

Welcome!

Dungeness Off-Channel Reservoir
Open House



Project Sponsor: Clallam County



Dungeness Reservoir Preliminary (30%) Design



Presented by: Clallam County and Anchor QEA
Public Open House
Tuesday, December 6, 2022

Project History, Purpose, and Targeted Benefits

- History
- Purpose
 - Design, permit, and construct a 1,600-acre-foot reservoir to improve the management of water resources in the Dungeness River Watershed
 - Provide the key community benefits outlined below
- Targeted Benefits
 - Streamflow restoration for salmon
 - Long-term agricultural viability
 - Potential for infiltration/aquifer recharge
 - Climate resilient water supply
 - Public recreation opportunities

Overview of Presentation

- Project Overview and Key Design Considerations
- Intake Facilities, Fish Screens, and Settling Basin
- Geotechnical Exploration and Recommendations
- Reservoir Configuration and Preliminary Design
- Reservoir Safety
- Irrigation Pipelines and Conveyance
- Next Steps

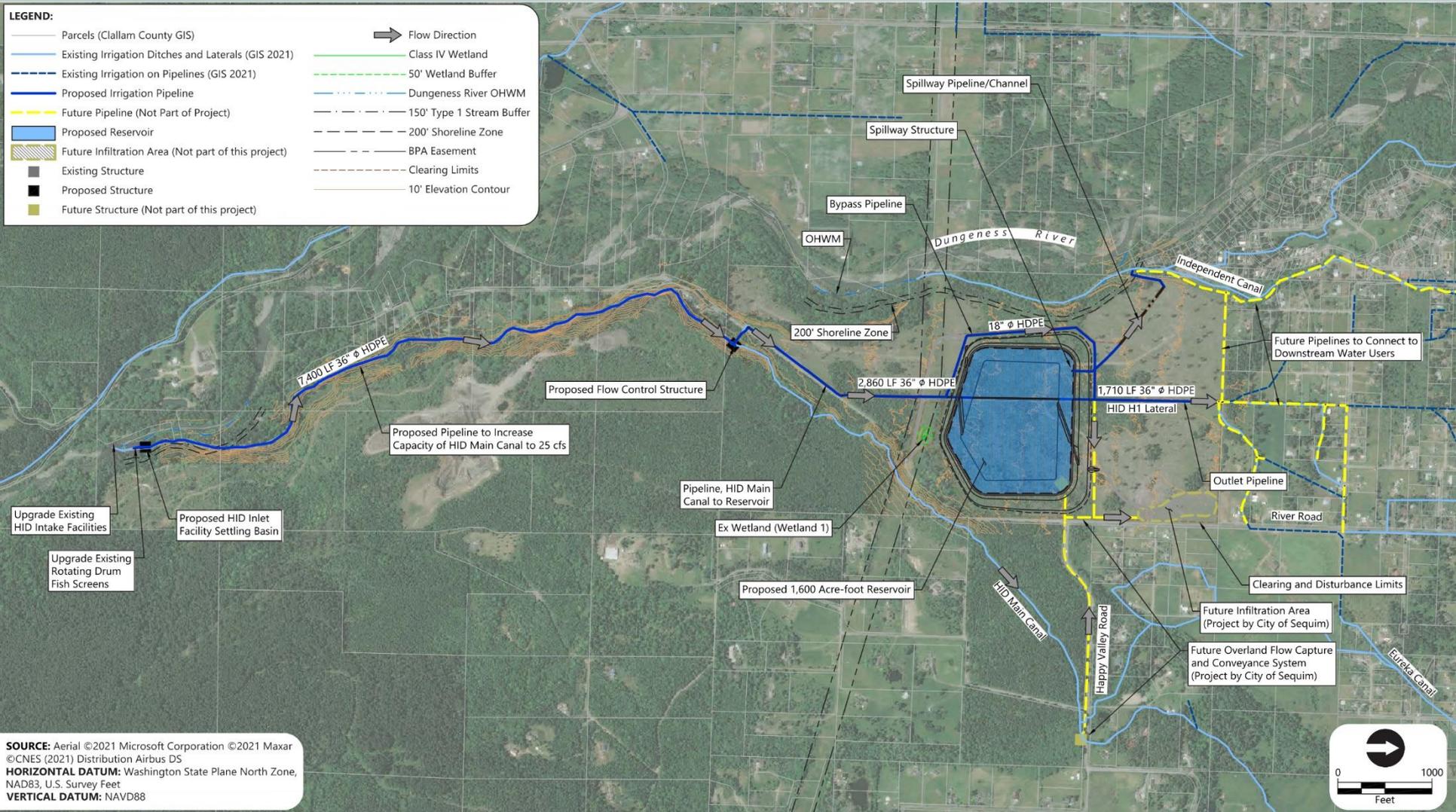
Dungeness Reservoir Preliminary Design

Project Overview and Key Design Considerations

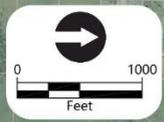
Project Overview Map

LEGEND:

Parcels (Clallam County GIS)	Flow Direction
Existing Irrigation Ditches and Laterals (GIS 2021)	Class IV Wetland
Existing Irrigation on Pipelines (GIS 2021)	50' Wetland Buffer
Proposed Irrigation Pipeline	Dungeness River OHWM
Future Pipeline (Not Part of Project)	150' Type 1 Stream Buffer
Proposed Reservoir	200' Shoreline Zone
Future Infiltration Area (Not part of this project)	BPA Easement
Existing Structure	Clearing Limits
Proposed Structure	10' Elevation Contour
Future Structure (Not part of this project)	



SOURCE: Aerial ©2021 Microsoft Corporation ©2021 Maxar ©CNES (2021) Distribution Airbus DS
HORIZONTAL DATUM: Washington State Plane North Zone, NAD83, U.S. Survey Feet
VERTICAL DATUM: NAVD88



Key Design Considerations

- Gravity Operation
 - Reservoir would fill and release water using gravity (not pumping) through the existing Highland Irrigation District (HID) Main Canal and H1 Lateral
- Site Constraints
 - Residences, private property to the north
 - River Road to the east
 - Dungeness River, bluff, and shoreline buffer to the west
 - Wetland, BPA Easement to the south
- Safety
 - Design will meet all requirements of Ecology's Dam Safety Office
 - Control of seepage, seepage monitoring
 - Seismic stability, settlement monitoring
 - Ability to pass design storm

Dungeness Reservoir Preliminary Design

Intake Facilities, Fish Screens, and Settling Basin

HID Head Gate Structure at Dungeness River



HID Rotating Drum Fish Screens



Dungeness Reservoir Preliminary Design

Geotechnical Exploration and Recommendations

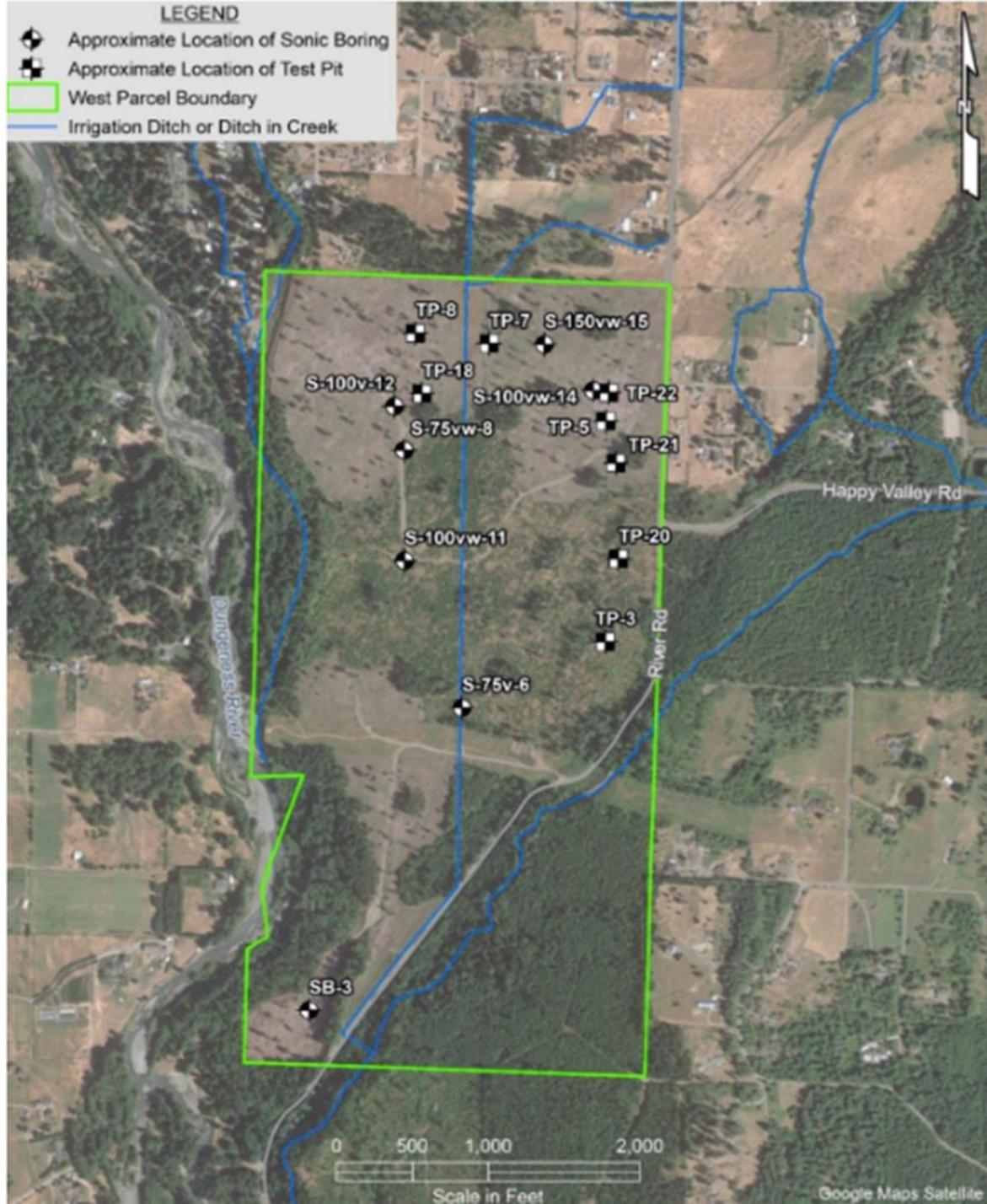
Prior (2014) Geotechnical Exploration

- 7 test pits completed,
<12 feet deep

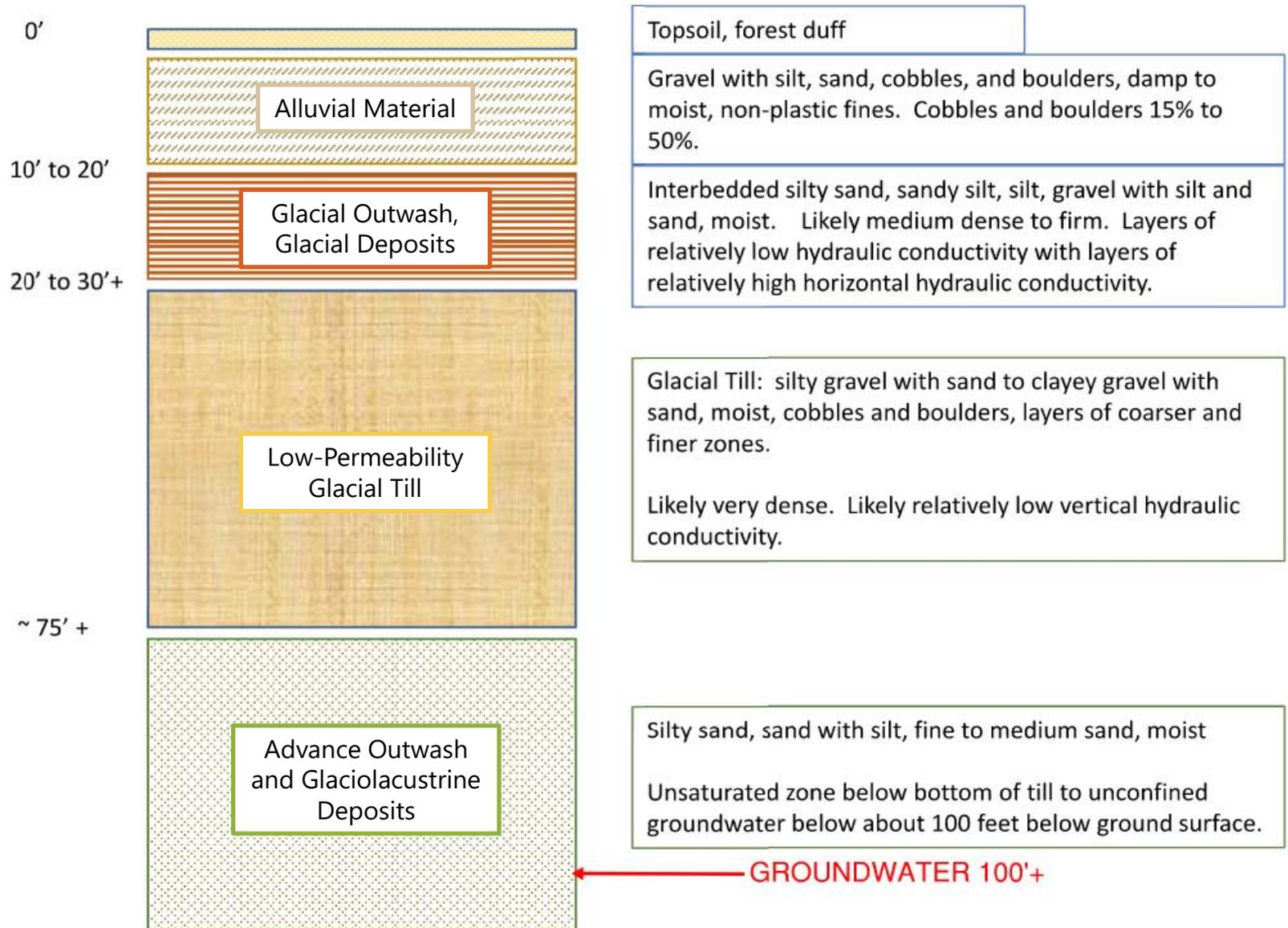


Phase 1 Geotechnical Exploration

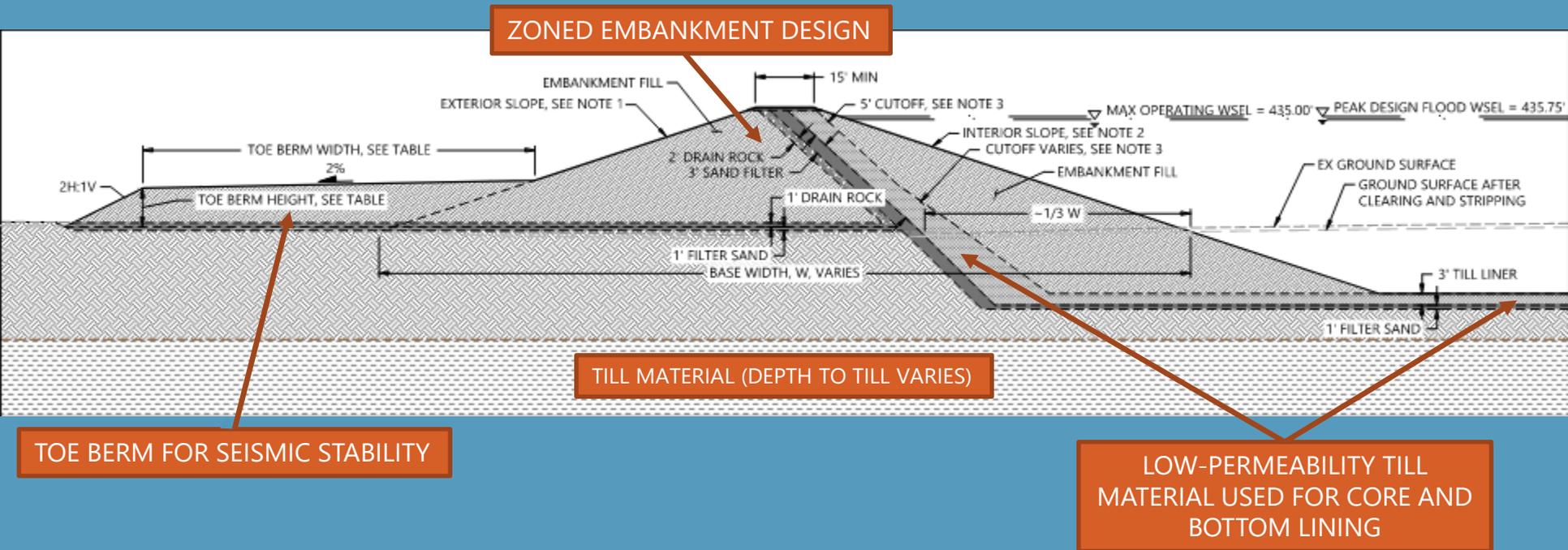
- 7 borings completed, 25 to 150 feet deep
- 8 test pits completed, 12 to 15 feet deep
- Piezometers installed in borings to monitor seasonal groundwater changes



Generalized Geologic Section



Typical Embankment Section: North End of Reservoir



Dungeness Reservoir Preliminary Design

Reservoir Configuration and Preliminary Design

Comparison: Concept Design vs. Preliminary Design

Current Preliminary Design

Max water surface=42 acres
Full WSEL=435 feet
Max depth=50 feet
Capacity=1,591 acre-feet

2016 Concept Design

Max water surface=80 acres
Full WSEL=425 feet
Max depth=19 feet
Capacity=1,586 acre-feet

2016 Concept Design

Embankment height=38 feet

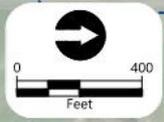
Current Preliminary Design

Embankment height=30 feet

Wetland

BPA Easement

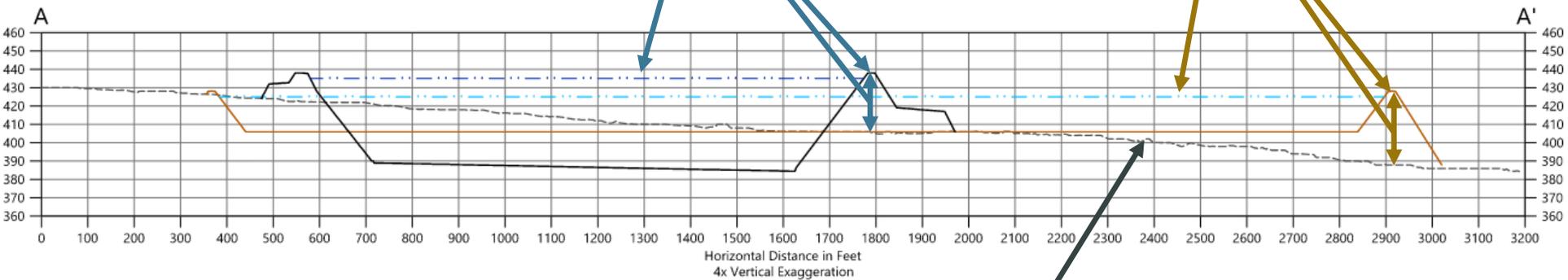
SOURCE: Aerial ©2021 Microsoft Corporation ©2021 Maxar
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HORIZONTAL DATUM: Washington State Plane North Zone,
NAD83, U.S. Survey Feet
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Comparison: Concept Design vs. Preliminary Design

Current Preliminary Design
Top of embankment=438 feet
Full WSEL=435 feet
Embankment height=30 feet

2016 Concept Design
Top of embankment=428 feet
Full WSEL=25 feet
Embankment height=38 feet



Existing ground, slopes from south to north

Dungeness Reservoir Preliminary Design

Reservoir Safety

Dam Construction Permit

- Issued by Ecology's Dam Safety Office
- Requires the following
 - Cover Letter
 - Dam Construction Permit Application
 - Final Drawings
 - Final Specifications
 - Engineering Reports (Geotech, Hydrology and Hydraulics)
 - Emergency Action Plan
 - Operations and Maintenance Plan
 - Construction Inspection Plan

Design Step Analysis

- Preliminary Design Identified Design Step 8
 - Requires design for maximum probable storm event
 - Requires design for maximum credible earthquake
- Design Step 8 is the highest design step and requires the most conservative design assumptions
- Additional analysis will be completed to refine Design Step selection
- The Design Step won't increase with additional analysis

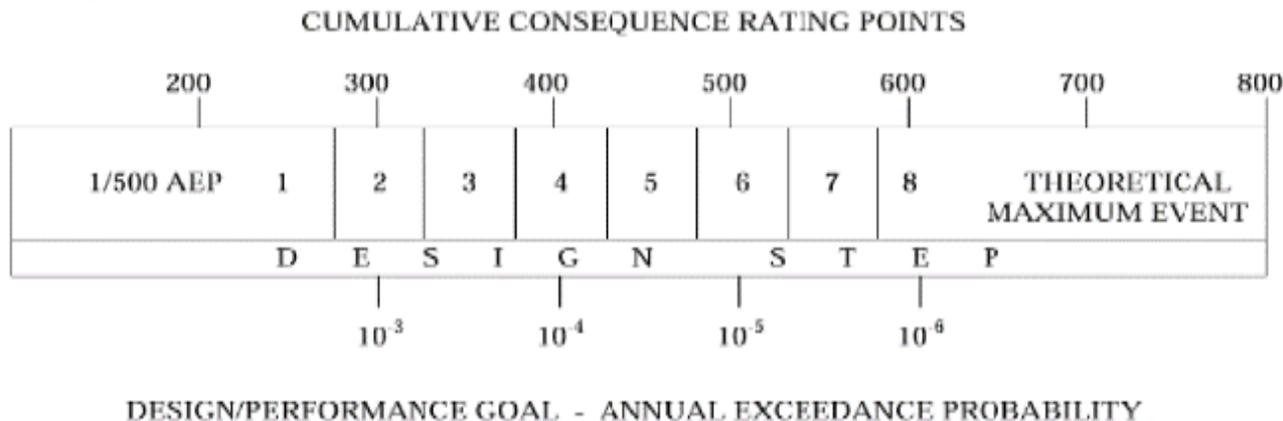


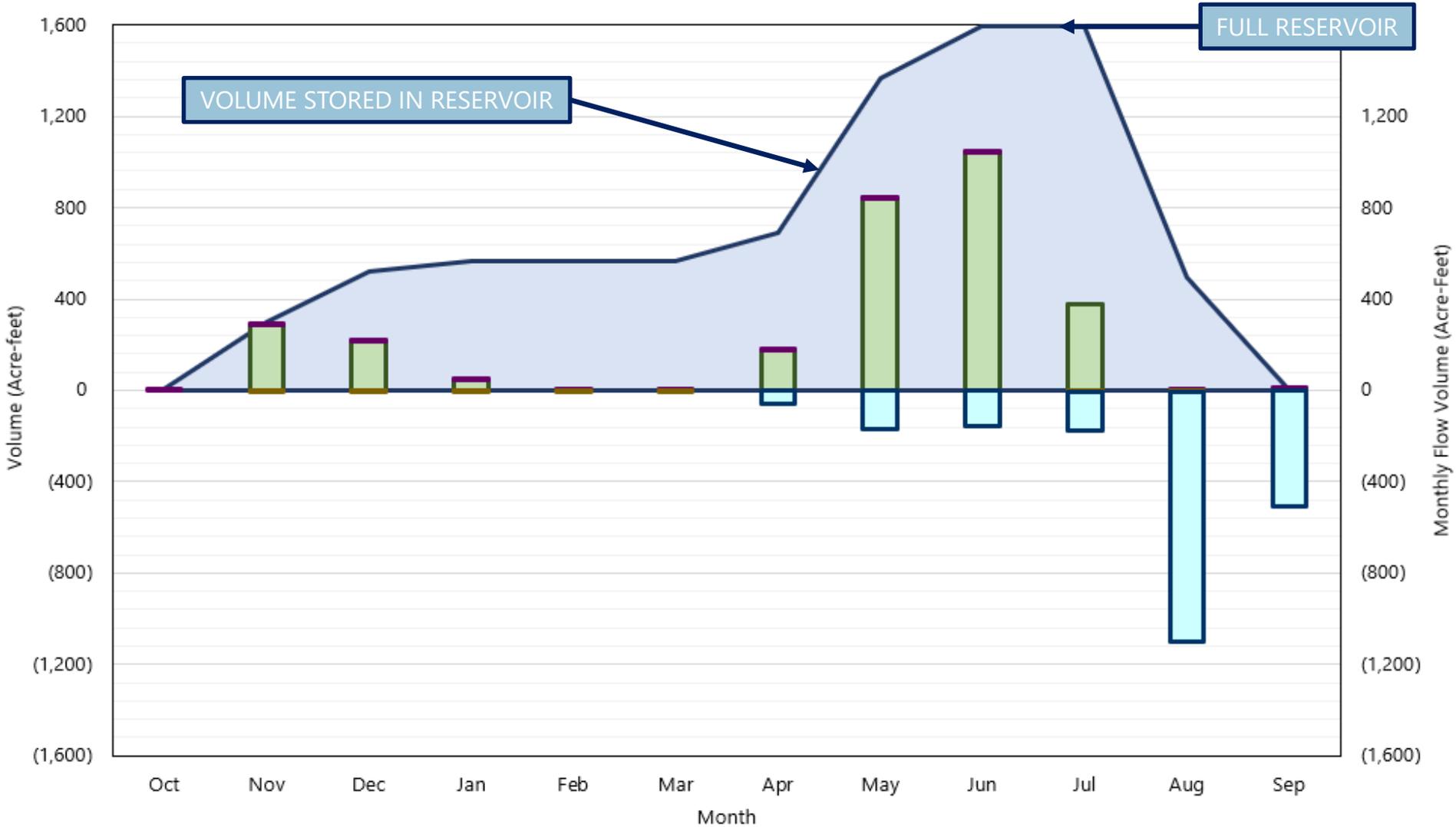
FIGURE 2. DESIGN STEP FORMAT AND CONSEQUENCE RATING POINTS

Reservoir Operations

- Fill
 - Reservoir will fill during late fall, winter, spring, and early summer, when water is available from the Dungeness River
- Release
 - Water will be released to meet downstream irrigation demands east of the river, primarily during the late summer
 - August through mid-September
- Full Reservoir
 - During an average year, reservoir would only be full for a couple of months during late spring and early summer
 - Once full, a gate would automatically close on the inlet pipeline
 - The only inflow to the reservoir when it is full will be from precipitation directly on the reservoir

Reservoir Operations - Average Year (2013 Hydrologic Conditions)

■ Water Storage Volume
 ■ Inflow From River
 ■ Inflow From Precipitation
 ■ Reservoir Loss
 ■ Releases for Irrigation



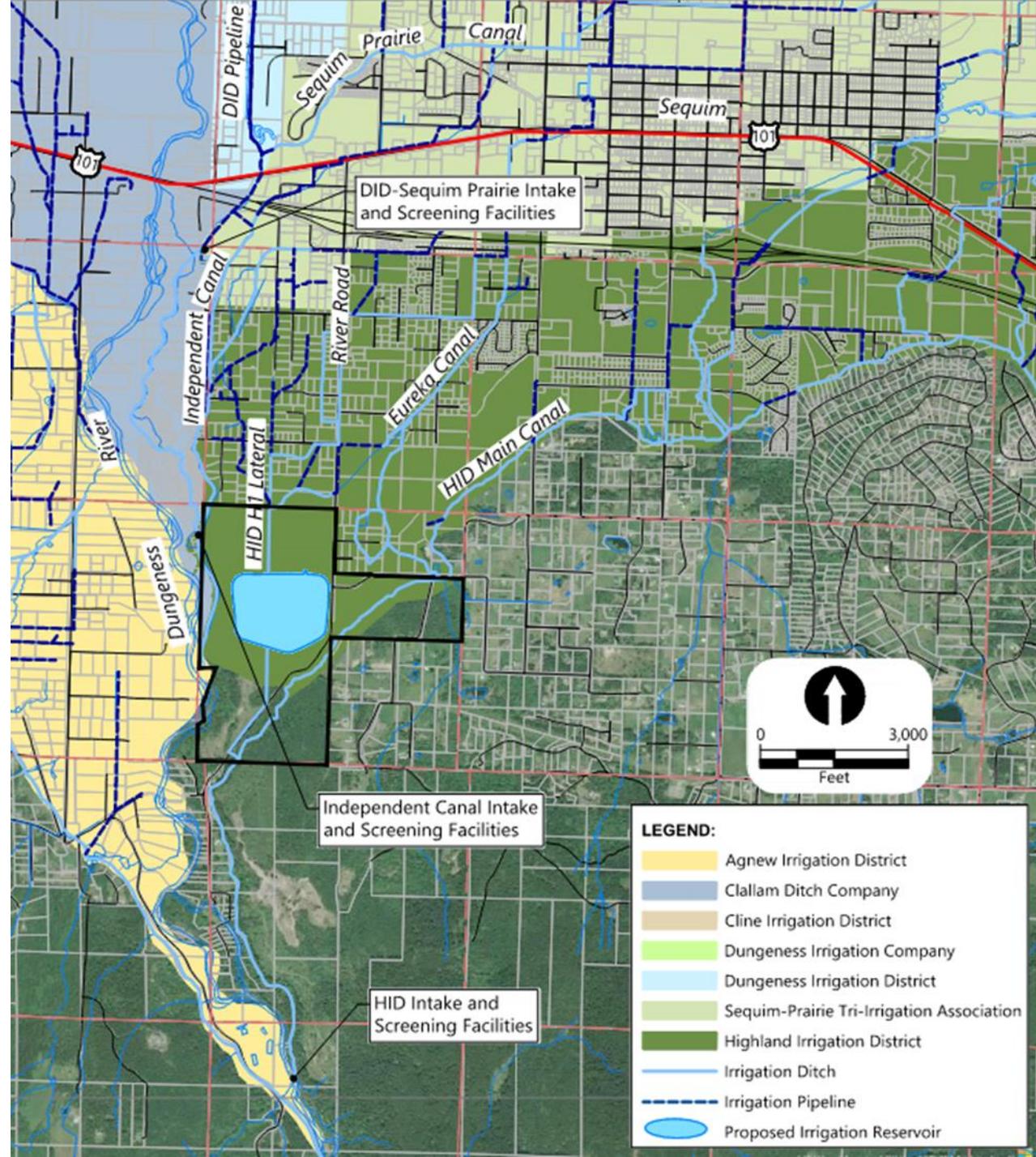
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Irrigation Pipelines and Conveyance

Existing Irrigation Infrastructure

Reservoir would deliver water to

- Highland Irrigation District (HID) H1 Lateral
- Sequim Prairie Tri-Irrigation Association (SPTIA)
- Dungeness Irrigation District



Dungeness Reservoir Preliminary Design

Next Steps

Next Steps – Detailed Design

- Preparation of permit-ready drawings and environmental permit applications
- Additional site investigations (geotechnical, cultural resources, survey)
- Final geotechnical engineering design and analysis
- Final hydraulic analysis, water quality analysis, and other detailed design analyses
- Detailed design drawings and technical specifications (60% complete to final)
- Secure permits, including Dam Construction Permit
- Operations and maintenance analysis

Questions from Sign-in Forms



Next Steps – Public Engagement Opportunities

- Ask your questions to the experts at 5 Open House stations:
 - Preliminary (30%) Design
 - Permitting, Safety, and O&M
 - Streamflow Restoration and Salmon
 - Irrigation and Agriculture Viability
 - Aquifer Recharge and Overland Flow Management
- Submit comments and questions:
 - Fill out comment/question forms at sign-in table and at Open House stations
 - Provide comments/questions on County website at:
<https://www.clallamcountywa.gov/188/Dungeness-Off-Channel-Reservoir>
 - E-mail at web_reservoir@clallamcountywa.gov
 - Use QR at <https://tinyurl.com/38krbzszy>
 - E-mail at carol.creasey@clallamcountywa.gov
- FAQ to be developed based on comments/questions from public
- Sign-up for updates on the project
- Future Open Houses

