



REGULATORY CONSTRAINTS: CLEANUP OF A WORKING WATERFRONT

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Zidell Waterfront Property

- CASE STUDY: Collaboration of project design criteria and regulatory constraints results in a successful project
- Agenda
 - ▣ Site Setting and History
 - ▣ Cleanup Requirements
 - ▣ Regulatory Considerations
 - ▣ Final Design
 - ▣ Construction



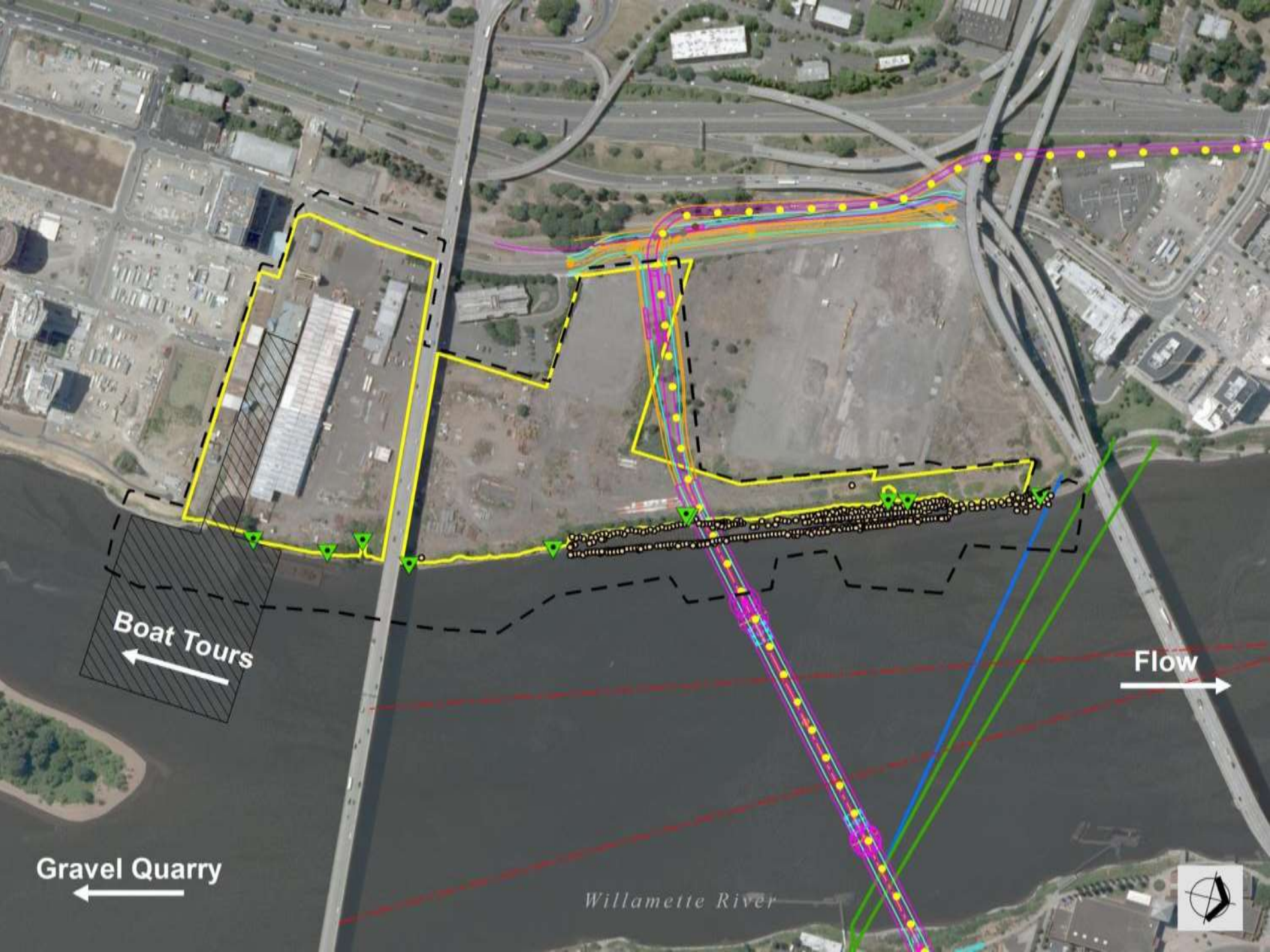


Contaminants of Concern

- PCB
- PAH
- Metals and Tributyltin
- Asbestos







Boat Tours



Gravel Quarry



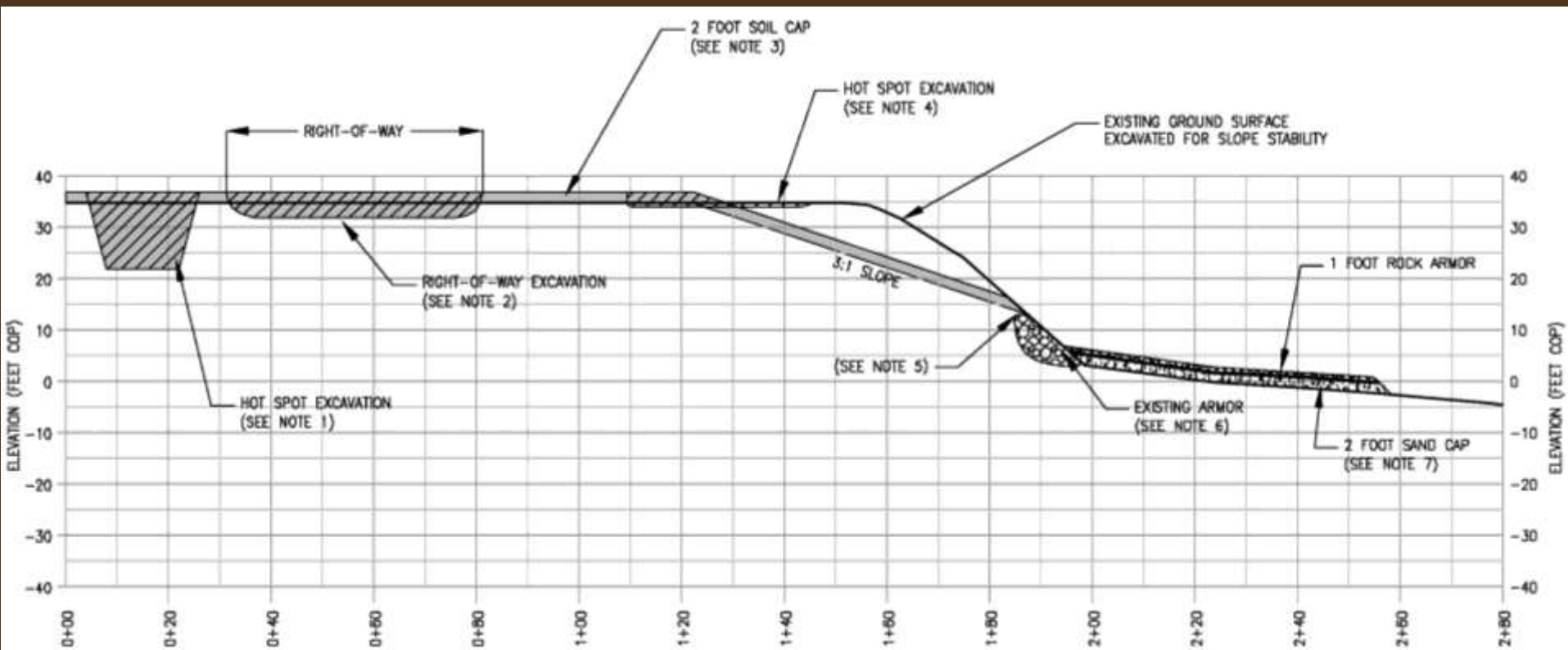
Flow



Willamette River



ROD Design - Concept



Regulatory Design Considerations

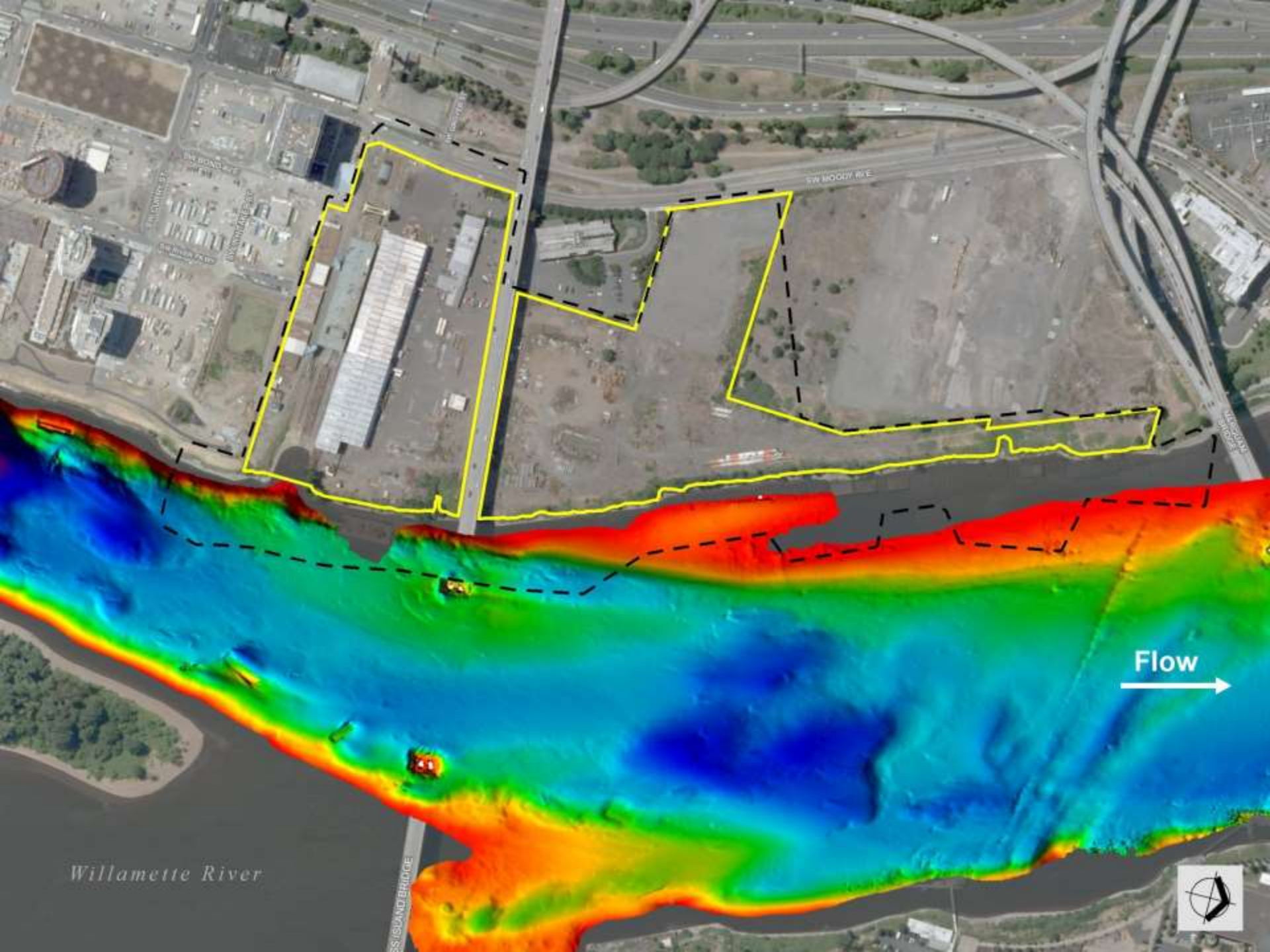
- Department of State Lands
- Corps Section 404 (401 & ESA)
- City of Portland
 - ▣ Flood Insurance Program
 - ▣ Greenway



Regulatory Design Considerations

- Department of State Lands
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Flow
→

Willamette River





Slipway

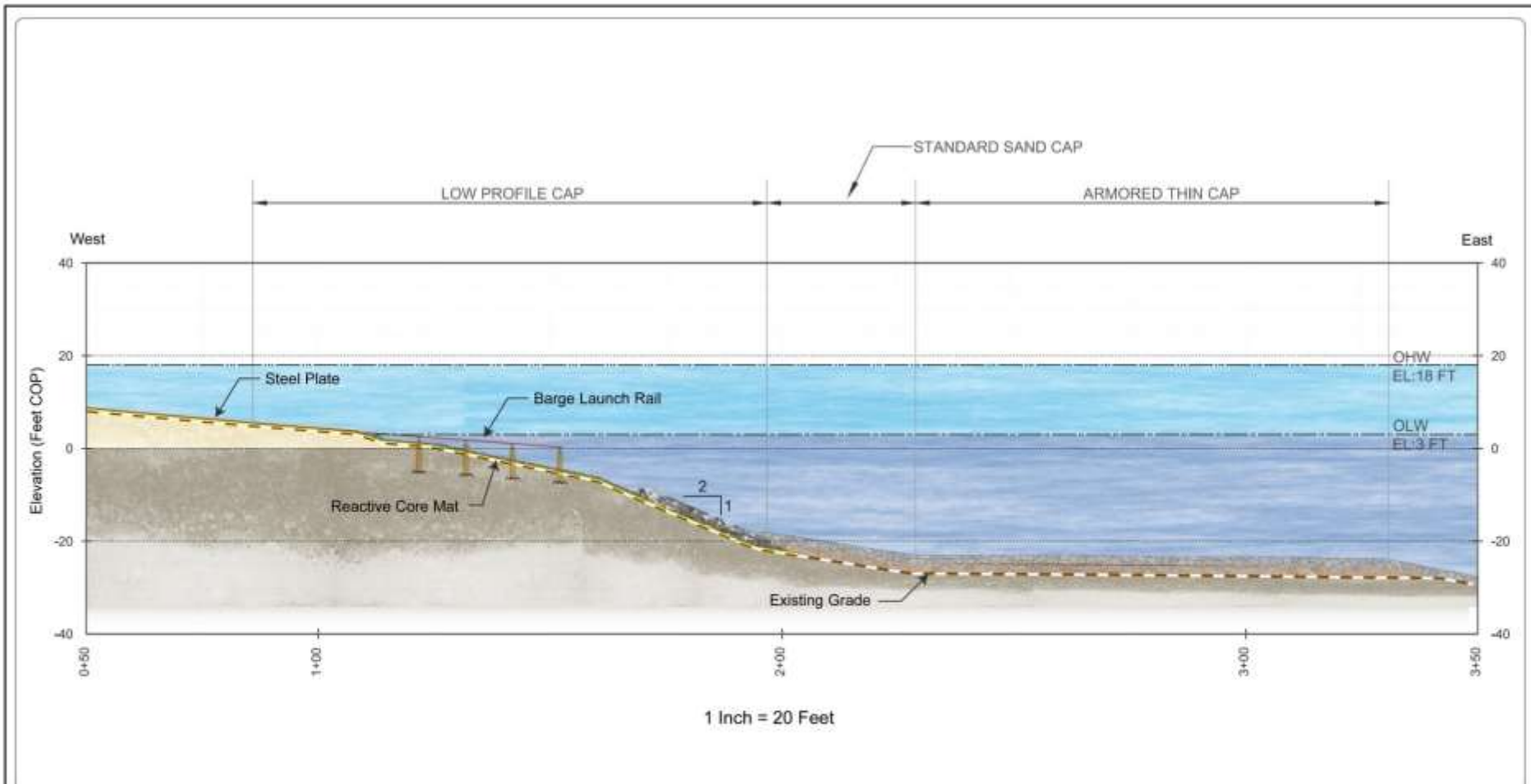
Bridge

Downstream

Willamette River



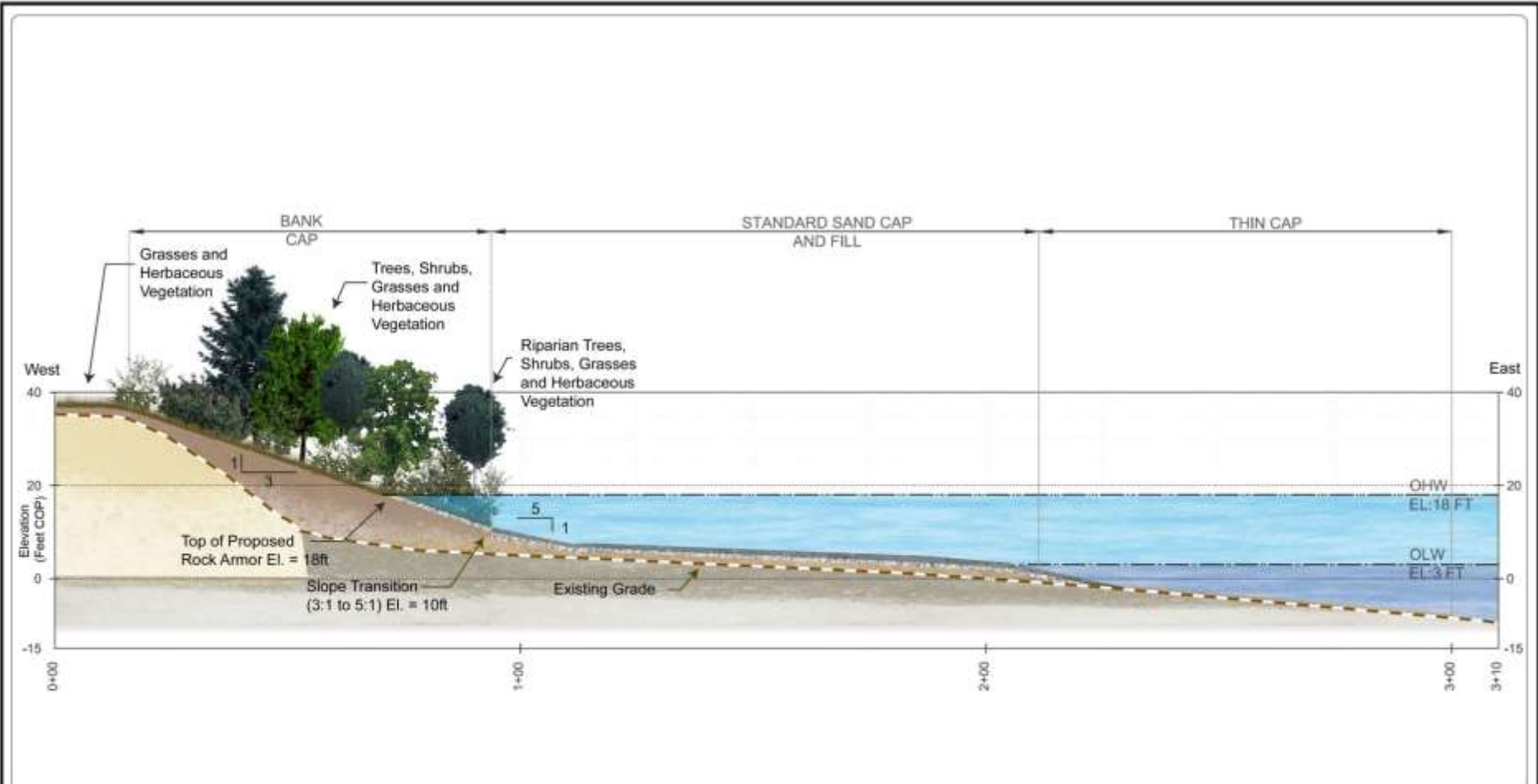
Slipway Reach



- | | | |
|-------------------|---|--|
| Reactive Core Mat | Type C Rock Armor | Seasonally Variable River Level (OLW to OHW) |
| Existing Grade | Type D Rock Armor (with Gravel) | Minimum River Level (Below OLV) |
| Barge Launch Rail | Type E Rock Armor (with Gravel) | Proposed Sand (Minimum Thickness is 2 Feet for Standard Cap and 10 inches for Thin Cap - Armored Thin Cap may be between 10 and 24 inches) |
| Steel Plate | Operationally Impacted Existing Fill (Silt, Sands, Gravel, and/or Debris) | |
| Alluvium | | |

Figure 3-2
Slipway Reach
Typical Cross Section
 Pre-Final Bank and Sediment
 Remedial Design Report
 ZRZ Realty Company
 Portland, Oregon

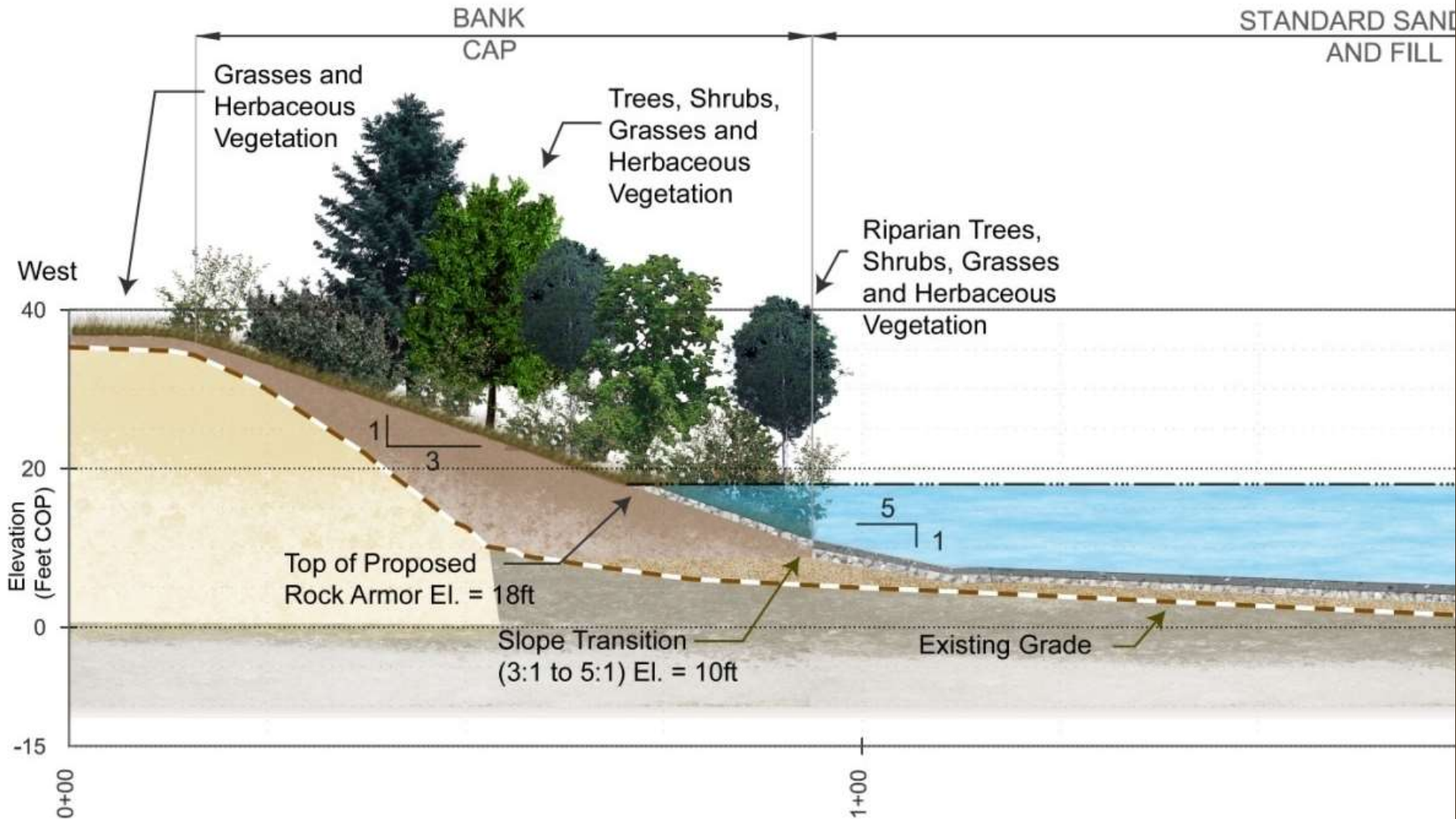
Downstream Reach



- Existing Grade
 - █ Proposed General Fill / Soil Cap
 - █ Proposed Sand (Minimum Thickness is 2 Feet for Standard Cap and 10 Inches for Thin Cap)
 - █ 2.5 Inch Minus Rounded Gravel
 - █ Type A Rock Armor
 - █ Operationally Impacted Existing Fill (Silt, Sands, Gravel, and/or Debris)
 - █ Alluvium
 - █ Seasonally Variable River Level (OLW to OHW)
 - █ Minimum River Level (Below OLW)
- Note: Vegetation illustrated at mature size approximately 30 years post planting.

Figure A10'
Section 6'
Downstream Reach
 ZRZ Realty Company
 Portland, Oregon

Downstream Reach





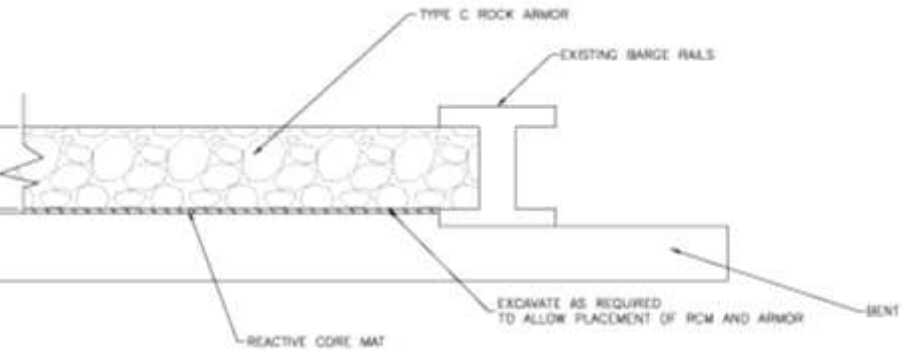
Slipway Contaminants of Concern

- Tributyltin
- Metals

OBJECTIVES

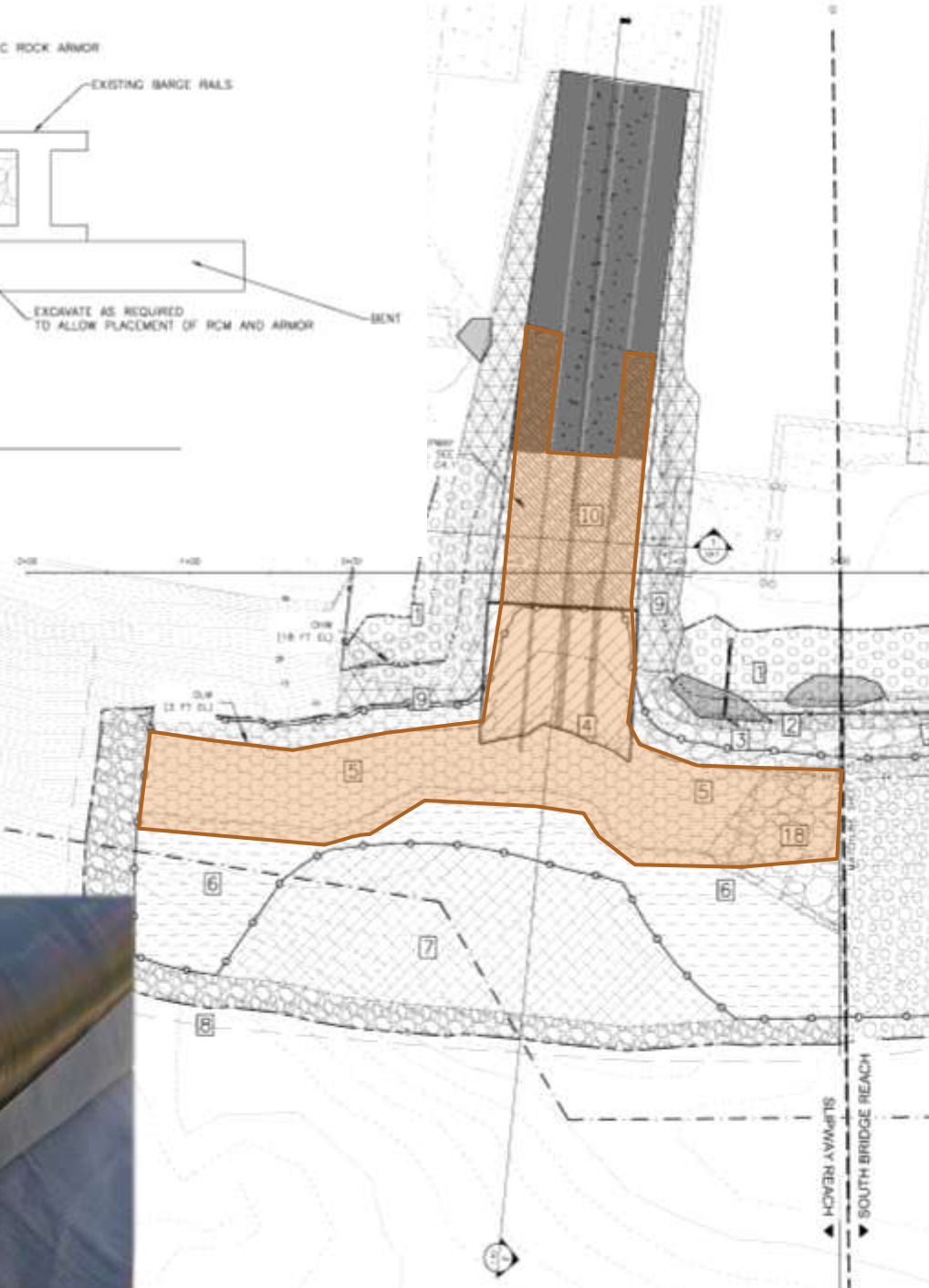
- Cap contaminants
- Maintain barge construction operations
- Compatible with future public/residential uses

SLIPWAY SITE PLAN LEGEND



N
EXISTING BARGE LAUNCH RAILS
NOT TO SCALE

- 1 BANK CUT & VEGETATED SOIL CAP
- 2 BANK CUT & TYPE 'C' ROCK ARMOR SLOPE
- 3 BANK CUT & TYPE 'T' ROCK ARMOR SLOPE
- 4 SLIPWAY ROW WITH TYPE 'C' ROCK ARMOR
- 5 SLIPWAY LOW PROFILE CAP WITH TYPE 'C' ROCK ARMOR
- 6 SLIPWAY STANDARD SAND CAP WITH TYPE 'C' ROCK ARMOR
- 7 SLIPWAY ARMORED THIN CAP WITH TYPE 'C' ROCK ARMOR
- 8 TYPE 'C' ROCK ARMOR
- 9 ROCK ARMOR ENHANCEMENT AREA
- 10 SLIPWAY ROW WITH STEEL PLATING
- 11 TYPE 'T' ROCK ARMOR TRANSITION SLOPE
- ECOLOGICAL HOT SPOT AREA
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 2005 CITY OF PORTLAND TOP OF BANK LINE
- PROPOSED ORDINARY LOW WATER LINE (OLWL)
- PROPOSED ORDINARY HIGH WATER LINE (OHWL)
- DEMARC. ISOLATION BOUNDARY
- IN WATER WORK CASSEMENT
- METRO TILE 3 BOUNDARY
- LIMIT OF IN-WATER WORK BOUNDARY
- FENCE LINE
- STORM SEWER LINE
- SANITARY SEWER LINE
- WATER LINE
- BURIED COMMUNICATION LINE
- PROPERTY BOUNDARY
- EXISTING EASEMENT
- EXISTING LOT LINE
- PROPOSED STORM LINE
- EXISTING STRUCTURE
- EXISTING CONCRETE SURFACE
- EXISTING STEEL PLATE SURFACE
- EXISTING STEEL PLATE SURFACE OVER EXISTING CONCRETE SURFACE



Bank Cut Hotspot Removal





Sediment Cap



Low Profile Cap

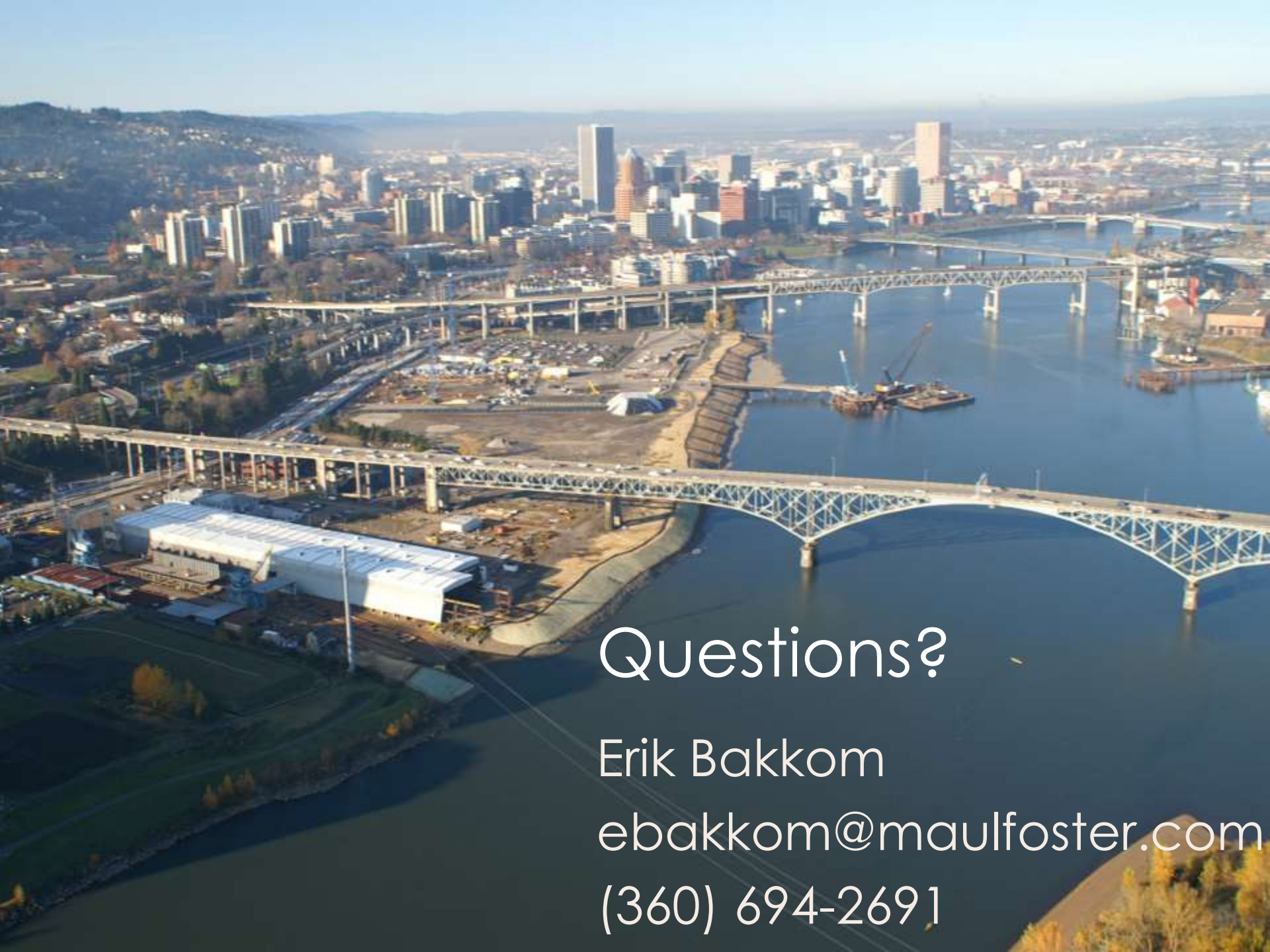




Conclusion

- Each individual design element addresses multiple factors
 - ▣ Cleanup
 - ▣ Fluvial Environment
 - ▣ Navigation & Site Operations
 - ▣ Habitat
 - ▣ Permitting
 - ▣ Future Redevelopment





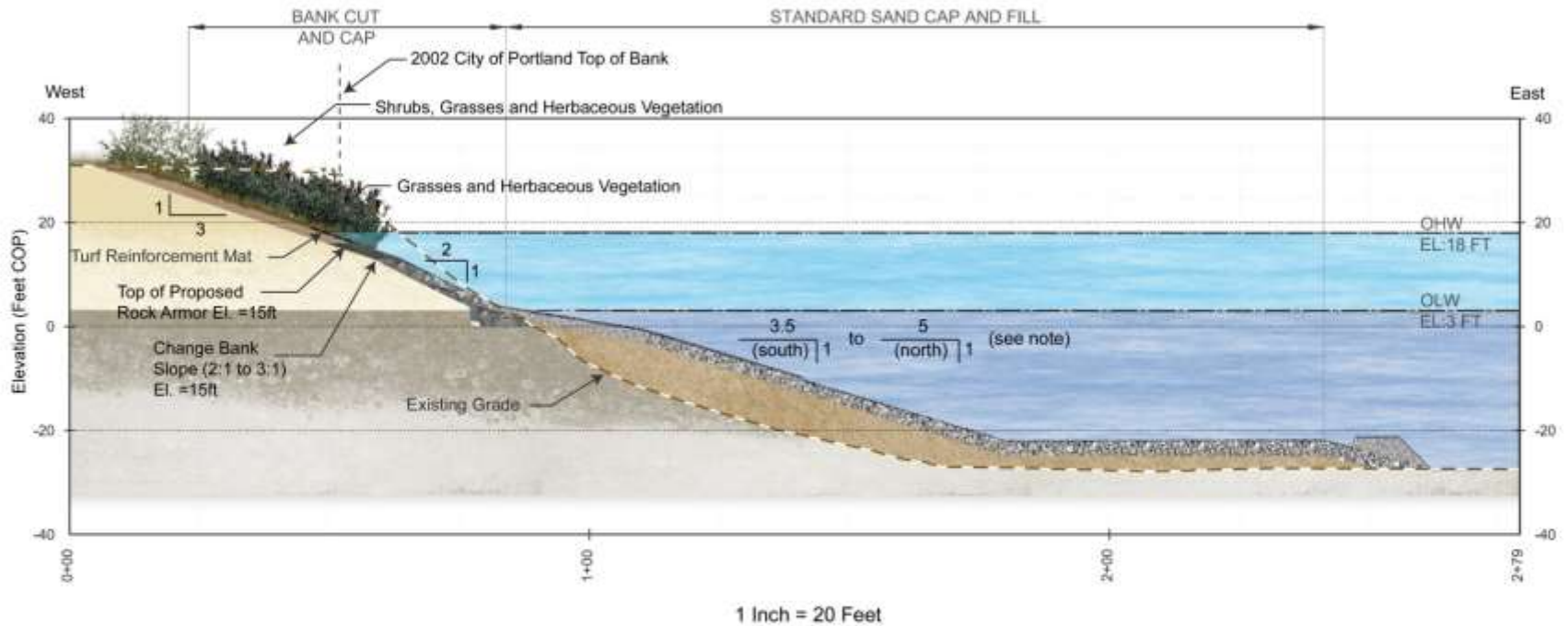
Questions?

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Bridge Reach



Note: At the south end (upstream) of the reach the water slope is 3.5H:1V and transitions to 5H:1V at the north end (downstream) of the reach.

- Turf Reinforcement Mat
- Existing Grade
- Proposed Soil Cap
- Proposed Sand (Minimum Thickness is 2 Feet for Standard Cap)

- Type B Rock Armor
- Type D Rock Armor (with Gravel - in-water only)
- Type E Rock Armor
- Operationally Impacted Existing Fill (Silt, Sand, Gravel, and/or Debris)

- Alluvium
- Seasonally Variable River Level (OLW to OHW)
- Minimum River Level (Below OLW)

Note: Vegetation illustrated at mature size approximately 30 years past planting.

Figure 3-4
South Bridge Reach
Typical Cross Section
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