



NOT ALL IS AS IT SEEMS

Reinvestigating A Persistent Benzene Plume Using HRSC

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Site Setting

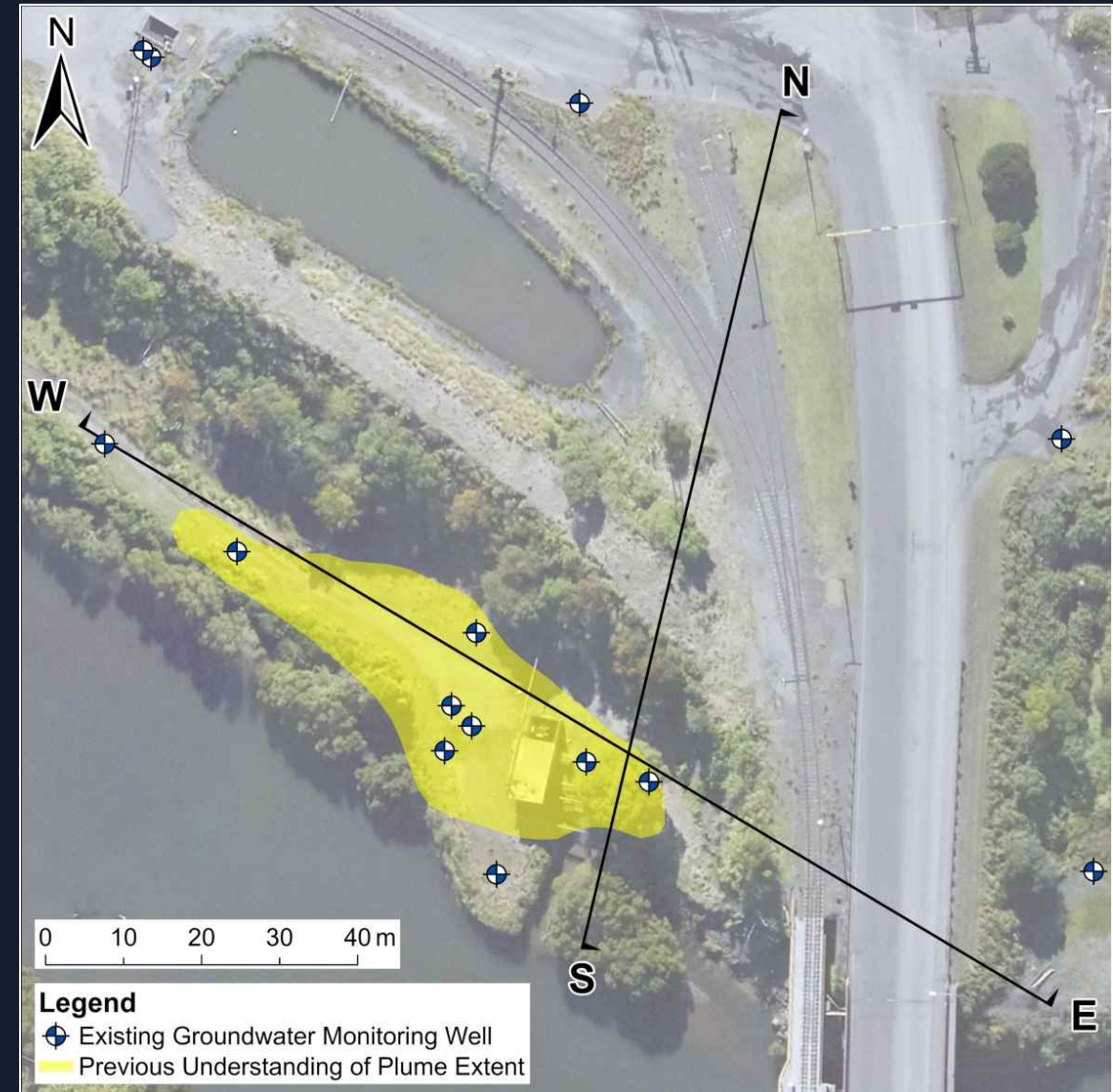


Background

- Benzene plume in shallow aquifer discovered in 2013.
- Unknown source.
- Concentrations up to 810 mg/L.
- Multi-phase extraction remediation of shallow plume in 2015/2016.

BUT...

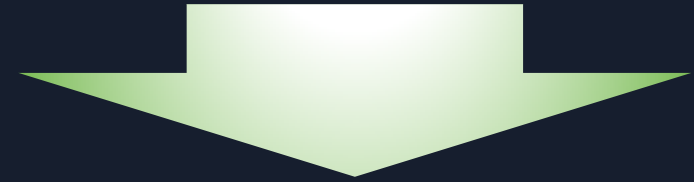
- Post remediation benzene concs remained up to 600 mg/L.



Senversa recommended revision of CSM prior to preparation of a RAP.

Stage 1

Delineation
investigation using
MIP

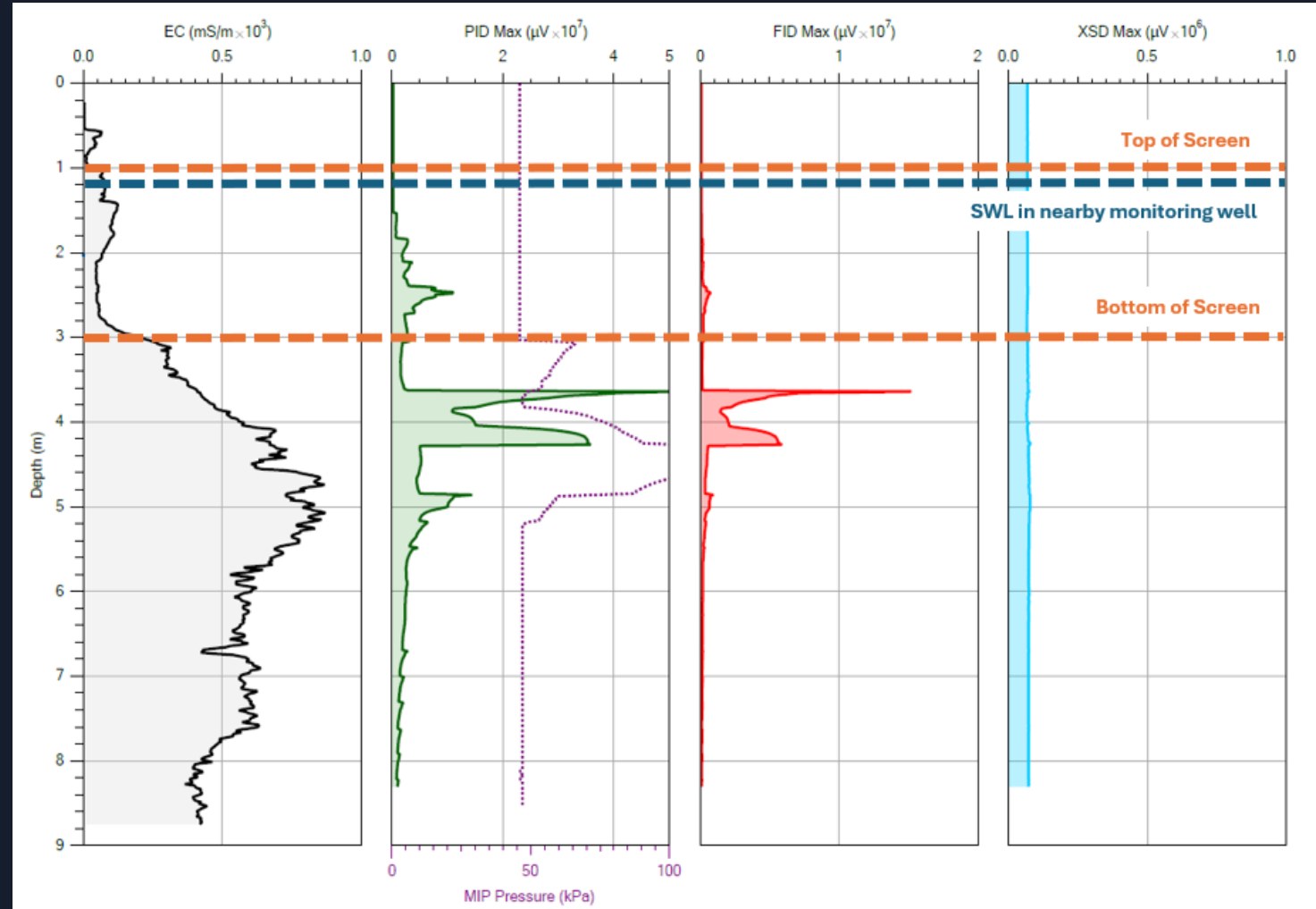


Stage 2

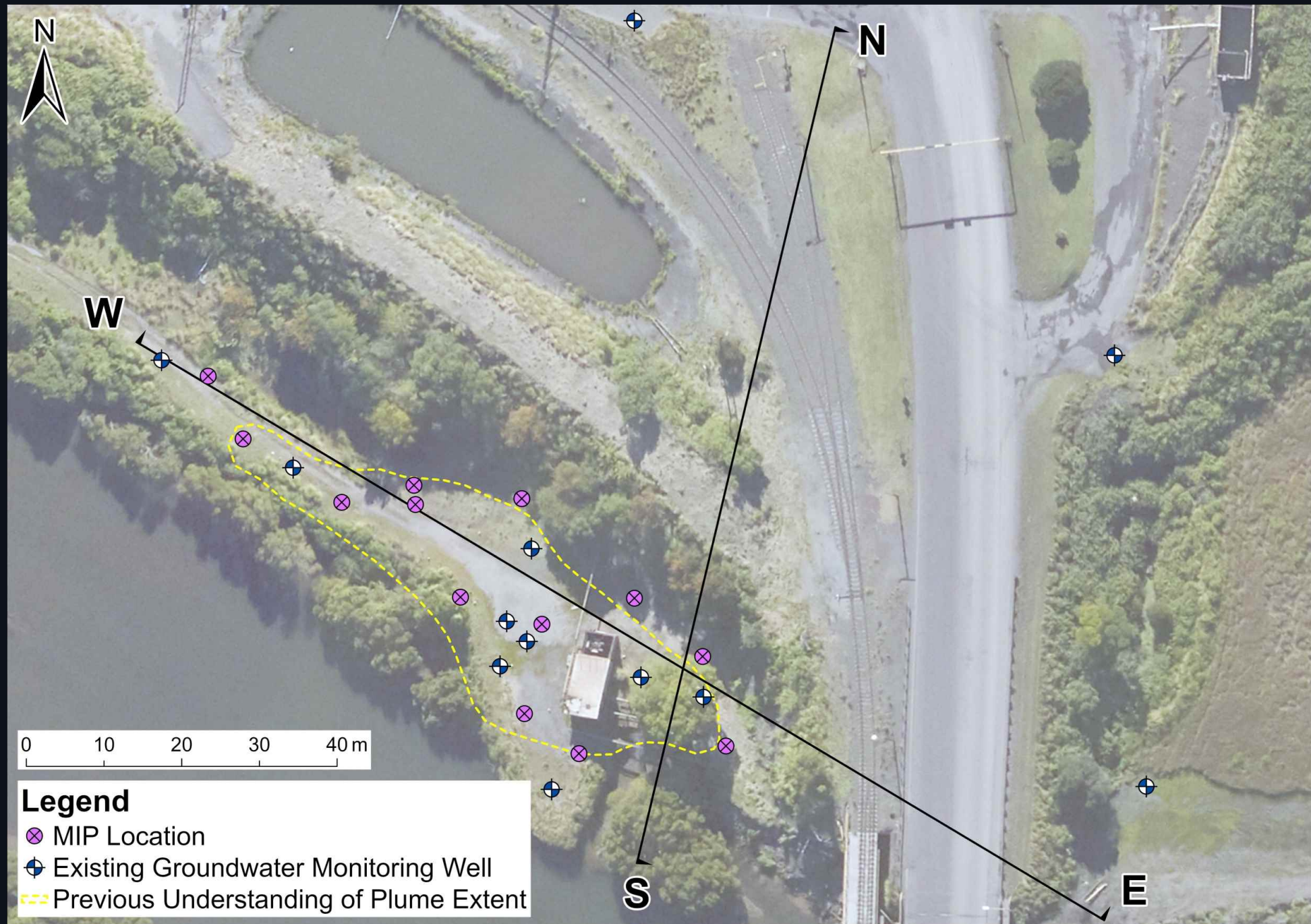
Verification assessment
using conventional
investigation methods

Stage One – What did the MIP Show?

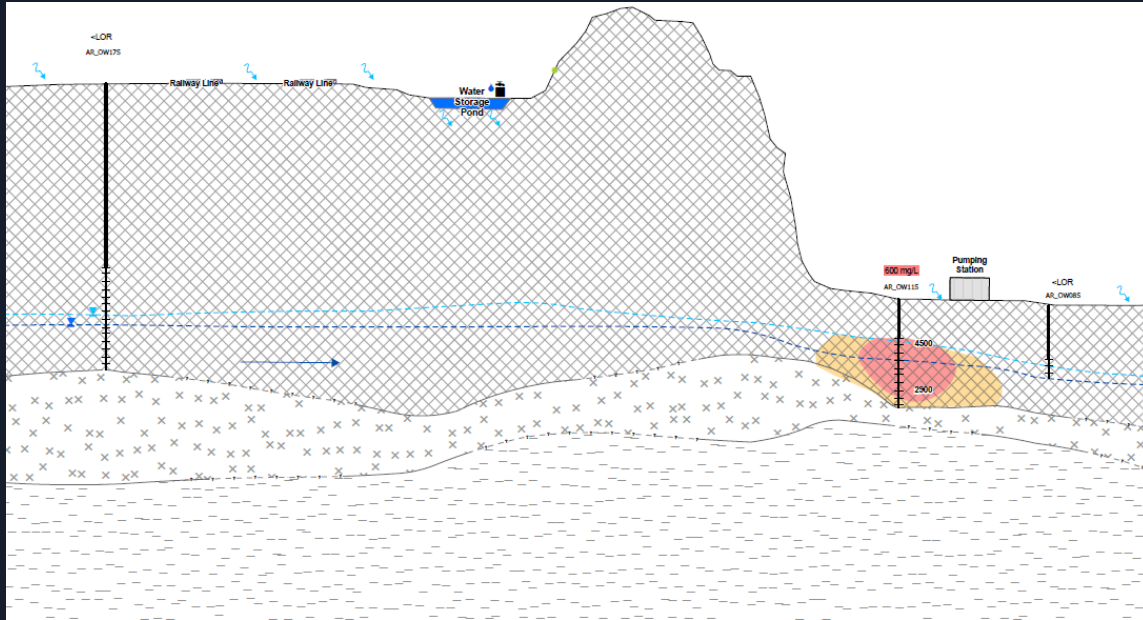
- Contamination deeper than previously reported.
- Highest PID responses at base of northern embankment – indicating plume extended north of prior remediation area.



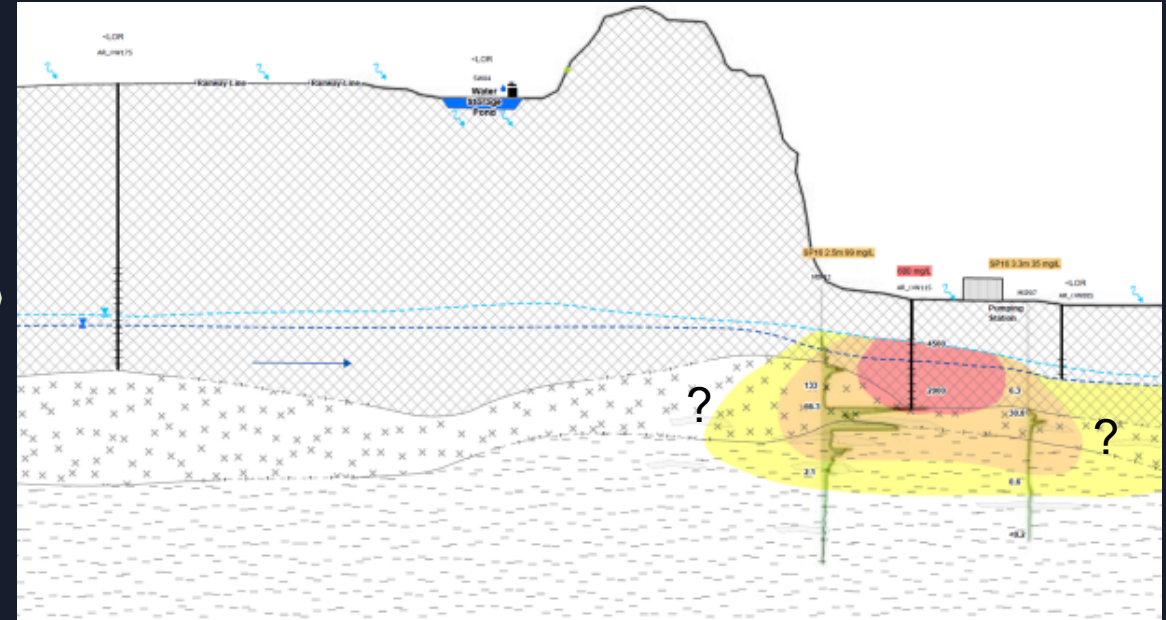
CSM Development



Progression of CSM – North-South

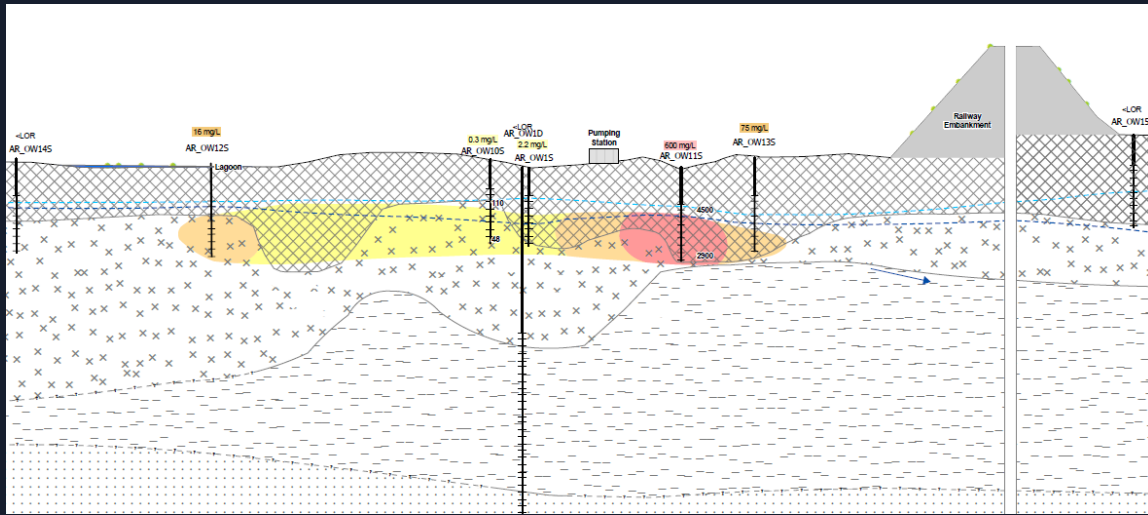


Original
Understanding

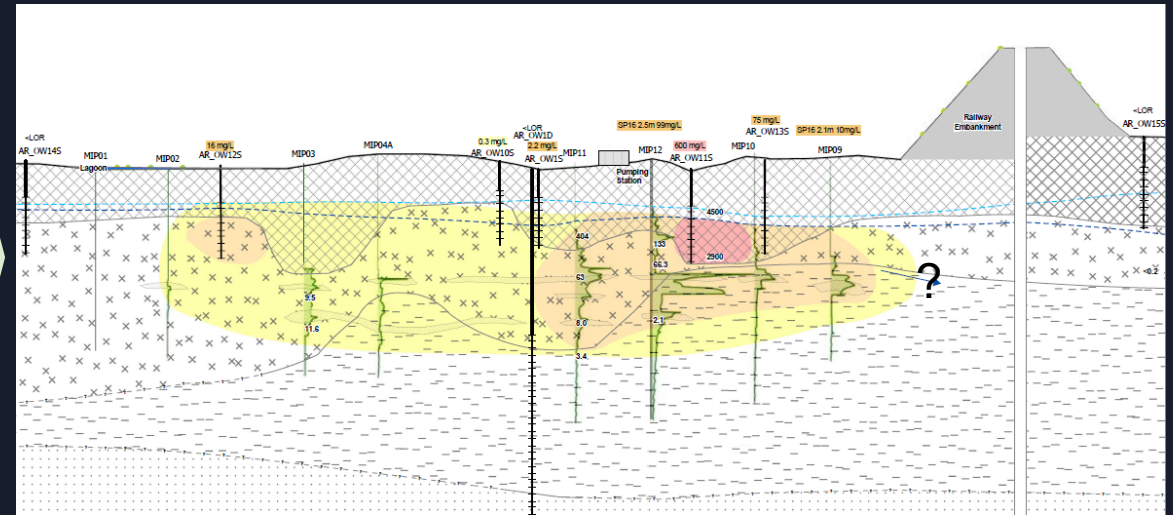


MIP Investigation

Progression of CSM – West-East



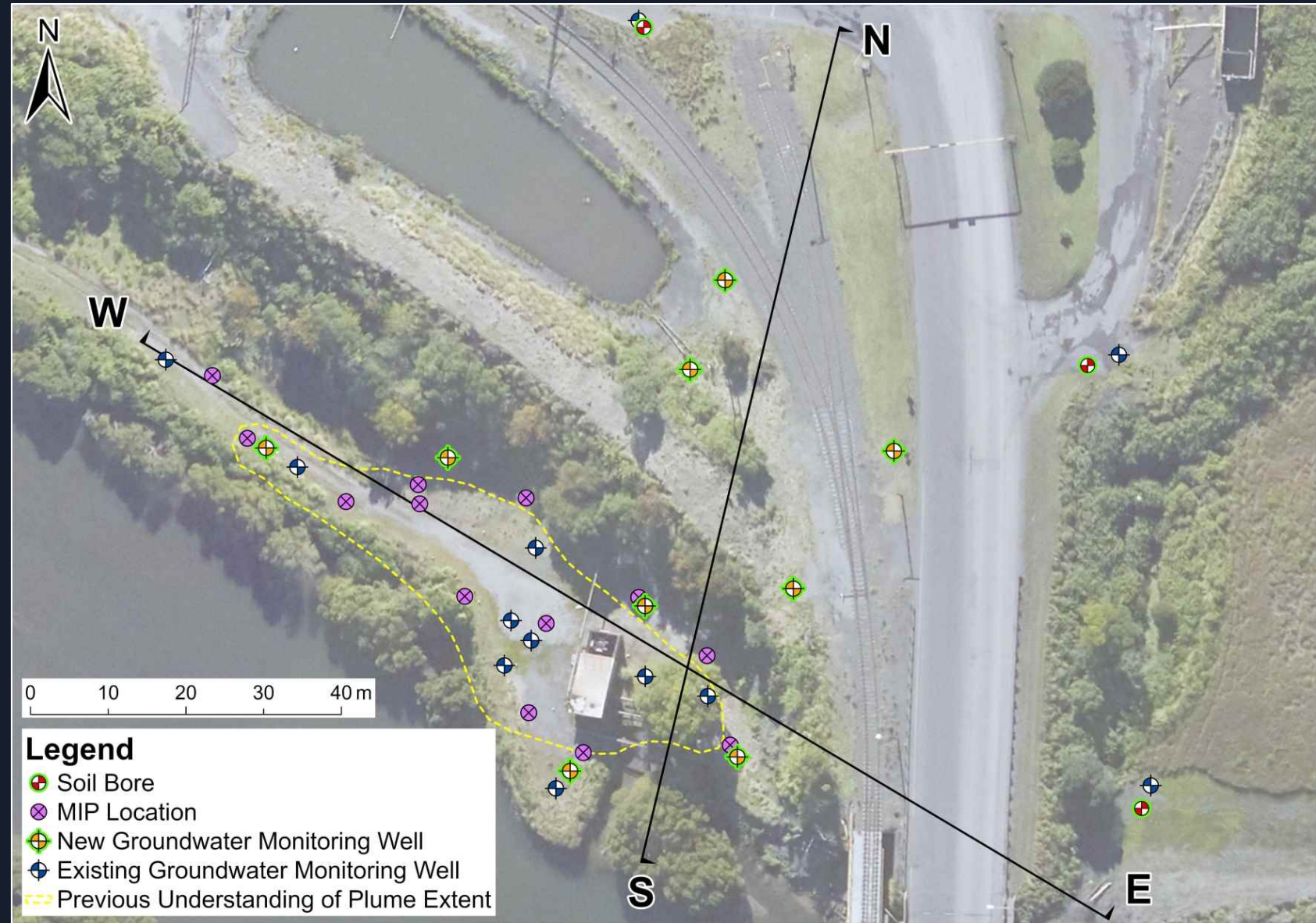
Original Understanding



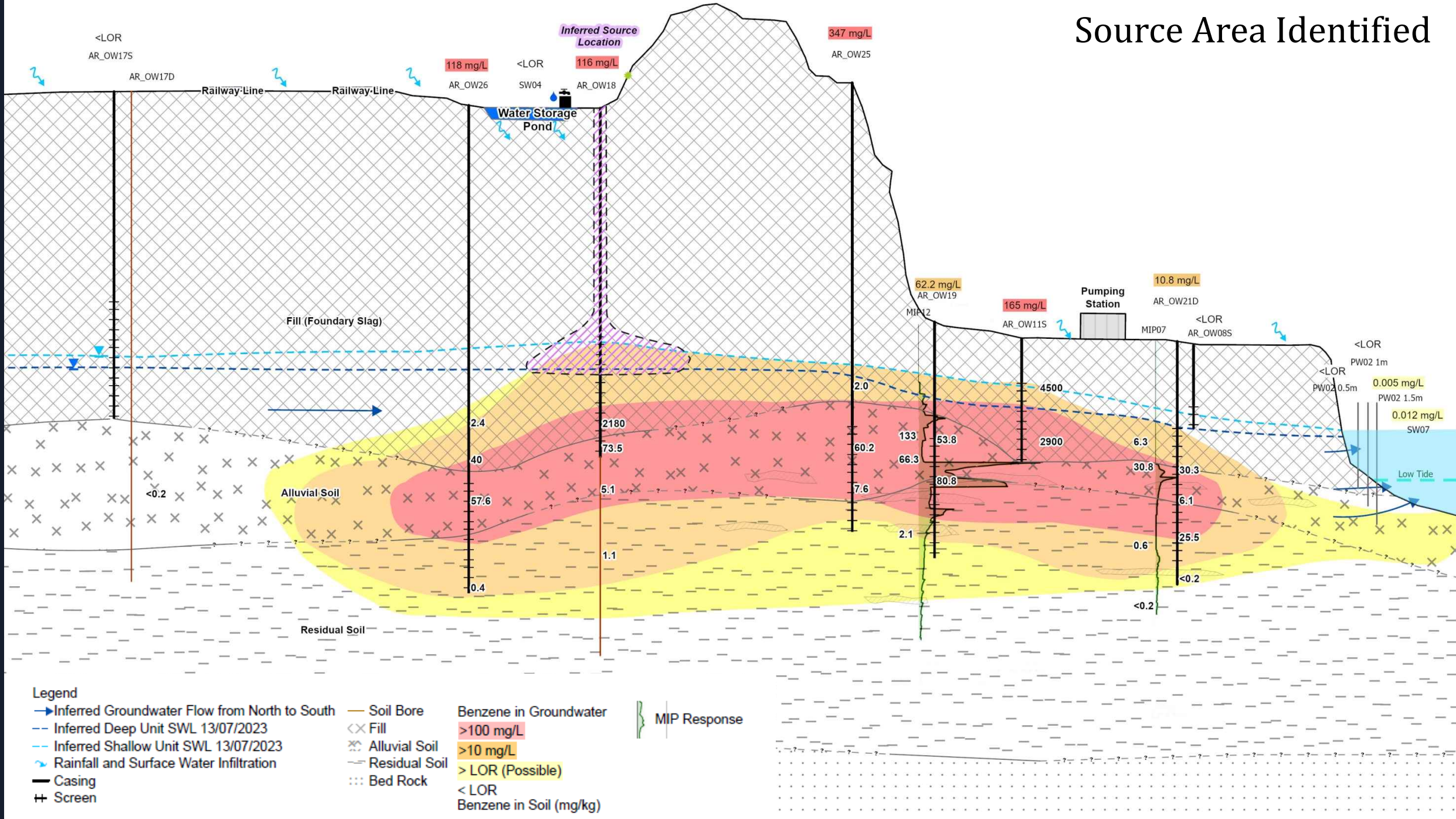
MIP Investigation

Stage Two – Verification Assessment

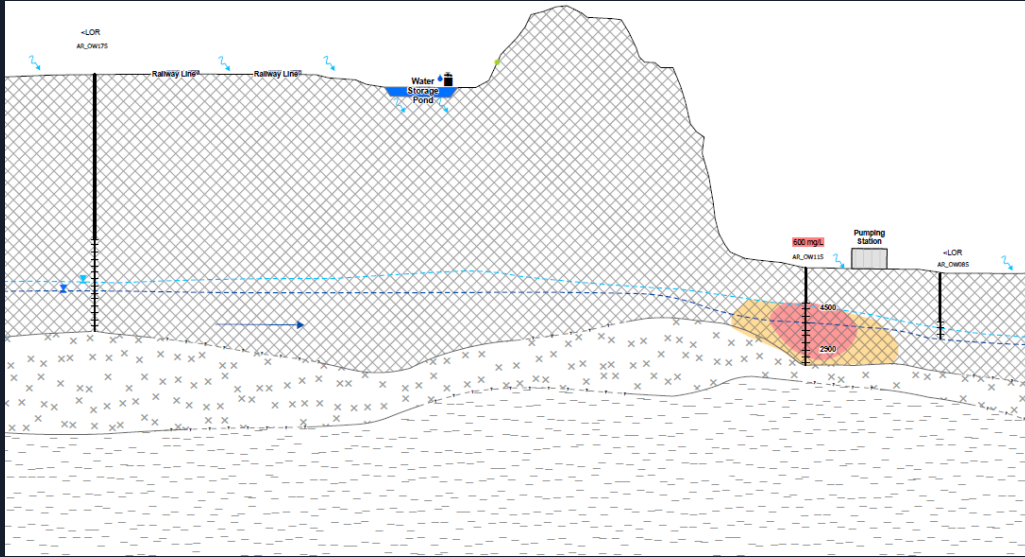
- Survey of MIP investigation points.
- Installation of new deeper monitoring wells along lower embankment.
- Installation of new monitoring wells to north and east.
- Confirmed MIP responses.



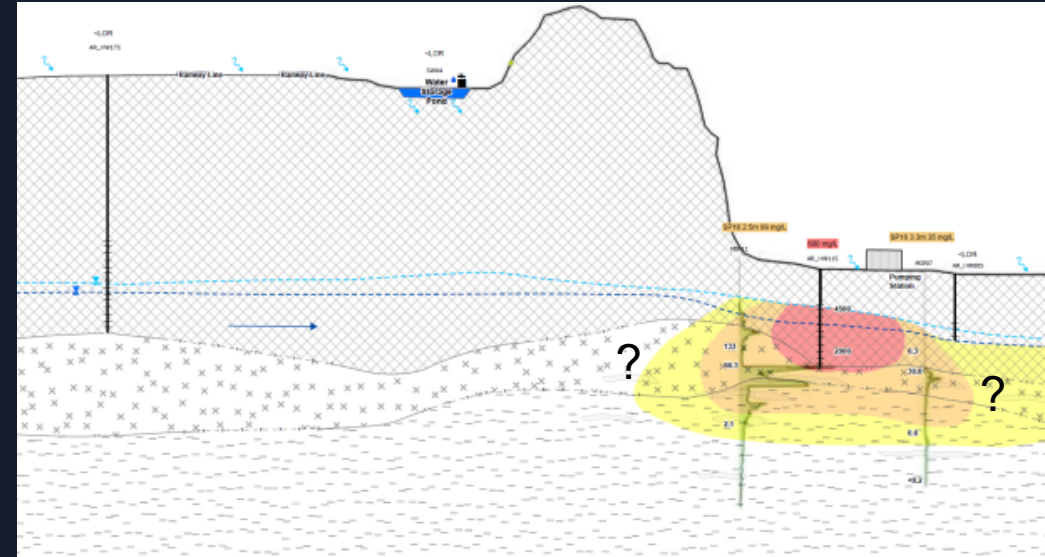
Source Area Identified



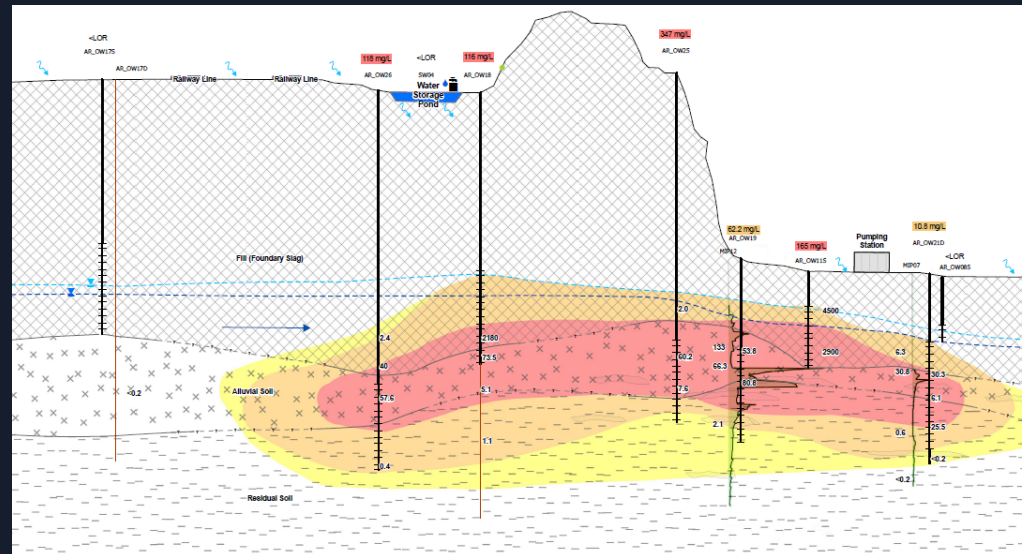
Progression of CSM – North-South



Original Understanding



MIP Investigation



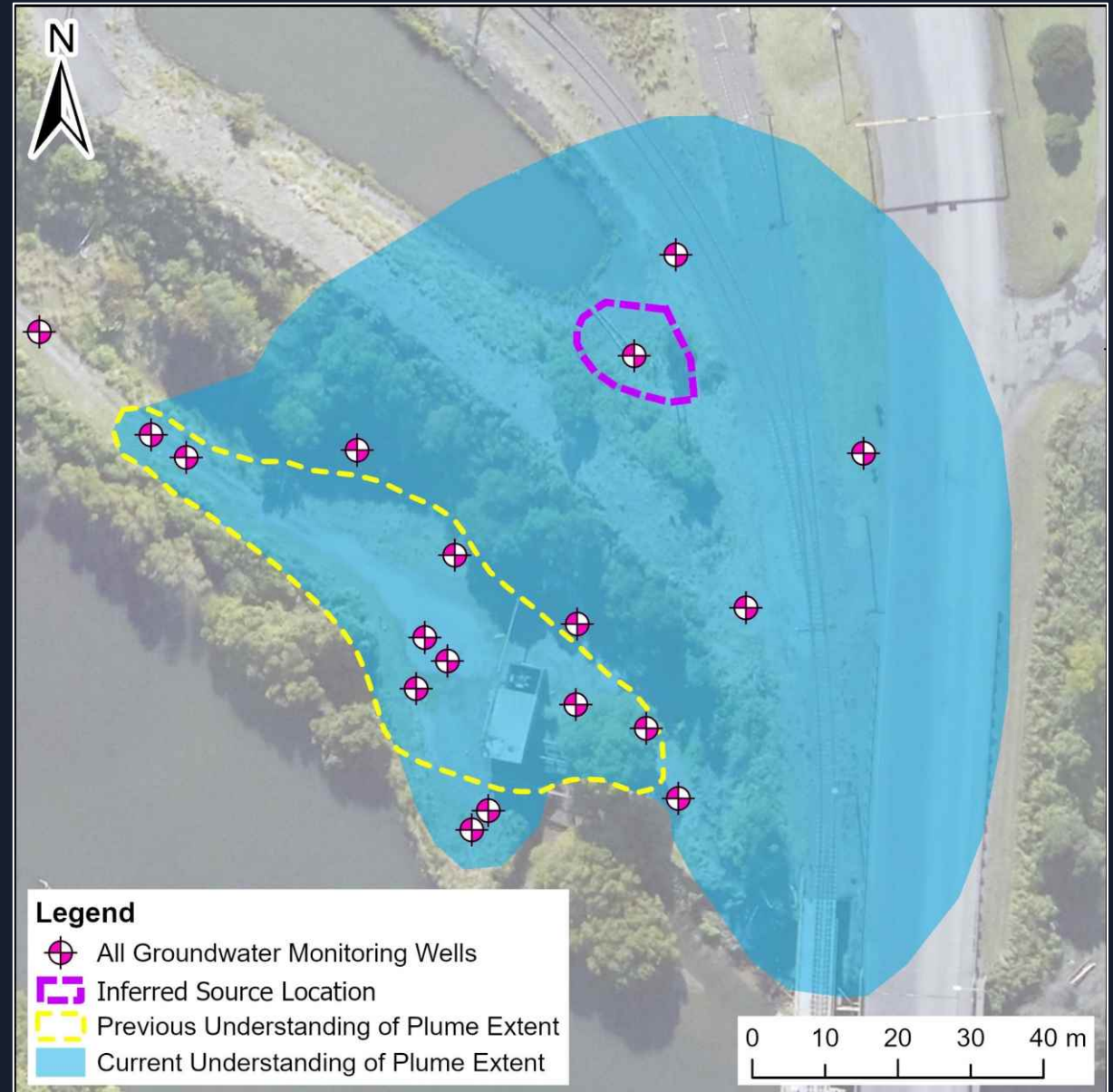
Verification Assessment



Results

Combined results from MIP HRSC and verification assessment indicated that:

- Soil and groundwater contamination exists at depths below the previous remediation
- Source area identified outside of previous remediation area.
- Contamination extends significantly further north and east.
- New CSM reflects greater extent of plume



Conclusions

- MIP was integral in refining CSM
- Source area identified and plume delineated both vertically and laterally.
- Identified reasons prior remedial efforts failed
- Sufficient information now available for effective remediation.



Thank you!

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