



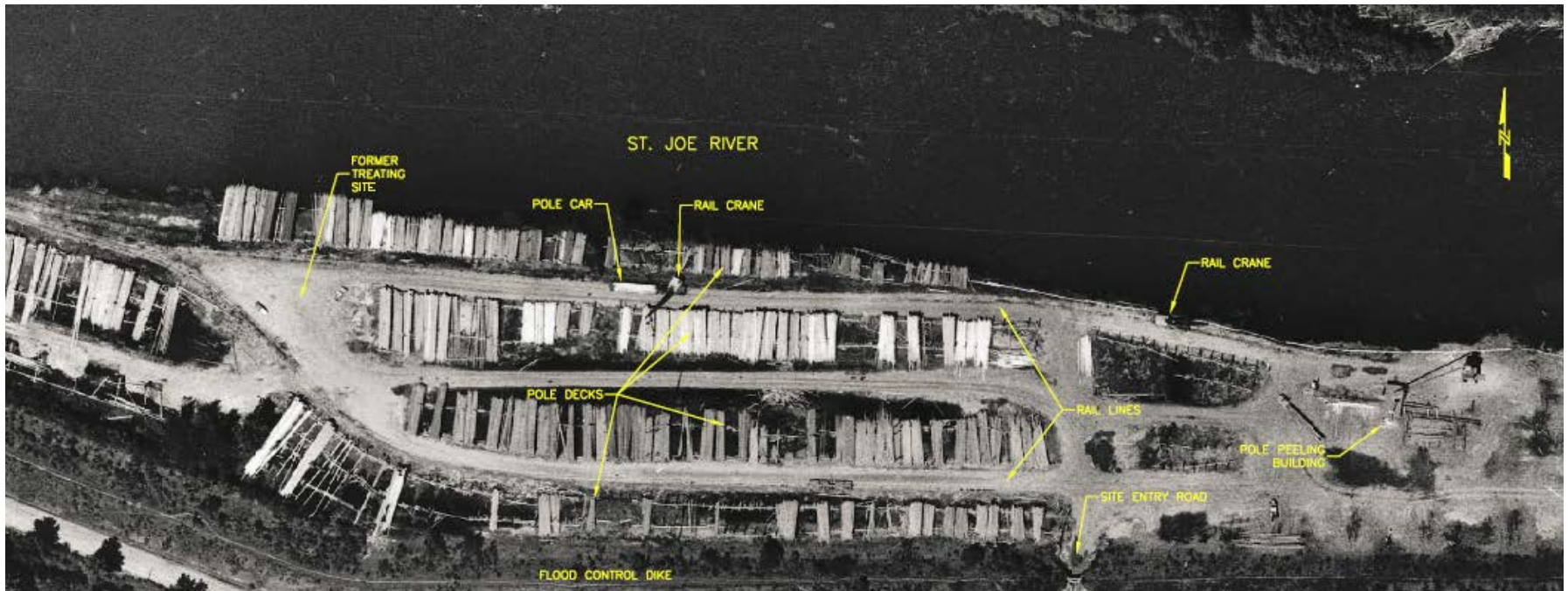
Multi-Phase Debris Investigation at a Former Wood Treatment Facility

WEDA Pacific Chapter Meeting
November 6, 2015

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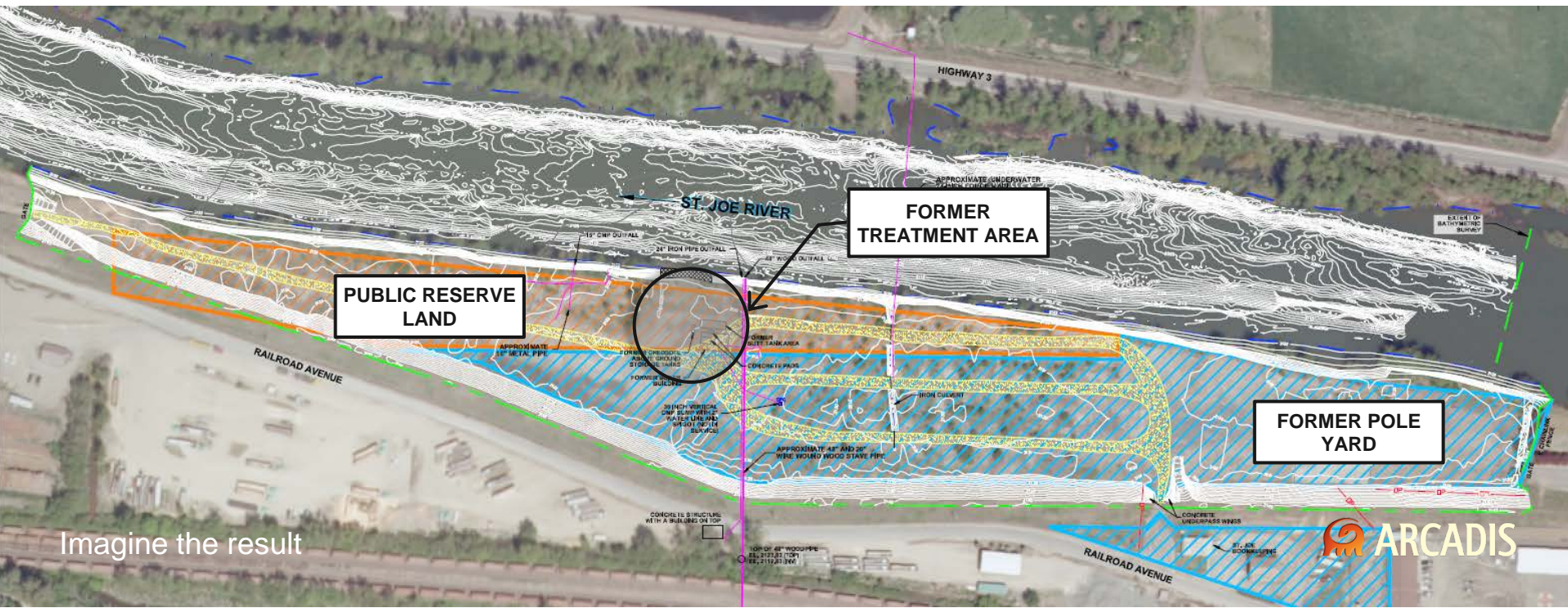
Presentation Outline

- Site History and Sediment Remedy Overview
- Debris Investigation Overview
- Existing Data
- Field Investigations
- Debris Quantification
- Construction



Site History

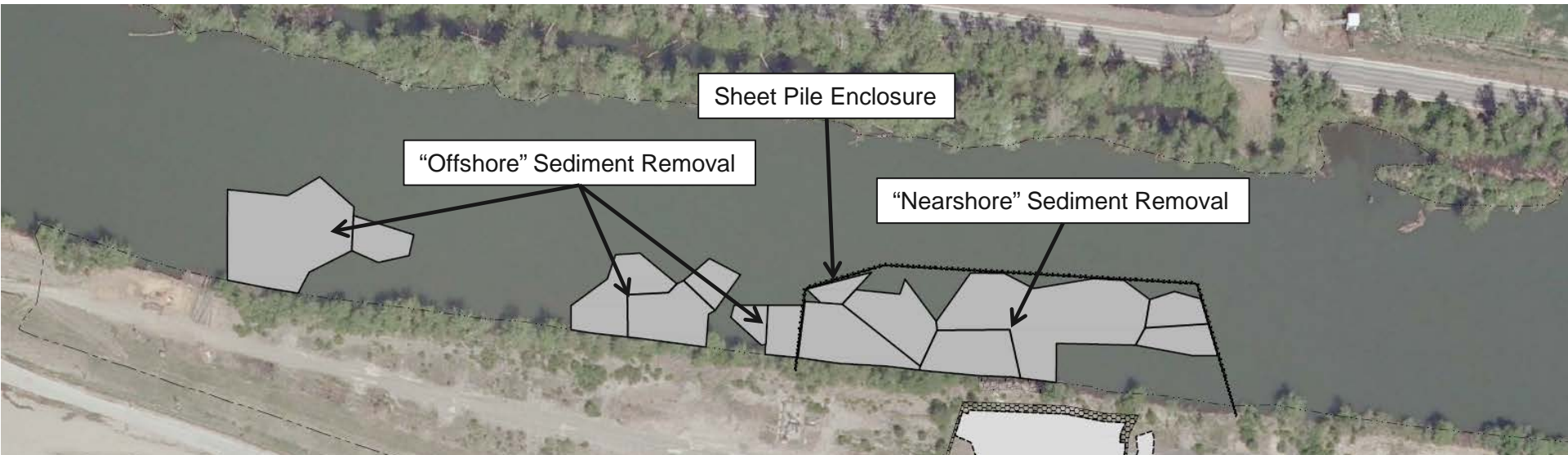
- **Late 1930s to 1960** – Wood treating facility: Logs were transported to the Site in floating log rafts and stored in the river while they awaited processing. The logs were then brought to the upland, peeled, and dried prior to being dipped in vats of heated creosote.
- **1965 to April 2003** - Pole storage, peeling, and sorting facility. During this period, poles were not treated.



Imagine the result

Sediment Remedy

- Remove offshore sediment to depths between 2 and 4 feet bss
- Remove nearshore sediment to depths between 2 and 12 feet bss from behind a sheet pile enclosure



Debris Investigation Overview

The purpose of the debris investigation was to determine the nature and extent of surficial and buried debris in the offshore and nearshore sediment removal areas and along the sheet pile enclosure alignment.

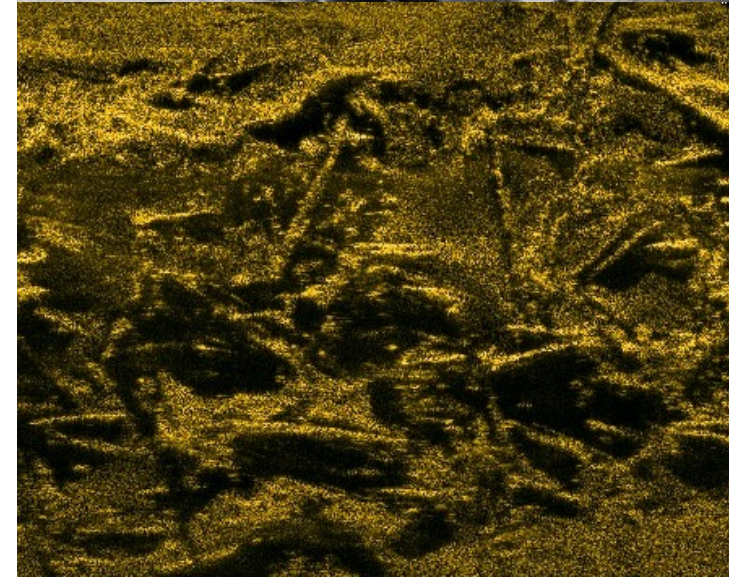
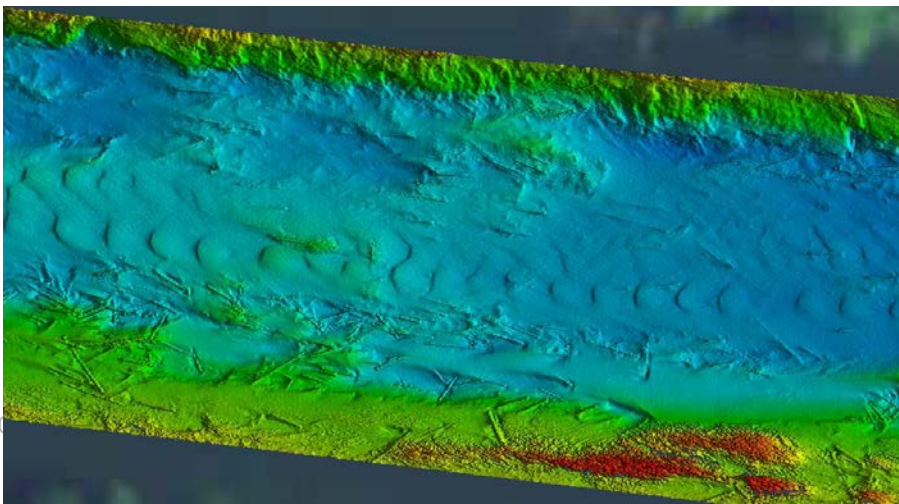
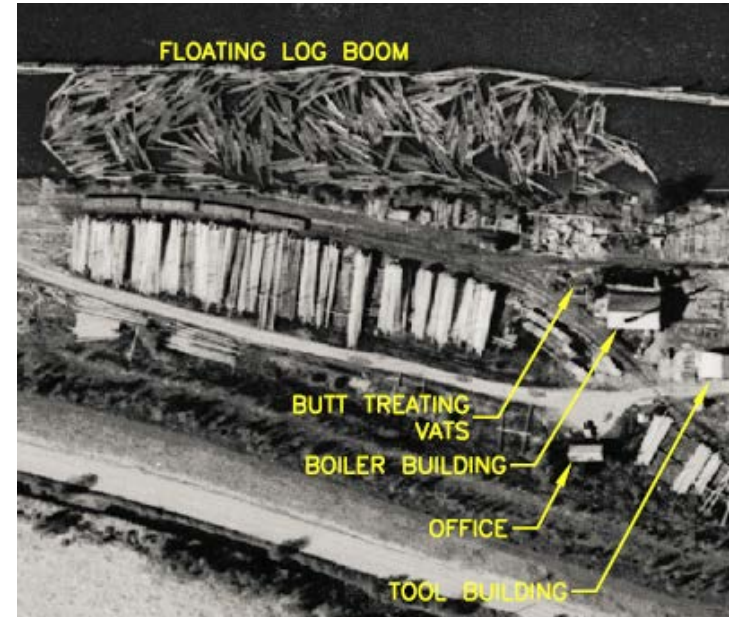
The debris investigation relied on existing data and data collected during three phases:

- Phase I: Hydrographic and geophysical surveys
- Phase II: Sediment probing
- Phase III: Rotosonic drilling

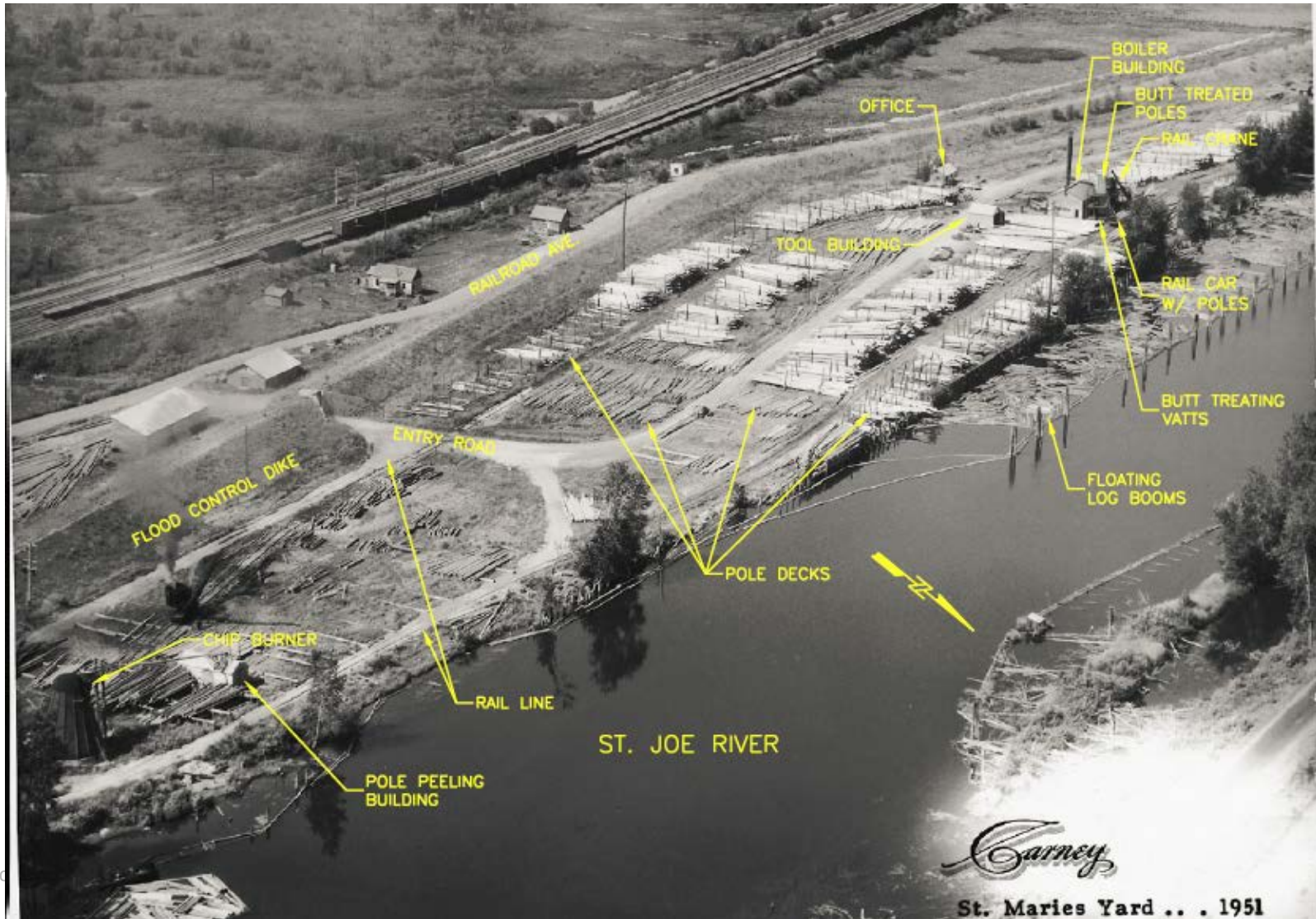


Existing Debris Data

- Historical photographs
- Pre-design debris observations
 - Vibracore refusal
 - Side-scan survey
- August 2013 debris survey
 - High-resolution multibeam bathymetry
 - Magnetometer

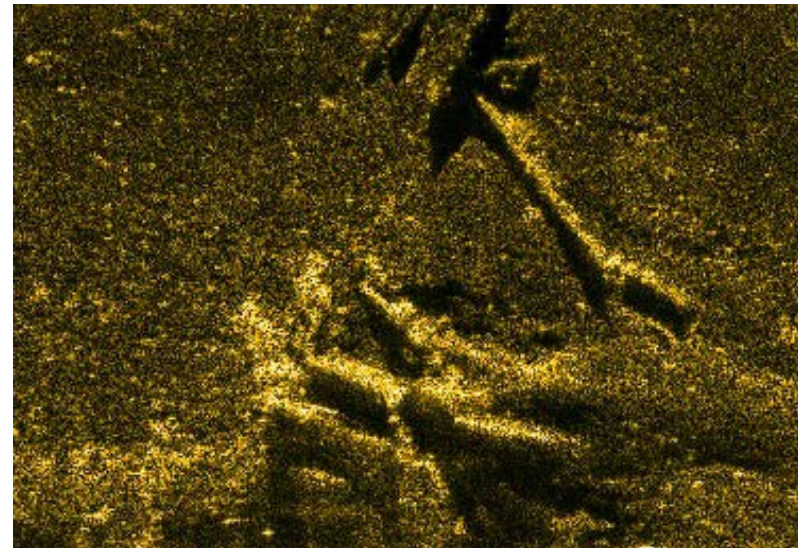


Historical Log Rafting



Pre-Design Debris Observations

- **Vibracore Refusal:**
 - 3 refusals at the sediment surface
 - 20 refusals observed at <2 ft bss
 - 37 refusals observed at <4 ft bss
- **Vibracore Observations:** Wood chips and wood fragments were observed at several sampling locations
- **Side Scan Imagery:** Six side scan images of the sediment surface were collected

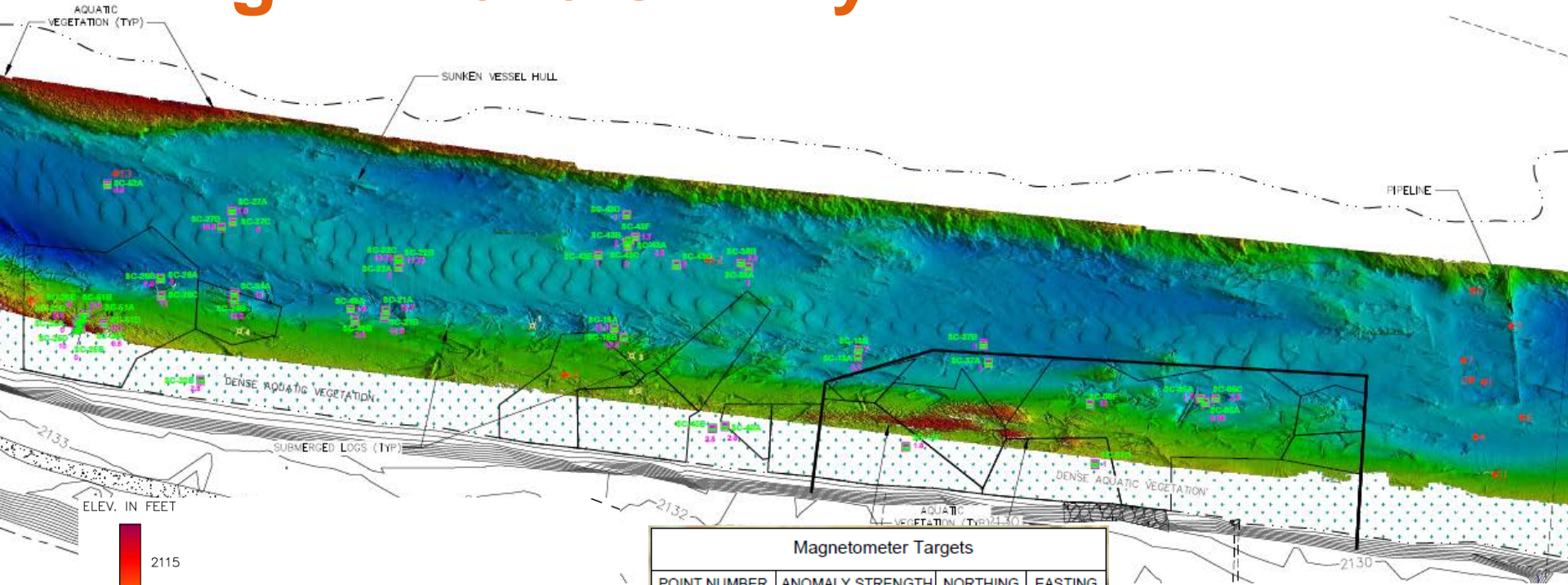


August 2013 Survey Overview

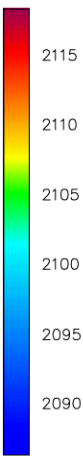
- Approximately 1,500 feet of St. Joe River were surveyed
- Bathymetry imagery shows submerged logs in both nearshore and offshore dredge prisms
- 13 magnetometer targets were detected. Two targets were observed within offshore dredge prisms
- Heavy aquatic vegetation extending 60 feet from the southern shoreline resulted in restricted survey coverage



August 2013 Survey Results



ELEV. IN FEET



LEGEND:

- SC-20 VIBRACORE SAMPLE LOCATION
- ✕ LOCATION OF SIDE SCAN IMAGES
- SHEET PILE WALL
- DREDGE UNITS

DATA VALUES:

- 2.5 COMPLETED PENETRATION DEPTH (FEET BELOW SEDIMENT SURFACE)
- REFUSAL MET BEFORE TARGET PENETRATION DEPTH

| Magnetometer Targets | | | |
|----------------------|------------------|------------|------------|
| POINT NUMBER | ANOMALY STRENGTH | NORTHING | EASTING |
| 1 | 1137.4 GAMA | 2062760.18 | 2419772.69 |
| 2 | 1137.4 GAMA | 2062762.09 | 2419761.26 |
| 3 | 704.8 GAMA | 2062809.42 | 2419796.62 |
| 4 | 456.8 GAMA | 2062712.00 | 2419765.05 |
| 5 | 456.3 GAMA | 2062880.60 | 2418428.26 |
| 6 | 408.4 GAMA | 2062728.85 | 2419806.27 |
| 7 | 358.8 GAMA | 2062779.18 | 2419754.20 |
| 8 | 322.0 GAMA | 2062840.11 | 2419762.37 |
| 9 | 266.8 GAMA | 2062832.25 | 2418495.35 |
| 10 | 171.4 GAMA | 2062766.27 | 2418963.91 |
| 11 | 161.8 GAMA | 2062678.89 | 2419782.00 |
| 12 | 90.6 GAMA | 2062867.48 | 2419090.89 |
| 13 | 75.0 GAMA | 2062943.24 | 2418570.20 |

Field Investigations

Phase I – Hydrographic and geophysical surveys:

- High-resolution multibeam bathymetry
- Magnetometer survey to identify other potential submerged debris
- Sub-bottom profile

Phase II – Sediment probing investigation:

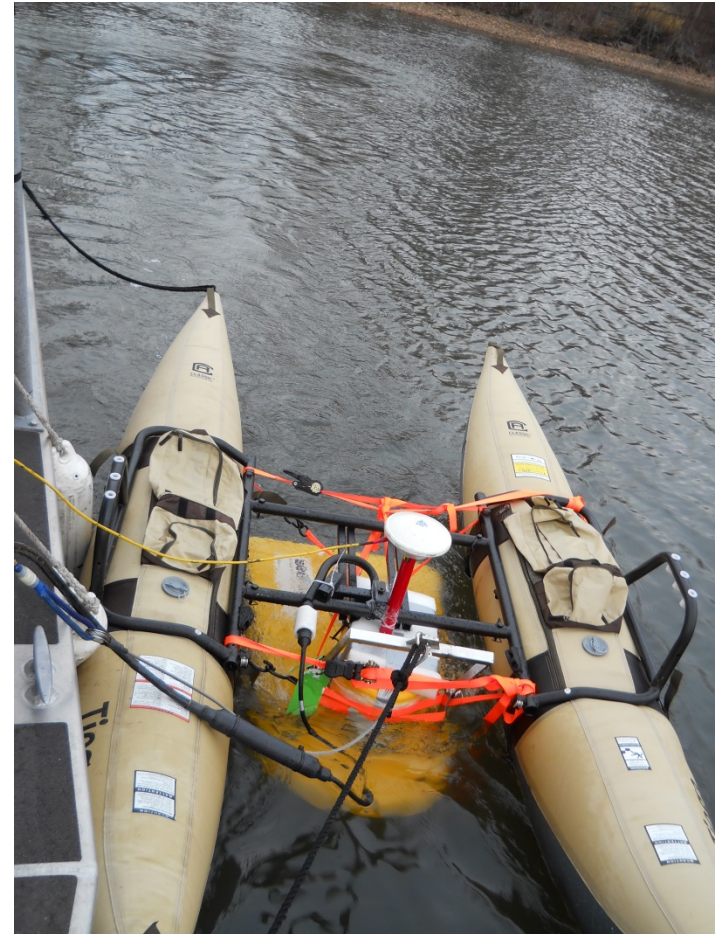
- Advancement of a probe into sediment along the alignment of the sheet pile enclosure to attempt to identify subsurface obstructions

Phase III – Rotosonic drilling investigation:

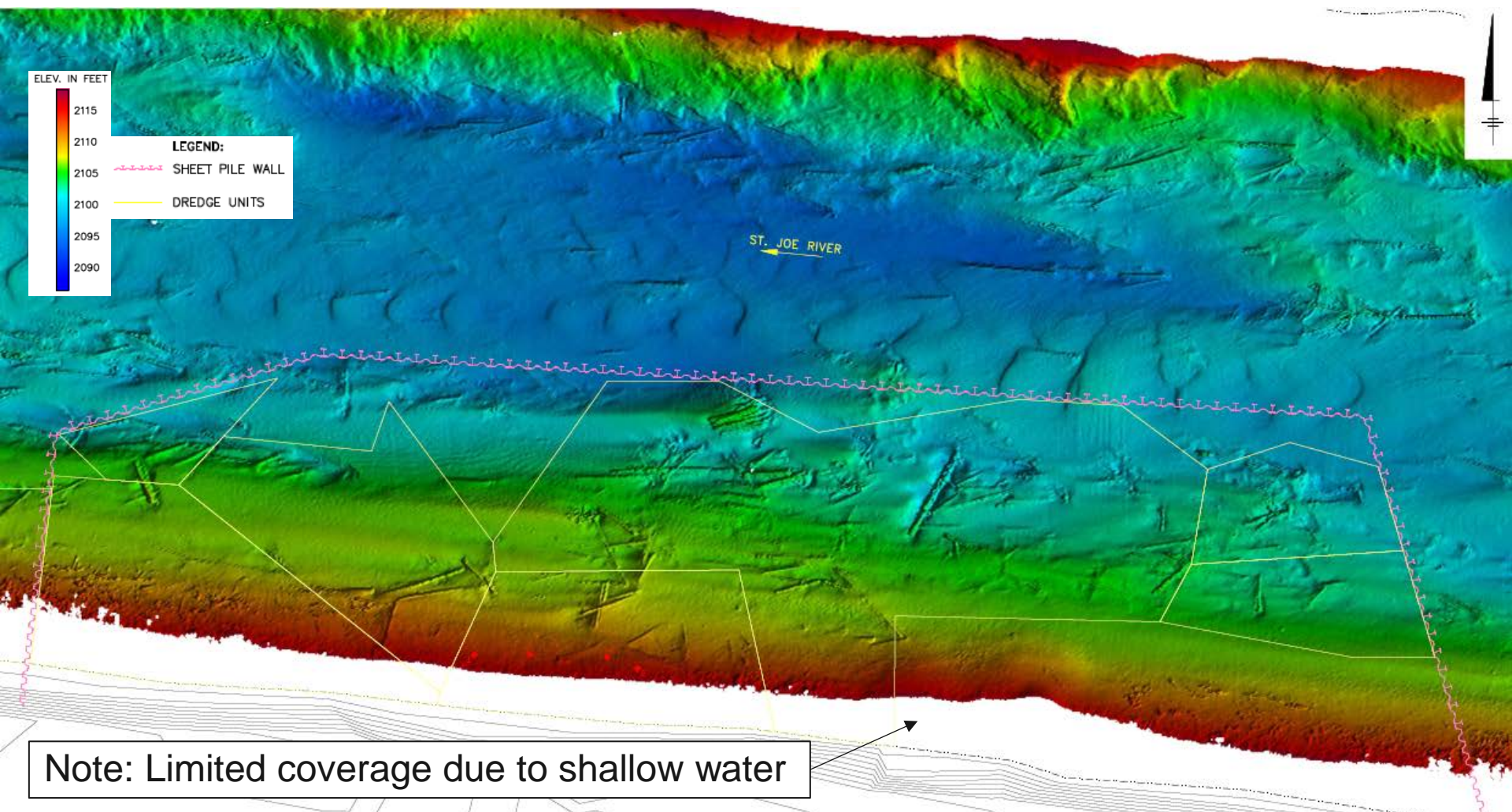
- Installation of rotosonic borings in locations where debris was observed during Phase I and Phase II activities identify subsurface obstructions

Phase I – Hydrographic and Geophysical Surveys

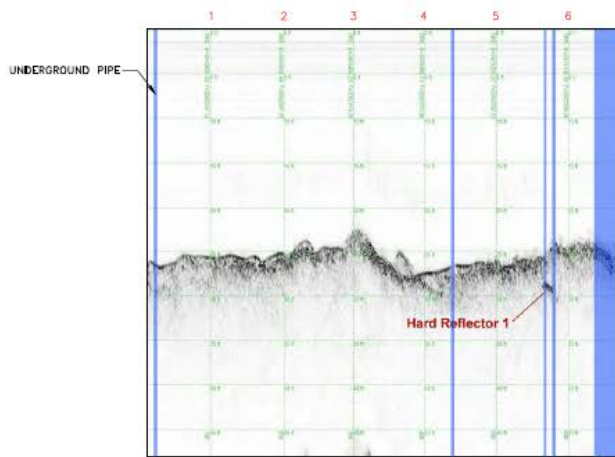
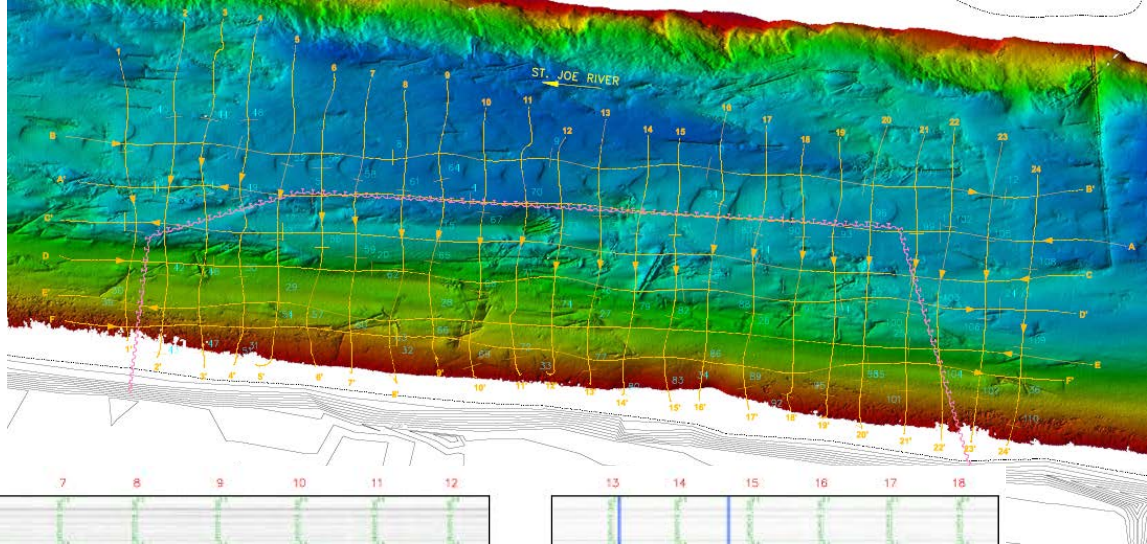
- Multibeam survey:
 - 1,700 feet of bank to bank coverage
 - 200 feet upriver of sheet pile enclosure
 - 1,000 feet downriver of sheet pile enclosure
- Magnetometer survey and sub-bottom profile:
 - Limited to nearshore area and sheet pile enclosure
 - 25 foot transects



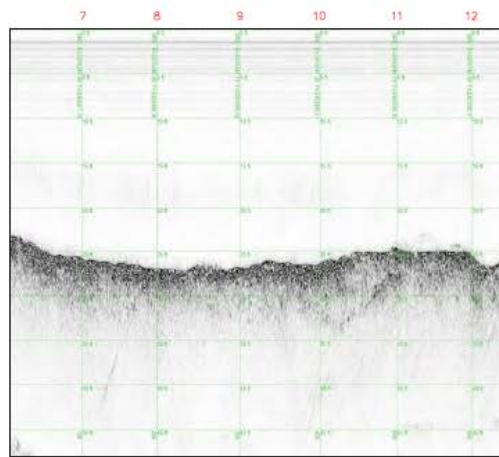
Phase I Nearshore Sediment Multibeam Results



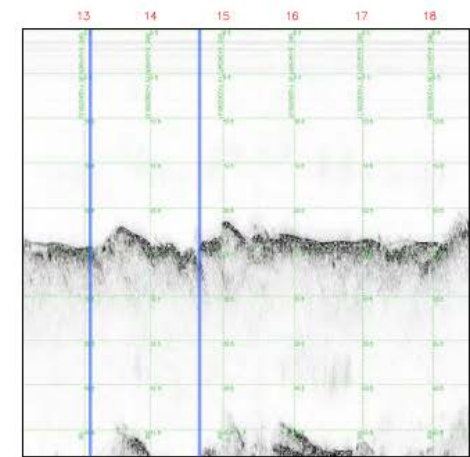
Phase I - Sub-bottom Profiles



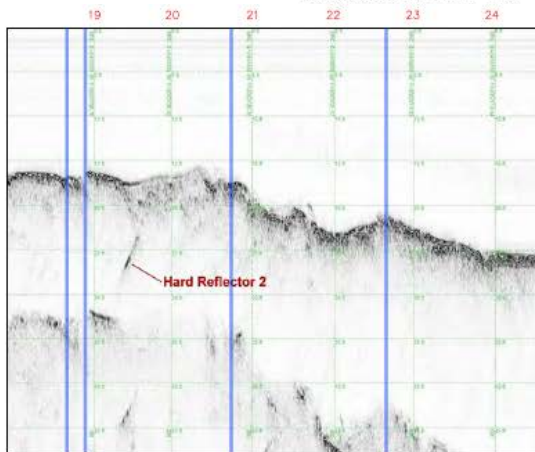
LONGITUDINAL SECTION A - A'



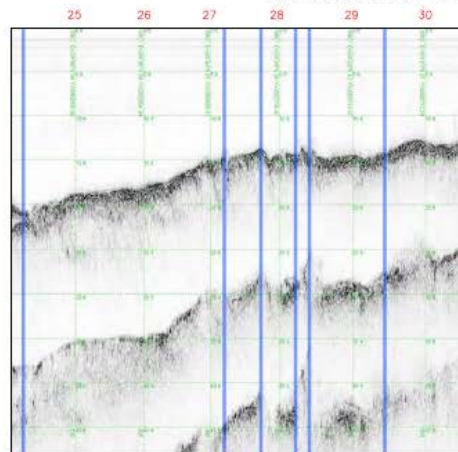
LONGITUDINAL SECTION B - B'



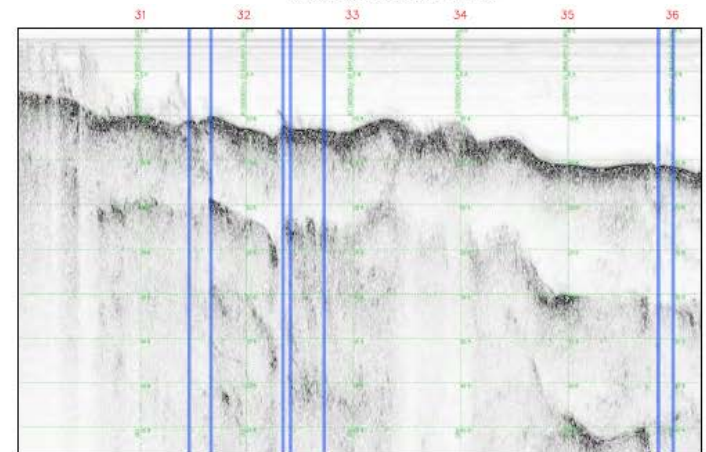
LONGITUDINAL SECTION C - C'



LONGITUDINAL SECTION D - D'



LONGITUDINAL SECTION E - E'



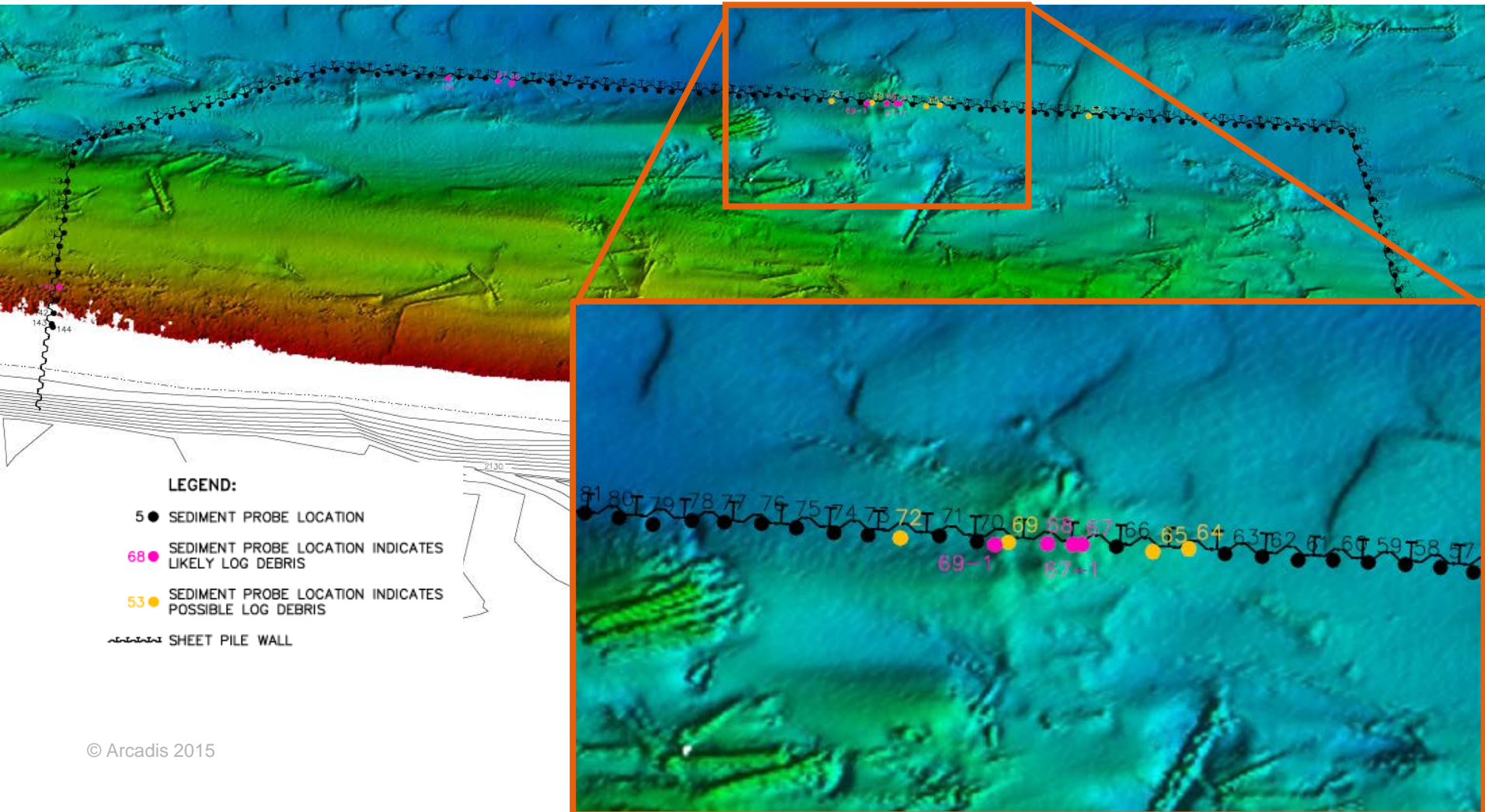
LONGITUDINAL SECTION F - F'

Phase II – Sediment Probing

- 142 probe locations were situated along sheet pile enclosure alignment at ~ 5 ft spacing
- 4-inch steel probe was hydraulically advanced into sediment to 15 ft bss, or until refusal
- Refusal was evaluated at five locations as follows:
 - Vibration was added to the probe at 2 locations
 - Spring force was added to the probe at 3 locations



Phase II Results



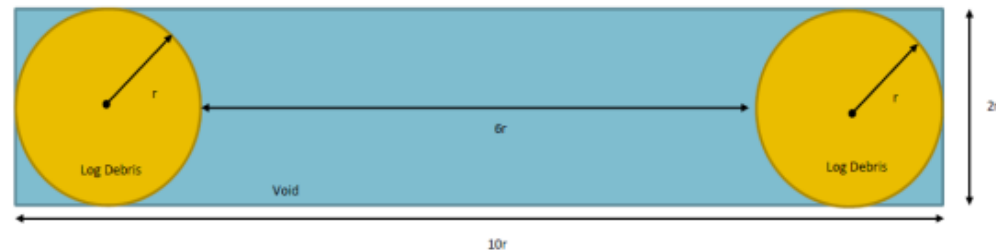
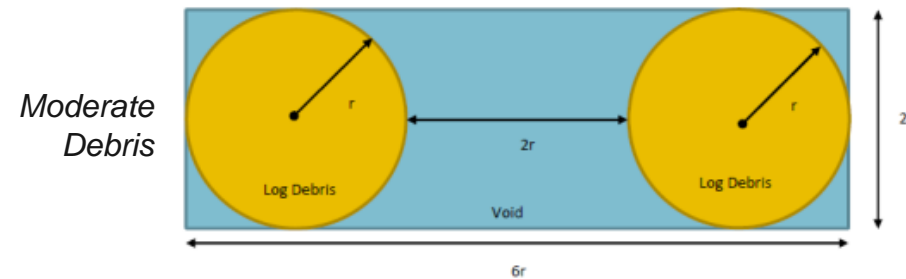
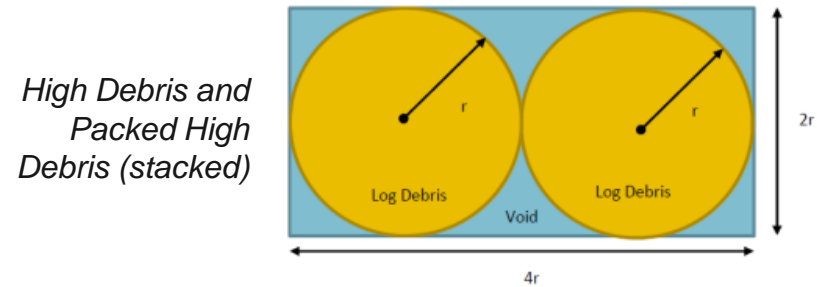
Phase III – Rotosonic Drilling

- Rotosonic boring locations were selected based on the results of the probing investigation
- 15 drilling locations were identified, but inclement weather shortened the scope of work to 6 borings
- Sediment cores were logged and photographed
- Wood debris was observed in three borings



Debris Quantification

- Results of the debris investigation indicated that debris were limited to the top 2 to 4 feet of sediment
- Debris estimates calculated using theoretical void ratios for a range of debris conditions
- Data sources included multibeam imagery, historical photos, side-scan sonar data, and core refusal data
- Nearshore Sediment Removal Debris quantities:
 - Design estimate = 890 CY
 - Construction total = 790 CY *Low Debris*



Construction



Construction



Construction



Construction



NOTICE
LIFE LINES
MUST BE
BEYOND THIS POINT

Construction



Questions?

