

CASE STUDY

URBAN RECONDUCTORING USING CSS

PROJECT TYPE

Urban Transmission Line
Reconductoring Using CSS

SERVICES

Overhead Line Design, Drafting &
Structure Design

ASSET OWNER

Transpower NZ Ltd

WORKS SUBCONTRACTED

All works completed in-house



CHALLENGE

Replacing ageing conductor with multiple joints through a confined urban corridor in West Auckland — constrained by a motorway, a cycleway, and existing infrastructure with no tolerance for supply interruption.

Transpower needed to replace end-of-life conductor on a section of line running through urban West Auckland, where numerous joints raised concerns about network integrity. The initial scope covered 10 spans, but site review identified that the critical issues were concentrated in just 2 spans, both in a heavily constrained environment hemmed in by a tower, a motorway, and a cycleway. Providing adequate crossing protection over houses, roads, and live low voltage lines in such a confined space presented a significant construction and design challenge.

SOLUTION

Groundline focused the scope on the two critical spans, redesigned the phase arrangement to create construction clearance, and deployed Catenary Support Systems to provide full crossing protection in the confined urban corridor.

Following a detailed site visit and critical review of the original scope, Groundline reduced the construction footprint to the spans that actually required intervention, immediately reducing cost and programme risk for Transpower. A complex CSS design was developed to provide reconductoring protection over houses, roads, and LV lines throughout the works. To create sufficient room for construction activity in the confined area, the bottom two phases were temporarily moved up to the middle crossarm. Groundline worked closely with the construction contractor throughout planning and delivery, with engineers on site during construction to ensure works proceeded as designed and to resolve any issues in real time.

IMPACT

Construction completed on time with no issues, at significantly reduced cost — with the contractors describing it as one of the most complicated jobs they had undertaken.

By identifying that only two spans required intervention, Groundline materially reduced the scope and cost of the project without compromising the outcome for Transpower. The CSS design maintained crossing protection and power supply continuity throughout, and the on-site engineering presence ensured the complex construction sequence was executed safely and to tolerance. The project further demonstrated Groundline's capability in applying CSS at the limits of what is conventionally considered feasible in dense urban transmission environments.

