

DOMAIN TUNNEL UPGRADE



PROJECT DETAILS

PROJECT LOCATION:
Domain Tunnel, Sydney,
NSW

COMMENCEMENT DATE:
June 2016

COMPLETION DATE:
In progress

TYPE OF CONTRACT:
Tunnel Services Infrastructure
Upgrade

CONTRACT VALUE:
>\$2.7 Million +

PROJECT MANAGER:
Bassam Hamed

E&I MANAGER:
Phil Tilden

OVERVIEW TRADE PACKAGE

The Cahill Tunnel under the Botanic Garden is located on the Cahill Expressway, Sydney and is an essential transport link for the Cross Harbour Tunnel. Total tunnel length is about 371m.

Most of the electrical installations in this tunnel are original and were installed circa 1962.

Original electrical installations have been reached to end of their safe and economical operation and Roads and Maritime Services (RMS) has decided to upgrade them with new systems that comply with the new standards and regulation as far as the physical tunnel construction and limitation allows.

COMMERCIAL FACTORS

Star shall be fully responsible for the design, supply, manufacturer, delivery, erection, construction, installation, testing, commissioning and maintenance of all equipment and materials for the Electrical, ICT, Mechanical and Fire Services & Builders works as specified herein. This shall include control systems and instrumentation to provide a fully operational site.

The works are to be delivered on a D&C basis and the proposed scope reflects this.

Star shall conform to the material and performance requirements detailed in this specification and on the drawings. The finalised design must be submitted to RMS for comment and review prior to purchase, manufacture or installation of any equipment.

PROJECT CHALLENGES

- Full design and construct of complete
- Interaction with numerous external statutory controllers, contractors and subcontractors
- Short project time frames
- Environmentally sensitive flora and fauna located through work area
- Working alongside live motorway
- Working alongside the Botanic Gardens and general public
- Interface with existing 50 year old plus equipment
- Logistical challenges with transporting equipment into the plant rooms, alongside Botanic Gardens and General Public
- Multiple shutdowns whilst maintaining lighting, ventilation and general services for the tunnel.

PROJECT SPECIFICS

The scope shall include (but not necessarily limited to) the following:

- Site survey of existing systems for incorporation in the new scheme
- The complete design of each of the services systems and completion of design drawings for submission to The Client for approval
- All equipment required for the Contract to operate in an ambient temperature of 40°C
- All plant motor equipment must have AC3 rated isolators
- Switchboards / control panels
- Motors
- Variable Speed Drives
- Uninterruptable Power Supplies
- PLC / SCADA system
- Cable management system
- Cables/submains
- Earthing
- Electrical protection equipment to provide full fault discrimination and earth leakage protection
- General lighting to modified rooms
- Emergency and Exit lighting to modified rooms

- Lighting controls
- Dry Fire equipment to modified rooms
- Ventilation to new equipment rooms
- All necessary cutting, drillings penetration, making googs, connection for services through the fire and non-fire compartment to complete the Works
- Works and Management of the removal, demolition, diversion and disposal for the existing redundant installations and material, including the pre-construction survey report on the conditions and status of all the interconnecting terminations, switch/pant rooms and facilities for upgrade installation
- Complete all temporary switchboards, works and installations to facilitate the switchover of load from old to new system within one night work
- Risk assessment for all the equipment and plant and the methodology for construction and change over from old system to new system according to AS/NZS ISO 31000:2009
- Reliability assessment for the new system

