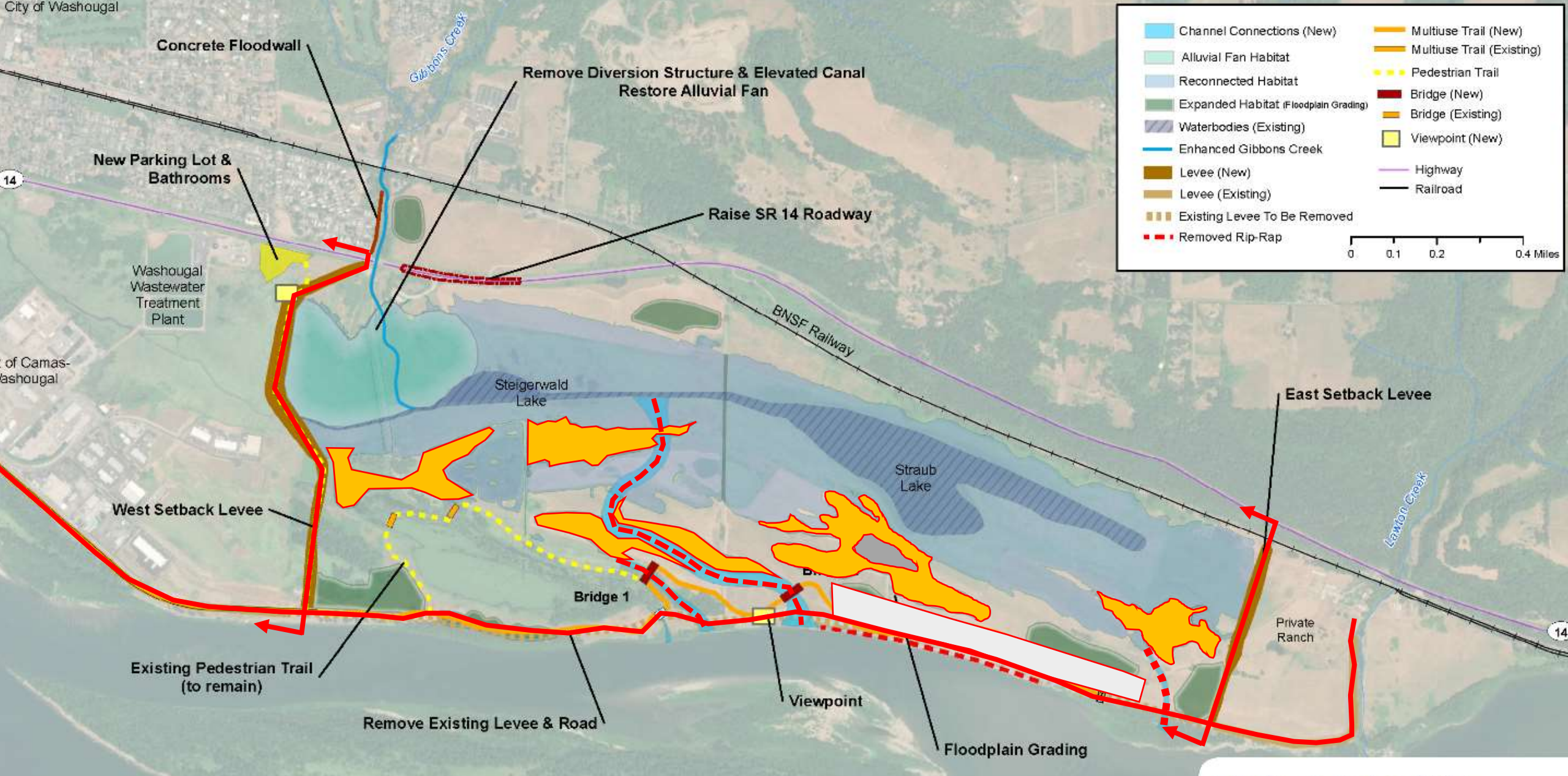


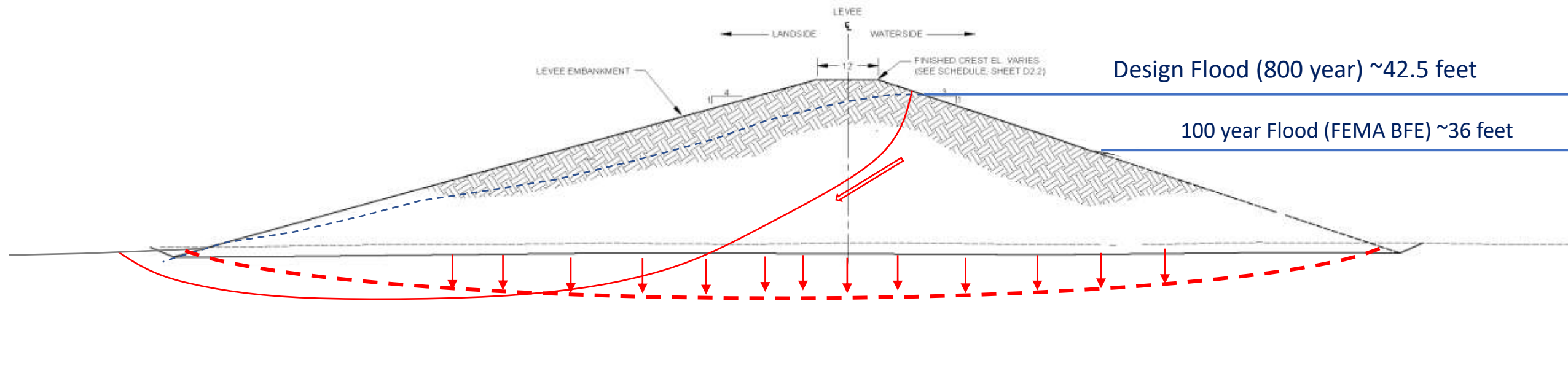
Steigerwald Restoration Project

Wade Osborne, P.E.
Senior Associate Engineer
Cornforth Consultants, Inc.

*2023 Columbia River Estuary Conference – Astoria, Oregon
May 16th, 2023*







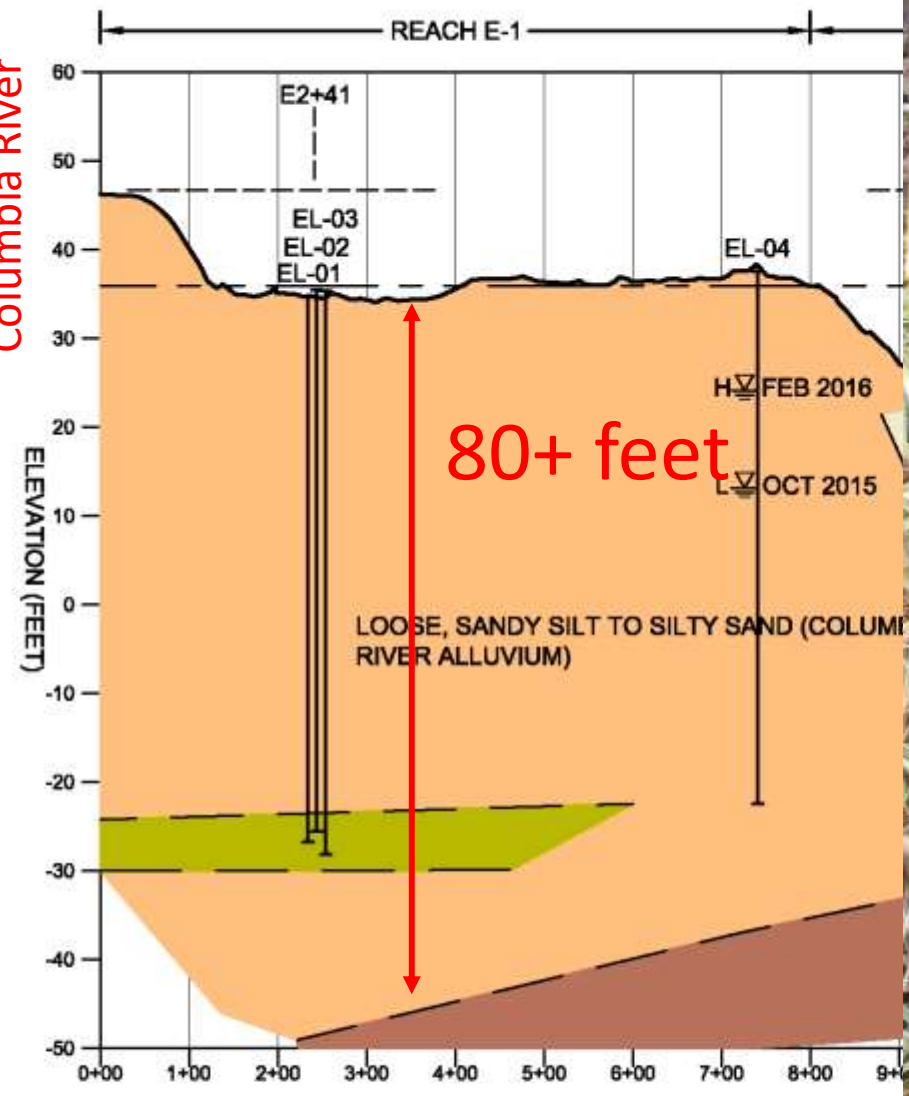
USACE Design Criteria and Section 408 Permit Requirements:

- A. Seepage through the embankment and through the foundation
- B. Slope stability during design flood (landside) and for rapid drawdown after flood (waterside)
- C. Foundation stability during construction
- D. Long-term settlement of the levee to maintain freeboard

Other Considerations:

- Surface water and groundwater
- Soil Moisture

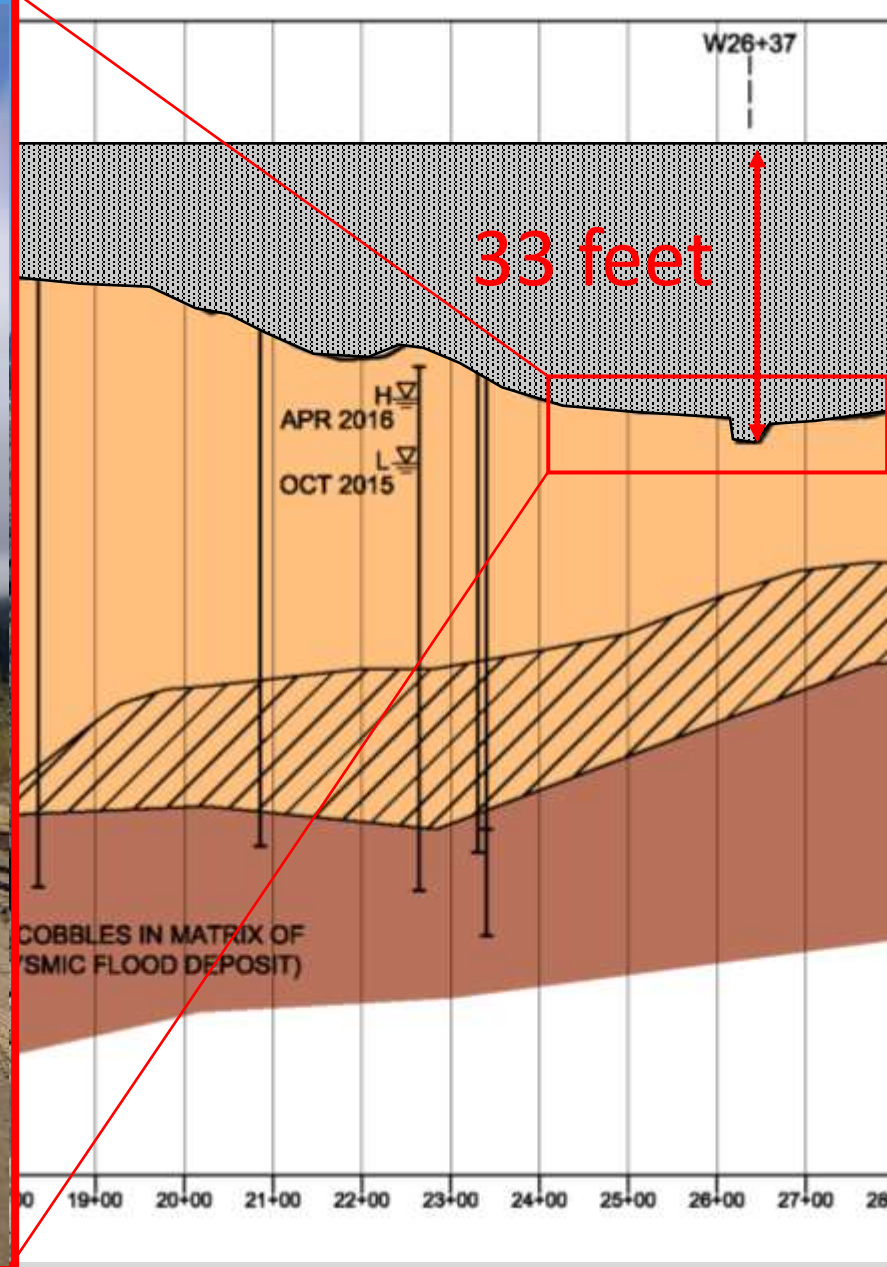
Columbia River



East Setback Levee
Geologic Conditions



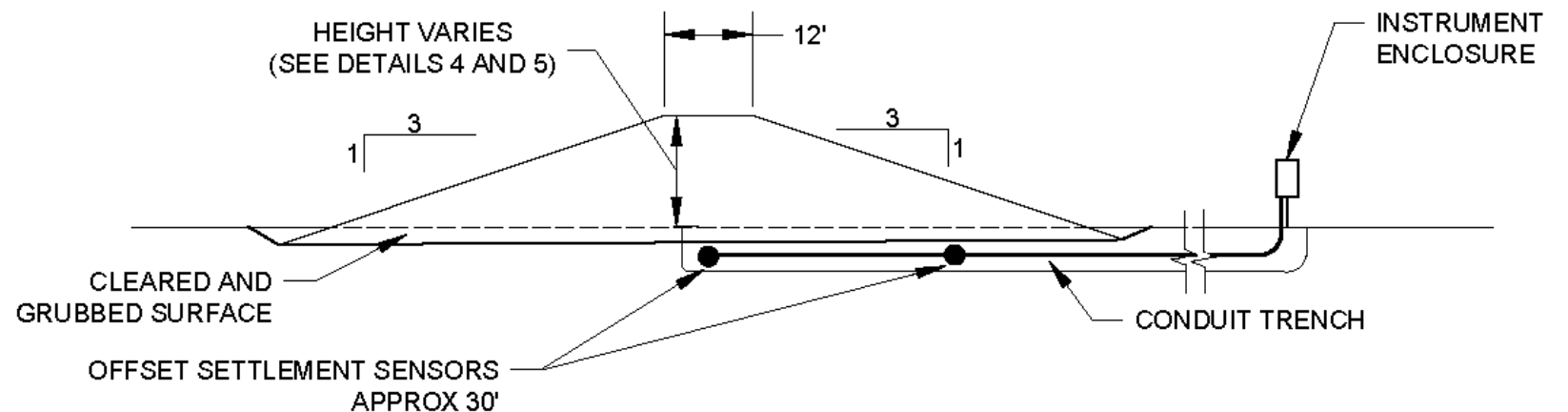
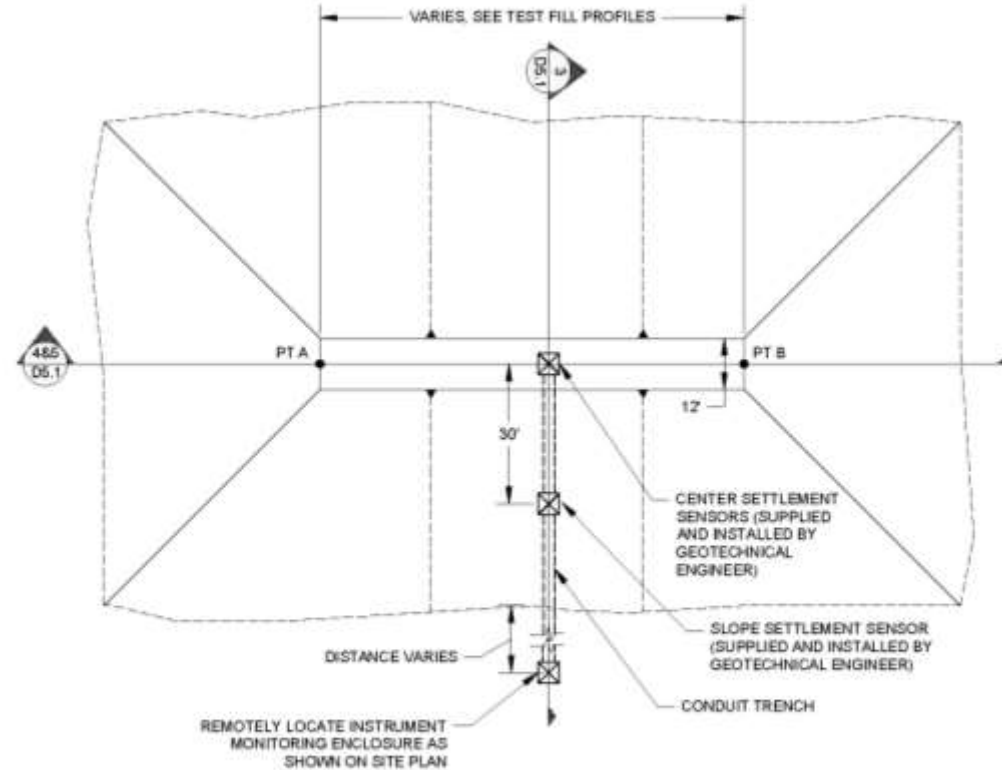
*East Setback Levee
Geologic Conditions*



*West Setback Levee (south end)
Geologic Conditions*

Test Fill Program

- Proposed in 2016
- Purpose is to confirm design assumptions
- Confirm suitability of onsite soils for levee construction
- Confirm construction methods





East Setback Levee Centerline

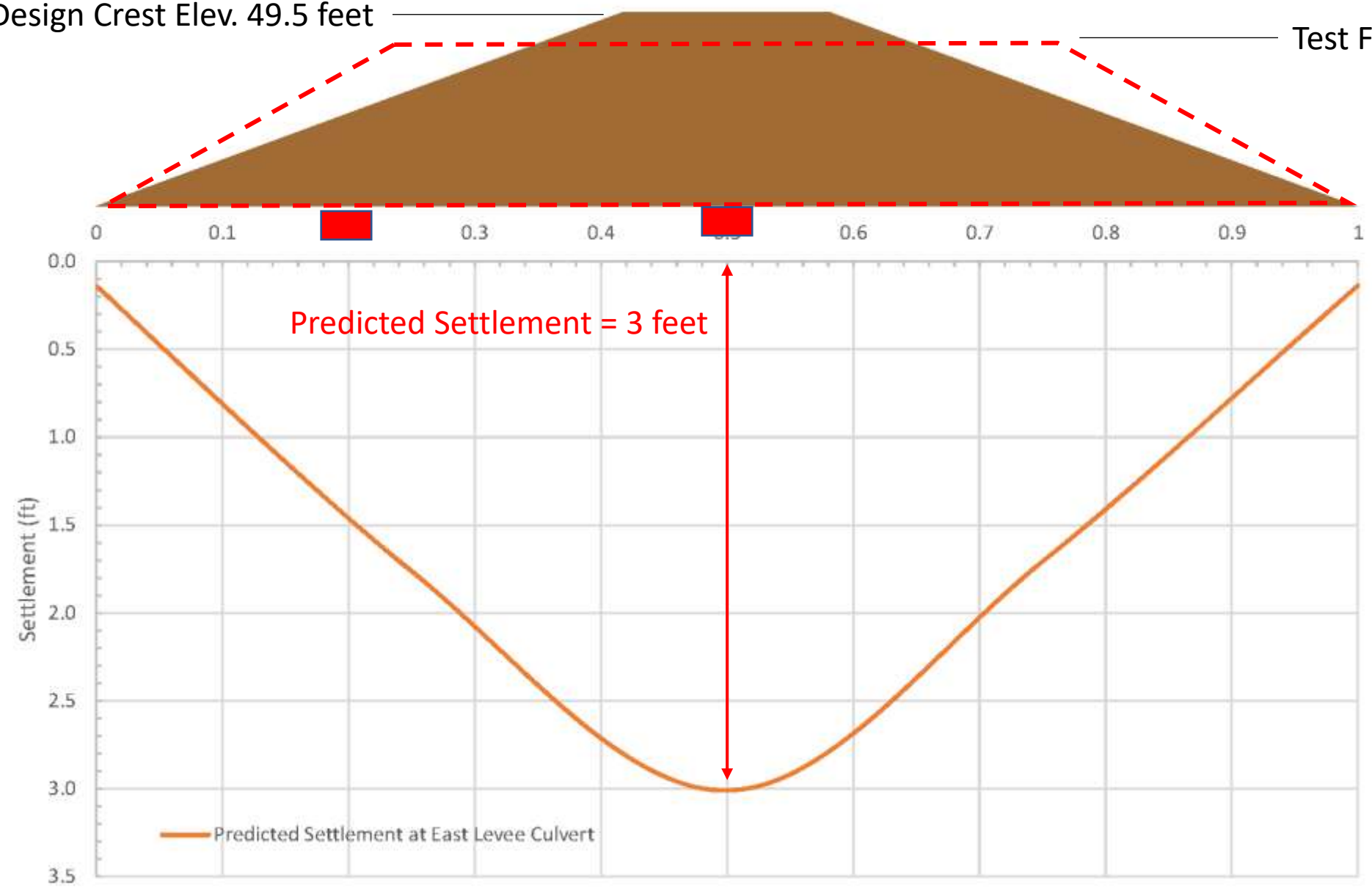
Google Earth

100 ft

Test Fill (TF-3) on East Setback Levee

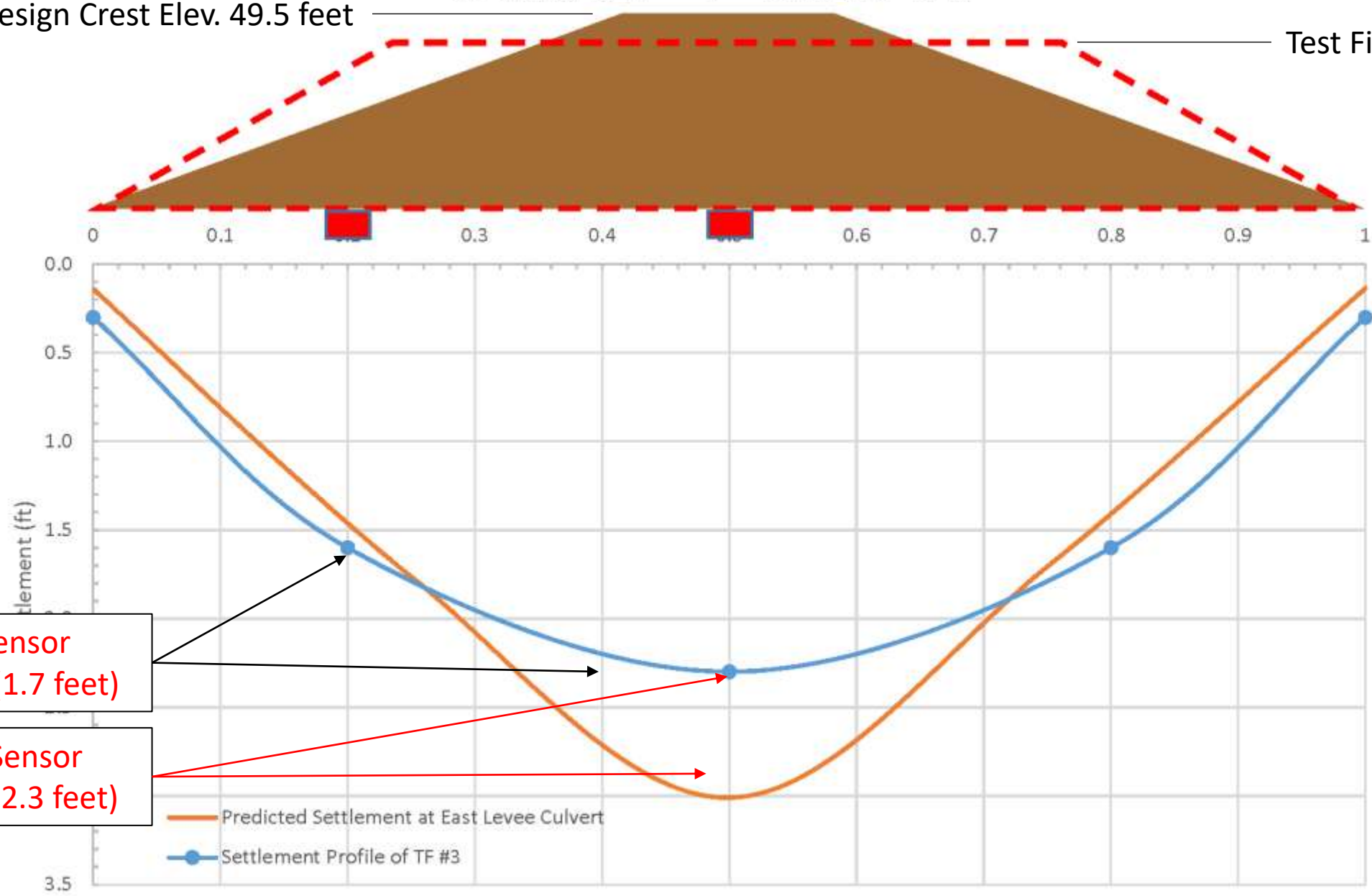
Design Crest Elev. 49.5 feet

Test Fill Elev. 48 feet



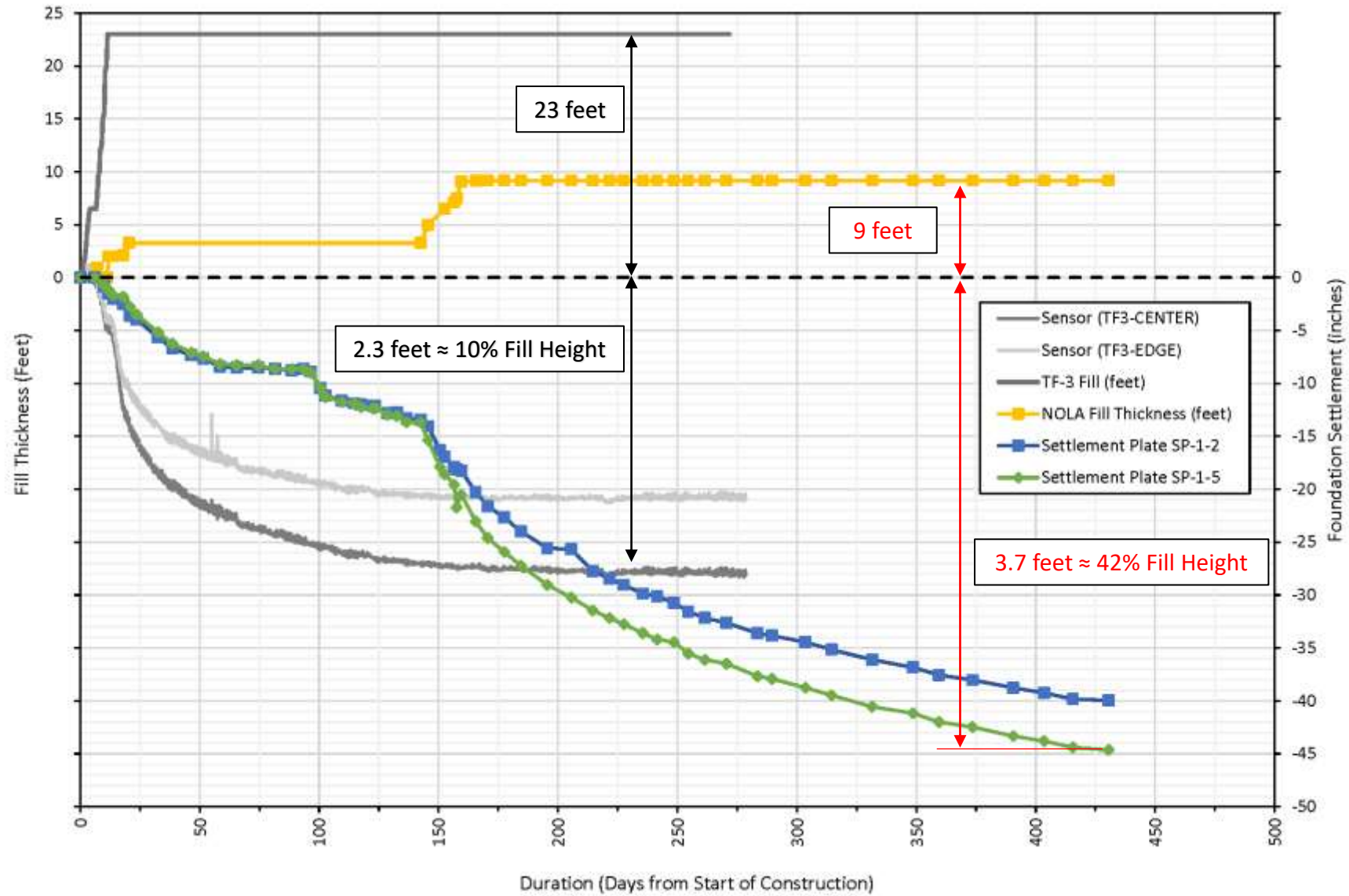
Design Crest Elev. 49.5 feet

Test Fill Elev. 48 feet



Test Fill #3 Settlement Data

Comparison of Settlement with Young Clay Deposit



Comparison of Steigerwald Test Fill and New Orleans Pre-Load Fill

*New Orleans data provided by James Hance, P.E., Eustis Engineering, LLC

Key Considerations

1. Groundwater and Soil Moisture
2. Soil Conditions – Settlement, Suitability for Borrow Source, Constructability, Compaction Requirements, etc
3. Investigations and Test Fill





Thank You!

Contact Information:

Wade Osborne, P.E.

10250 SW Greenburg Rd, Suite 111

Portland, Oregon 97223

Email: Wade.Osborne@ccilt.com

Phone: 503-452-1100

Web: CornforthConsultants.com

