In Situ Stabilization and Solidification Field Pilot Study

Gasco Sediments Project Area

Bob Wyatt, NW Natural

Portland Harbor Collaborative Meeting

September 13th, 2022

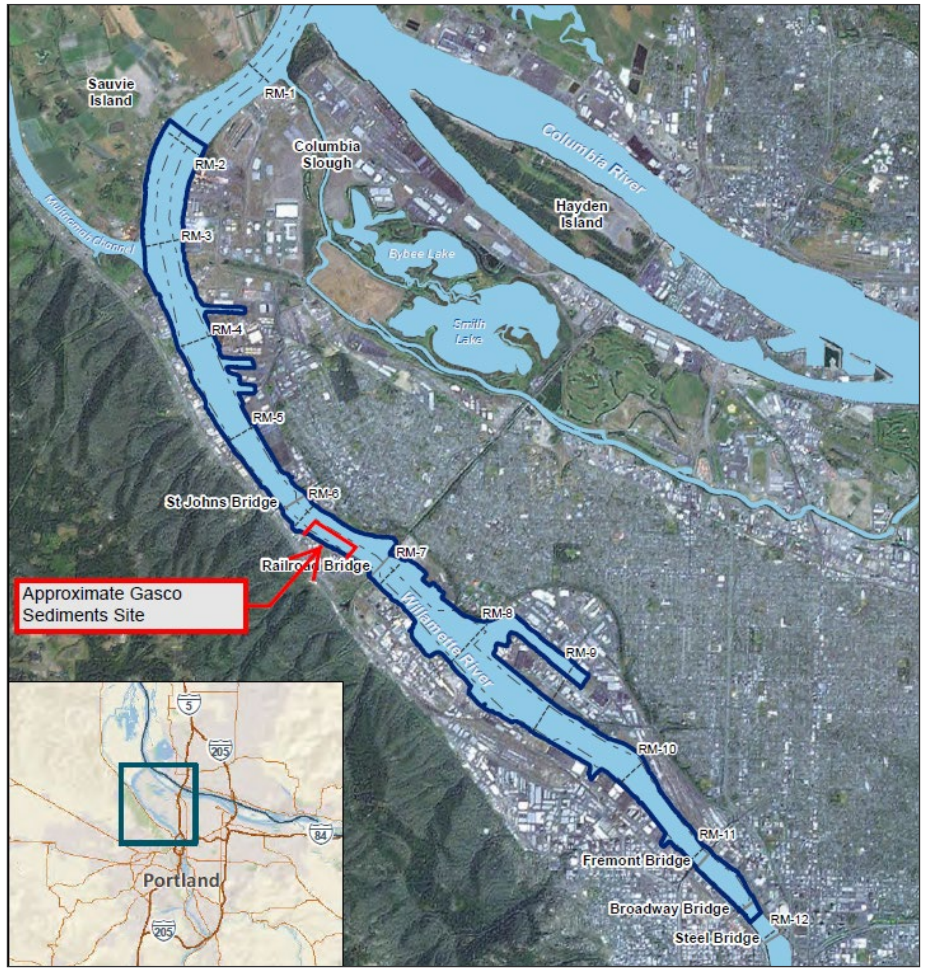
NW Natural®

GASCO0053772

Today's Presentation

- The Gasco Sediments Site
- Current Vision for Final Design
- Pilot Study
  - Objectives
  - Project Work
  - Project Schedule

The Gasco Sediments Site



Located on the west side of the Willamette River near the St. Johns Bridge

Background

- Former Gas Manufacturing Plant from 1913-1956
- Contamination in sediments and the upland property

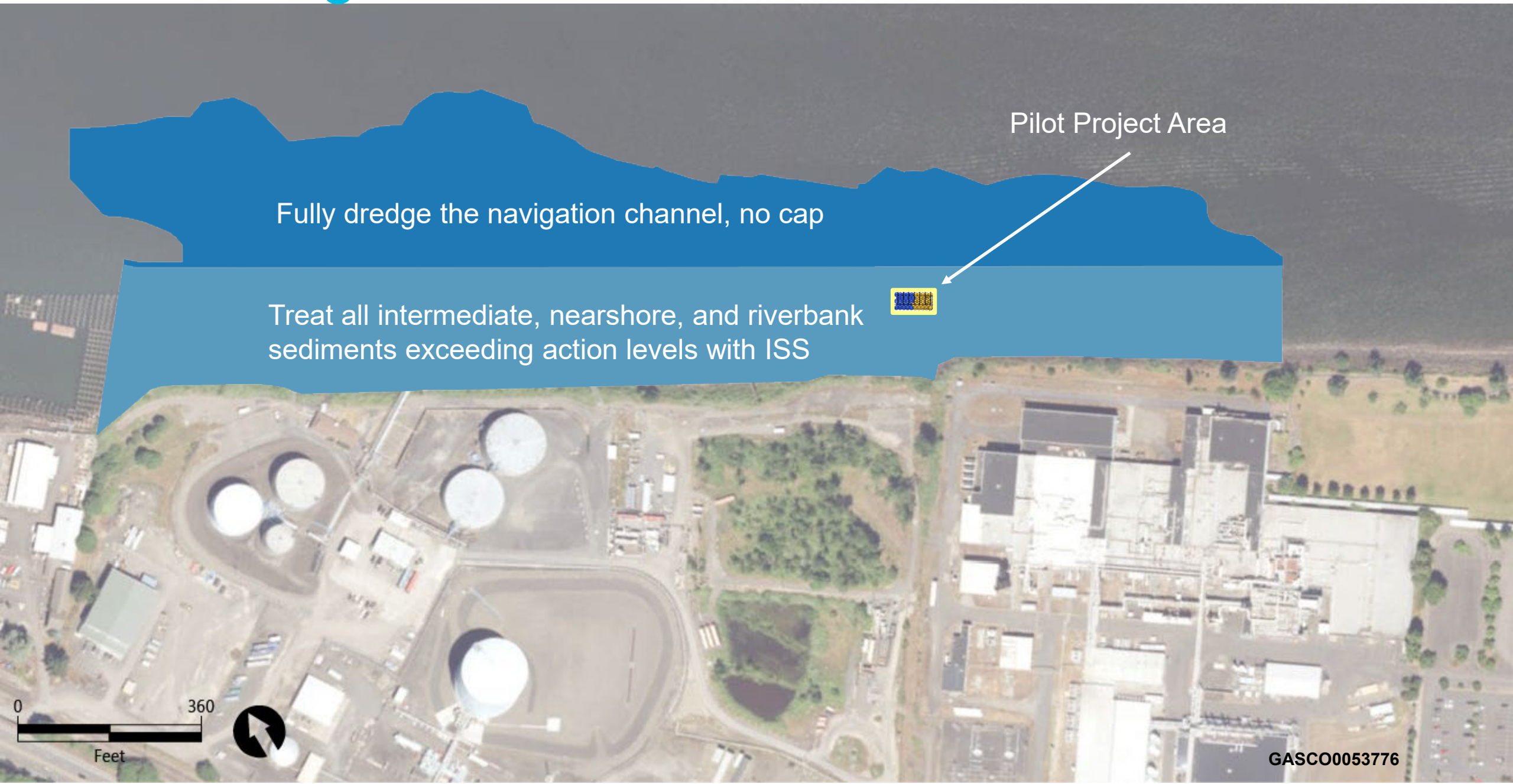
Milestones

- 2000: EPA lists the Portland Harbor Superfund Site
- 2005: NW Natural performs Early Action
- 2009: NW Natural Order for Gasco remedial design
- 2012: Gasco cleanup options submitted to EPA
- 2017: EPA Record of Decision (ROD)
- 2021: NW Natural submits preliminary design to EPA
- 2022: NW Natural proposes treatment instead of capping
- 2023: Treatment Pilot Study (ISS)

Current Vision for the Design of the Final Remedy for the Gasco Sediments Site

(To be further informed with information from the ISS Pilot Project)

ISS Design for Gasco

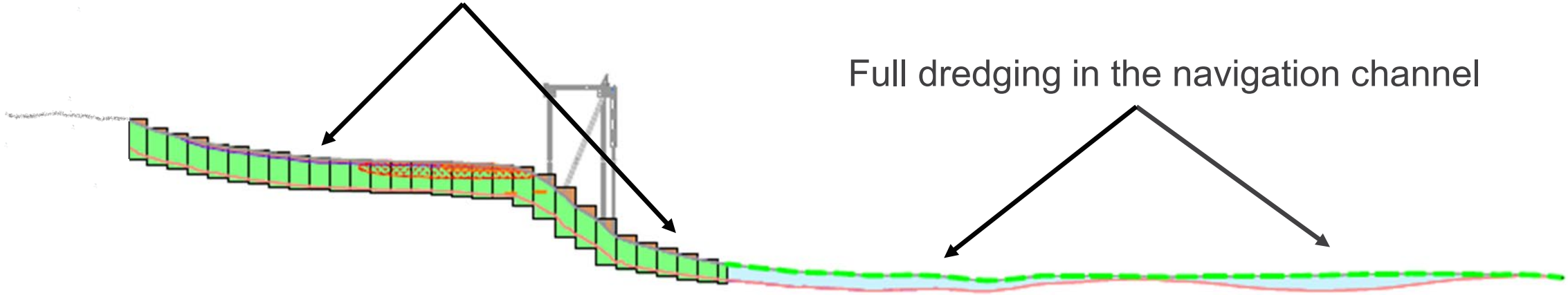


Cross-section of ISS Treatment Areas
(and Navigation Channel Dredging)

NW Natural®

ISS of all sediments exceeding action levels in the intermediate, nearshore, and riverbank areas

Full dredging in the navigation channel



Pilot Study
In Situ Stabilization and Solidification (ISS)

In Situ Stabilization and Solidification

- ISS creates a permanent and stable treatment solution
- ISS treats in place by mixing treatment materials with contaminated sediments and soils

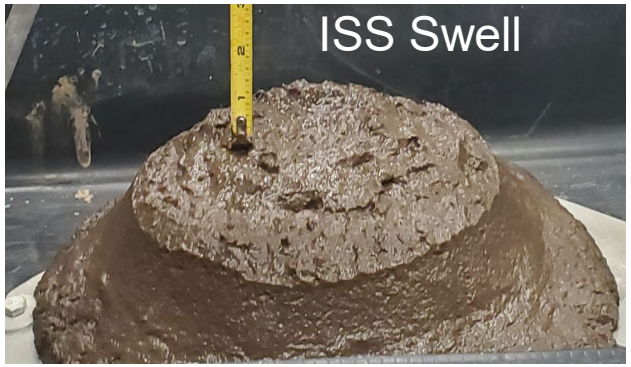
ISS Benefits

- ISS treats 100% of material containing concentrations of contaminants above EPA remedial action levels
- ISS removes the groundwater contaminant transport and ebullition (gas produced by decaying organic material in the sediments) contaminant transport pathways
- ISS eliminates slope stability/structure issues and provides better seismic stability and resilience
- ISS reduces the potential for water quality impacts by reducing dredging of contaminated sediments
- ISS allows the final slope to be designed to any shape to improve habitat configuration
- ISS results in significantly less trucking of untreated contaminated materials

ISS Pilot Project Objectives

Full-scale pilot test to inform the design of the full Gasco site sediment remedy

- Evaluate best management practices for assuring water quality
  - Moon pool
  - Upriver and downriver dual sheen containment boom configuration
  - Water quality testing (both field and chemical parameters)
- Confirm the treated materials are fully mixed and document as-built strengths and permeabilities
- Develop optimized procedures and equipment configurations for ISS treatment and swell removal



ISS Pilot Study Work Scope

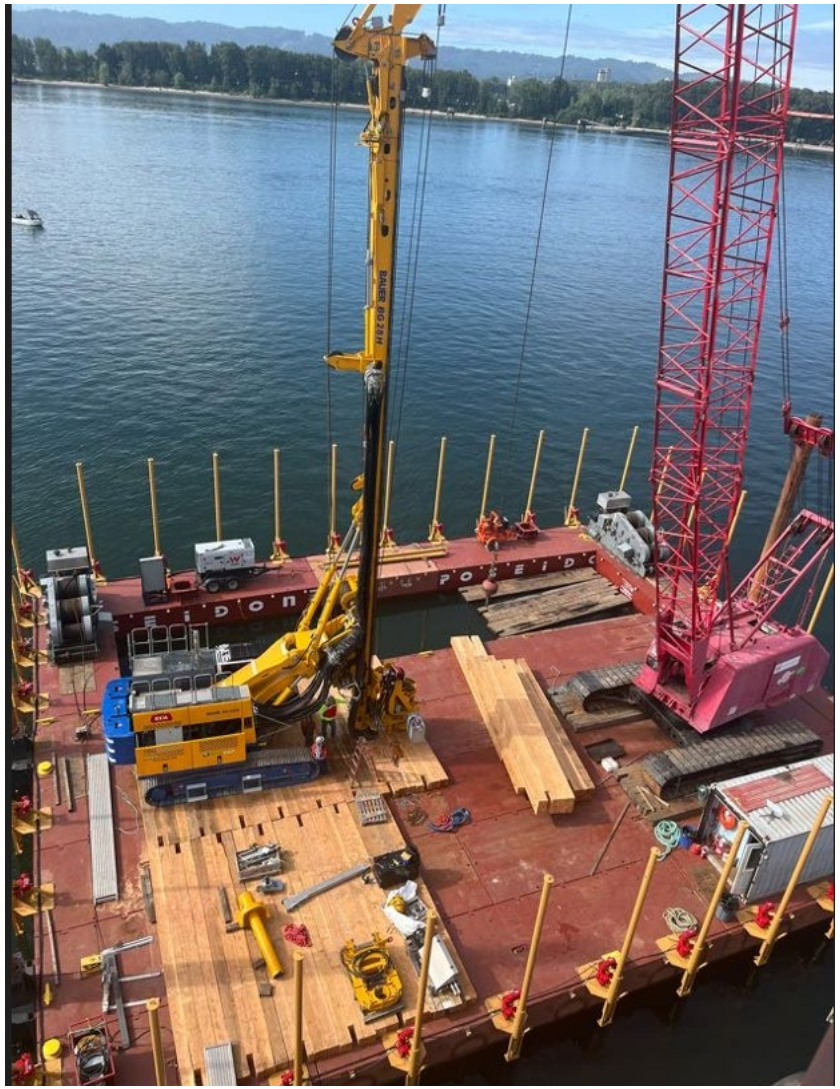
NW Natural®

- Location Selection
  - Area of high concentrations of contaminants
  - Area with representative sediment grain size and organic content
- Treatment Area and Volume
  - Approximately 1,750 square feet
  - Depth of treatment 30 feet (1 foot below depth of contamination)
  - Approximately 1,940 cubic yards
- Schedule
  - Mobilization is underway
  - ISS treatment scheduled to start the week of September 18th
  - Study will end by the end of the in-water work window on October 31st

Moon Pools

NW Natural®

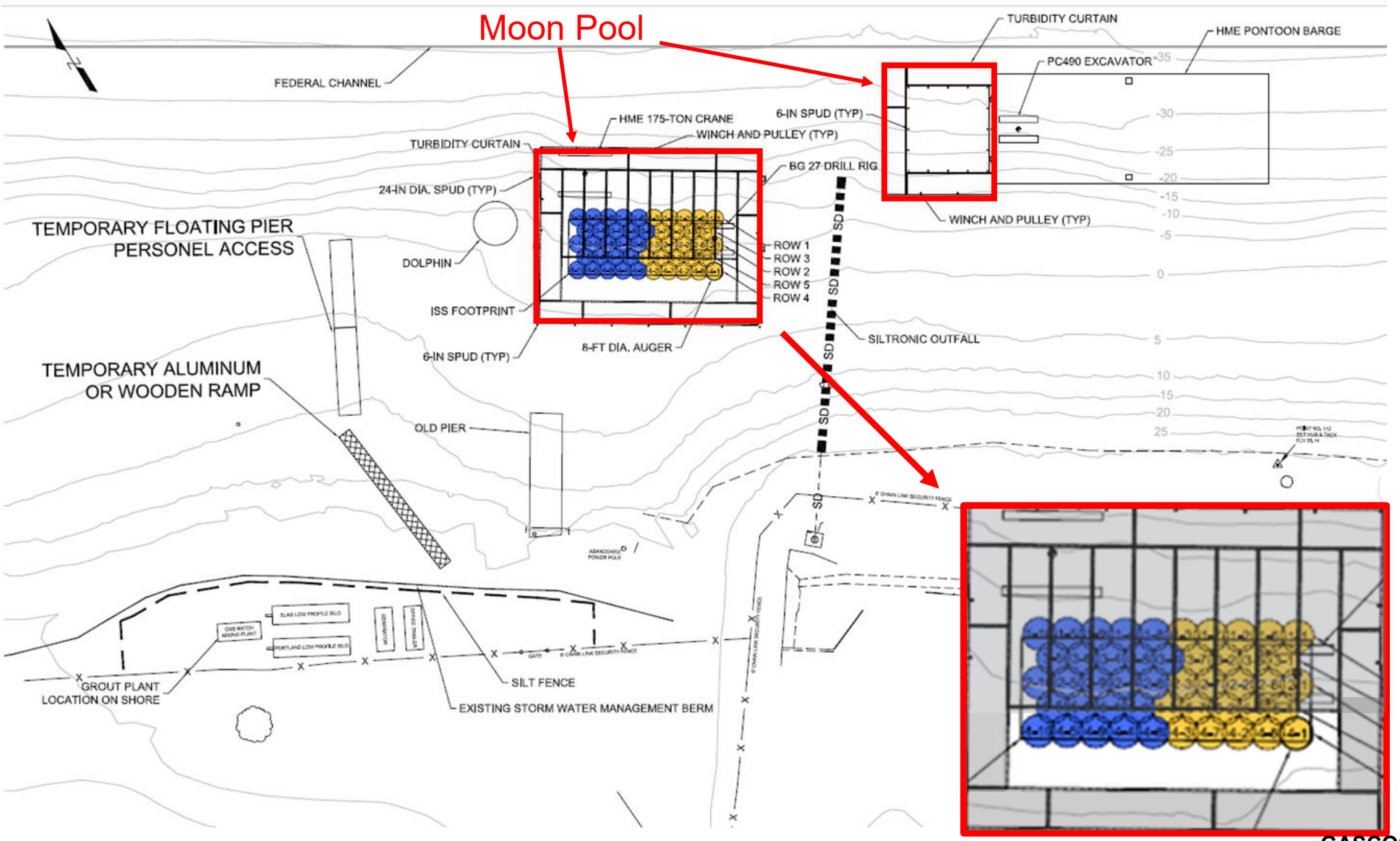
Assembled ISS Moon Pool



Assembled Swell Removal Moon Pool

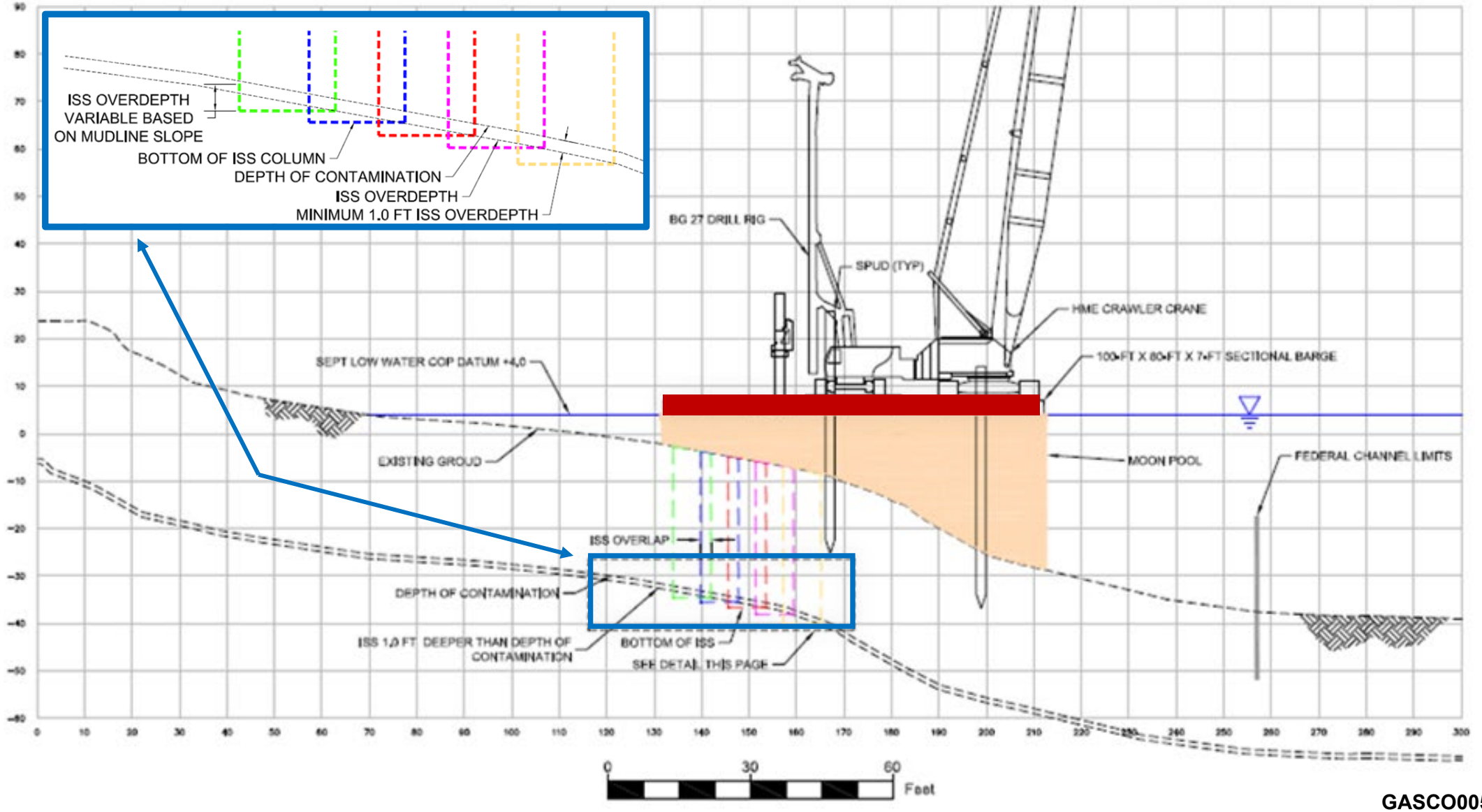
GASCO0053783

ISS Pilot Study Layout

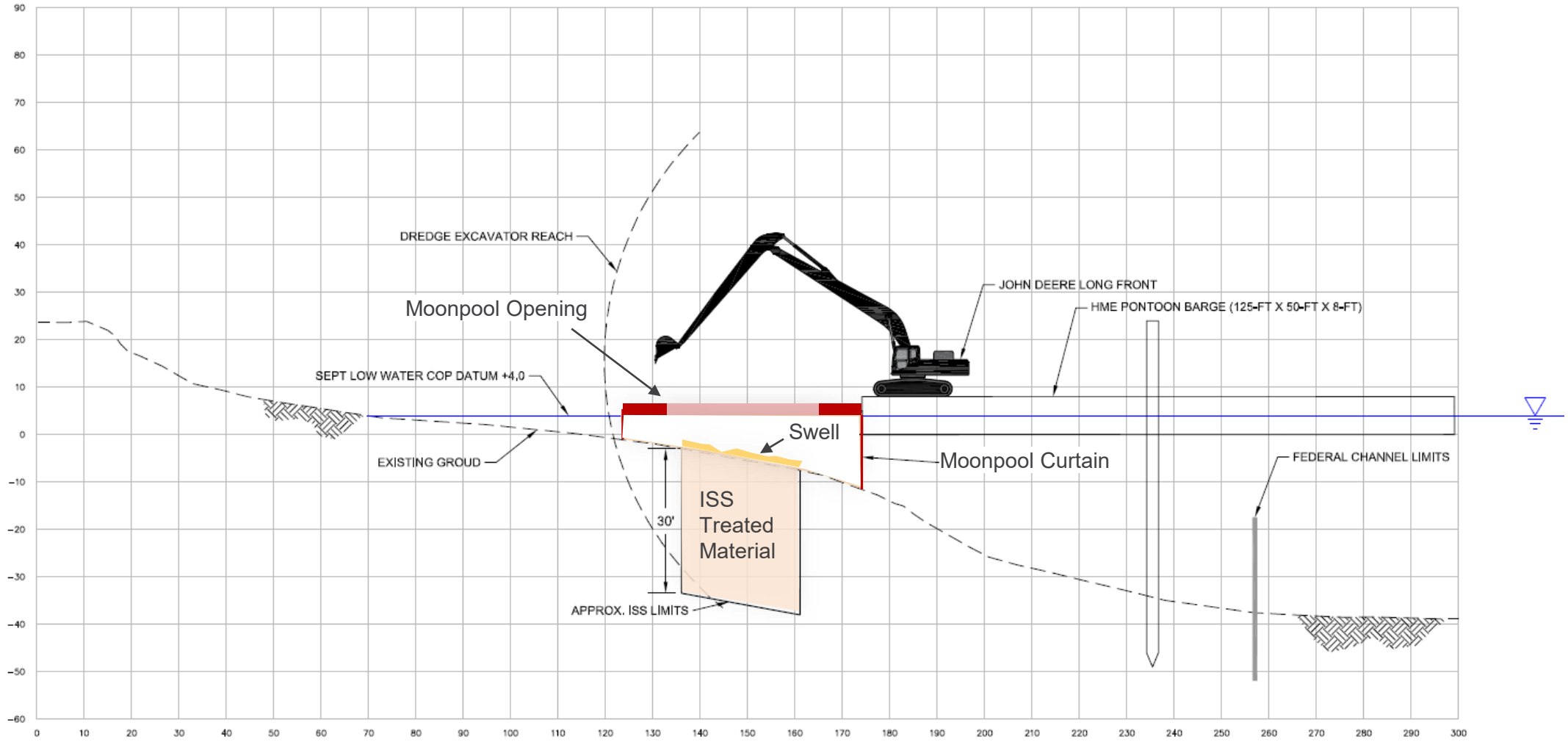


GASCO0053784

ISS Treatment Using Full Length Moon Pool



ISS Swell Removal



GASCO0053786

Questions

For more information on Portland Harbor please visit EPA's Portland Harbor Website
www.epa.gov/superfund/portland-harbor