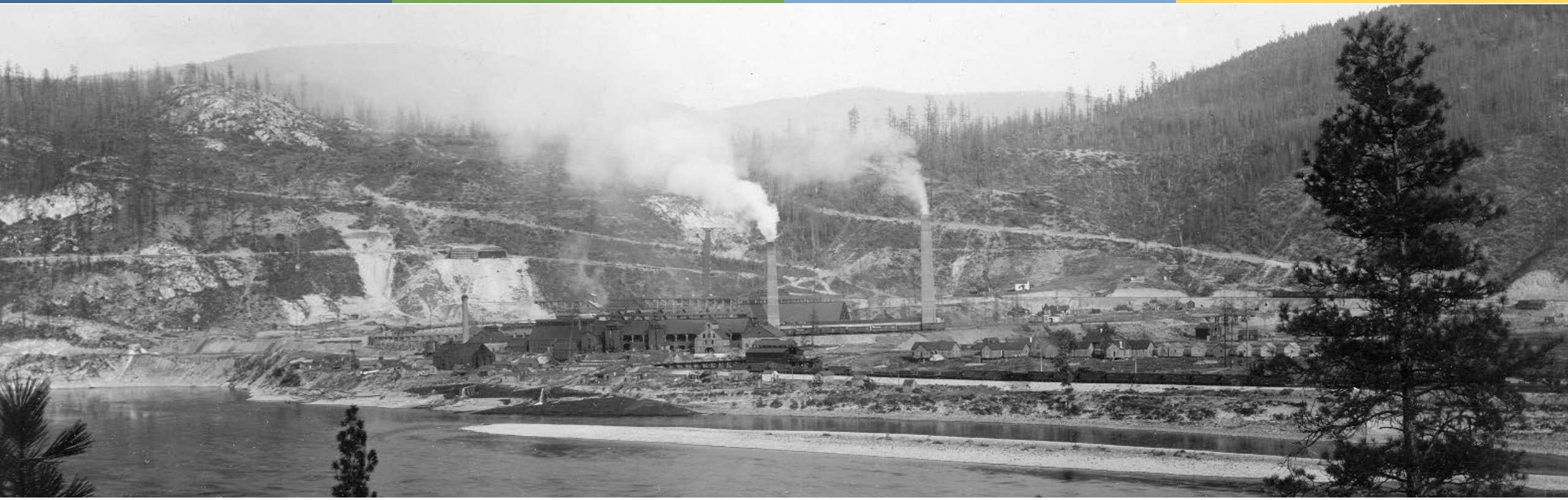

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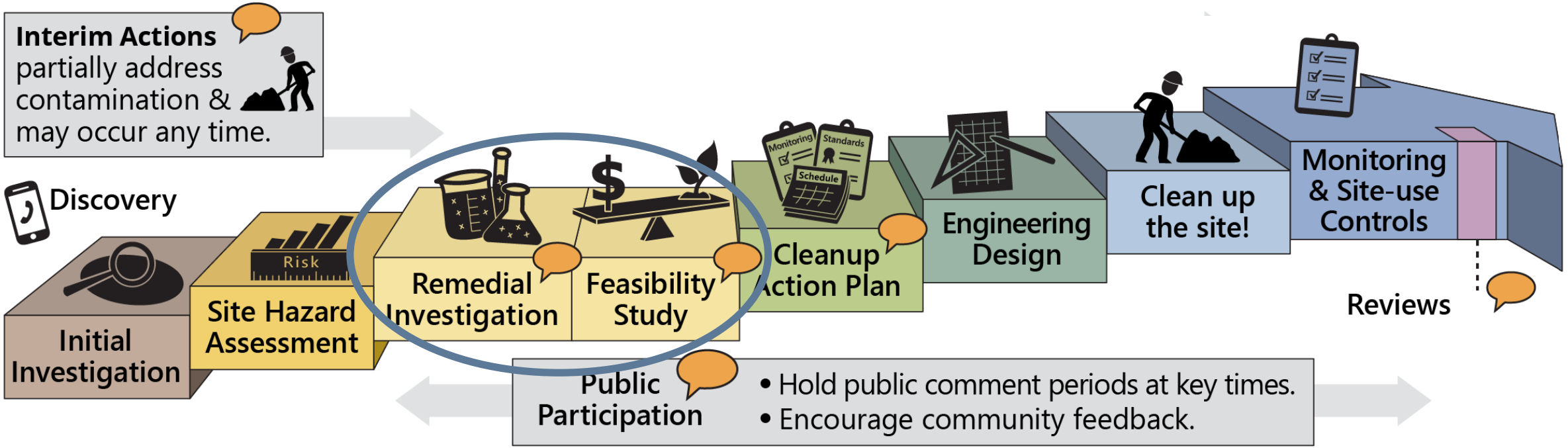
Northport Waterfront Cleanup: Remedial Investigation and Feasibility Study

Erika Beresovoy, Justin Rice, John Roland

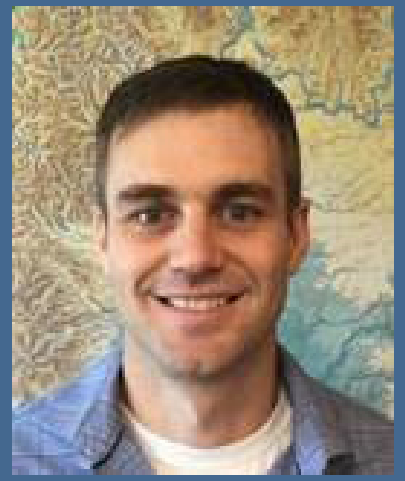
May 19, 2021

Washington's cleanup process



Remedial Investigation

Justin Rice, project engineer



Northport Waterfront Site, Stevens Co.

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5 investigation and cleanup areas:

- Bay
- Bayshore
- Hillside
- Jetty
- Seasonal Beach

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Soil samples collected from:

- 26 test pits
- 3 hand-dug locations
- 109 surface locations

Analyzed:

- 329 surface soil/sediment samples using XRF technology
- 61 samples at lab

TP-12 (Seasonal Beach)

HS-2 (Bayshore)

Preliminary cleanup and screening levels

Metals	MTCA Method A	MTCA Method B (Non-Cancer)	Upper Columbia River Basin Risk-based Screening Level
Arsenic	20		**12.9**
Barium		**16,000**	
Cadmium	**2**		
Chromium			**131**
Copper		3,200	**143**
Iron		**56,000**	
Lead	**250**		338
Manganese		**11,200**	
Mercury			**1.46**
Nickel			**39**
Zinc		24,000	**3,200**[2]

Notes:

[1] All units in mg/kg.

[2] Screening value is the sediment management standards (SMS) freshwater sediment cleanup objective.

Bold values selected for use in the remedial investigation report.

- XRF screened for 16 metals
- Arsenic, cadmium, chromium, copper, lead, mercury, and zinc identified as most likely threats to human and environmental health
- Based on frequency detected and samples exceeding their screening level, evaluating the extent of smelter waste focused on copper, lead, and zinc

Frequency metals exceeded levels

Metals	Cleanup or screening level	Number of samples analyzed	Number of samples exceeding level
Copper	143 ppm	329	220
Lead	250 ppm	329	140
Zinc	3,200 ppm	329	109

ppm = parts per million

Metals throughout site to depths of 4 feet or greater

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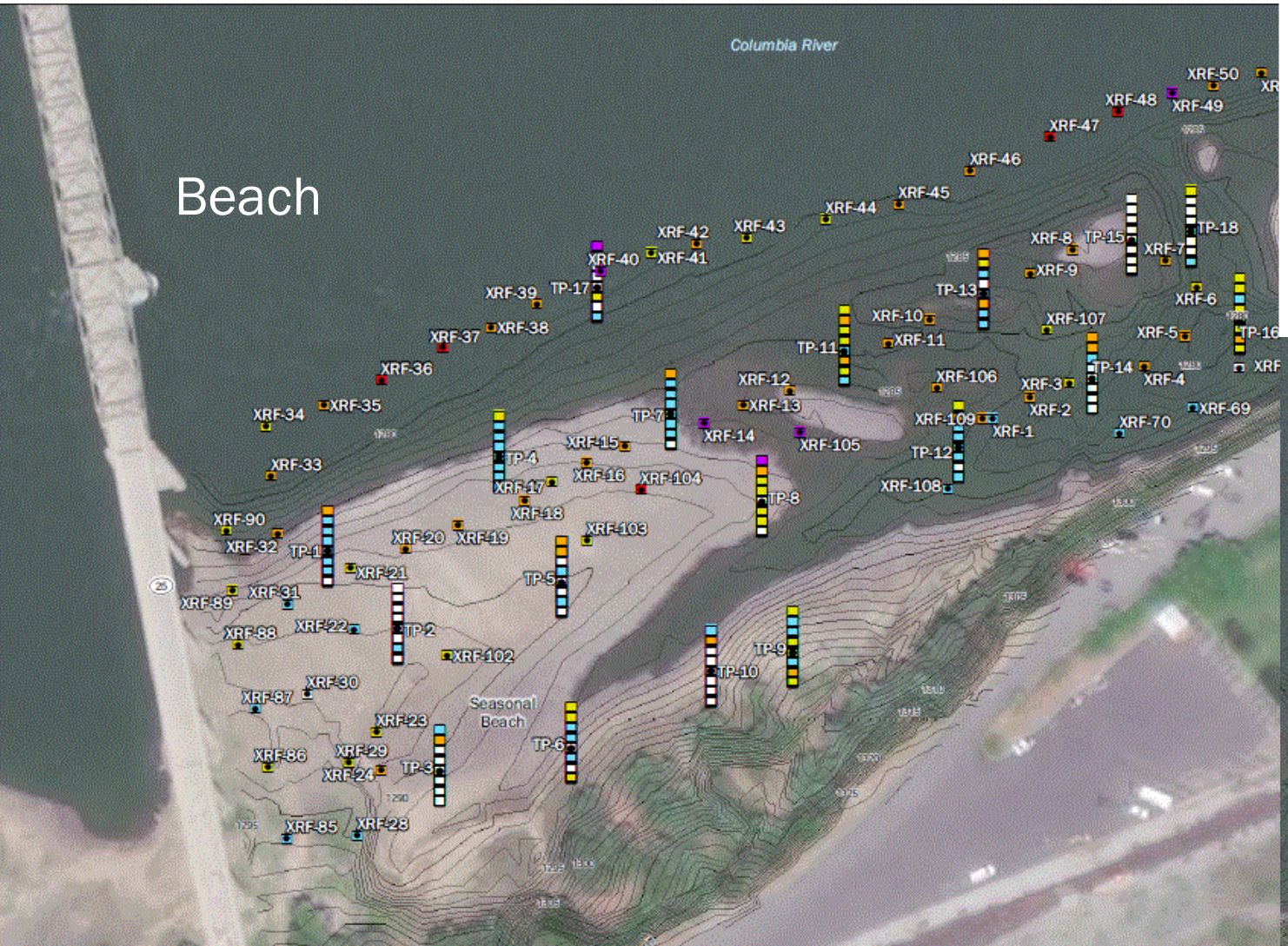


Legend

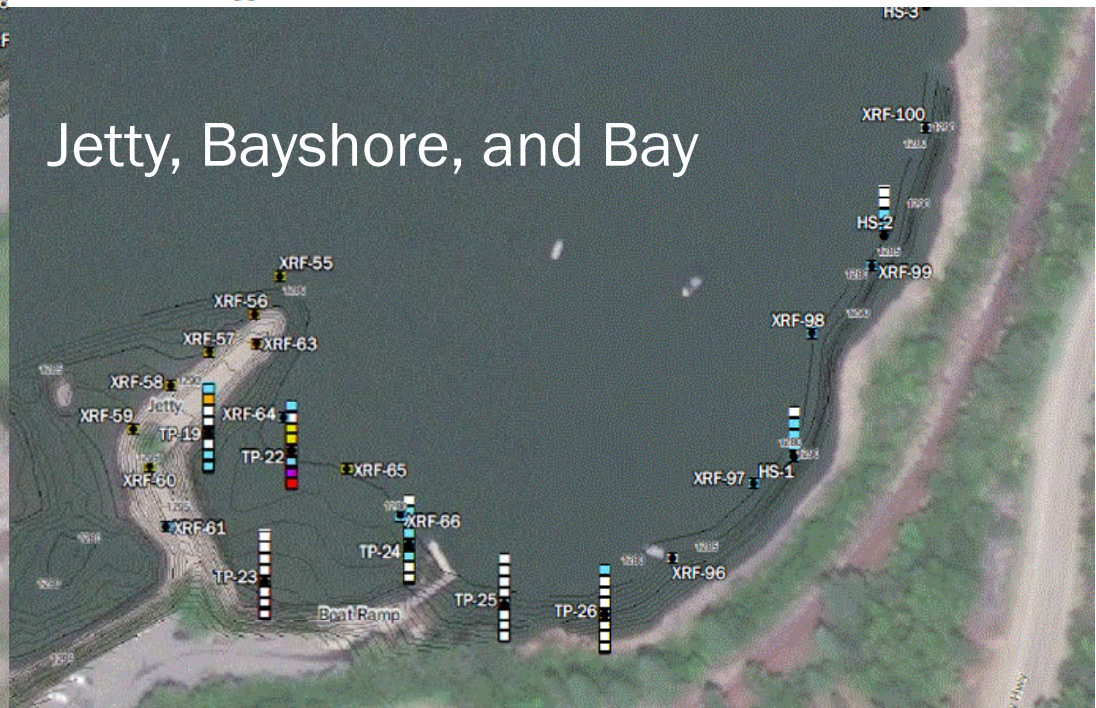
- Exploration Location

Copper Concentrations (based on XRF results)

- > 2,000 ppm
- 1,601 – 2,000 ppm
- 1,001 – 1,600 ppm
- 501 – 1,000 ppm
- 144 – 500 ppm
- <= 143 ppm

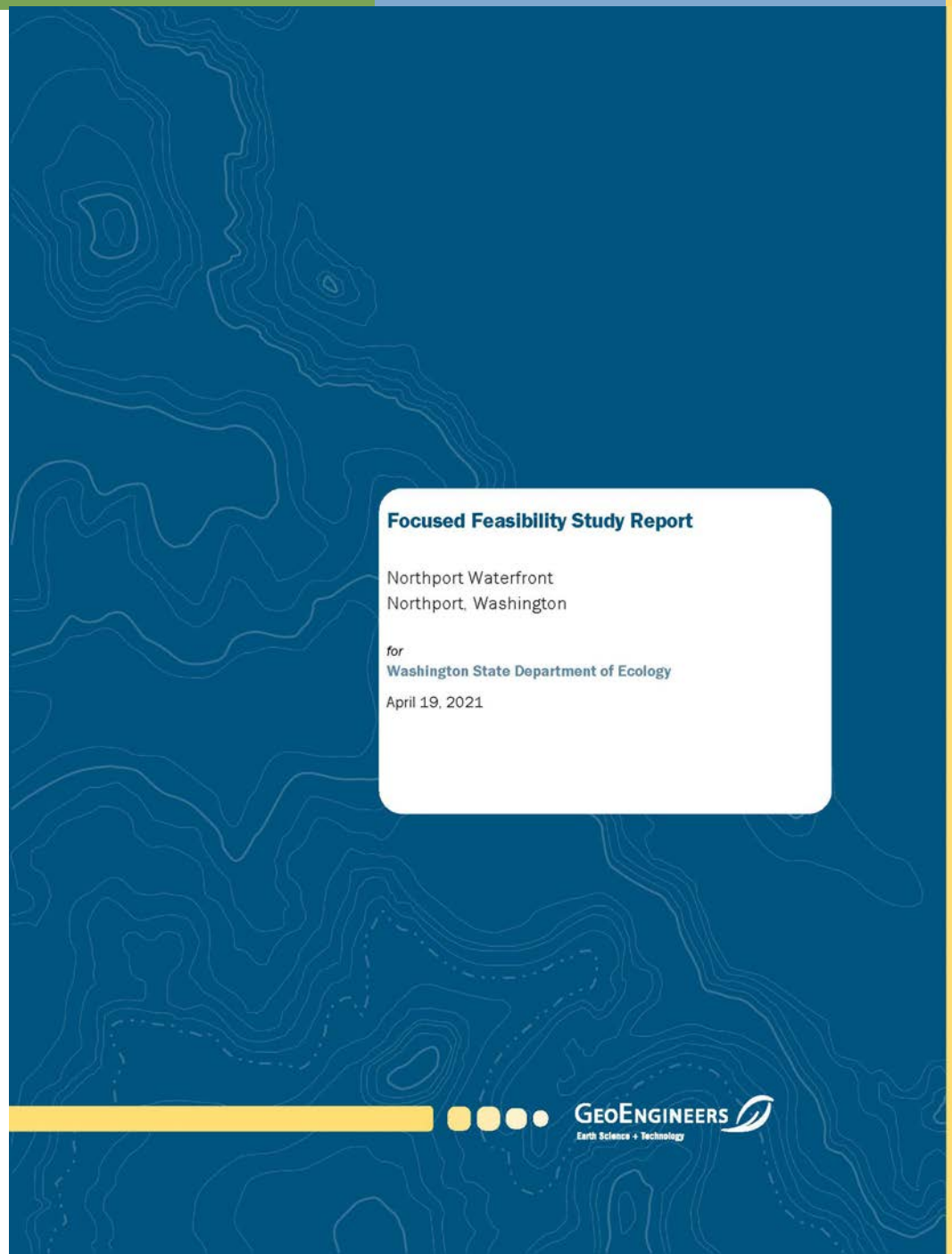
Depth Interval (bgs)

- 0.0 - 0.5 ft
- 0.5 - 1.0 ft
- 1.0 - 1.5 ft
- 1.5 - 2.0 ft
- 2.0 - 2.5 ft
- 2.5 - 3.0 ft
- 3.0 - 3.5 ft
- 3.5 - 4.0 ft



Feasibility Study

John Roland, site manager & hydrogeologist



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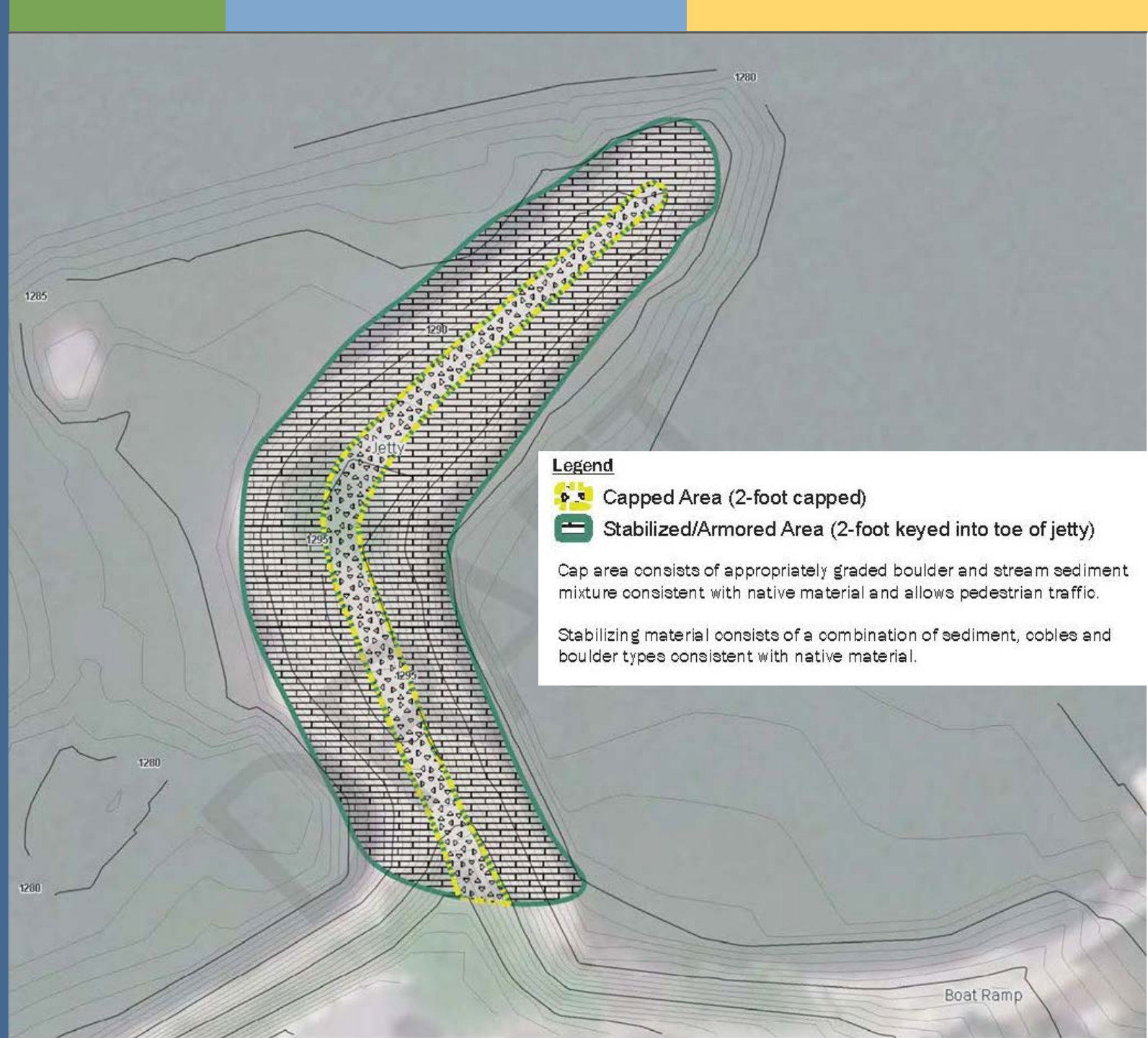
Jetty area

July 1, 2014

Jetty cleanup proposal

- Excavate toe of existing jetty to key in 12-inch loose rip rap
- Armor sides with 12-inch loose rip rap 2 feet thick
- Cap existing jetty with mixture of 12-inch rounded rock and streambed-compatible material to resist erosion and provide pedestrian access



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Bay and public dock area

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Bay cleanup proposal

- Cap with 1.5 feet of streambed-compatible material
- Excavate 6 feet around public dock and replace with 1.5 feet new material, adding ~4.5 feet of water depth and improving boat access

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Bayshore area

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Bayshore cleanup proposal

Cap existing surface with 1.5 feet of rounded rock and streambed-compatible material

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Hillside area


September 9, 2015

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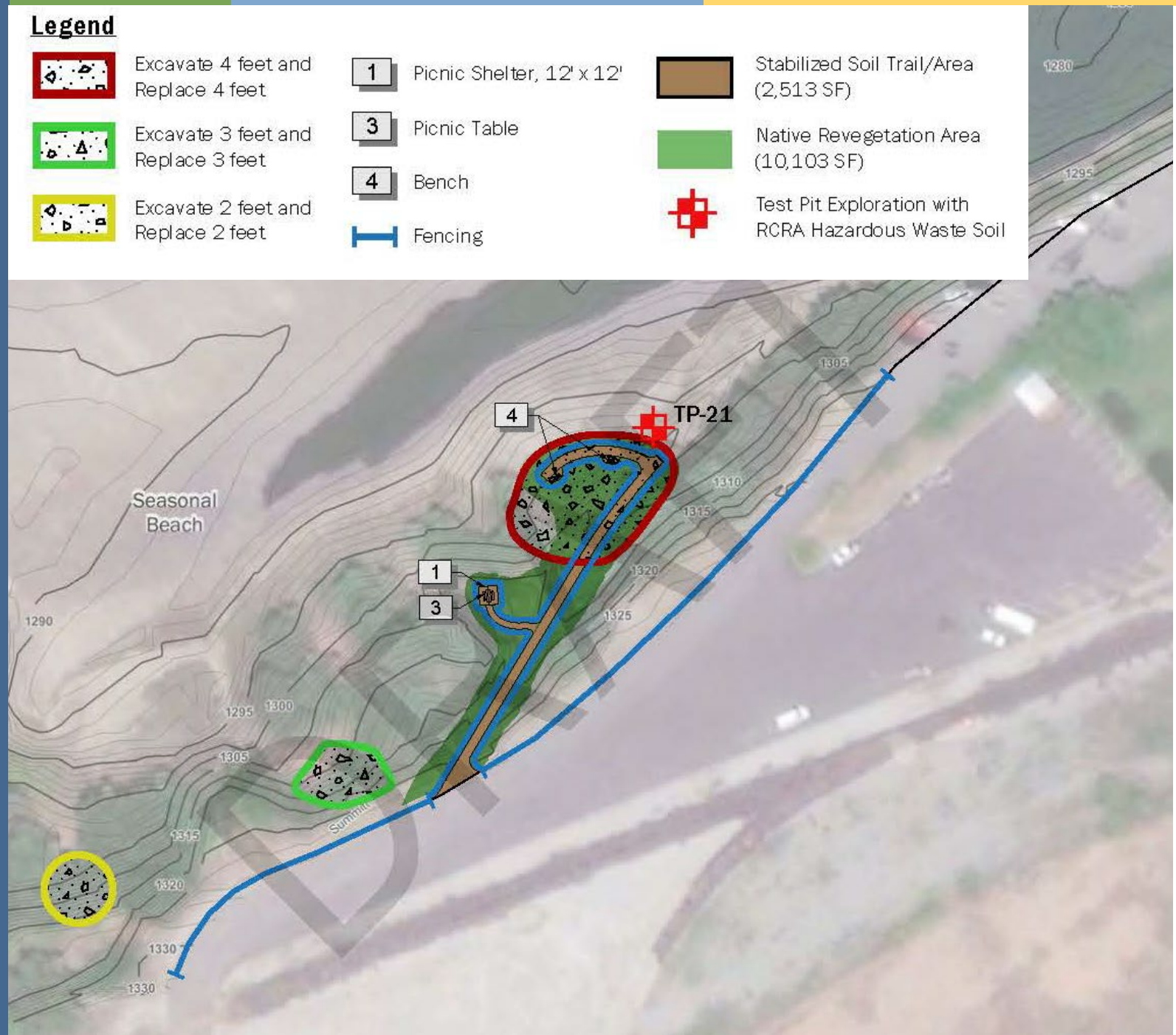
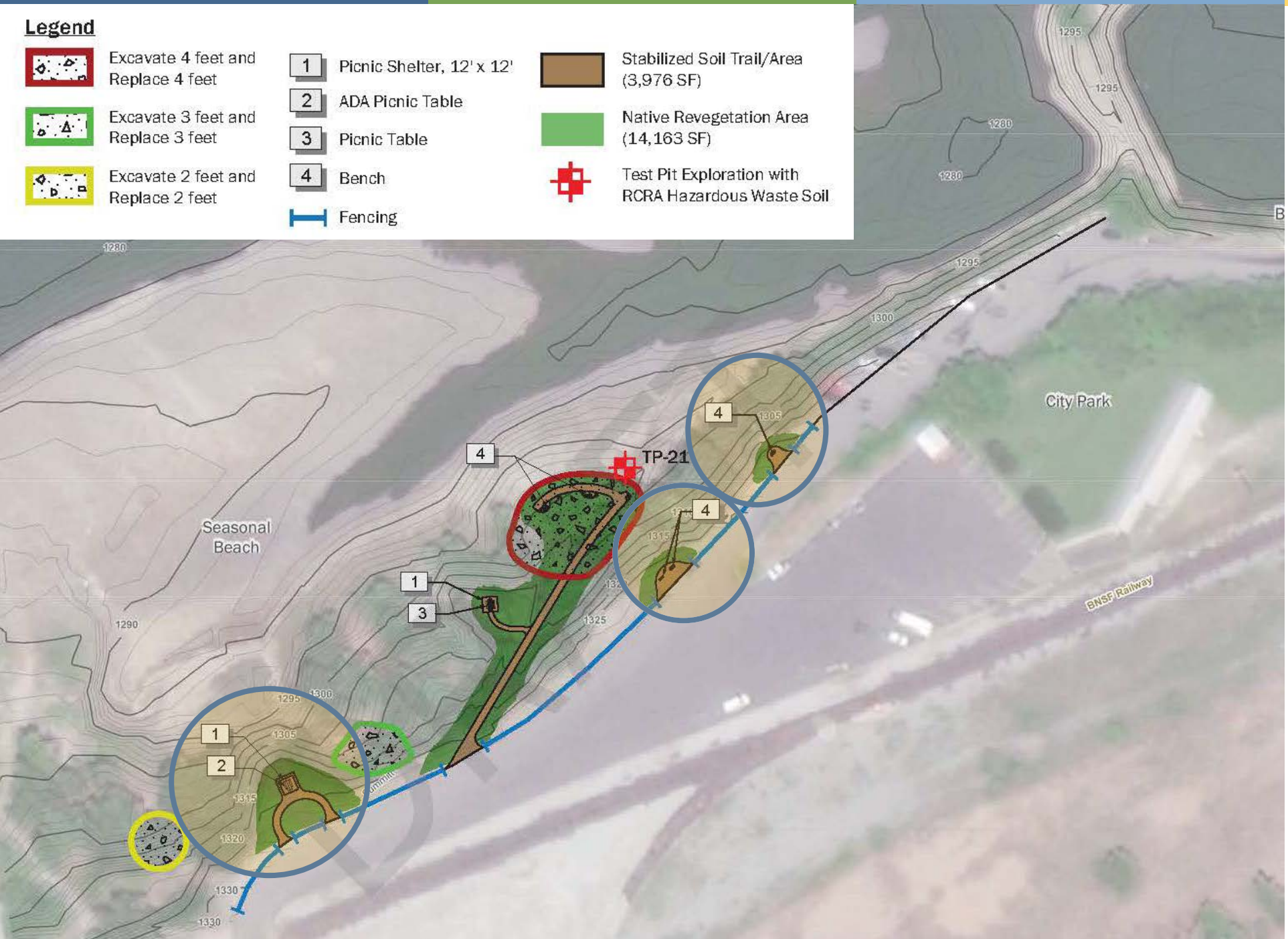
Hillside footpath

March 10, 2021

Hillside cleanup proposal

- Excavate and replace 1 foot of contaminated soil in walking trail
- Add a seating area with park benches and a picnic shelter
- Install fencing and plants to manage access to undisturbed areas
- Remove contaminated soil from three areas
- Remove/replace a bulk slag deposit (TP-21)





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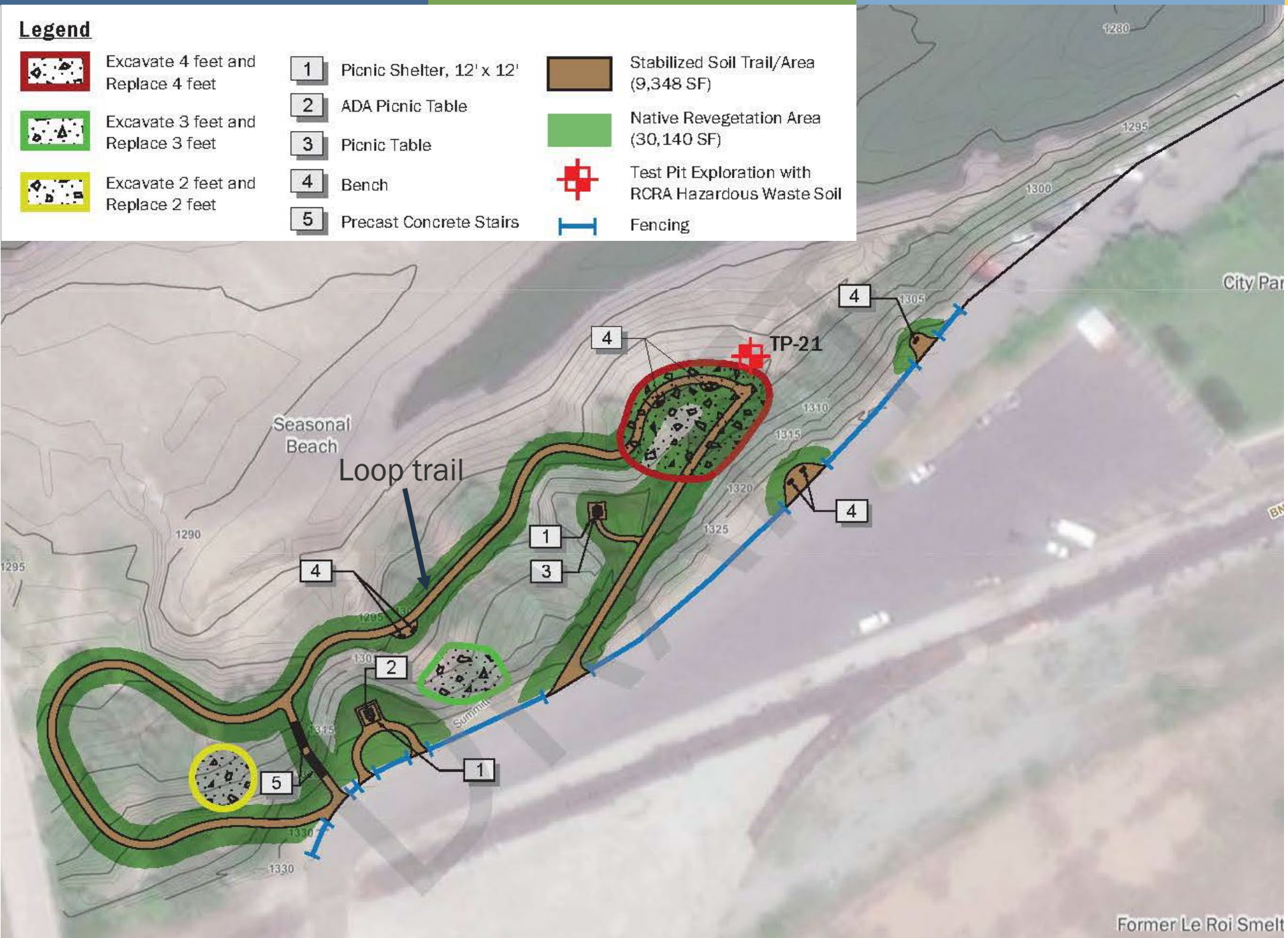
Additional Hillside recreational possibilities: Concept 1



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Additional Hillside recreational possibilities: Concept 2

Combined cost estimate for Jetty, Bay, Bayshore, and Hillside: ~$660,000

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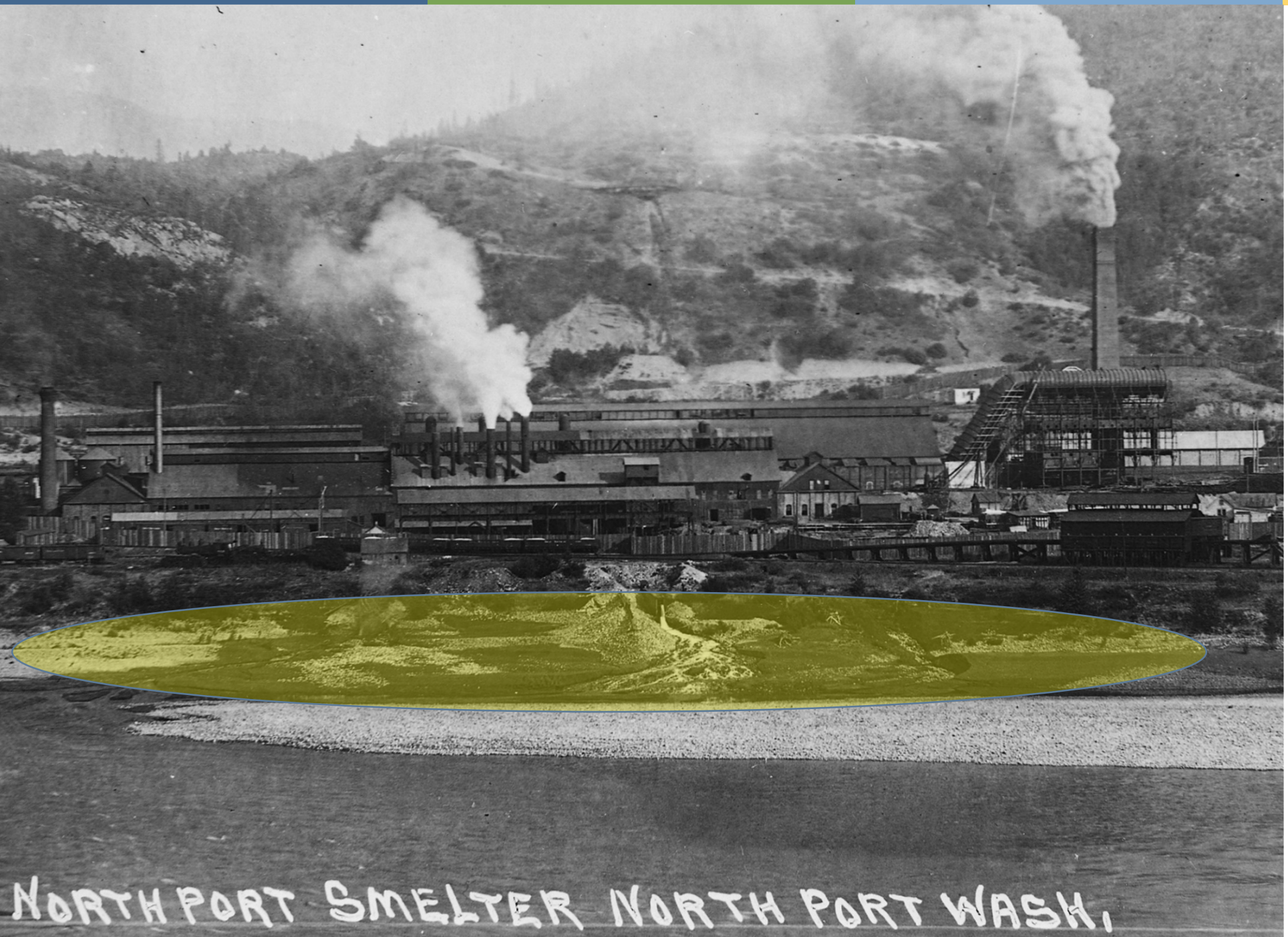
Seasonal Beach area



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Photograph 15: Example photograph from Back Bar Channel sampling unit. Tape measure length is approximately 66 cm.

Photograph 16: Example photograph from Back Bar Channel sampling unit. Tape measure length is approximately 66 cm.

Transitional mid-level

Seasonal high

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Beach area at transitional mid-water level

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Beach area at low water level

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Beach area at transitional water level

Proposed Beach area alternatives

1. Excavation, replacement, and capping
2. Excavation, replacement, capping, and side-channel enhancement construction
3. Excavation, replacement, capping, and no-action area

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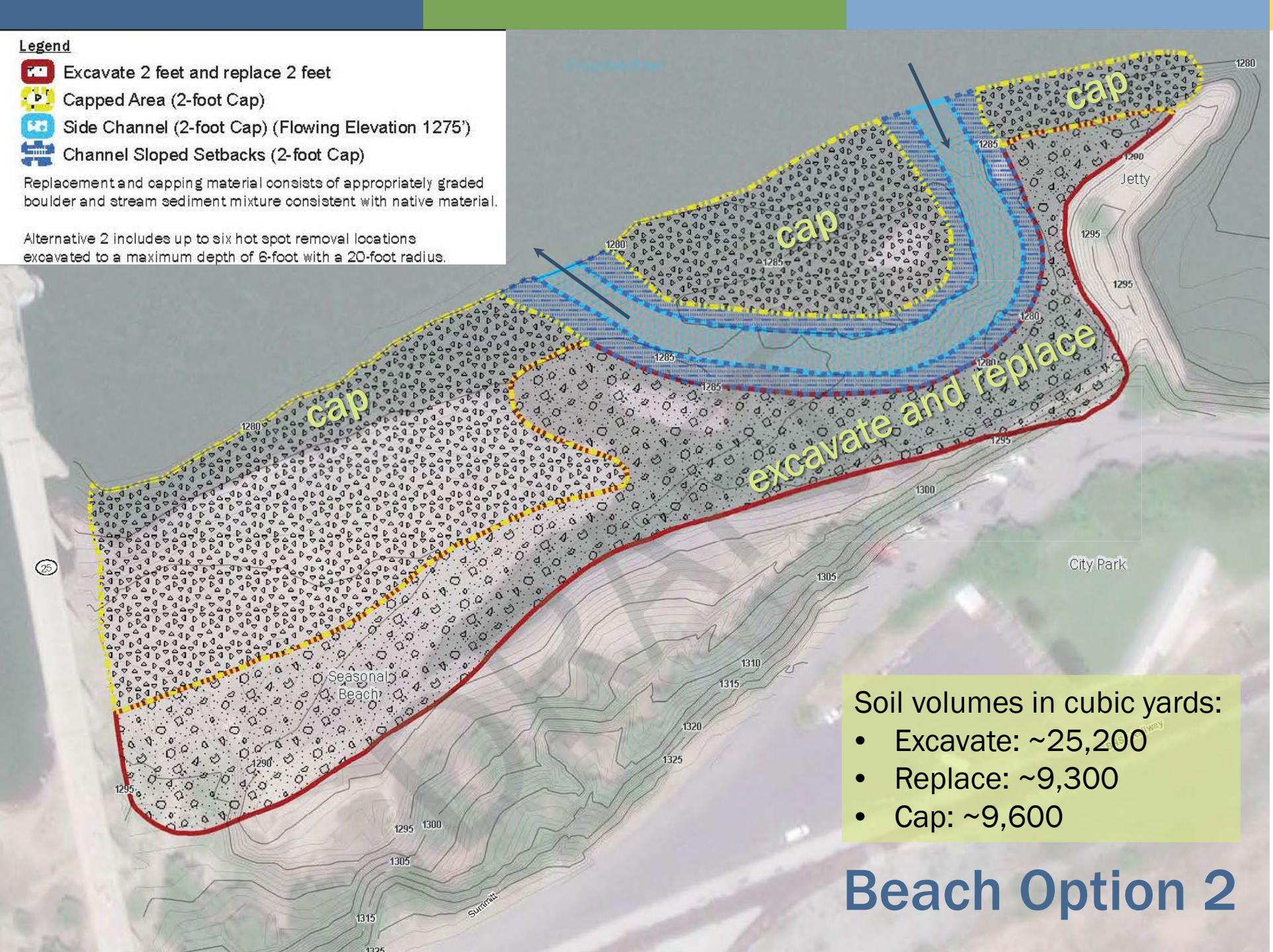
- Cap main channel edge with 2 feet of 12-inch rounded rock and streambed-compatible material
- Excavate 2 feet from remaining area and replace with 12-inch rounded rock and streambed-compatible material



Beach Option 2

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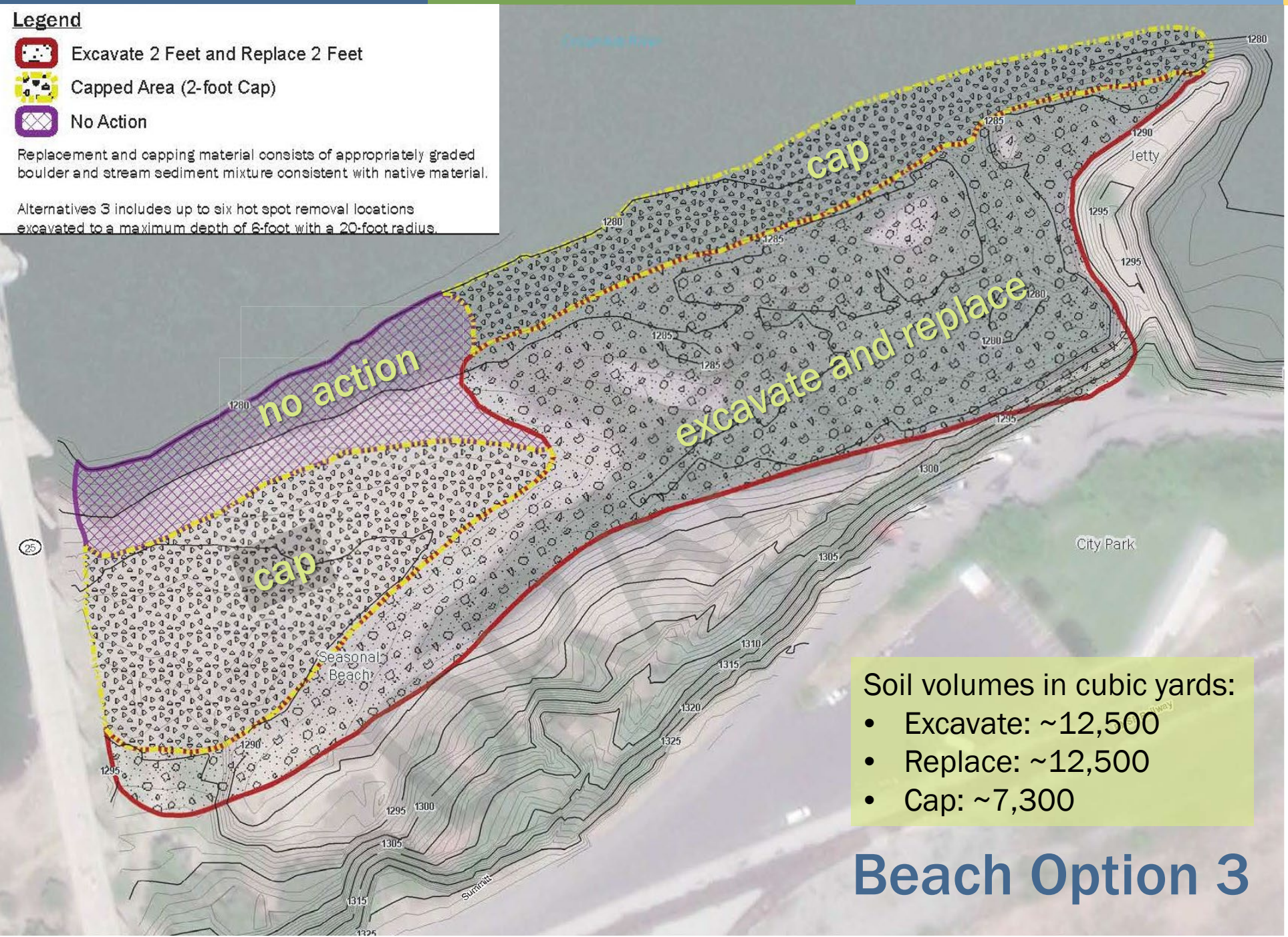
- Expand cap over outer bar
- Excavate remaining area 2 feet and replace with 12-inch rounded rock and streambed-compatible material
- Construct a side channel
- Extend cap on east and west edges of side channel



Beach Option 3

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- Cap area near bridge and channel edge with 2 feet of 12-inch rounded rock and streambed-compatible material
- No-action area
- Excavate remaining area 2 feet and replace with 12-inch rounded rock and streambed-compatible material

Cleanup options:
Total soil exported/imported for all areas

Beach cleanup option	Excavate/Dispose Volume in cubic yards	Excavate Volume in cubic yards	Replace Volume in cubic yards	Cap Volume in cubic yards
1. Excavate and cap	19,260	1,117	19,269	8,552
2. Excavate and cap	11,011	1,117	11,020	10,126
2. Create side channel	15,853	--	--	3,338
3. Excavate, cap, and include no-action area	14,179	1,117	14,189	11,138

Approximate total soil/rock imported/exported and transported:

- Beach Option 1: ~48,200 cubic yards; ~2571 truck loads
- Beach Option 2: ~52,465 cubic yards; ~2798 truck loads
- Beach Option 3: ~40,624 cubic yards; ~2167 truck loads

Estimated costs for site-wide cleanup options

Cleanup option	Cleanup description (Beach)[1]	Lower cost estimate[2]	Upper cost estimate[2]
1	2-foot cap along shoreline; 2-foot excavation with selected 6-foot-deep excavations; and disposal	$5,450,000	$6,180,000
2	2-foot excavation with selected 6-foot-deep excavations, and replacement; 2-foot capped areas; side channel construction; and disposal	$6,530,000	$7,570,000
3	2-foot excavation with selected 6-foot-deep excavations, and replacement; 2-foot capped areas; a no-action area; and disposal	$4,600,000	$5,120,000

Notes: [1] Includes cleanup costs for all other areas (Hillside, Jetty, Bay and Public Dock, and Bayshore areas).
[2] Costs include a 20 percent contingency.

Questions?

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Submit comments by June 2, 2021

Online at:
http://cs.ecology.commentinput.com/?id=FmQR5

Or by mail or email to:
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