

## Ngatamariki Electrical Transmission Facility

### Project: Construction of 22kV Transmission Line

Client: Mighty River Power

Location: Ngatamariki, SH5, Near Taupo

Contract value: \$2,300,000

### DESCRIPTION

The new Ngatamariki Power Station is located in the Ngatamariki geothermal field which is approximately 17km North East of Taupo.

Electrix was awarded the contract to link it to the existing power station at Nga Awa Purua by the construction of 7.5km long 220kV single circuit line with OPGW.

### SCOPE

The conductors and OPGW were supported by 26No steel poles ranging in height from 25m to 32m each with three cantilever crossarms. The poles were bolted to concrete bored piles either 1.8m or 2.4m diameter by approximately 10m deep. There were 2 No heavy strain, 3 No light strain, 5No heavy suspension and 16No standard suspension poles. The conductor was Zebra. The route of the Line passed through a combination of hilly forest and flat pastoral land.

Electrix supervised the boring of the piles. Ground conditions were monitored by Electrix engineering staff and cylindrical reinforcement cages which had been manufactured off site, were lowered in using the drilling rig. Concrete was poured up to a level approximately 2m from the surface where a cold joint was made. This allowed the bolt setting crew to work safely inside the top of the pile where the ground was supported by a liner. Gas detection equipment was necessary to protect the crews from the ever-present H<sub>2</sub>S gas. The crews wore harnesses to allow them to be quickly pulled out. The poles were formed in three sections – Electrix used a truck mounted crane to erect the bottom sections, then a 80t all terrain crane to install the remaining two sections. The sections were pulled together by hydraulic rams.

A helicopter was used to pull out the pilot ropes from the ends towards the middle where a 'hurdle' was set up to protect SH5 crossing below.

Conventional stringing machines were then used to run the conductors and OPGW.

### Value to Client

The Electrix crews were complimented on their professionalism and management of health & Safety by the Mighty River Power project Manager and all work was completed to client specification.

