

WARRAWEE TRACTION SUBSTATION



PROJECT DETAILS

PROJECT LOCATION:
Brentwood Avenue,
Warrawee 2074, NSW

COMMENCEMENT DATE:
January 2014

COMPLETION DATE:
February 2015

TYPE OF CONTRACT:
Construct

CONTRACT VALUE:
\$2.7 Million +

PROJECT MANAGER:
Wayne Ward

E&I MANAGER:
John Slater

OVERVIEW TRADE PACKAGE

Star was selected as the HV contractor for the new substation at Warrawee to support the new fleet of Waratah trains and the ongoing reliability of train operations. The substation project includes:

- constructing a new substation in the rail corridor approximately 400 metres south of Warrawee Station
- fencing and landscaping
- relocating services and utilities.

COMMERCIAL FACTORS

- a) Substation Electrical Works including supply and installation of 33kV and 1500V feeder cabling, installation and point testing of all electrical equipment supplied by both the Principal and Contractor; and
- b) Rail Signalling
- c) SCADA
- d) Communications
- e) Other Building works including
 - I. Mechanical
 - II. Fire
 - III. Security

PROJECT CHALLENGES

- Long lead times for HV Cables
- Cranage at the site due to narrow road and Street overheads
- Environmentally sensitive flora and fauna located between rail corridor and road
- Minimising disturbance of the residence including parking of personnel's vehicles
- Dates of Possessions of the rail corridor changed regularly which affected the program

PROJECT SPECIFICS

- The scope of HV electrical works for equipment supplied by the Principal includes the following:
- Install, test and integrate into service all HV electrical equipment supplied by the Principal;
- Install two-(2) x 5.35MVA Rectifier Transformers – 33kV;
- Install two-(2) x 5MW Traction Rectifiers;
- Install two-(2) x 33kV Switchboards
- Install one-(1) x 4000 A 0.5mH DC Reactor;
- Install two-(2) x Rectifier 1500V DCCBs and Base Frames;
- Install one-(1) x 1500V bus surge diverter and harmonic filter;
- Install five-(5) x 1500V feeder DCCBs on trucks, including one-(1) x spare
- 1500V feeder DCCB for maintenance purposes;
- Install and supply two-(2) x auxiliary 600V/415V 50kVA transformers;
- Install battery charger panel;
- Install one-(1) x Rail Earth Contactor (REC); and
- The scope of HV electrical works for equipment supplied by the Contractor includes the following:
- Supply ten-(10) x DCCB cubicle positions. The 1500V bus will consist of two- (2) x equal sections joined by cable;
- Supply four-(4) x 3-position isolation and rail connecting switch (IRCS) in the 1500V link area;
- Supply one-(1) x IRCS for each 1500V feeder DCCB cubicle excluding the spare DCCB cubicle positions;
- Supply 1500V substation negative return earth bars, including the main negative bus, control negative bus and 1500V switch area negative bus;
- Supply of traction substation earthing including earth grading ring, earthing electrodes, earth bars and all bonding connections;
- Supply one-(1) x 415V auxiliary supply Automatic Changeover (ACO) Panel

