

CASE STUDY

RAPID FOUNDATION RISK ASSESSMENT

PROJECT TYPE

Transmission Line Foundation Risk Assessment

SERVICES

Rapid Response TDR, Foundation testing

ASSET OWNER

Transmission Utility

WORKS SUBCONTRACTED

All works completed in-house



CHALLENGE

When inspections flag potential below-grade foundation issues; movement, voiding, or concrete degradation. Asset owners face pressure to act quickly, but without confirmation of what is actually present underground, the risk of over-responding with costly emergency replacements is significant

Reactive structure replacement programmes are frequently triggered by visible or suspected foundation concerns identified during routine inspections or third-party assessments. Below-grade issues are by nature difficult to confirm without excavation or pile extraction, both disruptive and expensive. Without objective subsurface data, engineering decisions default to worst-case assumptions, driving unnecessary emergency capital expenditure and construction activity that may not reflect the actual condition of the foundation.

SOLUTION

Groundline mobilises rapidly to deploy TDR testing on flagged foundations, using dynamic stiffness measurements and impedance signatures to confirm or refute the presence of below-grade issues non-invasively, before any excavation or replacement decision is made.

TDR testing detects cracking, debonding, insufficient embedment depth, and voiding without disturbing the foundation or surrounding ground. An engineering review of findings determines whether structural instability is present or whether concerns are limited to surface conditions. Where intervention is required, corrective design support is delivered tailored to the identified failure mechanism, covering foundation retrofit or replacement designs, repair methods, material lists, and sequencing guidance for contractors. Where TDR findings do not substantiate the suspected issue, unnecessary works can be stood down with confidence.

IMPACT

Asset owners can respond to foundation risk with quantified, non-subjective data replacing emergency assumption with engineering evidence, and avoiding costly excavation or replacement where the subsurface condition does not warrant it

Rapid-response TDR deployment transforms reactive foundation risk management from a process driven by precaution into one grounded in verified condition data. Capital expenditure on urgent replacements becomes defensible and proportionate, exploratory excavation is avoided where findings are reassuring, and corrective interventions are designed specifically for the confirmed failure mechanism rather than the assumed worst case. The result is faster, more confident decision-making under pressure, with cost and disruption kept to what the evidence actually supports.

