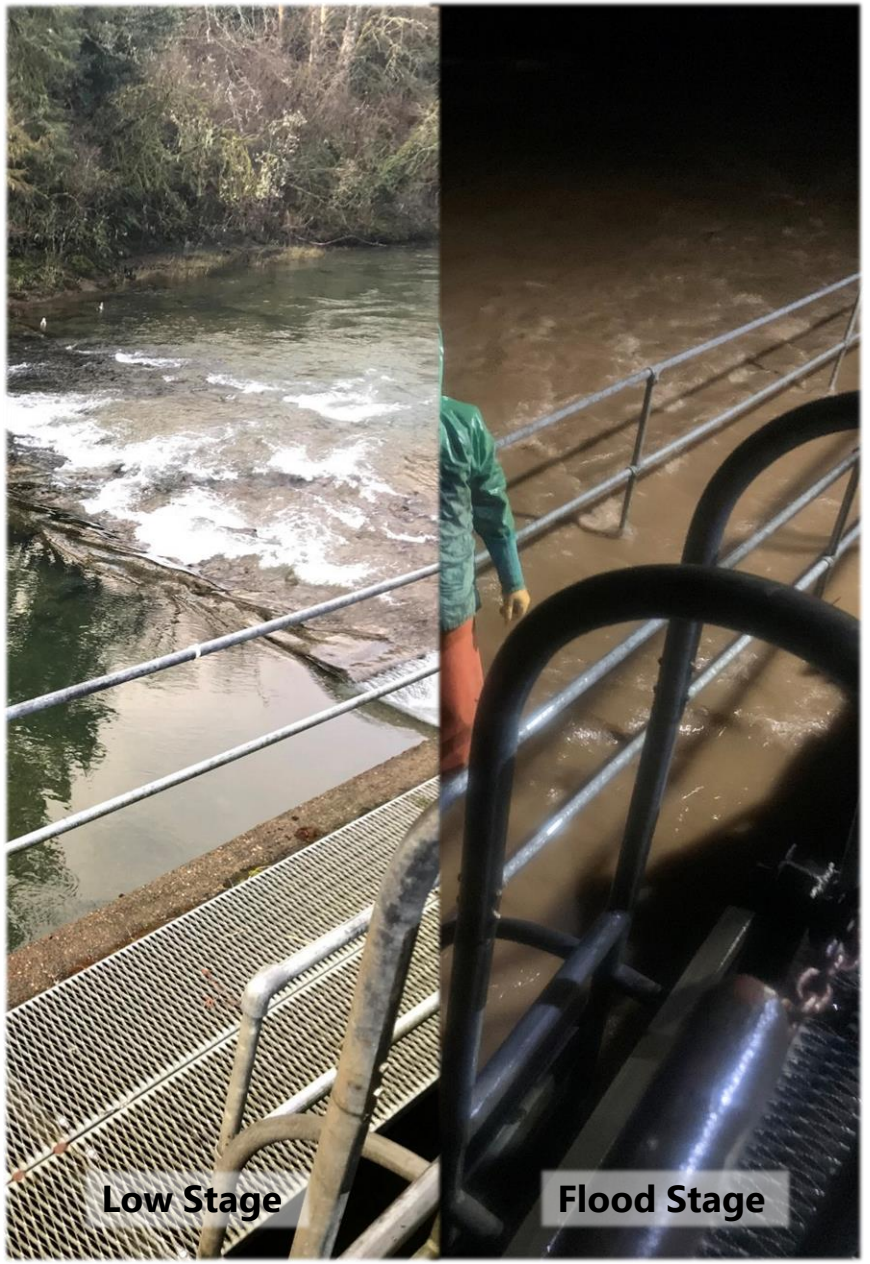

45
40
35
30
25
20
15
Elevation (ft)
0
500
1000
1500
2000
2500
3000
Station (ft)
Δ = 1.7 inches
Approximate OHWM
Δ = 0.5 inches
Proposed Obermeyer
Weir "Down"
Existing Weir
Approximate
Bridge Location
Mean Daily Baseline
Mean Daily Alternative 1
Ground (baseline)
100 Year Baseline
100 Year Alternative 1
Proposed Obermeyer Weir
STA 06+28
203 Upper Naselle Rd
STA 12+85
290 N Valley Rd
217 Upper Naselle Rd
STA 21+85
306 N Valley Rd
241 Upper Naselle Rd
STA 27+85
54 Bighill Rd

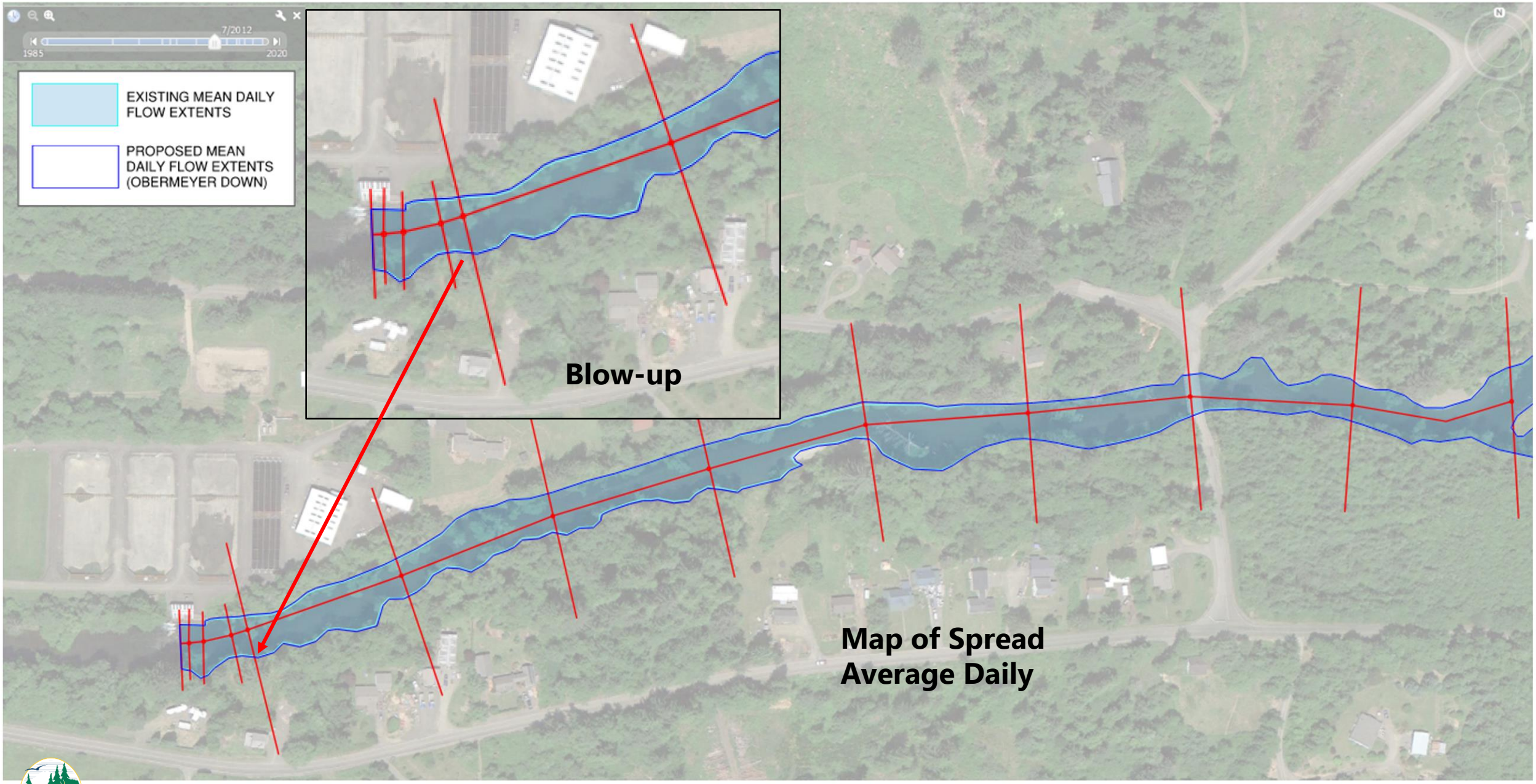
Backwater Rise
Landowner Considerations

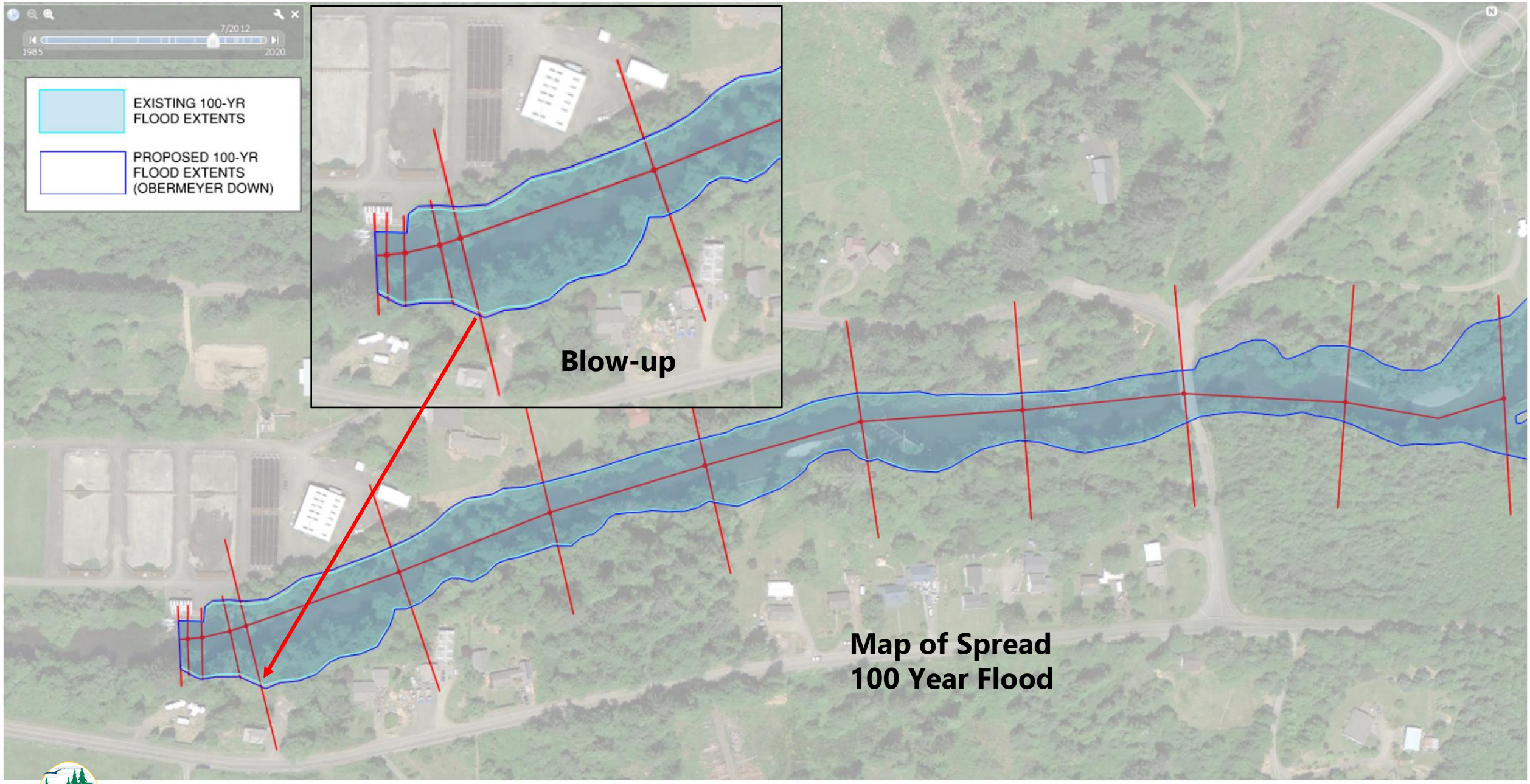
- Gates manage fish diversion and water levels

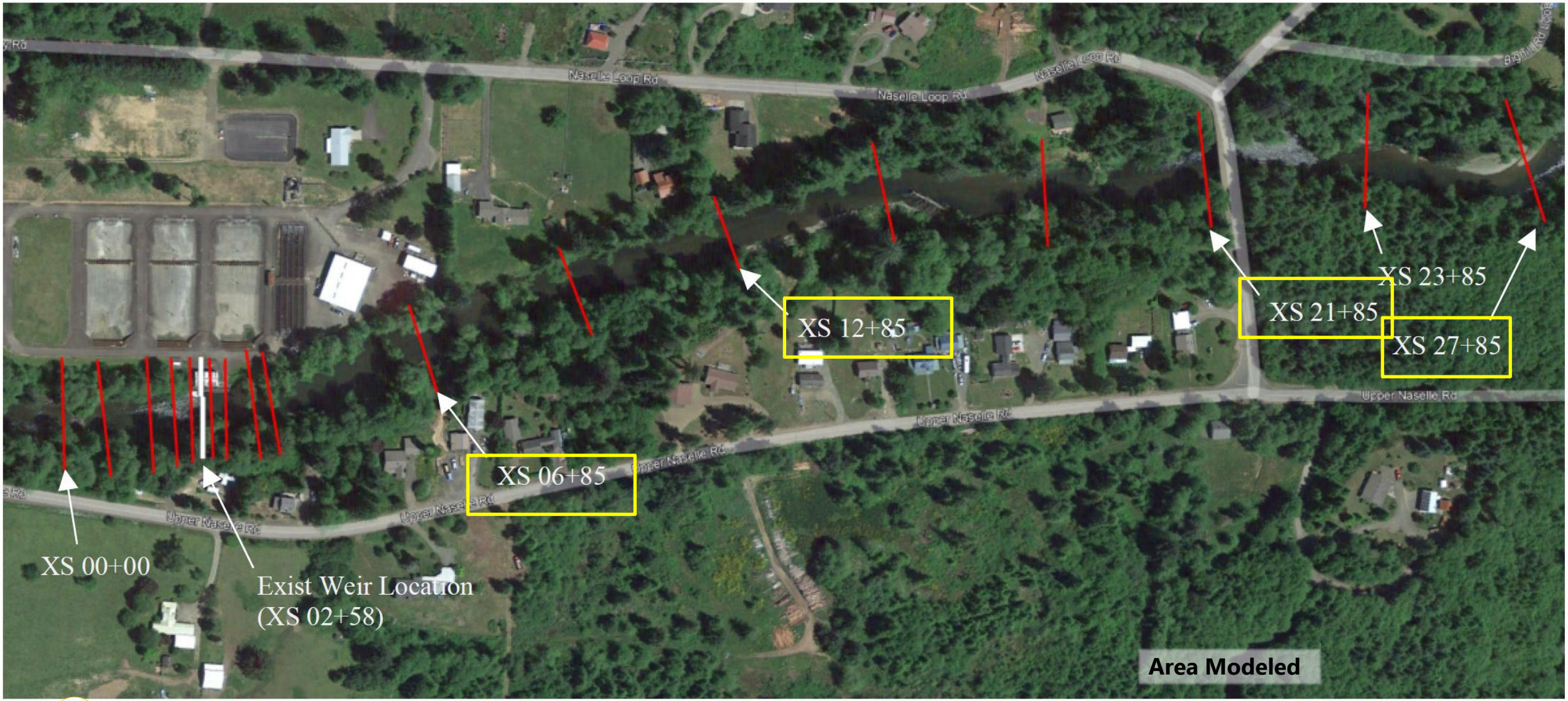
- Gates normally up for fish diversion and intake water. Will adjust to river conditions and be lowered as waters rise

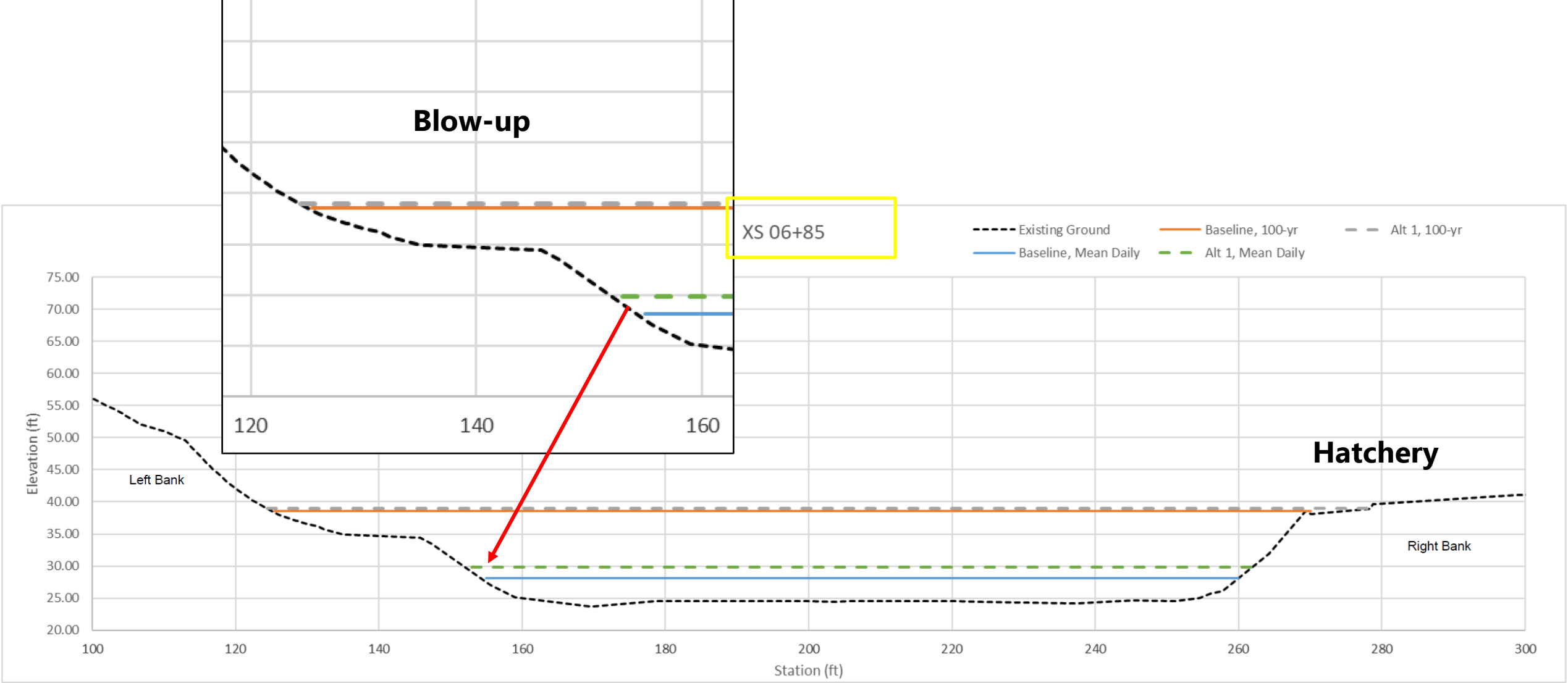
- Ordinary High-Water can be maintained by lowering the gates as flows rise



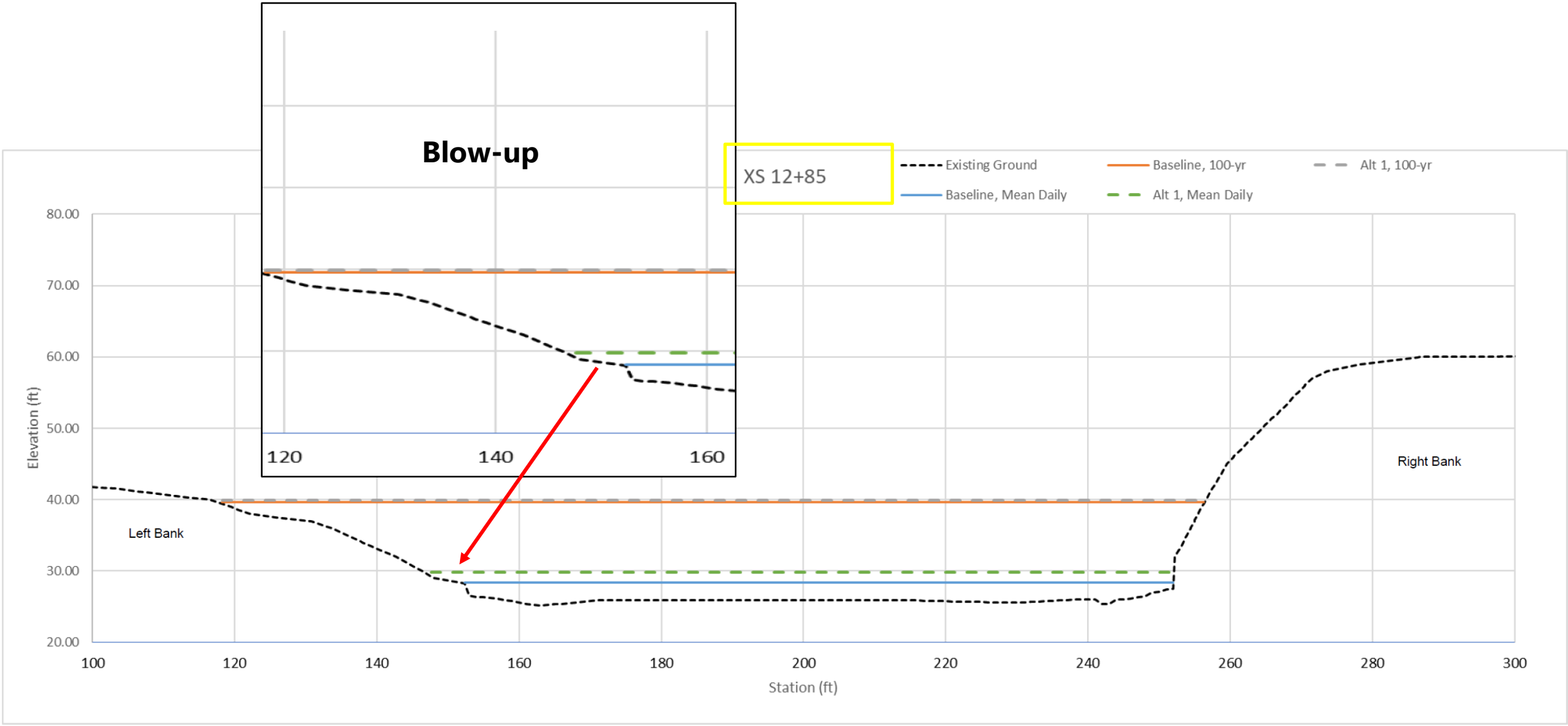

7/2012
1985
2020
EXISTING MEAN DAILY FLOW EXTENTS
PROPOSED MEAN DAILY FLOW EXTENTS (OBERMEYER DOWN)
Blow-up
Map of Spread Average Daily


7/2012
1985
2020
EXISTING 100-YR FLOOD EXTENTS
PROPOSED 100-YR FLOOD EXTENTS (OBERMEYER DOWN)
Blow-up
Map of Spread
100 Year Flood

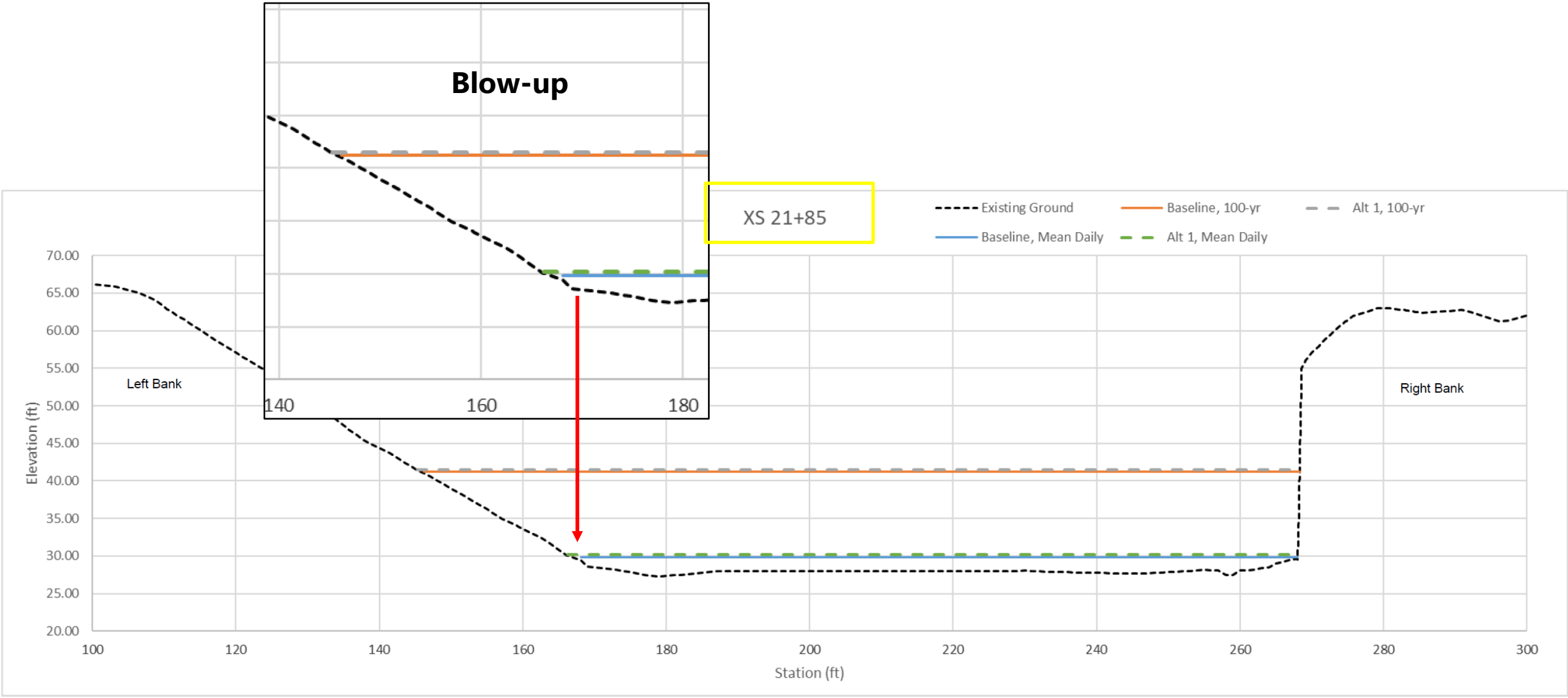

Naselle Loop Rd
Upper Naselle Rd
XS 00+00
Exist Weir Location
(XS 02+58)
XS 06+85
XS 12+85
XS 21+85
XS 23+85
XS 27+85
Area Modeled



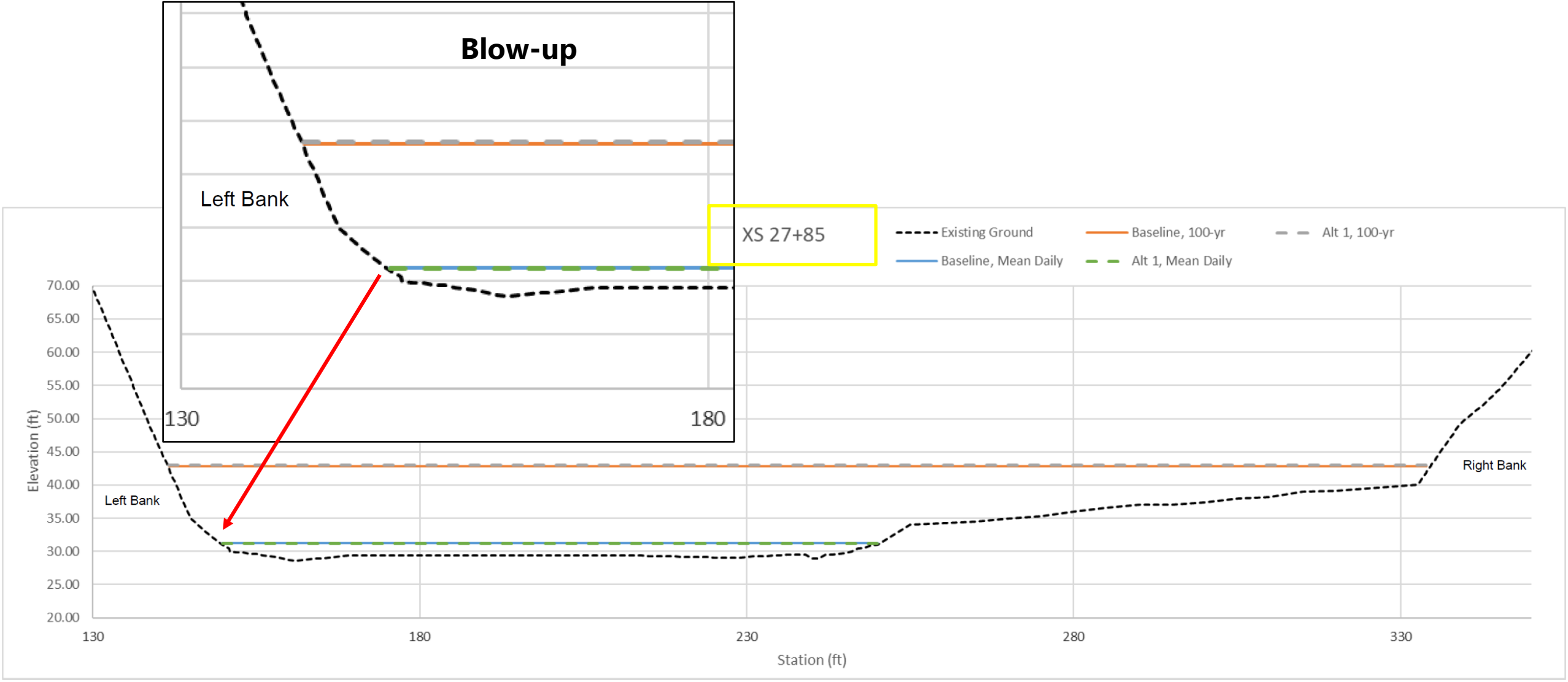
River Cross-Section at Hatchery Building



River Cross-Section Halfway to Bridge



River Cross-Section
Naselle Loop Road Bridge



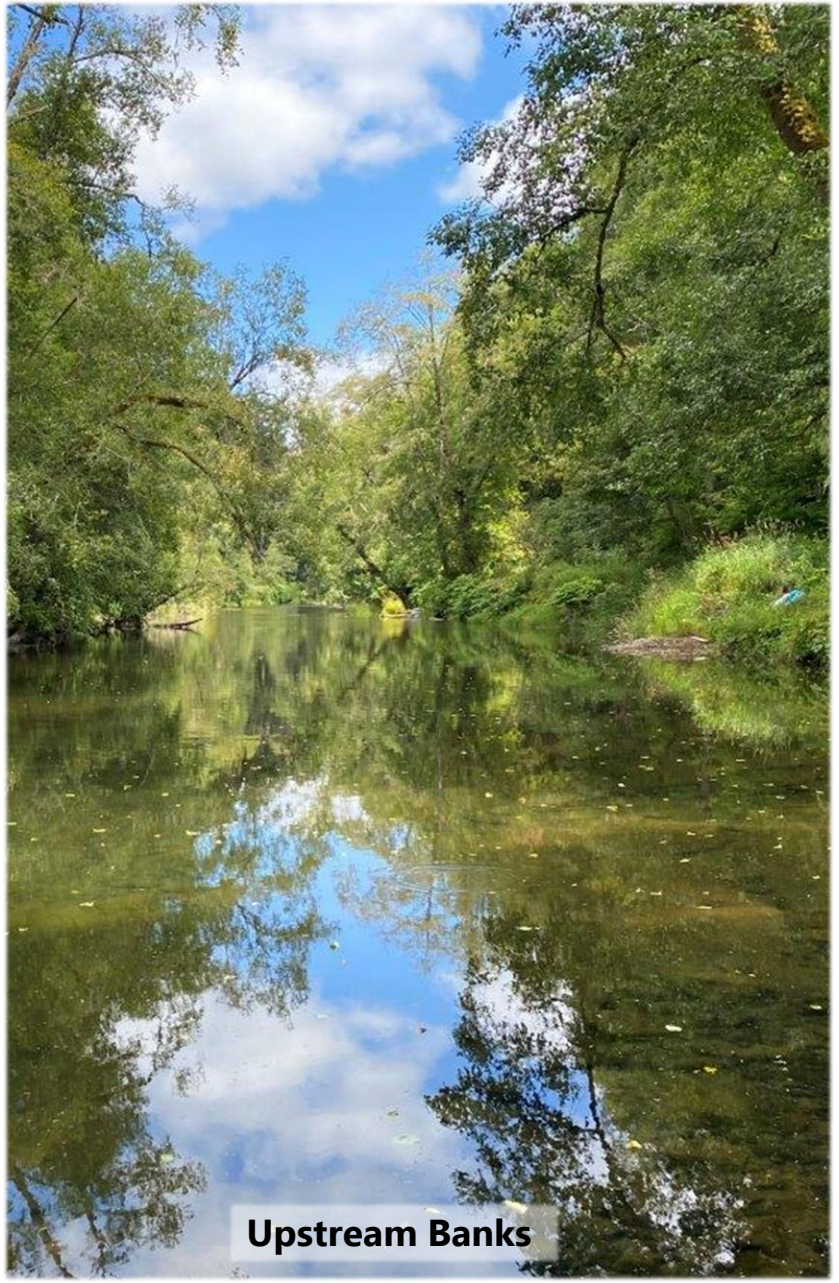
River Cross-Section
54 Bighill Road

Backwater Rise
Bank Erosion

- Streambed next to weir protected with riprap

- Scour velocity decreased upstream and unchanged downstream

- When transitioning from trapping to non-trapping seasons. Best practice is to open gates slowly to allow banks to drain with the river level



Boat Passage & Portage

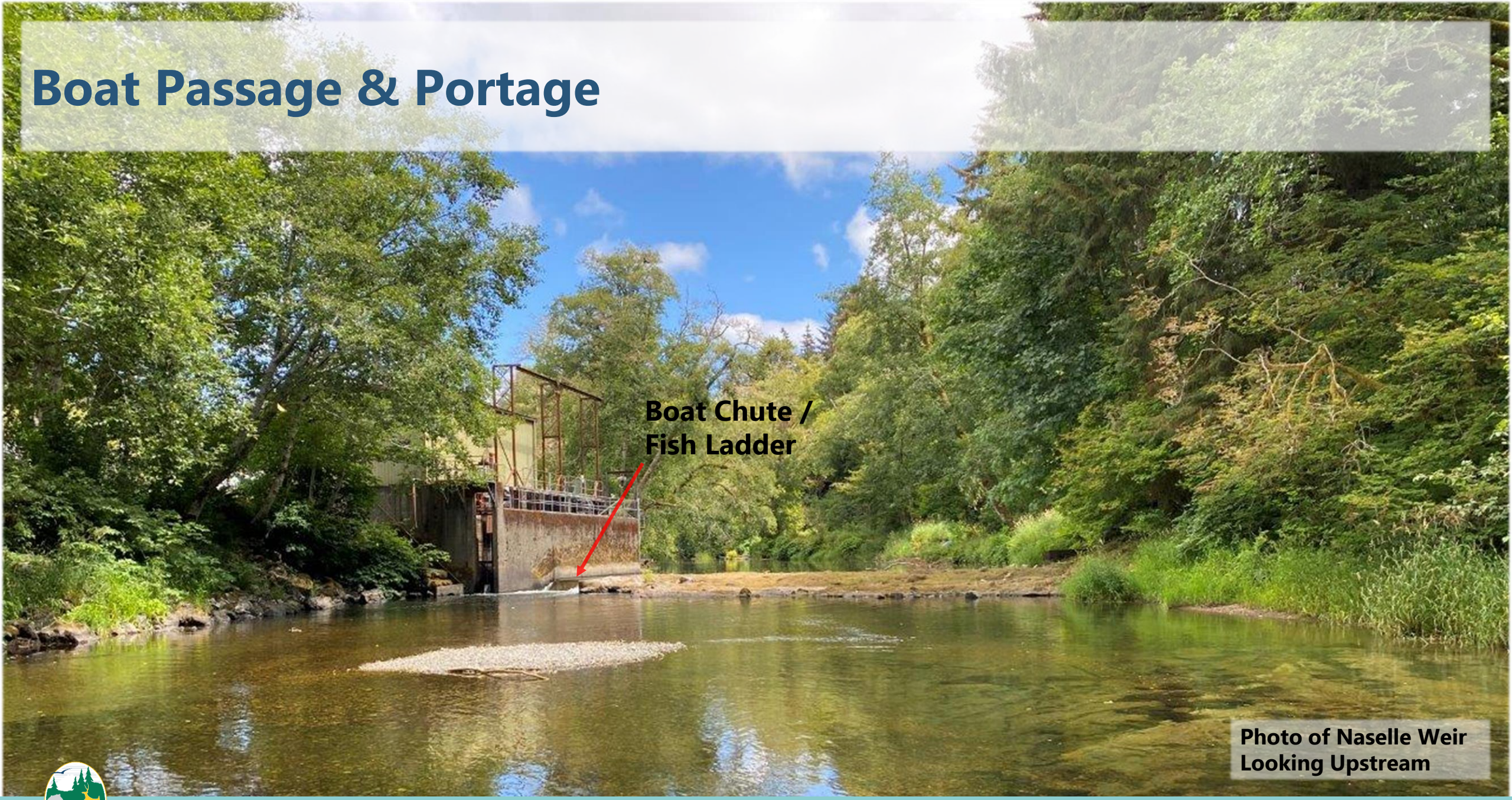


Photo of Naselle Weir
Looking Upstream

Boat Passage & Portage History

- Today the Fish Ladder doubles as Boat Passage

  DFW is considering options to preserve normal public access in accordance with the Shoreline Master Program

  DFW Hatcheries also have drift boat passage at Humptulips, Modrow and Sol Duc

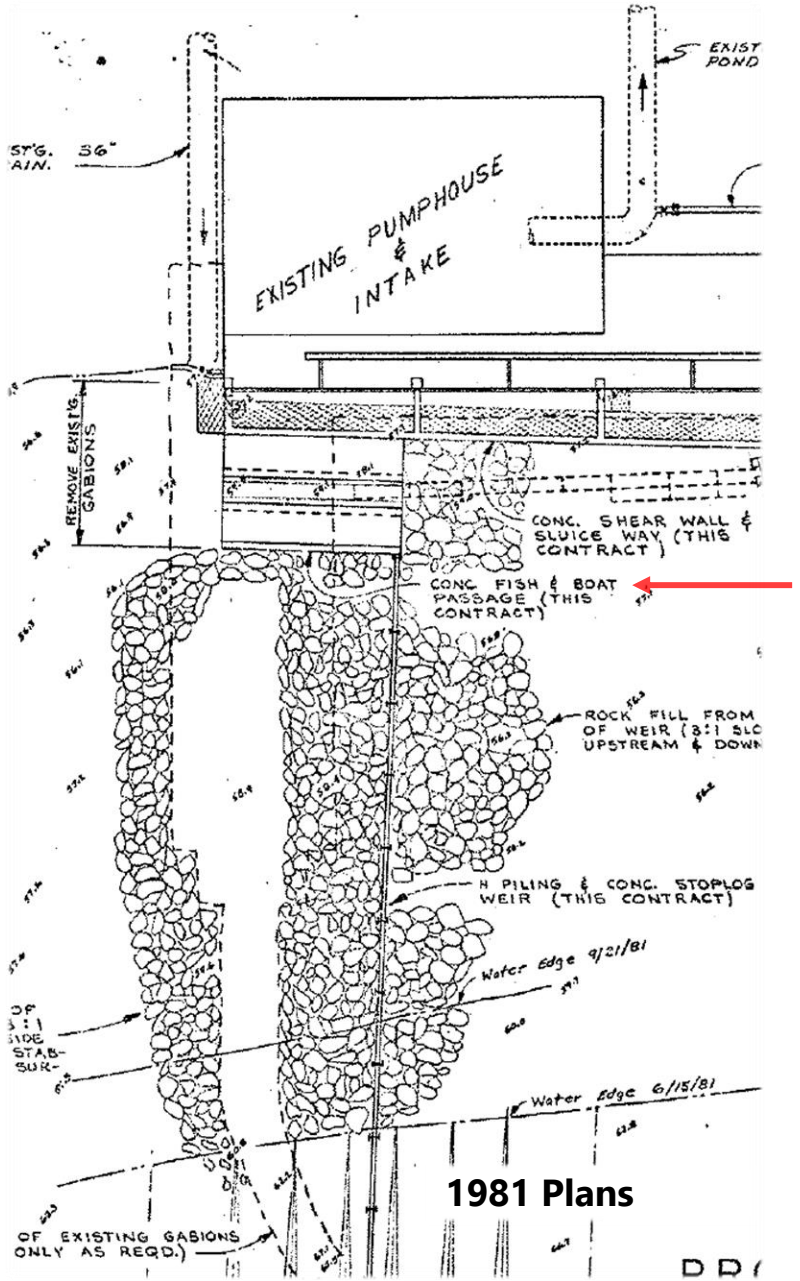
- Short List Options

  1.) Long Portage

  2.) Short Portage – Right Bank (Hatchery Side)

  3.) Short Portage – Left Bank

  4.) Boat Passage – In Channel



1981 Plans

Boat Passage & Portage
Long Portage

- Portage thru Hatchery

Pros

No impact to weir hydraulics

Low Maintenance

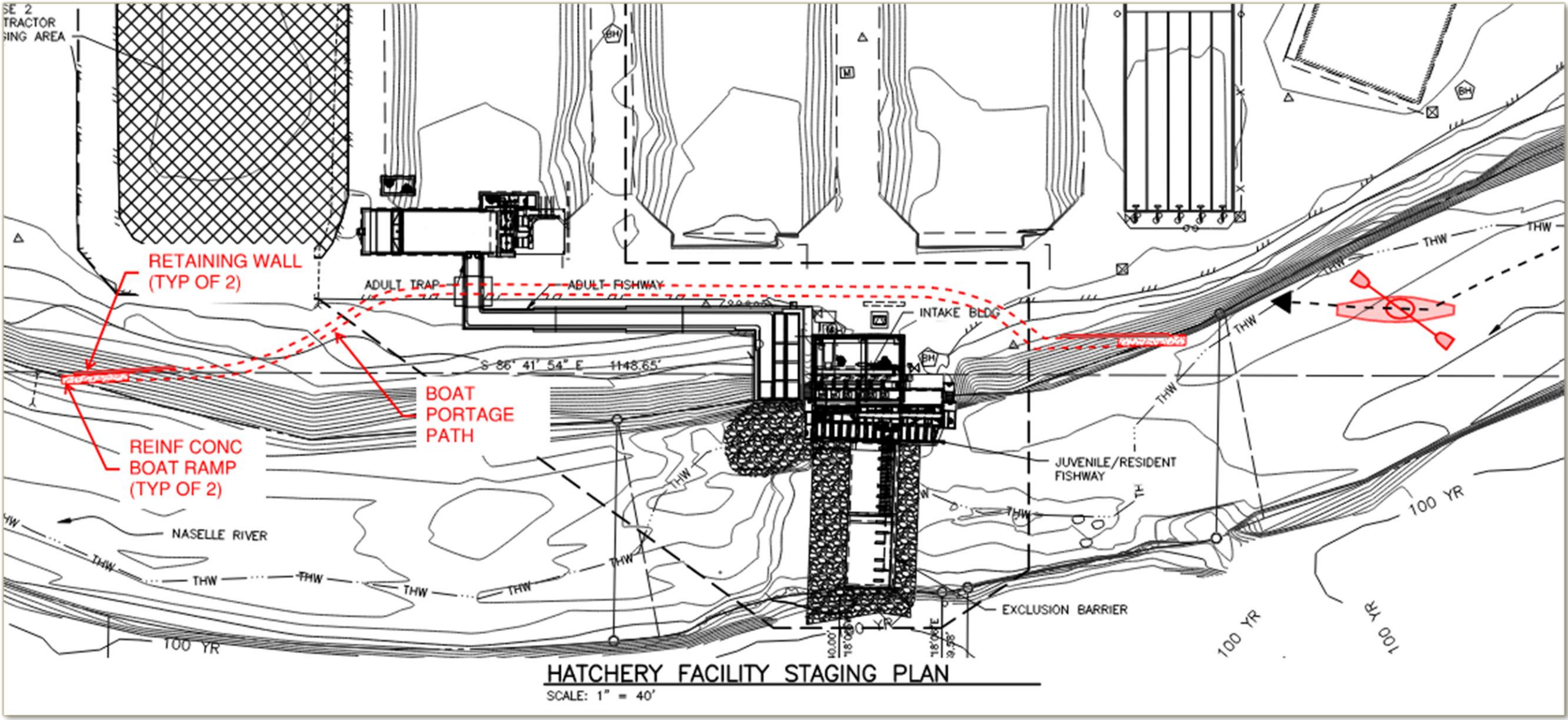
Cons

Long path through hatchery to port boats

Steep banks

Heavier public footprint in neighborhood and hatchery grounds

Boat Slide
Wilson River



HATCHERY FACILITY STAGING PLAN

SCALE: 1" = 40'

Boat Passage & Portage
Short Portage – Right Bank

- Pull off on right bank, walk on gangway pulling watercraft on rope over weir

Pros

Limited impact to weir hydraulics

Low Maintenance

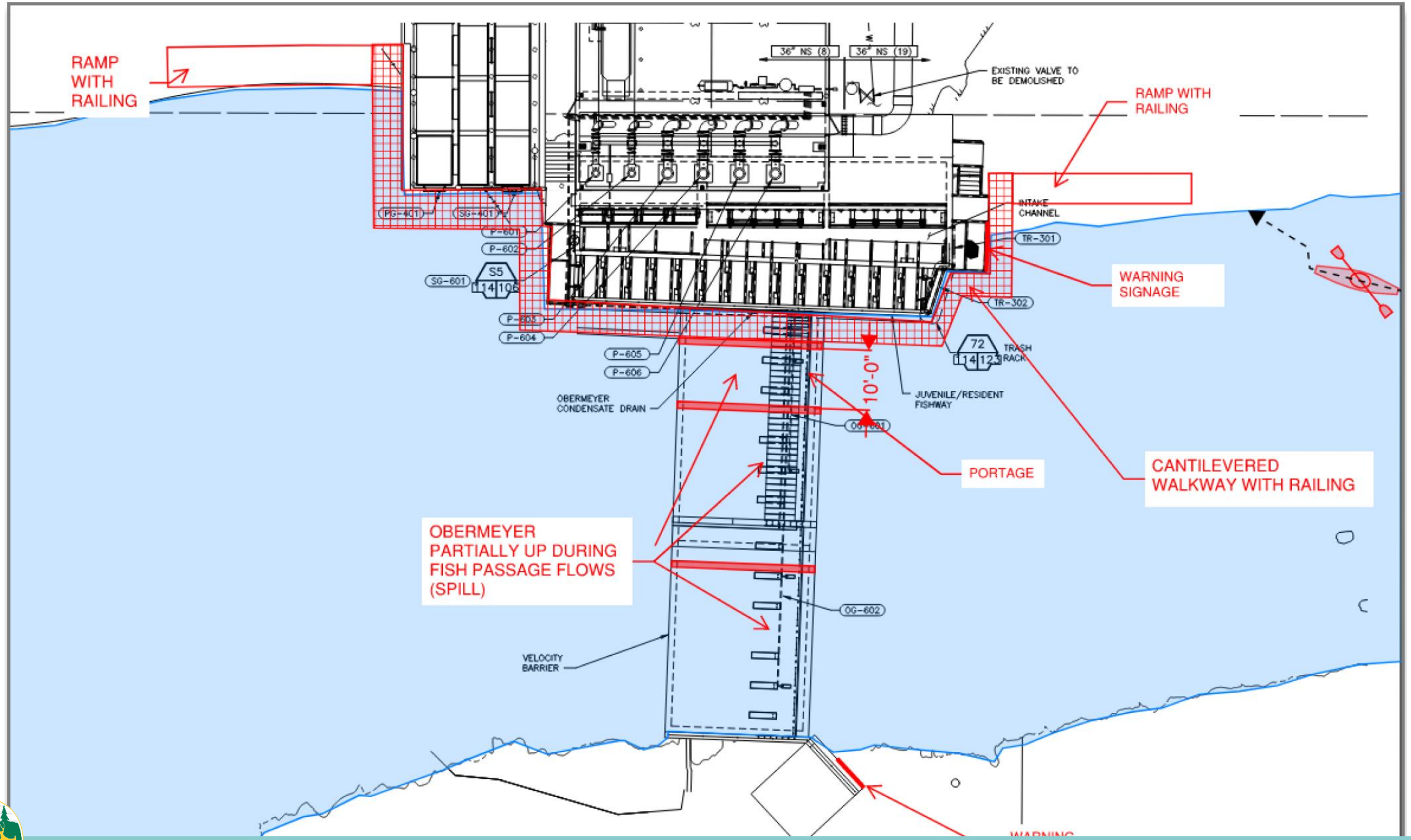
Cons

Higher cost for elevated walkway

Challenging to control watercraft on rope

Boaters may miss the turn-off

Topeka Portage


RAMP WITH RAILING
36" NS (8)
36" NS (19)
EXISTING VALVE TO BE DEMOLISHED
RAMP WITH RAILING
INTAKE CHANNEL
TR-301
WARNING SIGNAGE
TR-302
PG-401
SG-401
P-601
P-602
SG-601
S5
14 10 6
P-603
P-604
72
14 12 3
TRASH RACK
P-605
P-606
OBERMEYER CONDENSATE DRAIN
10'-0"
JUVENILE/RESIDENT FISHWAY
PORTAGE
CANTILEVERED WALKWAY WITH RAILING
OBERMEYER PARTIALLY UP DURING FISH PASSAGE FLOWS (SPILL)
OG-602
VELOCITY BARRIER

Boat Passage & Portage
Short Portage – Left Bank

- Pull off on left bank, walk shoreline carrying watercraft or pulling over weir on rope

Pros

Limited impact to weir hydraulics

Lower Maintenance

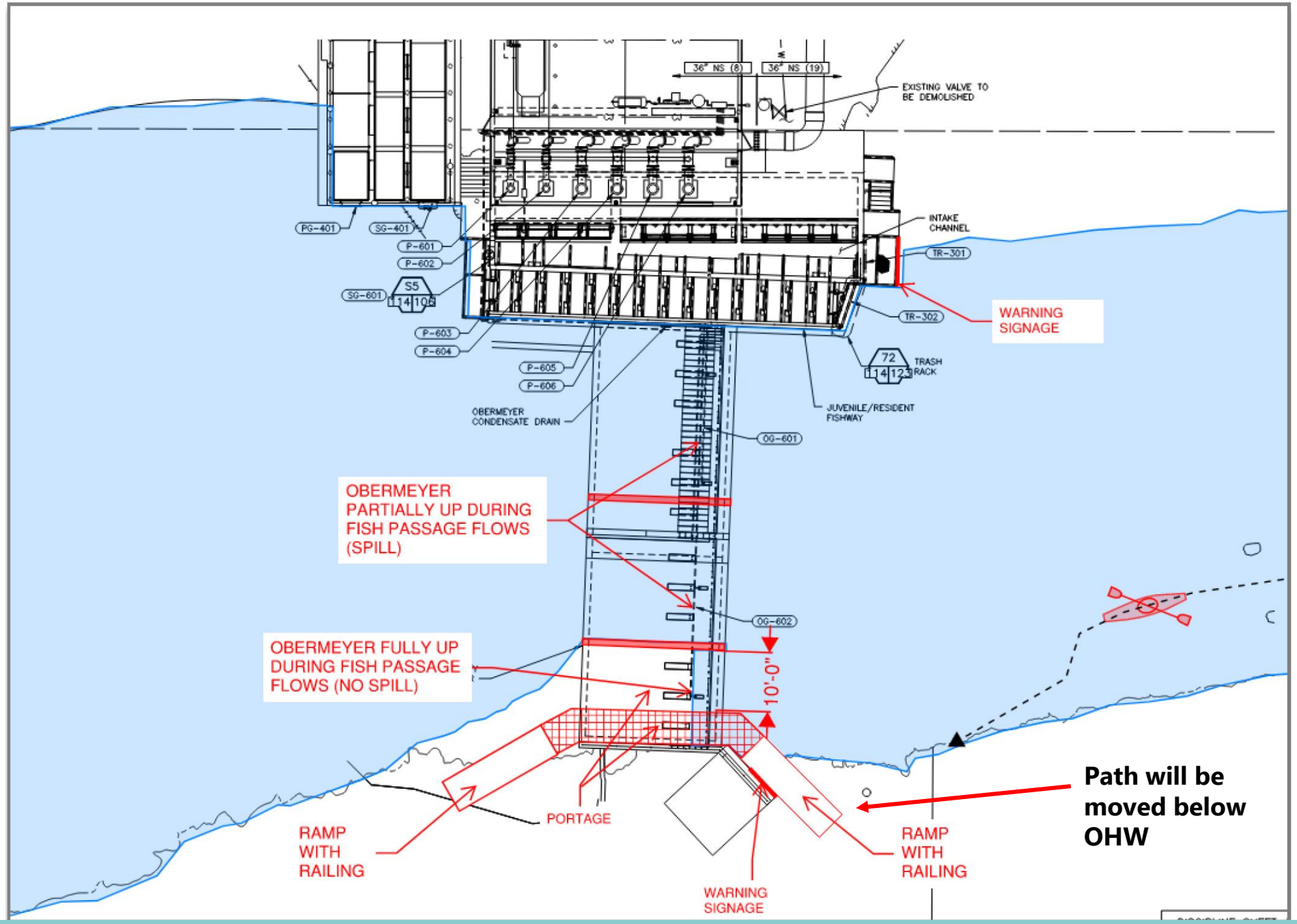
Cons

Affects left bank private property owner

Boaters may miss the turn-off

Opposite bank maintenance for hatchery staff

Canoe and Kayak Rail System


36" NS (8)
36" NS (19)
EXISTING VALVE TO BE DEMOLISHED
INTAKE CHANNEL
TR-301
WARNING SIGNAGE
TR-302
TRASH RACK
JUVENILE/RESIDENT FISHWAY
OBERMEYER CONDENSATE DRAIN
PG-401
SG-401
P-601
P-602
SG-601
S5
P-603
P-604
P-605
P-606
OG-601
OG-602
OBERMEYER PARTIALLY UP DURING FISH PASSAGE FLOWS (SPILL)
OBERMEYER FULLY UP DURING FISH PASSAGE FLOWS (NO SPILL)
10'-0"
PORTAGE
RAMP WITH RAILING
RAMP WITH RAILING
WARNING SIGNAGE
Path will be moved below OHW

Boat Passage & Portage
Boat Passage – In Channel

- Navigate watercraft directly over weir

Pros

Does not require portage at higher flows

Wider than current passage

Cons

Fish exclusion pickets collect driftwood

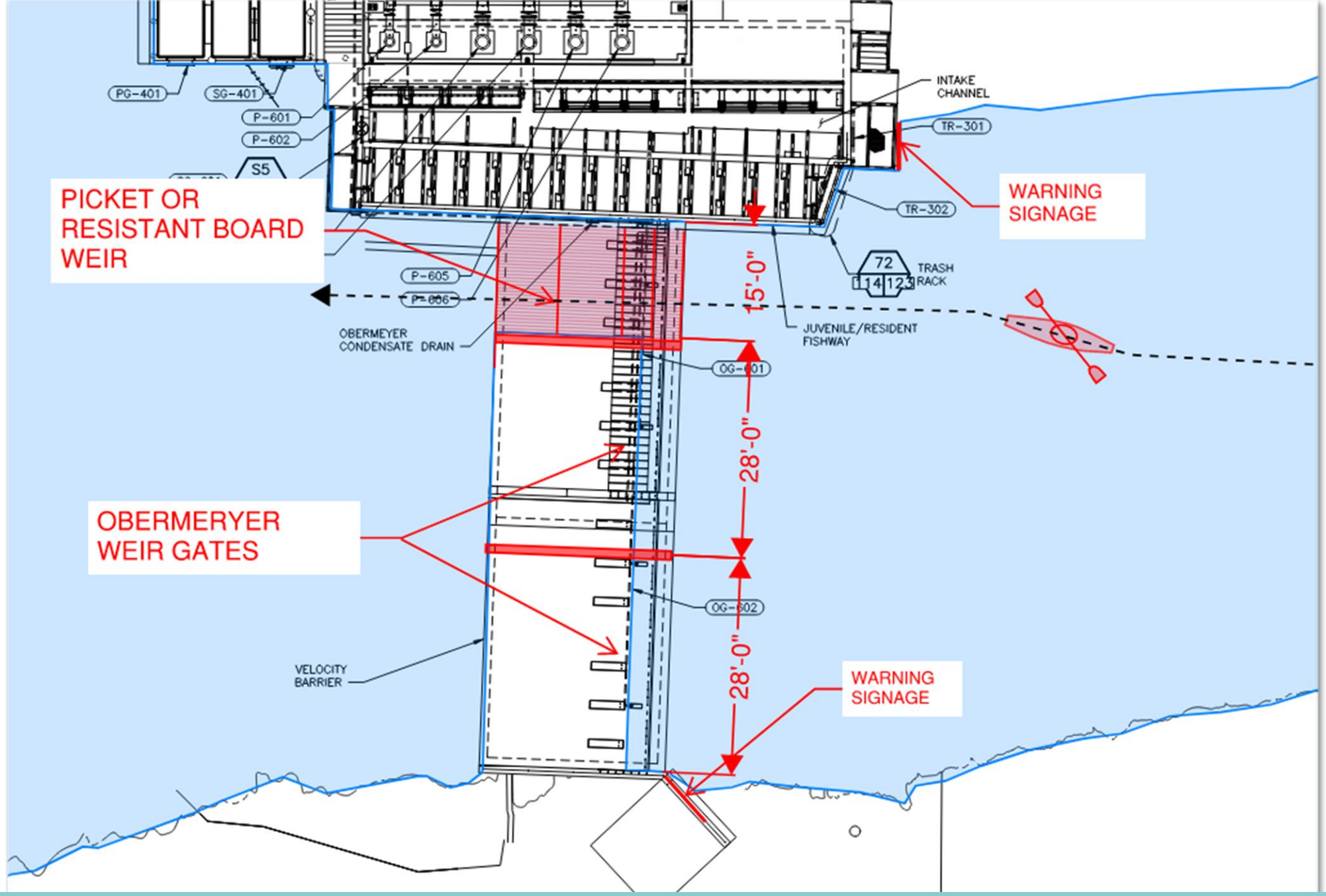
High level of boater expertise

Downstream hydraulic can be hazardous

Over weir portage during low flows


Photo of 3 Rivers Weir

Humptulips


PG-401
SG-401
P-601
P-602
S5
INTAKE CHANNEL
TR-301
TR-302
WARNING SIGNAGE
PICKET OR RESISTANT BOARD WEIR
72
14 12 3
TRASH RACK
P-605
P-606
15'-0"
OBERMEYER CONDENSATE DRAIN
JUVENILE/RESIDENT FISHWAY
OG-601
28'-0"
OBERMERYER WEIR GATES
OG-602
28'-0"
VELOCITY BARRIER
WARNING SIGNAGE

Conclusion & Public Input Portion

References:

McMillen Technical Memorandum. WDFW Naselle Fish Hatchery Exclusion Barrier: Backwater Analysis Report
McMillen Technical Memorandum. WDFW Naselle Fish Hatchery Boat Passage Evaluation
Download **https://wdfw.wa.gov/fishing/management/hatcheries/facilities/naselle#documents**

Project Contact: Rob Allan Robert.Allan@dfw.wa.gov

Photo of Naselle Weir