

Thixo-Metric Technical Report

Quantitative Geotechnical Stability Analysis

1. Executive Summary

Analysis was performed at t=0 days since disturbance.

The current Reach Failure Rate is 96.0%.

Submerged samples experience an average Hydraulic Lag of 88.2 days.

Based on a 95% confidence interval, construction must wait until Day Not Achievable.

2. High-Risk Borehole Identification

Sample ID	FoS	Status	Soil Type
BH-041	0.05	CRITICAL	CH
BH-040	0.07	CRITICAL	CL
BH-015	0.08	CRITICAL	CH
BH-035	0.08	CRITICAL	CL
BH-017	0.09	CRITICAL	CL

The table above lists the 5 most critical samples requiring immediate monitoring.

3. Soil Classification Vulnerability

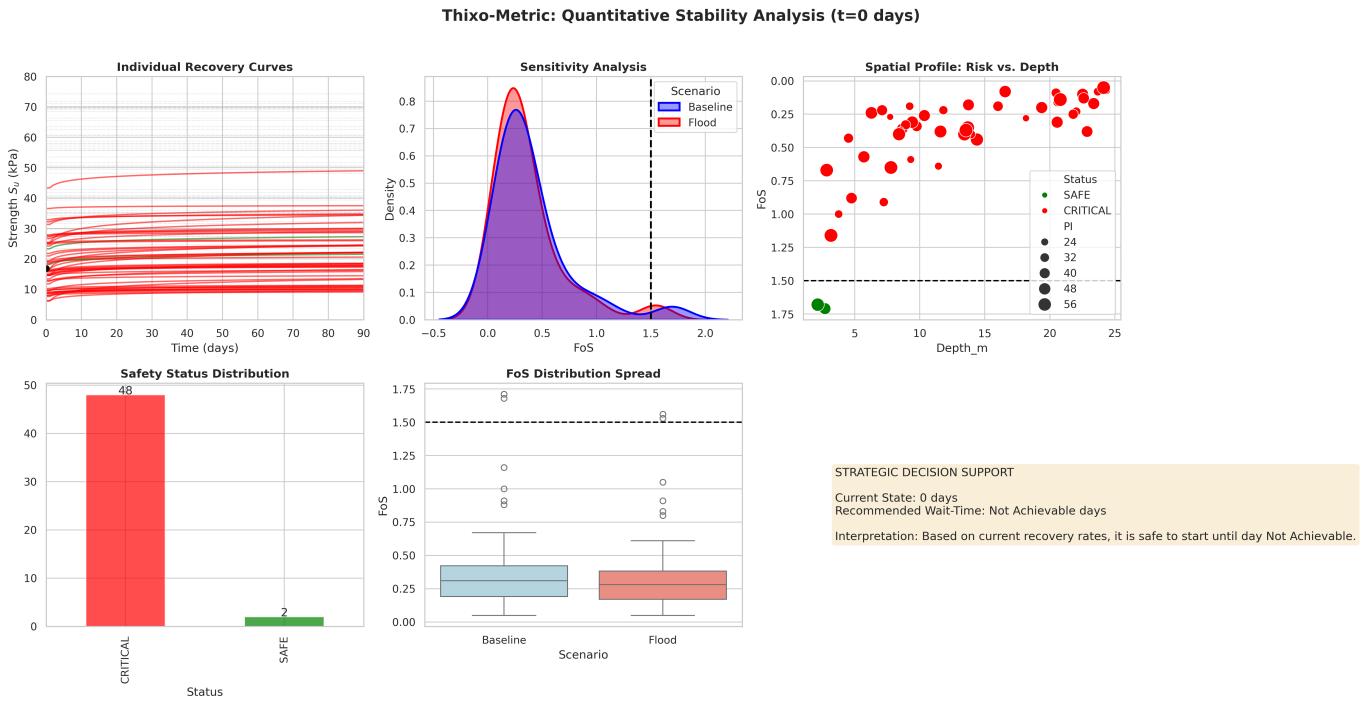
CL (Low Plasticity) soils are underperforming. This suggests external factors (such as submergence or specific mineralogy) are inhibiting recovery in this specific reach.

4. Visual Dashboard Analysis

The dashboard (below) visualizes the time-dependent recovery and sensitivity to flooding.

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Visual Analysis: The 'Flood' KDE plot shows a distinct leftward shift compared to the 'Baseline' plot. This shift visually quantifies the Hydraulic Lag penalty, indicating that saturated soil requires significantly more time to reach the same safety factor as dry soil.

5. Strategic Decision Support

Recommendation: Do not commence construction before Day Not Achievable.

This ensures that 95% of the borehole reach maintains stability above the target FoS of 1.5.

DEPTH WARNING: 18 critical samples detected below 15m. Structural reinforcement is required.

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6. Assumptions & Limitations

- Driving Stress: Calculated as depth * unit weight (1D approximation).
- Cap: Recovery is capped at 75% of Undisturbed S_u .
- Formula: $S_u(t) = S_0 + [A * \log_{10}(t)]$.
- Chemical cementation and aging effects are not considered.