

# Technical Projects Update

YRBWEP Workgroup Meeting  
March 27, 2014



*Presented by:*

**Andrew Graham**, HDR Engineering, Inc.

**Dave Brown**, City of Yakima

**Walter Larrick**, Reclamation



# Overview

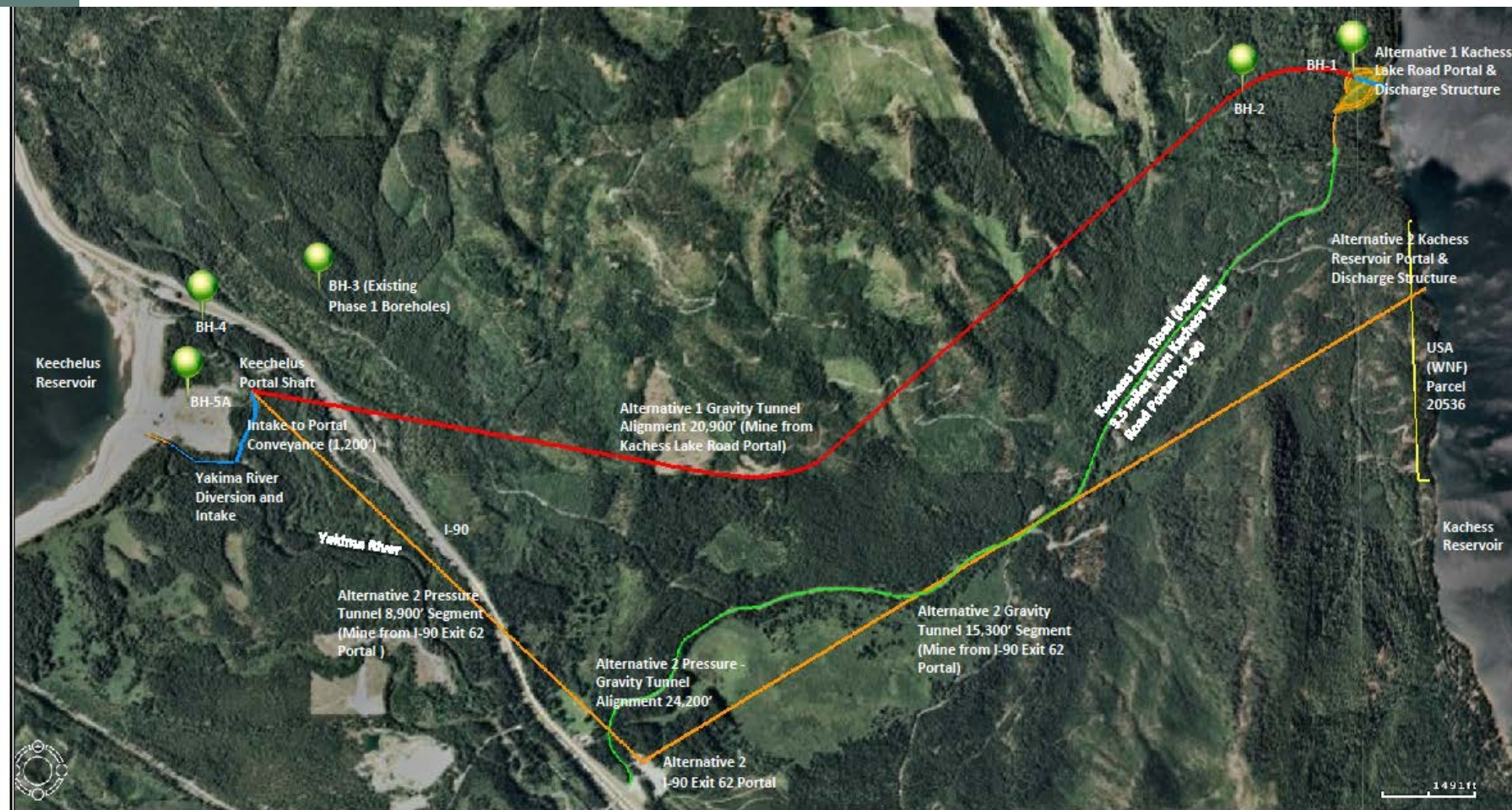
- **Keechelus-to-Kachess Conveyance**
- **Kachess Drought Relief Pumping Plant**
- **Bull Trout Enhancement**
- **Wymer Dam and Reservoir**
- **Bumping Dam & Reservoir Enlargement**
- **Cle Elum Pool Raise**
- **Cle Elum Dam Fish Passage Facilities**
- **Tieton Dam Fish Passage Facilities Study**
- **Groundwater Storage – City of Yakima Aquifer Storage & Recovery (ASR)**
- **Groundwater Storage – Basinwide Analysis**
- **Manastash Creek Conservation & Tributary Enhancement**
- **Habitat Enhancement and Agricultural Conservation Projects**



# Keechelus-to-Kachess Conveyance

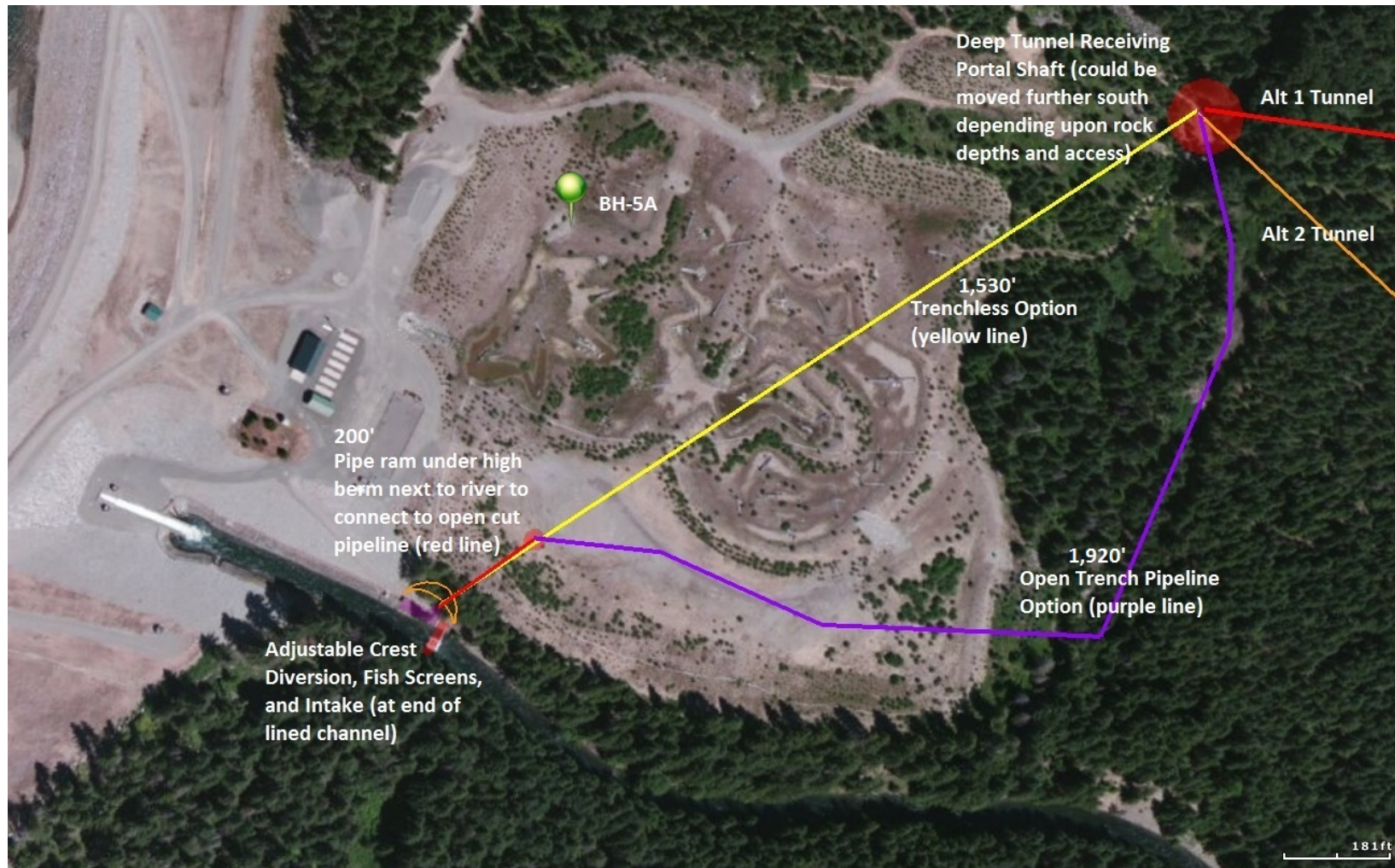


# Keechelus-to-Kachess Conveyance Feasibility Alternative Alignments





# Keechelus-to-Kachess Conveyance Inlet Options Near Keechelus Dam

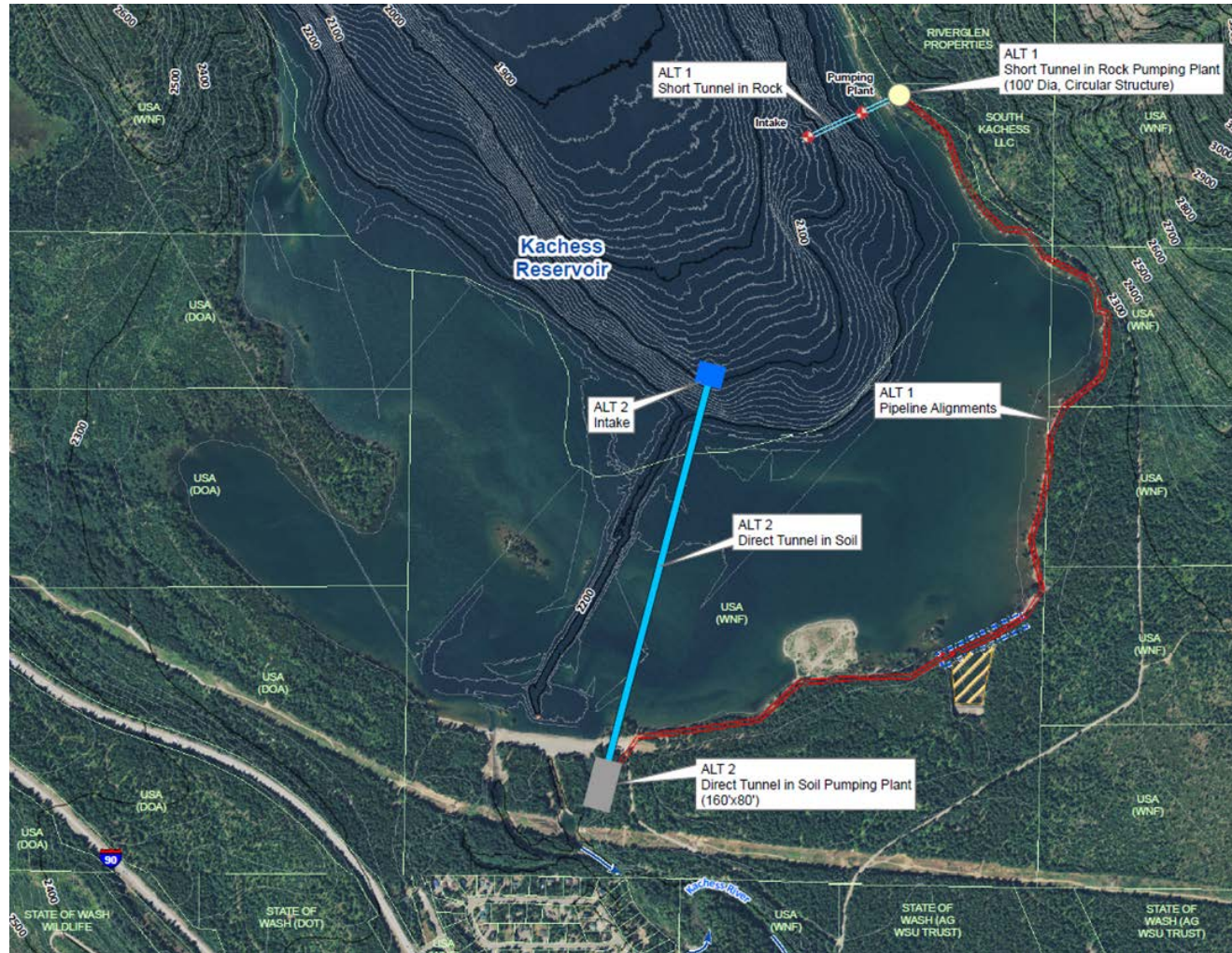


# Kachess Drought Relief Pumping Plant





# Kachess Drought Relief Pumping Plant Feasibility Alternative Alignments





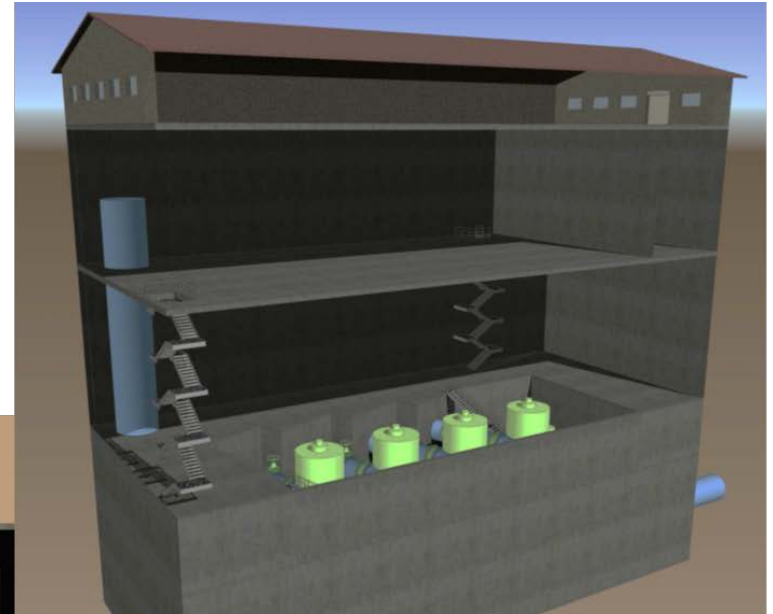
# Kachess Drought Relief Pumping Plant Outlet Works Site Plan





# Kachess Drought Relief Pumping Plant Station Alternative 2

## Conceptual View of Interior



# Bull Trout Enhancement





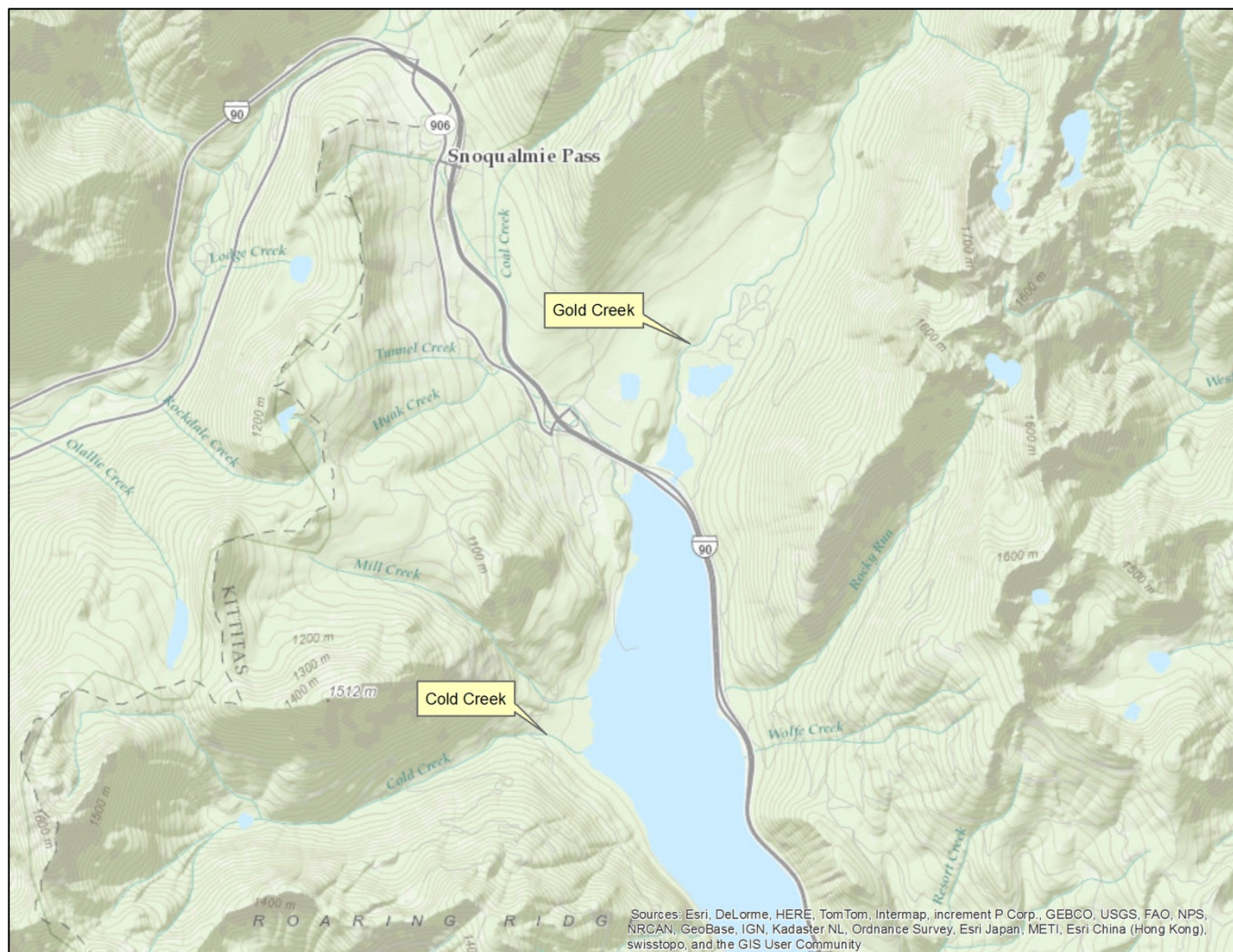
# Kachess Reservoir

- Kachess River
- Mineral Creek
- Box Canyon Creek



# Keechelus Reservoir

- Gold Creek
- Cold Creek
- Other Small Tributaries

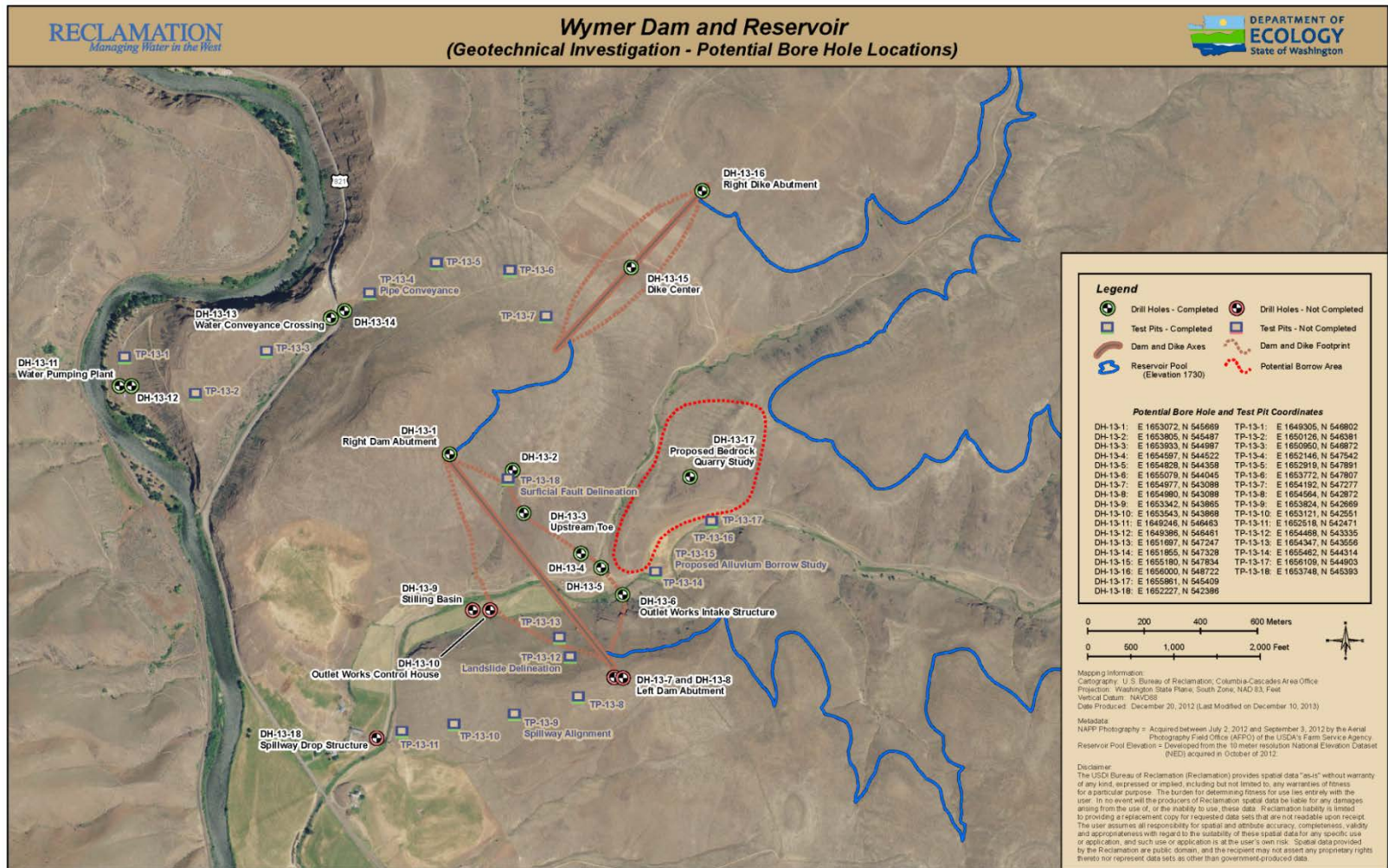




# Wymer Dam and Reservoir



# Wymer Dam & Reservoir Drill Hole Locations

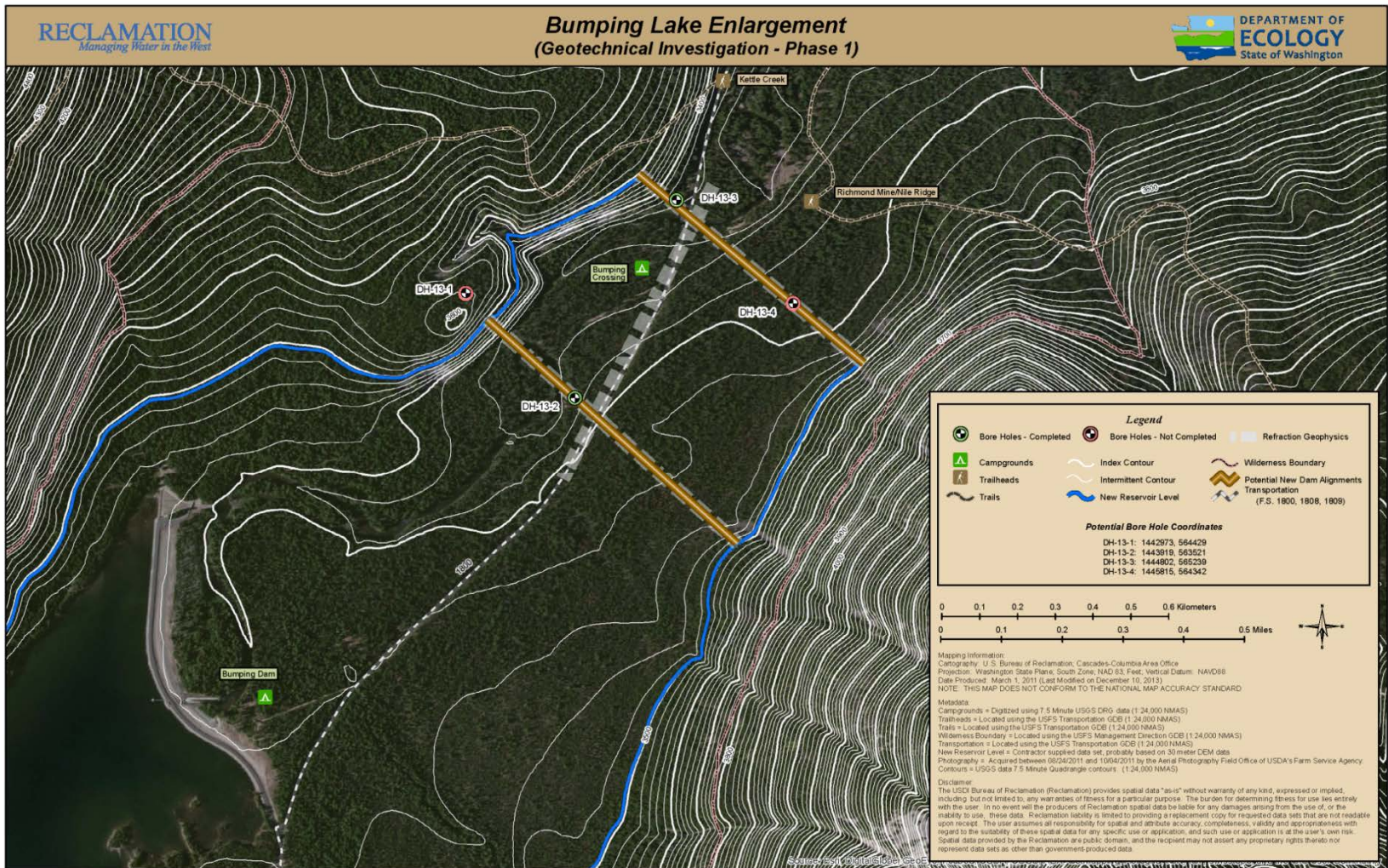


# Bumping Dam & Reservoir Enlargement





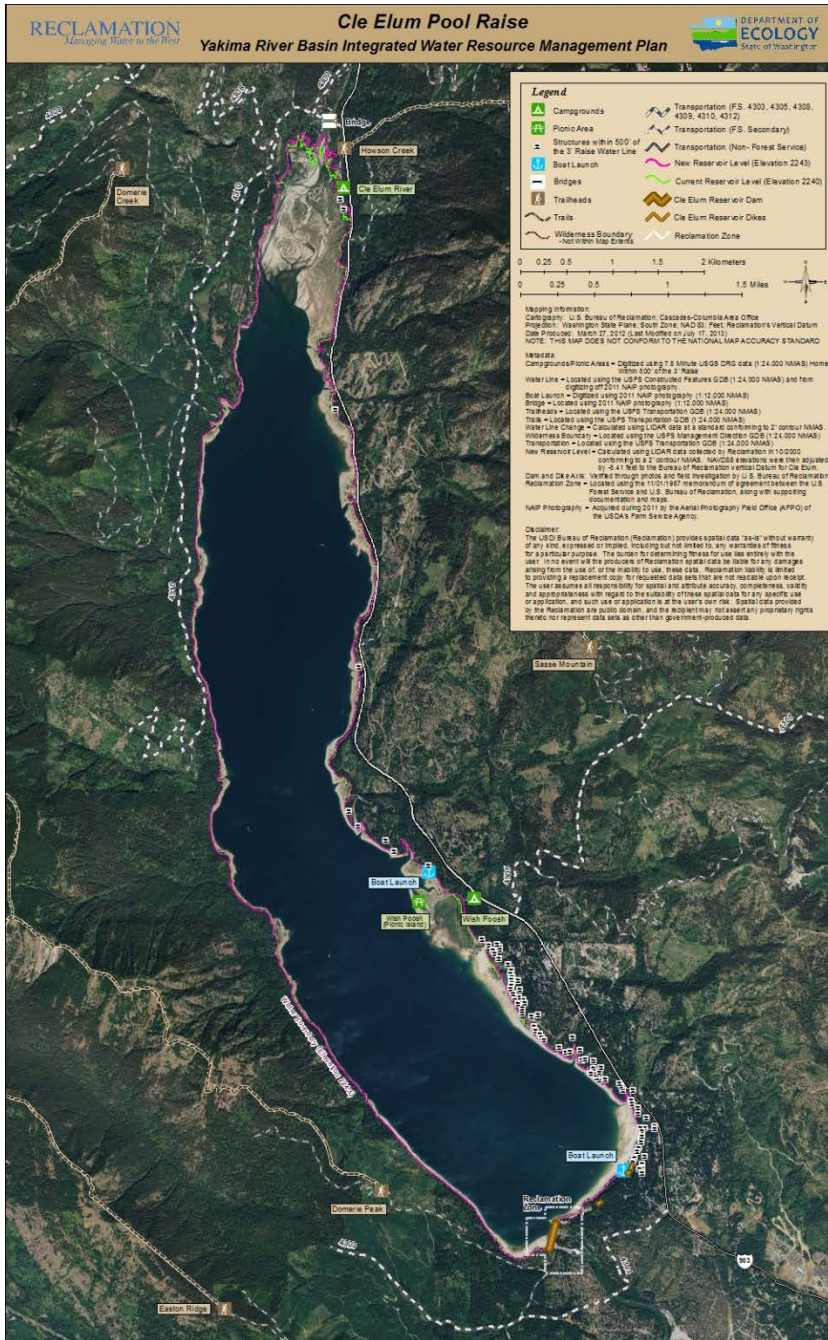
# Bumping Dam & Reservoir Drill Hole Locations





# Cle Elum Pool Raise





# Cle Elum Pool Raise

- Modify radial gates
- Shoreline protection/ Embankments
- Land acquisition



# Cle Elum Radial Gates - Modifications



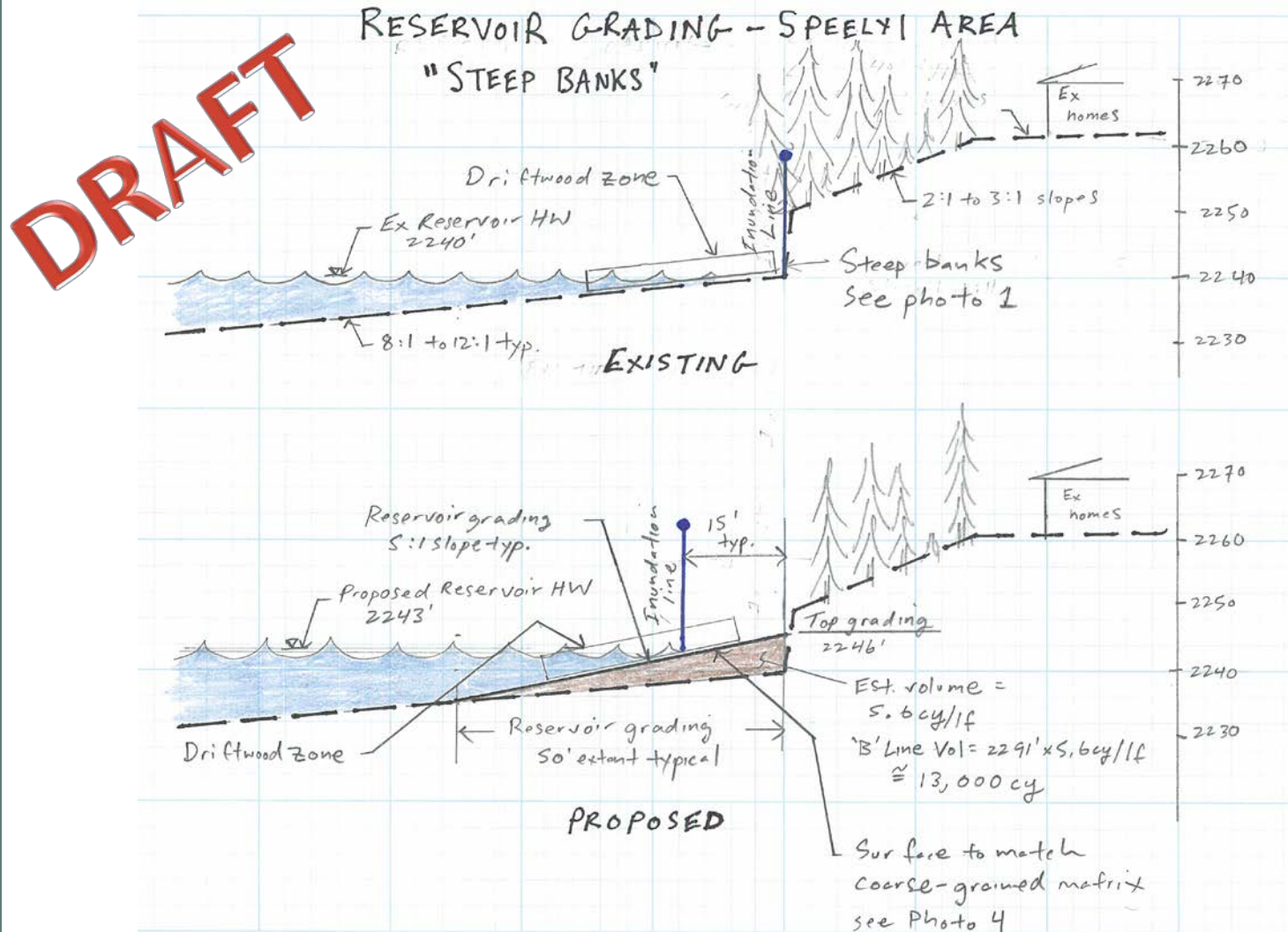


**DRAFT**





# Cle Elum Pool Raise – Shoreline Protection



# Cle Elum Reservoir Existing Shoreline

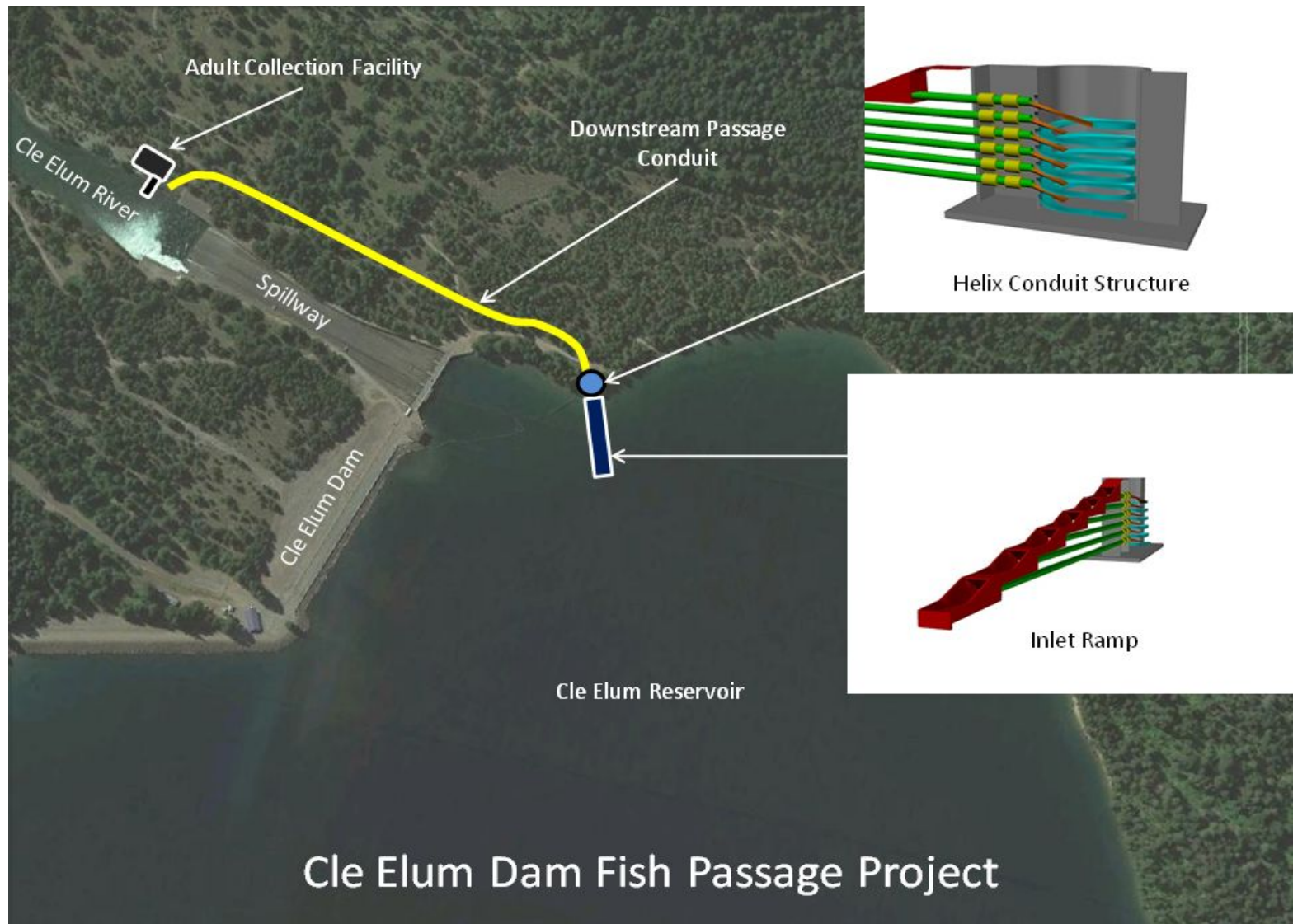


# Cle Elum Dam Fish Passage Facilities





# Cle Elum Dam Fish Passage Facilities



# Cle Elum Dam Fish Passage Facilities

## 3<sup>rd</sup> Inlet Structure Design – 400ft<sup>3</sup>/s





# Cle Elum Dam Fish Passage Facilities

## 4<sup>th</sup> Inlet Structure Design



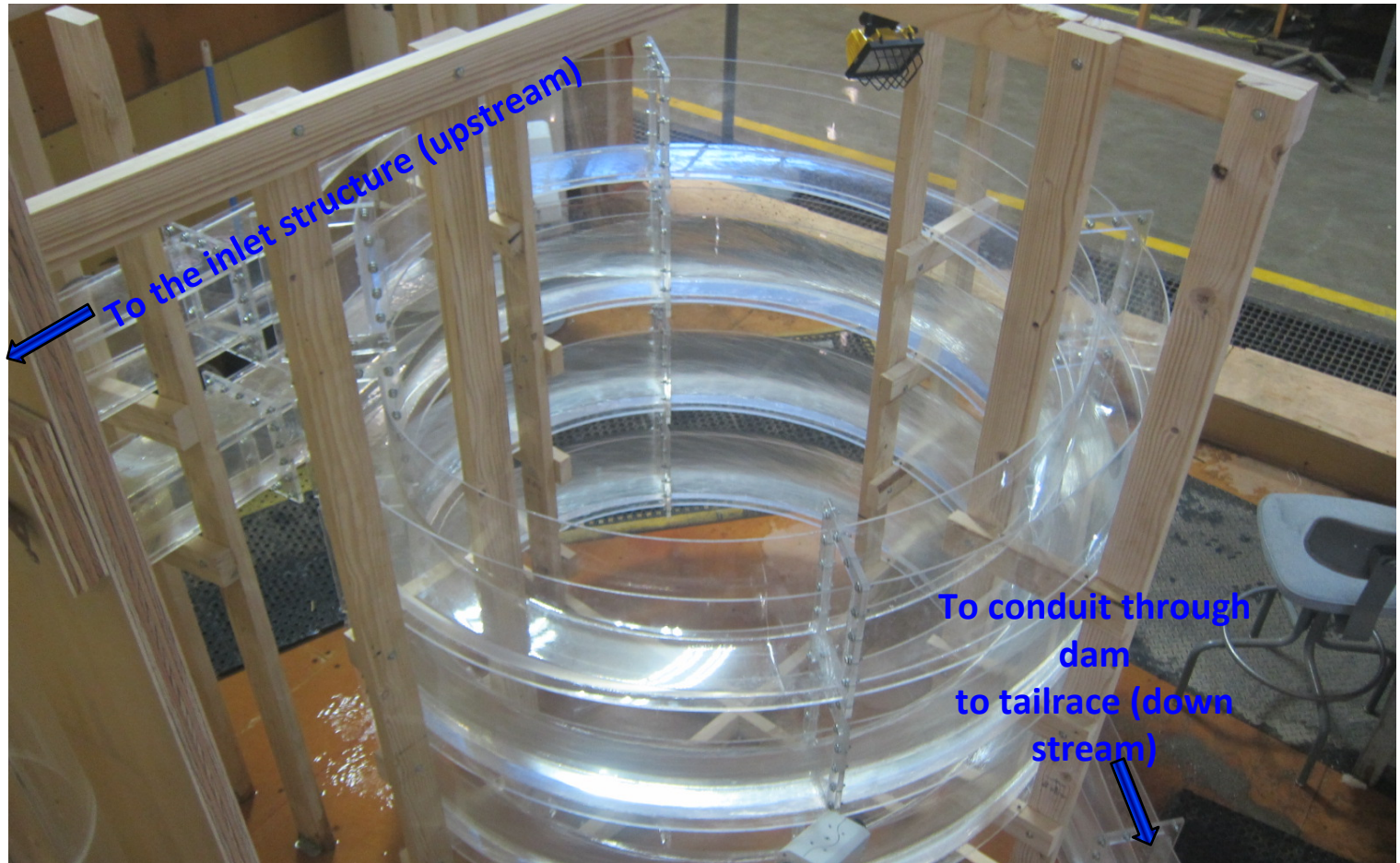
**Weir Crest – similar to the interim flume**





# Cle Elum Dam Fish Passage Facilities

## Helix Tower

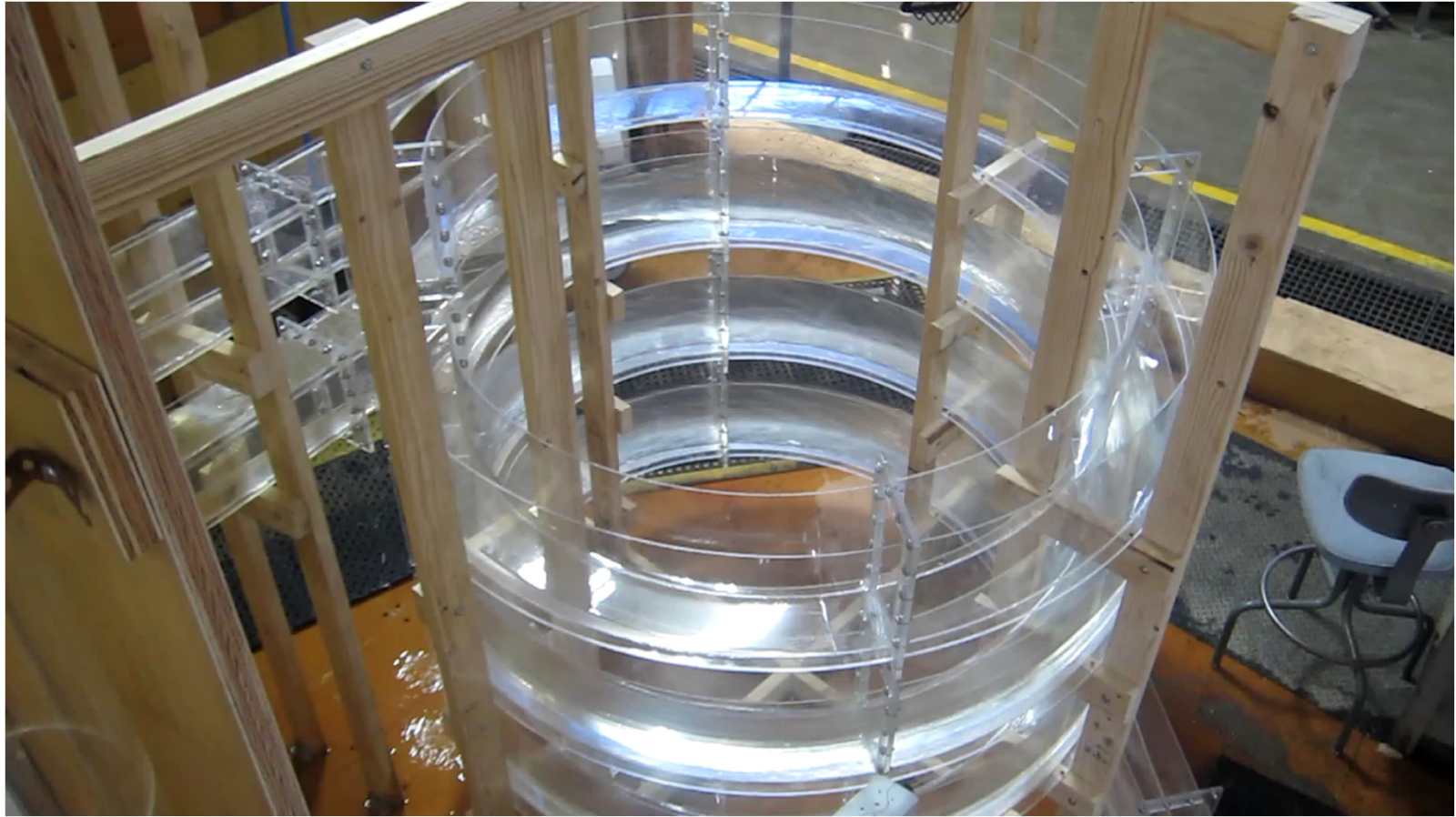


**Function – moves fish from the inlet structure into conduit bypass through the dam**



# Cle Elum Dam Fish Passage Facilities

## Helix Tower



**Function – moves fish from the inlet structure into conduit bypass through the dam**



# Tieton Dam Fish Passage Facilities Study





# Tieton Dam



# Tieton Dam – Rimrock Reservoir

**TABLE 5-5. TRIBUTARY STREAMS TO RIMROCK LAKE WITH HABITAT CONSIDERED SUITABLE FOR  
MIGRATORY SALMONIDS**

<b>Tributary Stream</b>	<b>Potentially accessible [miles (km)]</b>	<b>Potentially accessible if manmade barriers removed [miles (km)]</b>	<b>Comments</b>
South Fork Tieton River	13.5 (21.6)		Falls at 13.5 mi. limits upstream migration
Short and Dirty Creek	0.1 (0.16)	0	Natural barrier limits upstream migration
Corral Creek	2.2 (3.5)		Falls at 2.2 mi. limits upstream migration
Bear Creek (SF Tieton)	0.5 (0.8)		Natural barrier limits upstream migration
Bear Creek (Rimrock)	3.7 (5.9)	0	High sedimentation
NF Tieton River	9.9 (15.9)		Falls at 9.9 mi. limit upstream migration
Clear Creek	2.0 (3.2)		Barrier falls limit upstream migration
Indian Creek	4.9 (7.8)	0	Falls at 4.9 miles limit upstream migration
<i>Total</i>	<b>36.8 (59)</b>		
Note: Other tributaries to Rimrock Lake were considered too small or steep to support migratory fish.			



# Path Forward

- **Select Tieton Dam for Fish Passage Facilities Study**  
**DRAFT Schedule**
  - Appraisal Study - 2014
  - Feasibility Study – 2015-2016
  - Environmental Impact Statement – 2016-2017
  - Hydraulic Modeling – 2017-2018
  - Final Design – 2018-2020
  - Construction – 2021-2024
- **Conceptual Layout of Fish Passage**
  - Keechelus
  - Kachess

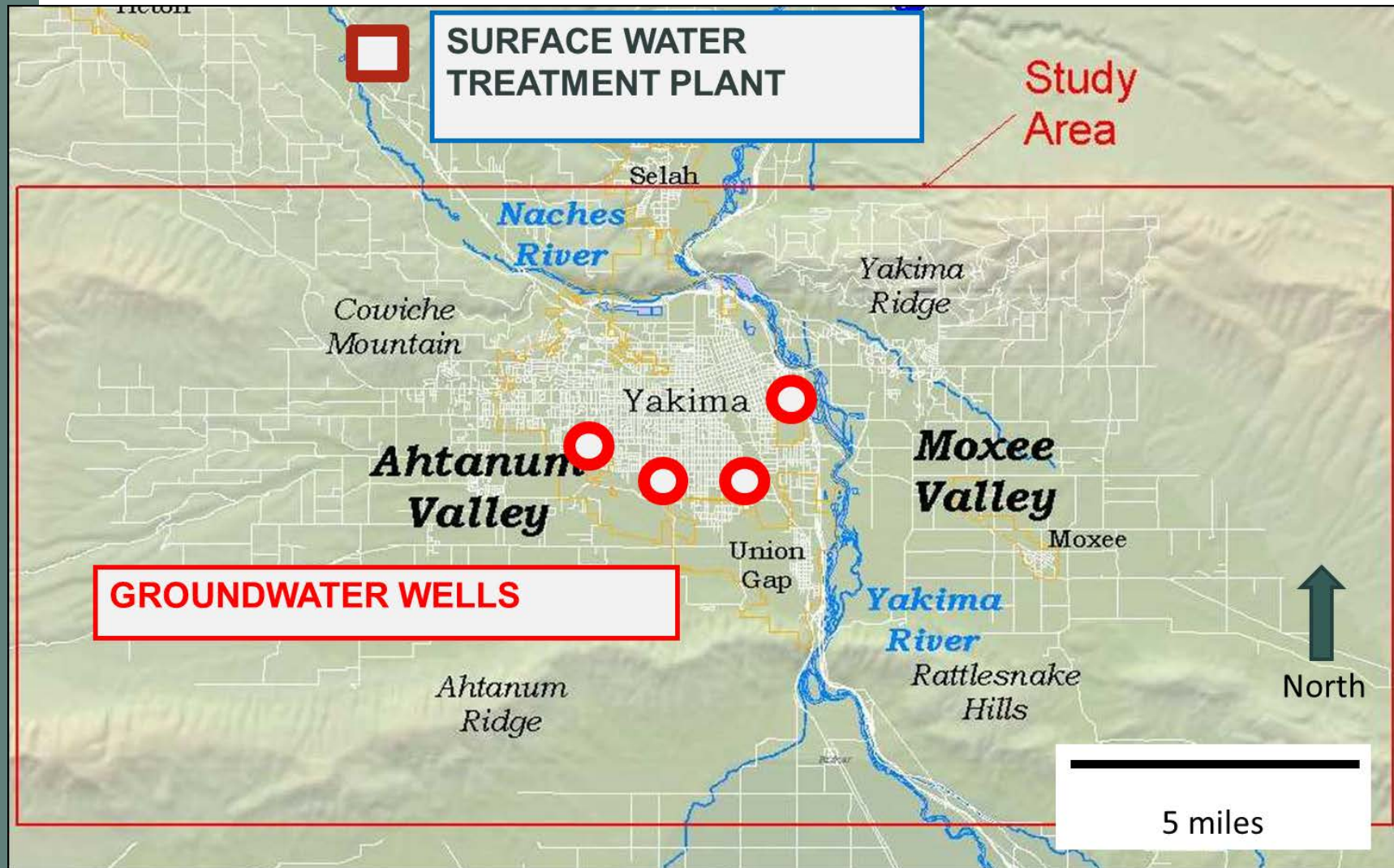




# Groundwater Storage City of Yakima Aquifer Storage & Recovery (ASR)



# City of Yakima ASR Features

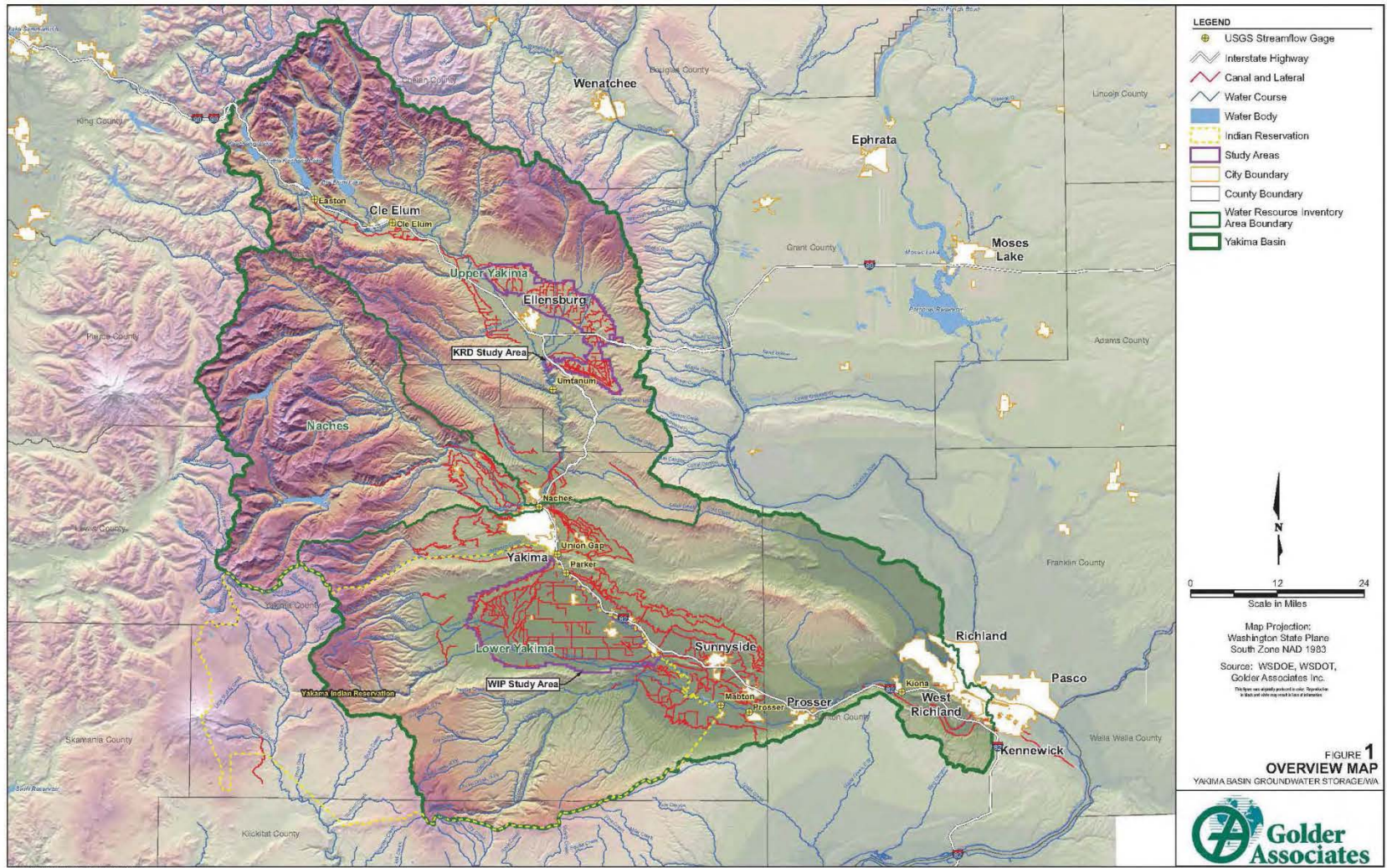


# Groundwater Storage Basinwide Analysis





# Groundwater – Overview Map



## Irrigation Infrastructure

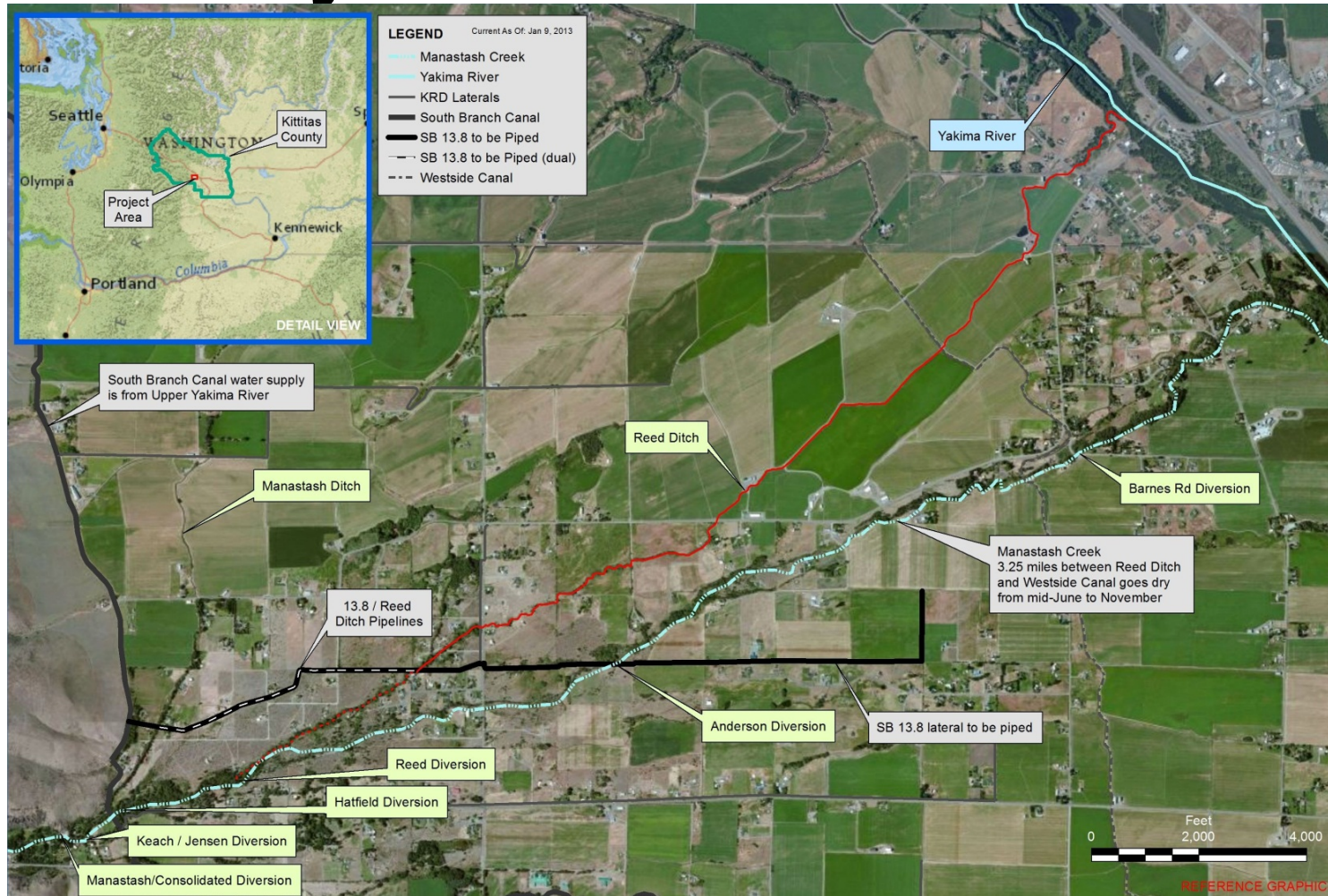


# Manastash Creek Conservation & Tributary Enhancement





# Manastash Creek Conservation & Tributary Enhancement



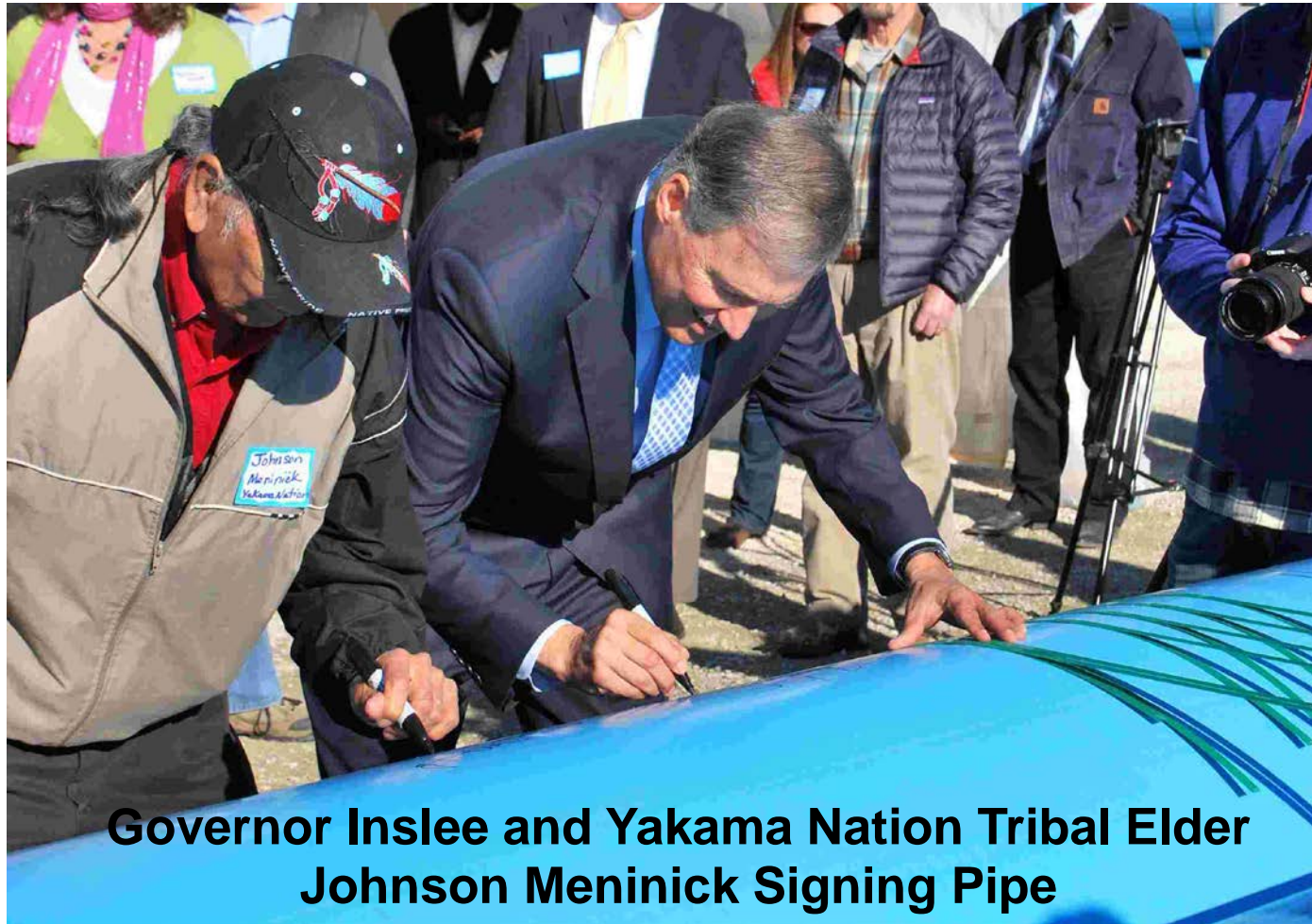


# Manastash Creek Conservation & Tributary Enhancement

Pipe laid out for pipeline between  
sta. 95+00 to sta. 99-50 at site.



# Manastash Creek Conservation & Tributary Enhancement



**Governor Inslee and Yakama Nation Tribal Elder Johnson Meninick Signing Pipe**





# Manastash Creek Conservation & Tributary Enhancement



**Manastash Creek Looking  
Upstream from Cove Road**





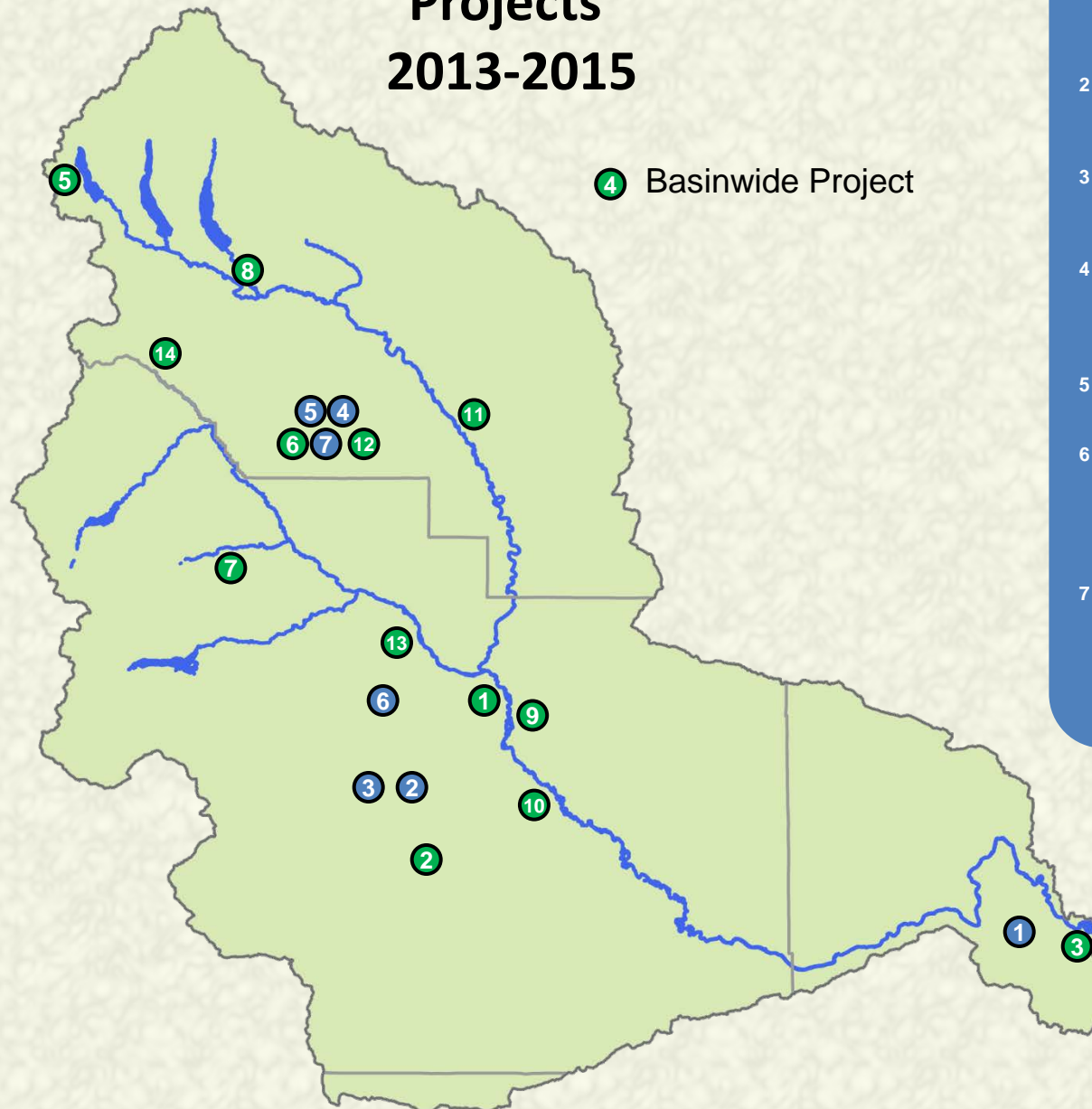
# Habitat Enhancement and Agricultural Conservation Projects



## Habitat Enhancement Projects

- 1 Gap-to-Gap Outfall Relocation
- 2 Toppenish Fan
- 3 Bateman Island Causeway Modification Conceptual Design
- 4 Bull Trout Task Force Habitat Improvements
- 5 Gold Creek Habitat Assessment and Conceptual Design
- 6 Reed Diversion Removal
- 7 Little Rattlesnake Road Decommissioning
- 8 Cle Elum River Side Channel Restoration Project, Phase 2
- 9 Gap-to-Gap Property Acquisitions
- 10 Upper Wapato Riparian Restoration
- 11 Ellensburg Water Company / Coleman Creek Restoration
- 12 Reed Diversion Barrier Removal
- 13 Trout Meadows Acquisition / Enhancement
- 14 Plum Creek / Little Naches Land Acquisition

# Yakima Integrated Plan Habitat Enhancement and Agricultural Conservation Projects 2013-2015



## Agricultural Conservation Projects

- 1 Kennewick Irrigation District (KID) Division IV Lining
- 2 Wapato Irrigation Project (WIP) Piping Lateral 4-414C
- 3 Wapato Irrigation Project Piping Satus East Lateral E73
- 4 Manastash Creek, Anderson Diversion Irrigation Water Acquisition
- 5 Manastash Creek Sprinkler Conversions
- 6 Yakima-Tieton Irrigation District (YTID) Feasibility Study – Tieton to Ahtanum Exchange
- 7 Manastash – Consolidated Pipeline & Manastash Water Ditch Association (MWDA) Pipeline Construction