

Building Services Utility Report
Electrical, Communication and Hydraulic
Atlassian Central Development



Revision Information

| | | |
|--------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Project | Atlassian Central Development | |
| Title | Building Services Utility Report - Electrical, Communication and Hydraulic | |
| Client | Avenor | |
| Prepared By | LCI Consultants L4, 73 Walker Street North Sydney 2060 | Stantec Level 6, Building B, 207 Pacific Highway St Leonards, New South Wales, 2065 |
| Author | LCI / Stantec | |

Revision Schedule

| Revision | Date | Issue Name | Author | Authorised |
|----------|----------|-----------------|-------------|------------|
| 00 | 15.07.19 | For Information | KM, LK | LEP |
| 01 | 05.06.20 | For Information | SK | LEP |
| 02 | 07.08.20 | For Review | SK/KM/BJ/PM | LEP |
| 03 | 19.08.20 | For Review | SK/KM/BJ/PM | LEP |
| 04 | 04.09.20 | For Review | SK/KM/BJ/PM | LEP |
| 05 | 23.09.20 | For Review | SK/KM/BJ/PM | LEP |
| 06 | 29.09.20 | SSDA Submission | SK/KM/BJ/PM | LEP |

Contents

| | | |
|--------------|--------------------------------------------------|-----------|
| 1 | Introduction | 5 |
| 1.1 | Description of the Site | 6 |
| 1.2 | Site and Surrounding Context | 8 |
| 1.3 | Project Description | 8 |
| 1.4 | Glossary | 10 |
| 1.5 | Glossary of Key Terms..... | 10 |
| 1.6 | Abbreviations | 11 |
| 1.7 | Reference Design Documentation..... | 13 |
| 2 | Building Utilities – Site Services | 15 |
| 2.1 | Electrical..... | 16 |
| 2.1.1 | Background | 16 |
| 2.1.2 | Ausgrid Design Information | 20 |
| | HV Connection Point | 20 |
| | HV Network Expansion Works | 21 |
| | LV Relocation Works | 22 |
| | Easements: | 23 |
| | Alternative Cable Route..... | 23 |
| | TfNSW Consultation and Requirements | 25 |
| 2.2 | Communications..... | 26 |
| 2.3 | Hydraulics | 28 |
| 2.3.1 | Sydney Water Engagement | 28 |
| 2.3.2 | Water Supply | 30 |
| 2.3.3 | Combined Fire Water Supply | 31 |
| 2.3.4 | Fire Main Reticulation | 31 |

| | | |
|--------------|-------------------------------------------------------------------|-----------|
| 2.3.5 | Sewer and Stormwater | 32 |
| 2.4 | Gas Supply..... | 34 |
| | Appendix A – Ausgrid Letter of Offer | 36 |
| | Appendix B – Ausgrid Design Information Package (DIP)..... | 37 |

1 Introduction

LCI and Stantec have been commissioned by Atlassian (the Applicant) to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the SSD-10405 for a commercial and hotel development above the Former Inwards Parcel Shed at 8 – 10 Lee Street, Haymarket.

Specifically, this report addresses the following SEARs:

| SEARs | Report Reference |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17. Utilities The EIS Shall <ul style="list-style-type: none"> • Address the existing capacity and future requirements of the development for the provision of utilities including staging of infrastructure in consultation with relevant agencies • Detail impacts to any existing assets of utility stakeholders from demolition/construction and any augmentation of infrastructure that may be required to accommodate the proposed development. | <ul style="list-style-type: none"> • Electrical - Section 2.1 • Comms – Section 2.2 • Water – Section 2.3 • Gas – Section 2.4 <ul style="list-style-type: none"> • Electrical - Section 2.1 • Comms – Section 2.2 • Water – Section 2.3 • Gas – Section 2.4 |

1.1 Description of the Site

The Site is known as 8-10 Lee Street, Haymarket. It is an irregular shaped allotment. The allotment has a small street frontage to Lee Street, however this frontage is limited to the width of the access handle.

The Site comprises multiple parcels of land which exist at various strata levels. All the lots are in the freehold ownership of Transport for NSW, with different leasing arrangements:

- **Lot 116 in DP 1078271:** YHA is currently the long-term leaseholder of the Site which covers the areas shown in blue below.
- **Lot 117 in DP 1078271:** This is currently in the ownership of TfNSW and the applicant is seeking the transfer of the leasehold on this land to provide for an optimised basement and servicing outcome for the Site.
- **Lot 118 in DP 1078271:** This is currently in the ownership of TfNSW and the applicant is seeking the transfer of the leasehold for part of the air-rights above part of this allotment to allow for an optimised building envelope for the project. The proposal also uses a part of Lot 118 in DP 1078271 within Ambulance Avenue for Day 1 bike access, secondary pedestrian access and fire service vehicle access.
- **Lot 13 in DP 1062447:** This is currently in the ownership of TfNSW but TOGA (who hold the lease for the Adina Hotel) have a long-term lease of this space in the lower ground area.

The Site has an area of approximately 3,764sqm which includes 277sqm of air rights that apply from RL40.

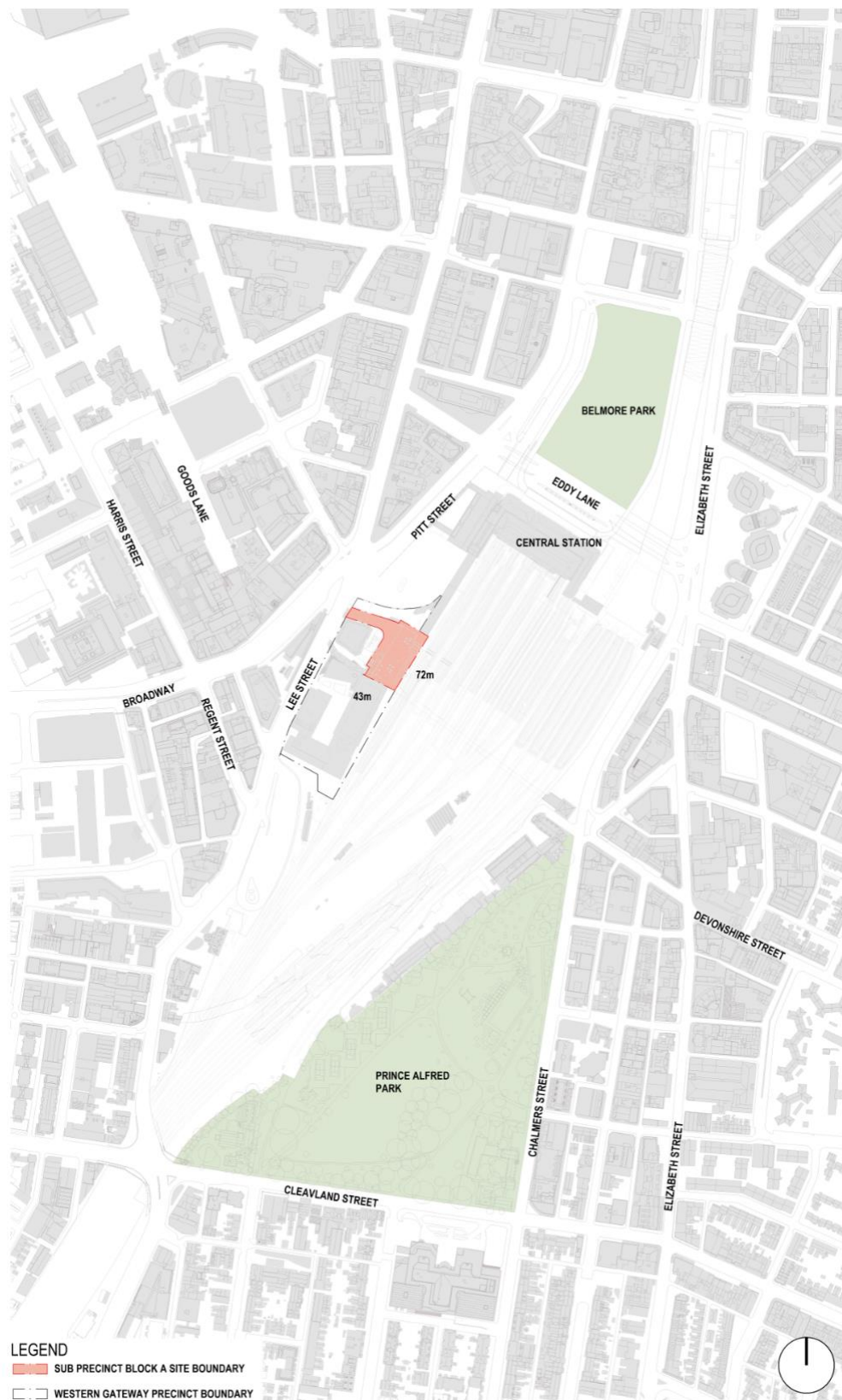


Figure 1.1.1 – Site Location and Dimensions

1.2 Site and Surrounding Context

The Site is directly adjacent to the Western Wing Extension of Central Station, and forms part of the 'Western Gateway Sub-precinct' of the Central Railway Station lands. It is situated between the existing CountryLink and Intercity railway platforms to the east and the Adina Hotel (former Parcel Post Office) to the west.

Existing vehicle access to the Site is via Lee Street, however the Lee Street frontage of the Site is only the width of the access handle.

Current improvements on the Site include the Parcels Shed, which operated in association with the former Parcels Post Office (now the Adina Hotel). The Site is currently used as the Railway Square YHA. The Site also includes the western entryway to the Devonshire Street Pedestrian, which runs east-west through Central Station under the existing railway lines.

The Site is situated in one of the most well-connected locations in Sydney. It is directly adjacent to Central Station Railway which provides rail connections across metropolitan Sydney, as well as regional and interstate connections and a direct rail link to Sydney Airport. The Site is also within close proximity to several educational institutes and is a city fringe location which provides access to key support services.

Central Railway Station is currently undergoing rapid transformation to allow for integration of rail, metro and light rail transport infrastructure. This will elevate the role of Central Station not only for transport but also enhance opportunities for urban renewal and revitalisation of the surrounding precinct. This is one of the key drivers for the identification of the Central SSP and the Western Gateway Sub-precinct to accommodate a new innovation and technology precinct.

The proximity of the Western Gateway Sub-precinct to the city, while still being located outside the core Sydney CBD, provides opportunity for it to evolve to attract technology and innovation companies. It has access to all required services while being sufficiently separate to the CBD to establish a distinct technology industry ecosystem. Its CBD fringe location will provide affordable commercial rents which will support Startups and entrepreneurs which are a key component of an innovation precinct.

1.3 Project Description

The proposed SSDA will facilitate the development of a new mixed-use development comprising '*tourist and visitor accommodation*' (in the form of a 'backpackers') and commercial office space within the tower form. Retail, lobby and food and drink premises at the Lower Ground level and Upper Ground level.

Atlassian Central at 8-10 Lee Street will be the new gateway development at Central Station which will anchor the new Technology Precinct proposed by the NSW Government. The new building will be purpose-built to accommodate the Atlassian Headquarters, a new TfNSW Pedestrian Link Zone, and the new Railway Square YHA backpacker's accommodation, in addition to commercial floorspace to support Tech Start-ups.

The new development is to be built over the existing heritage former Inwards Parcels Shed (the Parcels Shed) located on the western boundary of Central Station with the Adina hotel to the west. The works includes a 38-storey mixed-use tower with basement loading dock facilities and end of trip (EOT) facilities accessed off Lee Street, 2 storey lobby utilising the Parcels Shed building, lower ground and upper ground retail, YHA hostel and commercial tower with staff amenities to the mid-level and roof top areas and a pedestrian Link Zone works for TfNSW.

The building design has been conceived to support the delivery of a site plan designed to connect with future developments to both the south and east and integrate with a cohesive public realm for the broader Sydney community in accordance with NSW government strategic planning.

The tower design is a demonstration project for Atlassian, representing their commitment to environmental sustainability and contemporary workplace settings through tower form and construction systems along with a set of emblematic outdoor workplaces stacked in the tower form.

The existing Parcels Shed will be adaptively re-used in accordance with best practice heritage process and form the upper level of a 2-storey entry volume that connects visually with the 2 level Link Zone. Over the roof of the Parcels Shed, a new privately owned but publicly accessible landscaped area will be created as the first part of a new upper level public realm that may extend to connect to a future Central Station concourse or future Over Station Development.

The proposed mixed use tower directly adjoins a live rail environment to the east and public domain to the north, west and south. These works will consider these rail environments and have been designed to ensure that all TfNSW external development standards are achieved. This ensures there is no impact to the operation or safety of these TfNSW assets.

Interfaces from the overall site and especially the State works Link Zone have been designed in consultation with the adjoining stakeholders. These stakeholders include TfNSW to the north and south, Toga and the Adina Hotel operator to the west and the Dexus Fraser's site to the south. Connections via the Link Zone, through the basements, and off the proposed new Link Zone dive ramp will be designed to enable existing and future developments to function in both the day 1 scenario and end state when all developers have completed their works.

The overall project aspiration is to create a world class tech precinct with effective pedestrian links through the Atlassian site to the Central Station western forecourt to Central Walk west and adjoining stakeholder's sites.

1.4 Glossary

1.5 Glossary of Key Terms

| Term | Definition |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Atlassian Site | 8 – 10 Lee Street, Haymarket |
| The Project | Commercial and hotel development above the Former Inwards Parcel Shed at 8-10 Lee Street, Haymarket |
| Block B or "Dexus/ Frasers Site" | 14-30 Lee Street Haymarket. Adjoining land immediately to the south currently comprising three 8 storey commercial buildings. |
| Block C or Adina Hotel | 2 Lee Street, Haymarket The Former Parcels Post Office The Adina Apartment Hotel Sydney Central |
| Central Sydney | Land identified as Central Sydney under the Sydney LEP 2012 and includes Sydney's Central Business District |
| Sub-precinct | Western Gateway Sub-precinct |
| Atlassian Central | The Atlassian tower building (building only) |
| Atlassian Central development | The whole Atlassian development within the Atlassian Site including the tower and public domain works. |
| Devonshire Street Tunnel | The pedestrian and cycle tunnel running between Chalmers Street and Lee Street |
| Link Zone | The publicly accessible land within the Site. |
| Central Walk West | The future western pedestrian entry to the new 19 metre wide underground concourse customers to suburban rail and Sydney Metro platforms. |
| Habitat Level 1 | Flexibly ventilated workspace areas |

1.6 Abbreviations

| Abbreviation | Meaning |
|----------------------------|------------------------------------------------------------------------------|
| A | Ampere |
| ACHAR | Aboriginal Cultural Heritage Assessment Report |
| AHIMS | Aboriginal Heritage Information Management System |
| AS | Australian Standard |
| APAR | Airports Protection of Airspace Regulations |
| ASP 1 | Accredited Level 1 Service Provider (High Voltage Construction) |
| ASP 3 | Accredited Level 3 Service Provider (High Voltage Design) |
| ASS | Acid Sulphate Soils |
| ATP | Australia Technology Park |
| BC Act | Biodiversity Conservation Act 2016 |
| BCA | Building Code of Australia |
| BDAR | Biodiversity Assessment Report |
| Camperdown-Ultimo Strategy | Camperdown-Ultimo Collaboration Area and Place Strategy |
| CDRP | Central Design Review Panel |
| Central SSP | Central Station State Significant Precinct |
| C2E | Strategy Central to Eveleigh Urban Transformation Strategy |
| CMP | Conservation Management Plan |
| Council | City of Sydney Council |
| CPTED | Crime Prevention Through Environmental Design |
| CPTMP | Construction Parking and Traffic Management Plan |
| CSPS | Draft Central Sydney Planning Strategy |
| DAS | Distributed Antenna Service |
| DBYD | Dial Before You Dig |
| DES | Design Excellence Strategy |
| Design Brief | Architectural Design Competition Brief |
| Design Competition | Architectural Design Competition |
| Design Guideline | Western Gateway Design Guideline |
| Devonshire Street Tunnel | Devonshire Street Pedestrian Tunnel |
| District Plan | Eastern City District Plan |
| DIP | Ausgrid Design Information Package |
| DN | Diameter Nominal |
| DPC | NSW Department of Premier and Cabinet |
| DPIE/Department | NSW Department of Planning, Industry and Environment |
| DP | Deposited Plan |
| DSI | Detailed Site Investigation |
| EIS | Environmental Impact Statement |
| EPA | NSW Environment Protection Authority |
| EPBC | Act Environment Protection and Biodiversity Conservation Act 1999 |
| ESD | Ecologically Sustainable Development |
| FRNSW | Fire Rescue New South Wales |
| GANSW | NSW Government Architect's Office |
| GFA | Gross Floor Area (as defined under the Sydney Local Environmental Plan 2012) |
| HIS | Heritage Impact Statement |
| HV | High Voltage |

| | |
|-------------------------|---------------------------------------------------------------------------|
| Infrastructure Strategy | State Infrastructure Strategy 2018-2038 |
| kPa | kilo Pascal |
| kVA | kilo Volt Amp |
| LGA | City of Sydney Local Government Area |
| L/s | Litre per second |
| LSPS | Draft Sydney Local Strategic Planning Statement |
| LV | Low Voltage |
| m | metre |
| MCF | Mobile Carriers Forum |
| mm | millimetre |
| NBN | National Broadband Network |
| NIA | Noise Impact Assessment |
| OEH | NSW Office of Environment and Heritage |
| OLS | Obstacle Limitation Surface |
| OWMP | Operational Waste Management Plan |
| Parcels Shed | Former Inward Parcels Shed |
| PSI | Preliminary Site Investigation |
| Region Plan | A Metropolis of Three Cities – Greater Sydney Region Plan |
| RAP | Remediation Action Plan |
| RAPs | Registered Aboriginal Parties |
| RMS | Roads and Maritime Services |
| RTTC | Radar Terrain Clearance Chart |
| SEARs | Secretary's Environmental Assessment Requirements |
| SEPP | State Environmental Planning Policy |
| SEPP 55 | State Environmental Planning Policy No.55 – Remediation of Land |
| SEPP Infrastructure | State Environmental Planning Policy (Infrastructure) 2007 |
| SEPP SRD | State Environmental Planning Policy (State and Regional Development) 2011 |
| sqm | Square Metres |
| SREP SH | Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005 |
| SSD | State Significant Development |
| SSDA | State Significant Development Application |
| Sub-precinct | Western Gateway Sub-precinct |
| Sydney 2030 | Sustainable Sydney 2030 Strategy |
| Sydney LEP 2012 | Sydney Local Environmental Plan 2012 |
| Taskforce | Tech Taskforce |
| TIA | Transport and Accessibility Impact Assessment |
| TfNSW | Transport for New South Wales |
| The Minister | The Minister for Planning, Industry and Environment |
| The Regulation | Environmental Planning and Assessment Regulation 2000 |
| Transport Strategy | Future Transport Strategy 2056 |
| Urbis | Urbis Pty Ltd |
| VA/m2 | Volt Amps per square meter |
| VIA | Visual Impact Assessment |
| WSAA | Water Service Code of Australia |
| WSC | Water Services Coordinator |

1.7 Reference Design Documentation

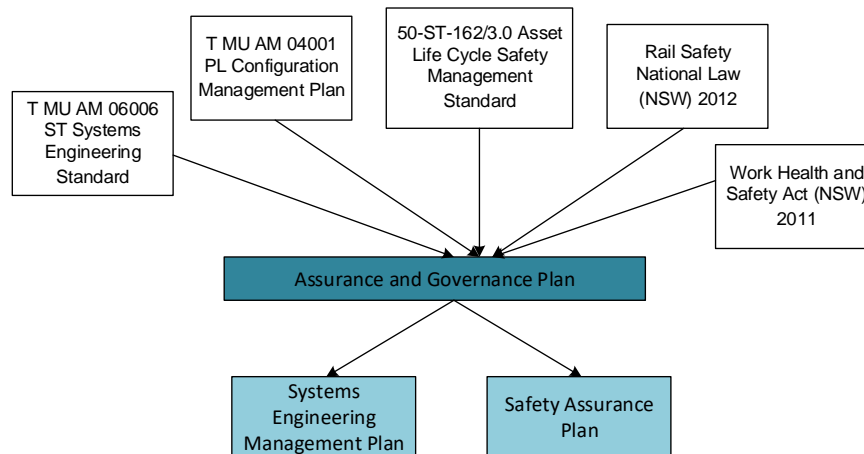
This report has been prepared for Atlassian Central development project based on the concept architectural design drawings by SHoP and BVN Architects, available project survey data and Dial before You Dig information provided by:

- Ausgrid
- AAPT / PowerTel
- Jemena Gas South
- AARNet
- City of Sydney
- NBN Co
- Nextgen
- Optus
- PIPE Networks
- RailCorp Central
- Roads and Maritime Services
- Sydney Water
- Telstra
- Verizon Business
- Vocus Communications

2 ASA Compliance and AEO Process

The Atlassian Building Project, as part of the greater Central Precinct Renewal project, is required to comply with ASA Standards and due to the interface with the rail corridor is required to follow an AEO process throughout the project lifecycle.

The Assurance structure adopted by the project in order to deliver a compliant project is as shown below:



The Assurance and Governance of the project, in accordance with the AEO Requirements set out in the TfNSW standards - Configuration Management Plan (T-MU-AM-04001-PL V6.0), Systems Engineering Standard (T-MU-AM-06006-ST V2.0) and Asset Lifecycle Safety Management Standard (50-ST-162/3.0) is documented within the Project Assurance and Governance Plan (ABC-AGP-PLN-0001 V6.0).

This plan sets out the governance arrangement and assurance principles that will be applied throughout the project lifecycle, further details pertaining to the conduct and assurance of systems engineering principles and safety assurance are set out in the project Systems Engineering Management Plan ABC-SEMP-PLN-0001 V6.0 (SEMP) and Safety Assurance Plan ABC-SAP-PLN-0001 V6.0 (SAP) respectively.

The compliance of the project with ASA standards is carried out at an individual design discipline level. Relevant ASA Standards will be applied to the activities conducted by Stantec and LCI Consultants during the design of the project.

3 Building Utilities – Site Services

This utility report considers the various network authorities that would need to be consulted for connection of the new Atlassian Central development.

The following infrastructure will be provided to the development:

- Electricity supply and reticulation (Ausgrid)
- Telecommunications (NBN)
- Water services (Sydney Water)
- Sewer services (Sydney Water)
- Gas Services (Jemena)

The consultant team have proactively worked with the local authorities above, undertaking preliminary applications to assess the existing capacity and future requirements of the development. The staging of infrastructure will be developed in the detailed design and approvals process with the relevant authorities.

The investigation undertaken to date has progressed discussions with the relevant authority where augmentation, upgrades or consideration of adjacent assets has been determined.

The status of negotiations with each authority is progressing well, with a clear understanding of the next steps presented within this report to facilitate the proposed development.

3.1 Electrical

3.1.1 Background

Ausgrid is the Distribution Network Service Provider/Utility that will provide an electrical connection to the development site.

The redeveloped site is currently located on the fringe of Ausgrid's Triplex network and will be served from the Sydney South Zone Substation at Haymarket.

To the immediate west of the development site there are two substations, with the northernmost substation supplying the Adina Apartments and the southernmost connecting with a number of high-voltage feeders crossing the Central Station railway lines and continuing into Surry Hills. These feeders cross the southern boundary of the site through the Devonshire Street Tunnel. It will be important to avoid disturbing this infrastructure during the development as it serves a large number of customers in the area.

Which Ausgrid network serves the development site will have an impact on the types of substation that are permissible within the development area, with a corresponding impact on spatial allowances and the reliability of the upstream network infrastructure. The triplex network typically brings three separate high-voltage feeders into each substation, while the regular network operates as a ring main.

The estimated demand for the development site is approximately 4750kVA. This is based on the following electrical allowances:

- commercial office: 90VA/m² (50VA/m² light and power, 40VA/m² mechanical systems)
- retail: 100VA/m² (60VA/m² light and power, 40VA/m² mechanical systems)
- YHA accommodation: 40VA/m² (20VA/m² light and power, 20VA/m² mechanical systems)
- house services: 30VA/m²
- diversity factor – tenanted areas: 0.7
- diversity factor – house areas: 0.8
- future provision/spare capacity: 20%

The Ausgrid Design Information Package (DIP) was received on 3 June 2020, and details the HV connection point, upgrade works required, decommissioning works required, as well as all detailed substation requirements.



Figure 2.1.1 : Ausgrid DBYD Extract

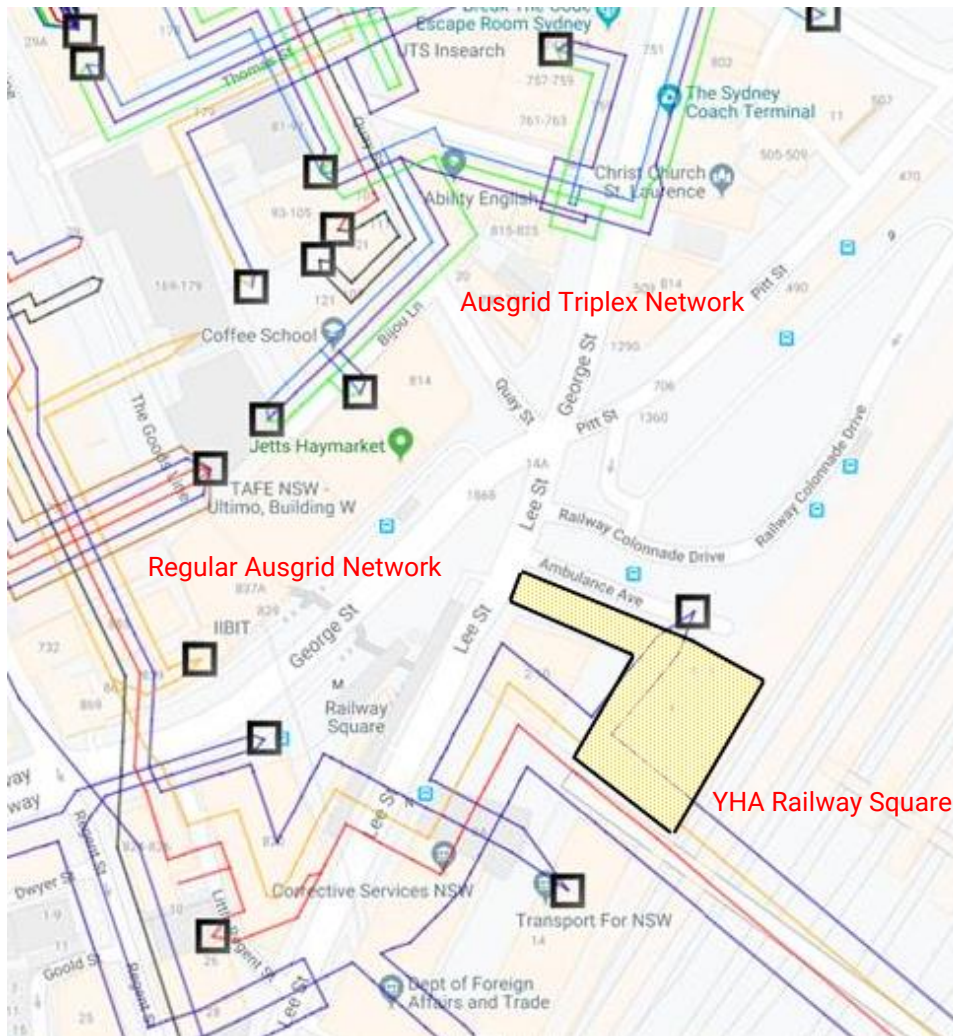


Figure 2.1.2 : Ausgrid Network (Triplex Network to the North)

The process for connecting a development to the Ausgrid network is described in the contestable connections process flowchart, available here: <https://www.ausgrid.com.au/-/media/Documents/ASP/Design/Contestable-Connections-Process-Flowchart.pdf>

The major steps in the process are:

- Optionally submit a preliminary enquiry to answer general questions about the Ausgrid Network available to the development site
- Submit an Application for Connection – Ausgrid will assess the development and provide a Design Information Package (DIP), detailing the design and installation requirements required to connect the development to the Ausgrid network
- Engage an accredited Level 3 Service Provider (ASP 3) to liaise with Ausgrid and to develop a certification connection design, including detailed design of the substations and required network modifications
- Engage an accredited Level 1 Service Provider (ASP 1) to undertake the construction phase of the connection works

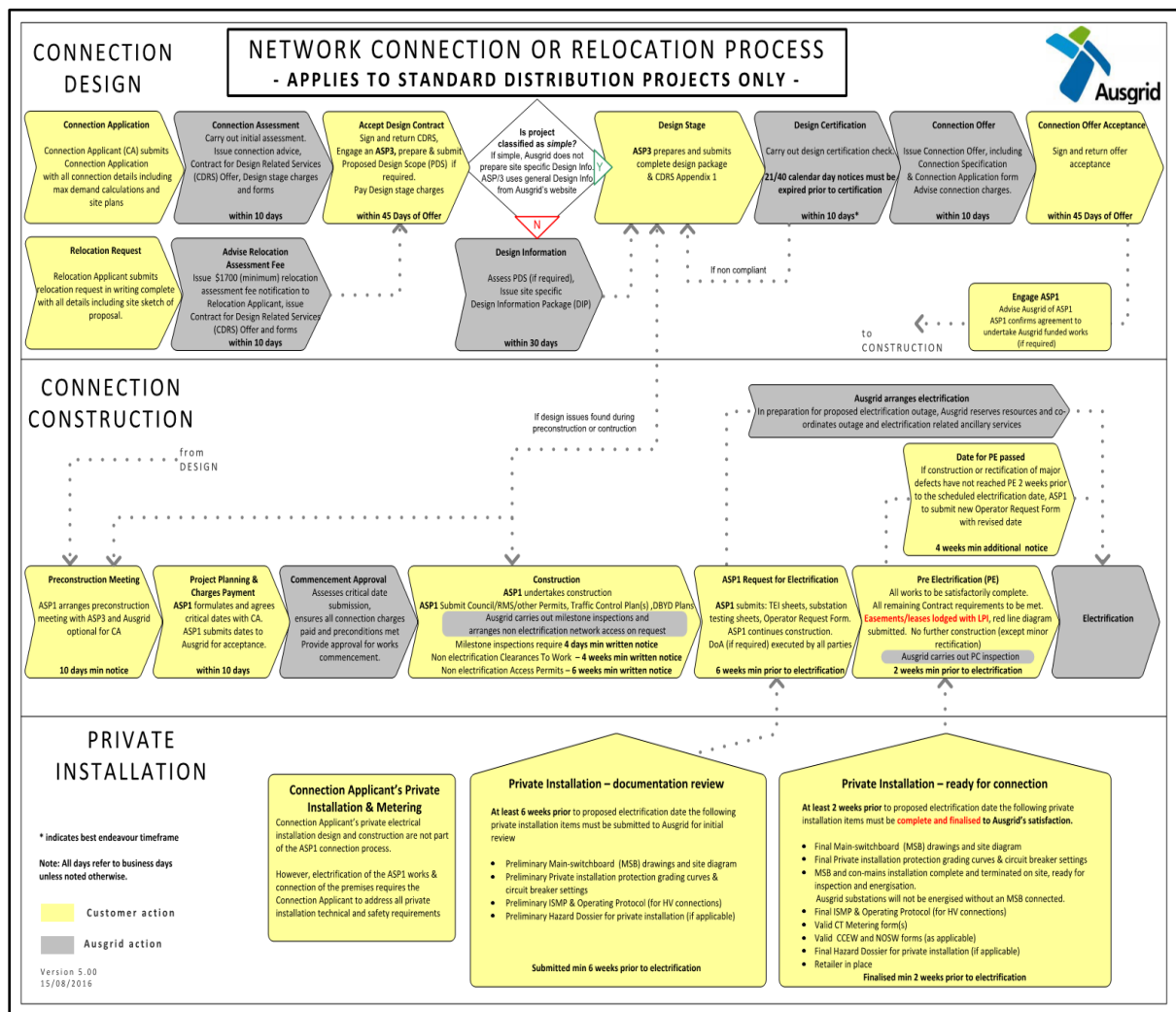


Figure 2.1.3 : Ausgrid Contestable Works Flowchart

3.1.2 Ausgrid Design Information

HV Connection Point

The HV connection point nominated by Ausgrid is the existing HV Pit (55244) located as shown below:

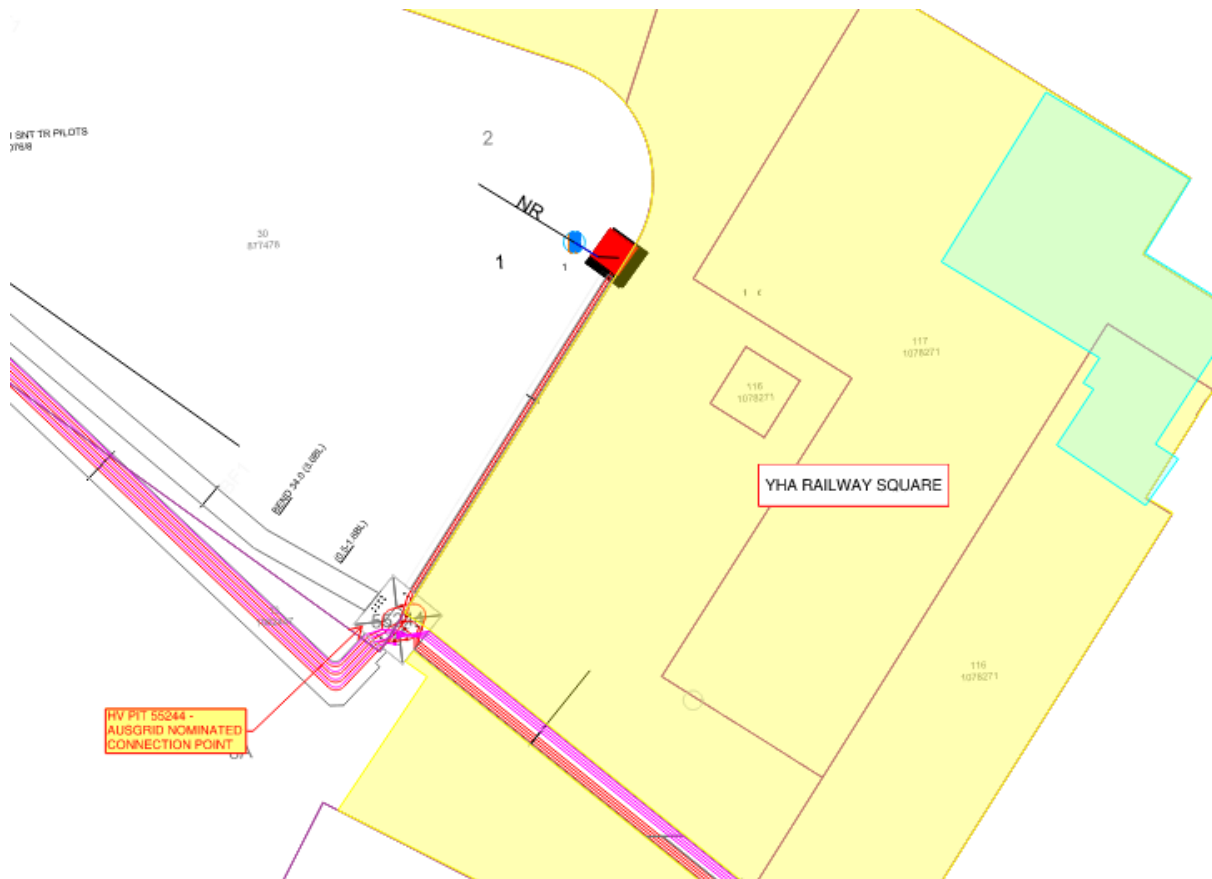


Figure 2.1.4: Nominated HV Connection Point

The new substations are to be connected to the 42K/L/M feeders on the Triplex network, supplied from the Sydney South Zone substation. The new substations will be numbered as S.32285 and S.32286. The new incoming supply will utilise the existing Ausgrid cable easement through the Adina basement, and enter directly into Substation 1 in Basement Level 1 of the Atlassian Central development. This is the route that has been specified by Ausgrid in the DIP. An extract from the Ausgrid DIP indicating this connection is shown below:

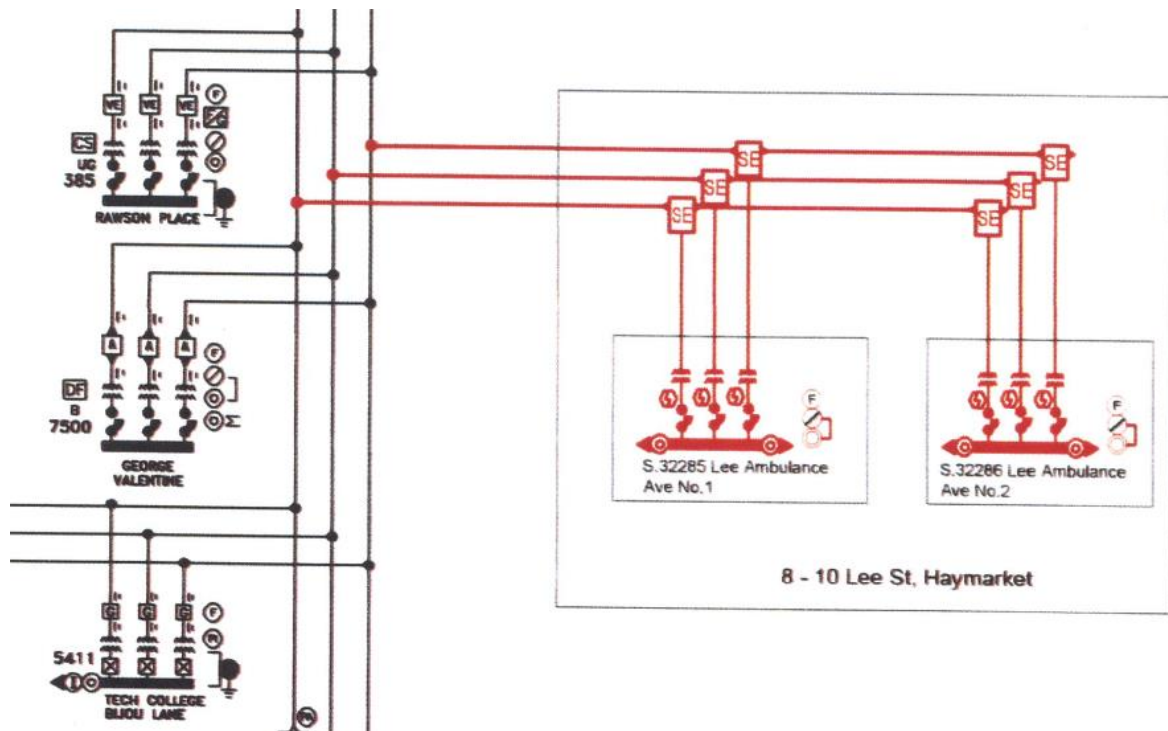


Figure 2.1.5: Ausgrid System Diagram Extract

HV Network Expansion Works

As part of the upgrade works, Ausgrid requires the following expansion works on the HV system:

- Decommission and recover the existing substation (S.7563) that provides power to the existing Adina site
- New – 8x 125mm + 1x 63mm ducts extending from the HV Pit at the connection point up to the new substations.
- New – HV Pit at the Eastern side of the intersection of Pitt Street and Railway Square
- New – 8x 125mm + 2x 63mm ducts extending from the new HV pit to existing Ausgrid HV pit 55099 at the intersection of Valentine and George Street
- New – 16x 125mm + 2x 63mm ducts extending from the new HV pit to the existing Ausgrid HV pit 55241 on the Eastern side of Lee Street.
- New – 4x 125mm HV ducts interconnecting the two new substations.

A sketch extract from the DIP is shown below:

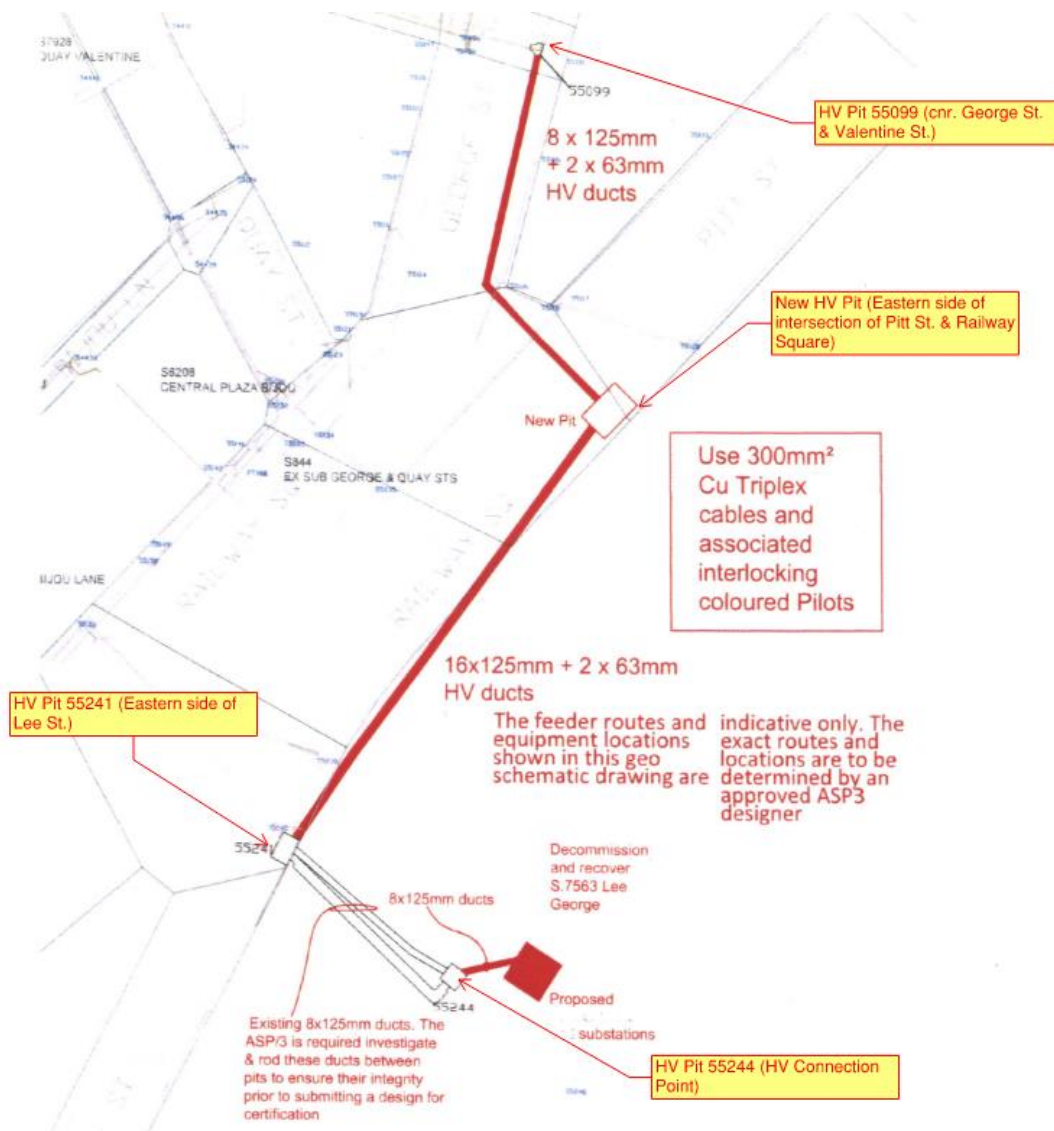


Figure 2.1.6: HV System Expansion Works

LV Relocation Works

The existing 1200A Direct Distributor to 2 Lee Street (Adina site) which is currently connected to substation S.7563 is to be connected to new substation S.32285.

The existing 400A Direct Distributor to "Inwards Parcel Shed" which is currently connected to S.7563 is to be connected to new substation S.32286.

Easements:

Ausgrid Cable easements are a minimum of 2m wide. The existing cable easement supplying existing sub S.7563 will be abolished at the time of the substation being decommissioned, and a new easement will need to be registered in Ausgrid's favour. An initial sketch is shown below:

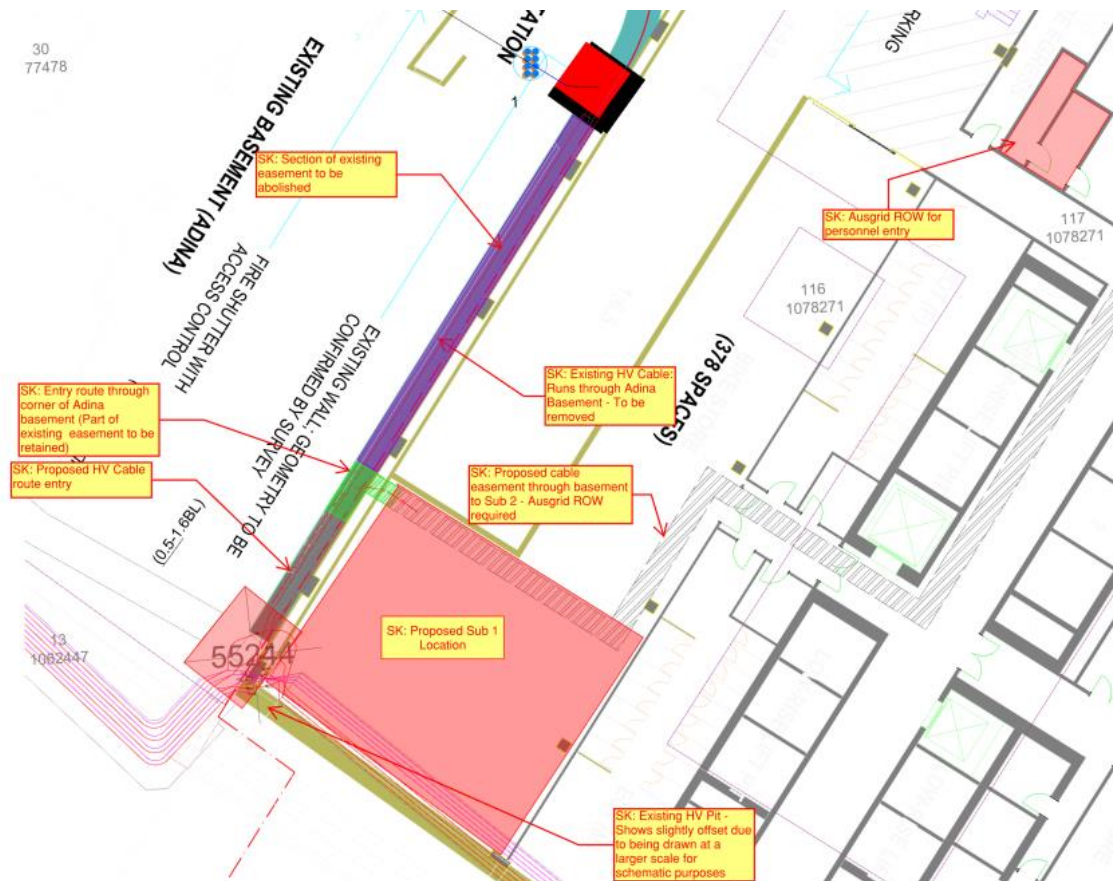


Figure 2.1.7: Initial Easement Sketch

The proposed easement will be assessed against the available survey information for feasibility, and a detailed plan will be developed as a first pass prior to developing the detailed internal substation design.

Alternative Cable Route

The initial assessment of the incoming cable route in the recent discussions assumed an incoming cable route coming up Ambulance avenue as shown below:

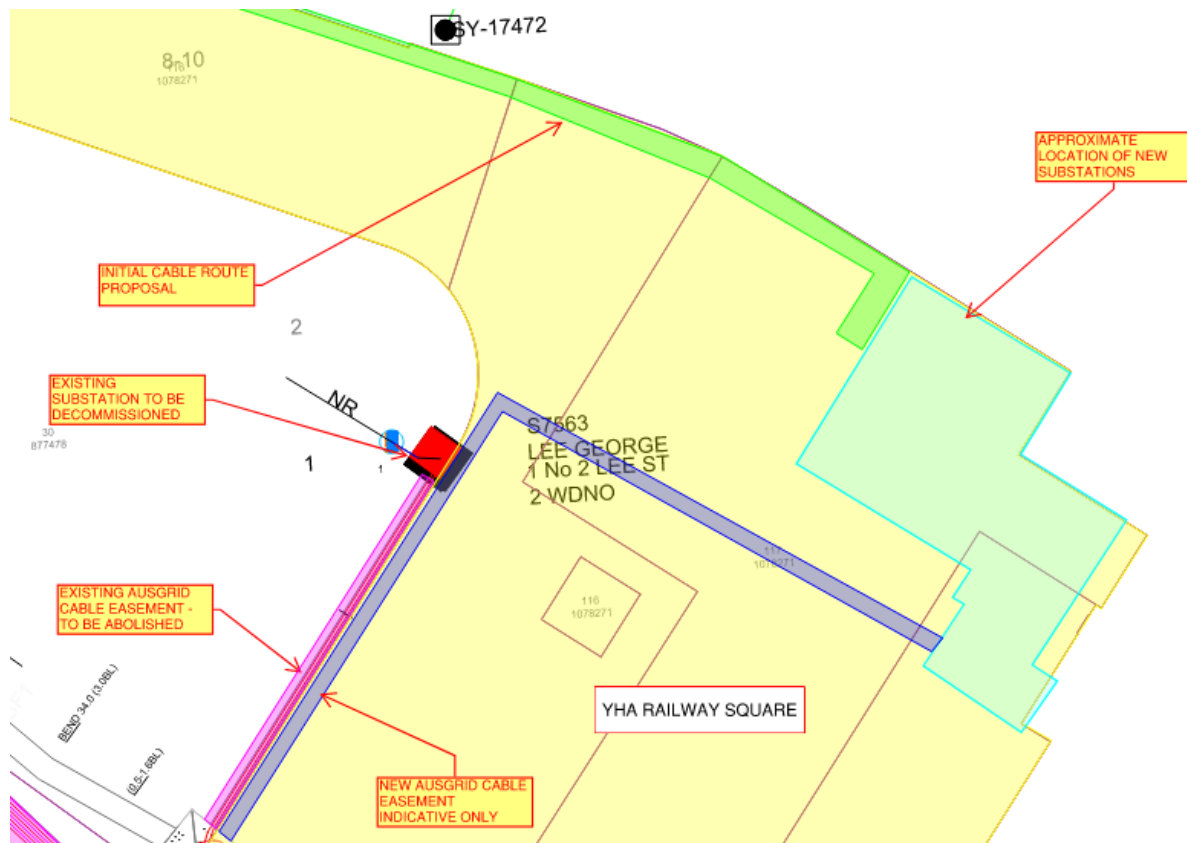


Figure 2.1.8: Initial Cable Route Proposal

Based on Ausgrid's connection point, it is not recommended that this option be pursued, based on the following factors:

- Extra cable length: The cable route would need to run back to Pitt Street, along the front of the Adina site, and up Ambulance Avenue. The current proposed route is approximately 40m. The alternative around Ambulance Avenue is approximately 160m – Four times longer. Each transformer cable will need to run this distance, resulting in an extra total cable length of approximately 360m. This adds a significant cost to the project.
- Complex coordination: Along the Adina site frontage is a number of services, including various Ausgrid HV and LV pits. As Ausgrid already requires extra HV ducts along this route, altering the supply route will require extra ducts over and above those already specified, further complicating the coordination.
- Minimal benefit: The works required to decommission the existing substation, as well as establish the replacement LV supplies required will require most of the Ausgrid specified works along the proposed route. Altering the HV cable route will not remove this requirement, so will result in a large proportion of the works being duplicated.

While this route is feasible as an alternative, it is not the preferred route, and further assessment can be undertaken should the route through Henry Deane plaza be found to be too complex.

TfNSW Consultation and Requirements

Transport for NSW (TfNSW) have been notified of the proposed works and have requested that they be kept informed as the design develops. Arcadis has been appointed as the peer review consultant for the Level 3 design, and at each design milestone within the Level 3 programme, TfNSW will require the design to be reviewed and commented on.

As part of the site-specific requirements for the utility services design, TfNSW have provided details of their nearby substations at Central station, to be assessed and relevant details included in the design. Special attention will be paid to the earthing system, given that there are traction substations in the vicinity.

These details will be sent to Ausgrid to enable them to develop the detailed earthing design in accordance with their network standards.

3.2 Communications

The site currently has an NBN connection that extends along Ambulance Avenue. This connection cabling is proposed to be decommissioned to allow for the new ramp construction. A new NBN installation shall be provided either along Ambulance Avenue or to follow the proposed site incoming power cabling pathway. The default provider for the commercial building will be NBN however other carriers are present in the vicinity of the development.

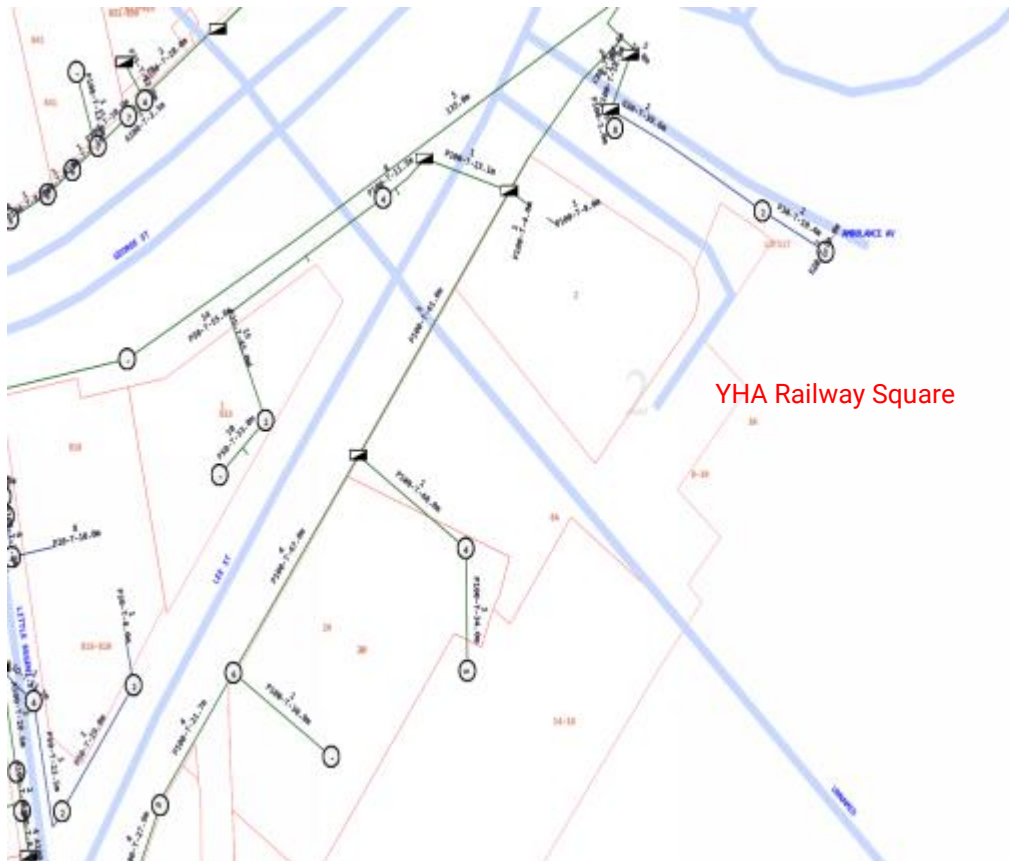


Figure 2.2.1 : NBN Indicative Plans

The current inground cabling installation sits at the end of a spur line along Ambulance Avenue and is dedicated to the site.

Other network carriers with services in the vicinity of the site include:

- Telstra
- Optus
- Nextgen
- AARNet
- Primus
- Vocus
- Verizon

Communications into development will be provided by means of underground fibre optic cabling. Given the site constraints, it may be difficult to provide redundant parallel lead-in cabling that follows diverse paths into the Atlassian Central development. This will need to be further assessed during the following stages of the design.

Lead-in cabling will typically be distributed into two physically separate and fire isolated building distributor rooms.

To initiate the connections process with NBN, a formal application needs to be lodged to ensure the designs and construction are completed to NBN network standards. NBN will determine at the preliminary concept design stage whether spatial allowances are suitable for their proposed equipment.

The next step in the NBN development phase is to lodge the NBN application when the building distributor rooms are finalised. This will provide the NBN location for the incoming services termination point. This is scheduled to be lodged following the Schematic Design issue of drawings.

It is likely for this development that a distributed antenna system (DAS) will be required to provide mobile phone coverage throughout the building. This would require the establishment of a 32m² DAS room for the installation of carrier equipment, the provisioning of which is documented in the Mobile Carriers Forum (MCF) Design Specification for Distributed Antenna Systems. This room has been allowed for within the Basement 2 plan.

To establish a DAS system, the developer will need to seek the engagement of a Lead Carrier once the design has progressed to tender phase.

3.3 Hydraulics

3.3.1 Sydney Water Engagement

SYDNEY WATER

- An application for Feasibility Section 73 has been lodged with Sydney Water to allow preliminary assessment of the proposed building and Sydney Waters indicative requirements.
- Application for Feasibility Section 73 was lodged with Sydney Water on 16 December 2019.
- Sydney Water provided a Feasibility Section 73 for the proposed development under Case No. 182654 on 09 March 2020. The Sydney Water Feasibility Section 73 is valid only on the date of issue and is subject to a Section 73 application being made once Development Approval has been granted for the development.
- The feasibility Section 73 Notice of Requirements provides Sydney Water's expected requirements for potable water supply, sewer and stormwater discharge.

Sydney Water's Feasibility Notice of Requirements identified the following;

POTABLE AND FIRE WATER

Sydney Water noted that the proposed development site must have frontage to a suitably sized watermain. Sydney Water identified that the proposed development would increase the demand within the water supply system.

The developer is to engage a hydraulic engineer to confirm the proposed connection points and undertake a planning study to confirm any augmentations required to the Sydney Water potable watermain system.

The proposed connection requirements and potential augmentation of the water mains are provided in section 2.3.2.

SEWER

Two (2) existing sewer mains are located within the property which Sydney Water have indicated are trunk mains within the Feasibility Section and would not be available for connection.

The existing 400dia sewer in Devonshire Street Tunnel will require specific Sydney Water building plan approval. This requirement extends to the stormwater noted below. Further investigations, structural design and approval will be required from Sydney Water to allow the building design to be finalised. The current design approach takes into consideration the Sydney Water requirements, however, is constrained by existing and proposed site conditions. Where practical, the Sydney Water requirements will govern the design, however detailed analyses, design and site constraints may require special approval from Sydney Water.

Further to the Feasibility Section 73 requirements, contact has been made with Sydney Water to develop the site sewer connections.

In correspondence, Sydney Water indicated that the Feasibility Section 73 requirement was a general statement and connection to the sewer could be facilitated through connection to an existing manhole structure or construction of a new manhole structure to provide a suitable connection point for the proposed building. The proposed connection details are provided below in section 2.3.5.

STORMWATER

An existing Sydney Water stormwater asset is located within the proposed development and Sydney Water have noted in the Feasibility Section 73 Notice of Requirements that they would not support the proposed development over and under their stormwater asset as this would not comply with Sydney Water's Building Over Stormwater policy.

Subsequent to the Feasibility Section 73 Notice of Requirements, a number of discussions have been held with Sydney Water and been provided with the following response;

"Where the Devonshire Street Tunnel is over the stormwater, and the tunnel is fully formed with a roof, then we accept that our access is already limited and have no objection to the building. Of course, the relevant engineering documentation will need to be submitted to demonstrate that there is no additional load on the stormwater during construction or placement of the building."

Further investigations, structural design and approval will be required from Sydney Water to allow the building design to be finalised. The current design approach takes into consideration the Sydney Water requirements, however is constrained by existing and proposed site conditions. Where practical, the Sydney Water requirements will govern the design, however detailed analyses, design and site constraints may require special approval from Sydney Water.

A Section 73 Notice of Requirements will need to be requested from Sydney Water once the proposed building has been approved by the consent authority. Sydney Water will also need to provide Building Plan Approval prior to commencement of the works on site to ensure that their assets are protected during the construction phase of the works.

The details of the stormwater connection are provided within the associated site-specific stormwater management report.

Recycled Water Main

The project has also considered connection to a future authority recycled water main within George Street to provide water to toilets, irrigation and cooling tower water. This would reduce the demand on the potable water system. Final details and future proofing arrangement to be developed during the design phase.

3.3.3 Combined Fire Water Supply

A fire services water supply will be connected to the Sydney Water network. It will be dual supply as defined in AS2118.1-2017 & AS 2118.6-2012. The incoming water supply will serve both the fire sprinkler system and the fire hydrant system and will consist of:

- Direct connection from the town main complete with double check valve set by the Hydraulic trade. The fire trade will connect from the Back-Flow Prevention Device and continue the supply and provide all associated equipment for the Fire Brigade booster arrangement.
- A combined hydrant and sprinkler Brigade Booster comprising 6way suction and booster facilities will be installed in series
- The incoming water supply will be boosted by two dedicated diesel relay pumps arranged to automatically transfer the town main water to roof level storage tanks. These pumps will be equipped with Brigade start switches at the Brigade Booster location and also in the Fire Control Room. Each pump will be capable of providing 100% of the required tank inflow.
- Two fixed on-site water storage tanks of 90m³ capacity will be located within Roof level plant space. Each tank is sized to provide 2/3 the capacity required to allow the system to operate for the Code minimum duration. In the event that one section is isolated and drained for maintenance, the other tank will remain in service.

3.3.4 Fire Main Reticulation

Two diesel system pumps will be collocated with the roof level tanks and operate to pressurise the upper level combined hydrant sprinkler pressure zones. Each pump will be dedicated to a tank to provide the systems with n+1 redundancy capability.

Two further connection will be taken from the roof level tanks and serve to supply lower level combined hydrant sprinkler pressure zones under gravity. Pipes will be fitted with pressure reducing valves to ensure system pressures are maintained below maximums code allowance.

Piping to which sprinkler installations and fire hydrants are directly connected to shall be from a 150mm ring main (single pressure zone).

Vertical portions of the ring main pipes shall be located within separate fire isolated stairs.

Final details of the fire water requirements will be reviewed with the consultant team, FRNSW, and Sydney Water to ensure adequate provision.

3.3.5 Sewer and Stormwater

Sydney Water own multiple assets that traverse or are adjacent to site boundaries. The Sydney Water drawings from Dial Before You Dig indicate that the proposed development will be built above the existing 400mm (figure 2.3.2 : B) Sewer main and the existing 1500mm Stormwater main (figure 2.3.2 : C) which are both located within the Devonshire Street Tunnel. Section 2.3.1 has provided details around current Sydney Water stakeholder engagement for these assets.

There is also an existing brick Sewer main (figure 2.3.2 : A) reticulating close to the Pitt Street boundary. This brick sewer is deep below the driveway entry and initial reviews indicate that the site entry construction will not impact this sewer. Detailed investigations, reporting, approvals and design information will be provided as part of the Sydney Water building plan approval process.

Connecting to and building over the existing gravity mains will be subject to Sydney Water approval. Structures should be designed to avoid and protect existing in ground services. Refer below regarding Water Services Coordinator status.

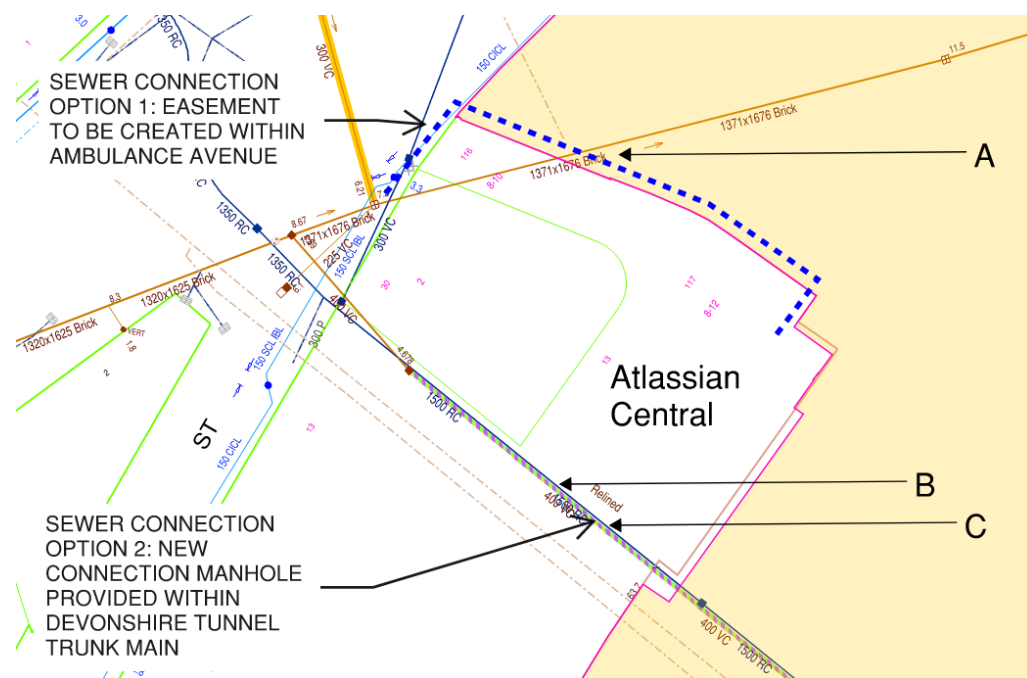


Figure 2.3.2 : Existing Sewer(A, C) and Stormwater (B) Mains Connection

To comply with the Sewerage Code of Australia (WSAA), the proposed development will require a minimum 225mm sewer main to serve the development. Section 2.3.1 provides Sydney Water feedback and consultation outcomes regarding connections to trunk mains.

There are two proposed connection strategies for the sewer. Option 1 detailed in figure 2.3.2 includes the creation of an easement within Ambulance Avenue. Details of this easement have been shared with TNSW. Detailing of the sewer connection and final easement requirements will be developed and the proposed connection in Lee Street developed if this is the preferred project outcome.

The option 2 connection nominated in figure 2.3.2 includes the connection of the sewer to the 400dia trunk main in the Devonshire Street Tunnel. As detailed below on the Sydney Water sewer drawing for the existing site discharge, the internal drainage drains to the south across the tunnel, connecting to the 400dia main towards the intersection of the Devonshire Street Tunnel and Lee Street (refer to figure 2.3.3). This option will be reviewed in the detail and in coordination with option 1 above.

The proposed connection locations are subject to the formal Sydney Water Section 73 application. This will confirm the proposed connection point and any requirement for extension to Sydney Water's assets.

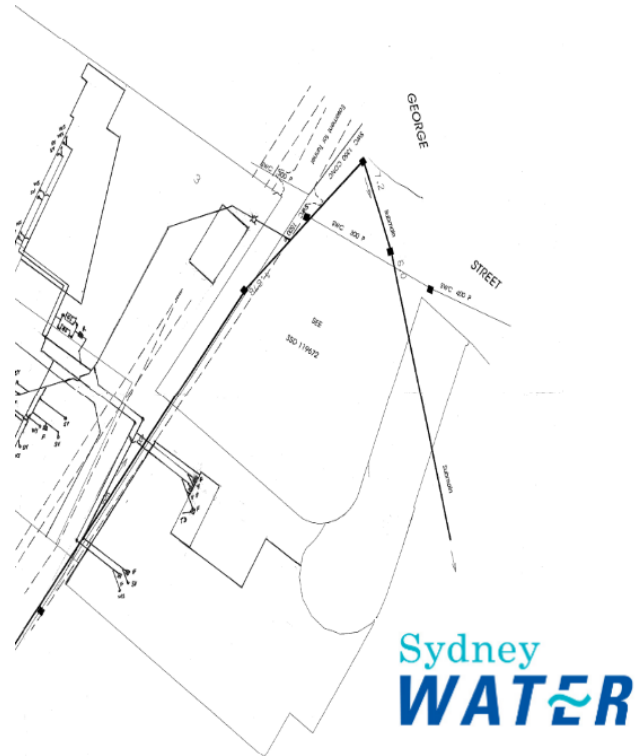


Figure 2.3.3

3.4 Gas Supply

Gas supply to service the Atlassian Central development is under consideration. The key driver for the ongoing review of natural gas to ensure the carbon aspirations of the development are met, whilst providing adequate servicing to proposed and future building uses.

The current proposal is not to include natural gas for water heating generation or cooking within the commercial office tower component of the development. The lower levels, including the YHA and retail are undergoing a review with the ESD consultant and client to determine the extent of supply.

To ensure that natural gas is available to the site, a full load analysis for a typical deemed to satisfy building has been considered, including retail, YHA and commercial aspects in the application to Jemena.

Jemena's existing services documentation shows the existing 750mm (210kPa) main (D) located in Lee Street. The location of the existing infrastructure is indicated in the figure below.



Figure 2.4.1 : Existing Jemena Gas Main (D)

Jemena Application

In consideration of the full building load analysis, the consultant team has made an application to Jemena via their online natural gas connection portal. The application number is #235658. Jemena has provided a response for supply as follows;

"Supply will likely need to come from the 210kPa network which will be extended from Lee Street. Can you please send through site plans to zachary.kennett@jemena.com.au with proposed meter and / or boundary regulator locations and any hydraulic plans."

The design development and finalisation of client requirements for areas of natural gas usage within the building will be the basis for further discussions and information sharing with Jemena. Where natural gas is required, the current proposal is to supply gas to the site via connection to the existing 210 kPa Authority main in Lee Street. A property service to a boundary regulator and metering arrangement will be considered within the site boundary, with the final location to be determined following consultant with the architect and Jemena to ensure access, ventilation and technical requirements are achieved.

Appendix A – Ausgrid Letter of Offer

OFFER to provide DESIGN RELATED SERVICES



DESIGN RELATED SERVICES OFFER

Premises address: **ATLASSIAN BUILDING CENTRAL 8-10 LEE STREET, HAYMARKET 2000**

NMI - Number: **TBA**

Webform Ref **79820**

MC Reference: **1900097839**

AP Reference: **800309581**

This offer is made on **21/04/2020**

By *Ausgrid* of 24 Campbell St, Haymarket NSW 2000.

To the **connection applicant** named in the *connection application* received on 2/13/2020 in respect of the premises referred to above.

Ausgrid has determined that network alterations are required to connect your development and we cannot proceed to a connection or relocation offer at this stage. To enable Ausgrid to further consider and process your application you will require a certified design and associated certification number. Your application remains technically incomplete until you have been issued a certification number.

This Design Related Services Offer provides guidance on how to obtain a certified design and associated certification number.

Scope of Network Alterations

Ausgrid has determined that the following works are likely to be required:

- 2 X Basement Substations

These works are classified as contestable, which means that you are required to fund the design and some or all of the construction works. If you have not already done so, you will need to engage and manage suitably qualified contractors, known as Accredited Service Providers (ASPs) to undertake the design and construction.

Initially, your ASP Level 3 (ASP/3) will undertake the design, and then your ASP Level 1 (ASP/1) will undertake construction in accordance with the design and Ausgrid's policies and standards. The timeframe for the works will vary depending on factors such as the complexity and the way in which you manage your ASP's.

Once the works have been satisfactorily completed and electrified, the premises connection assets will be owned and maintained by Ausgrid as part of the electricity distribution network.

Contract for Design Related Services

This letter is an offer for the Applicant to enter into a Contract for Design Related Services with Ausgrid. It remains open for acceptance for 45 business days. No work will be undertaken by *Ausgrid* until a Design Contract is in place.

You are encouraged to contact ASP/3's and ASP/1's to understand the likely overall costs you will incur for design and construction before you accept and commit to the Contract for Design Related Services.

IMPORTANT: The contractual arrangements provide the framework for a design to be prepared by your ASP/3, and NOT by *Ausgrid*. *Ausgrid's* fees as outlined below are for the design related network services we provide during the design phase, and are IN ADDITION to the fees charged by your ASP/3 in preparing the design.

Acceptance Fees

The acceptance fees relating to the Contract for Design Related Services are outlined in the attached Acceptance Fee Summary and also detailed on the Ausgrid Portal page. *Ausgrid* will invoice **the Applicant** once we receive acceptance via the Ausgrid Portal. The Contract will commence when you pay the invoiced fee.

The acceptance fees are an estimate for the *Ausgrid* services required and are payable up front by the **Applicant**. Further fees may apply for any additional services required and these will be quoted via the Ausgrid Portal on each occasion.

Ausgrid's published rates for our services are amended from time to time in our Alternative Control Services Fee Schedule Publication, and in accordance with the Contract, *Ausgrid* reserves the right to charge the rates that are applicable at the time the service is provided.

Fees for *Ausgrid's* services are in addition to the design and construction costs charged by your ASP's, and some fees may not be refundable if the service has already been provided. Fees and rates are set by the Australian Energy Regulator:

WHAT TO DO NEXT

- To move ahead, please accept the offer (see below) outlined in this document and then pay the invoice that will be forwarded to you
- Engage an ASP Level 3 designer
 - On the Ausgrid Portal, nominate the ASP/3 as the designer for this project
 - Advise the ASP/3 that the Design Information Category for this project is **Complex**

Enclosures:

Contract terms – via website at:
<https://www.ausgrid.com.au/-/media/Documents/Technical-Dokumentation/Contracts-and-Deeds/Contract-for-Design-Related-Services/Design-Contract-2019.pdf>.

Acceptance Fee Summary – attached

PLEASE REVIEW THE OFFER OUTLINED IN THIS LETTER, ALONG WITH THE TERMS LINKED ABOVE, THEN PROCEED TO THE AUSGRID PORTAL

IF YOU WISH TO ACCEPT THIS OFFER

SELECT "ACCEPT" AGAINST THE OFFER ON THE AUSGRID PORTAL WITHIN 45 BUSINESS DAYS

IF YOU WISH TO DECLINE THE OFFER

SELECT "DECLINE" AGAINST THE OFFER ON THE AUSGRID PORTAL.

Should you wish to proceed in the future, a new connection application will need to be lodged.

DESIGN RELATED SERVICES OFFER

ACCEPTANCE FEE SUMMARY

| Service Description | Unit | Quantity | Price per unit | Total Price |
|--------------------------------------------------------|---------|----------|----------------|-------------|
| Design Service Package 07 | Service | 1.00000 | | \$0.00 |
| Administration of Contestable Works - General - Design | Service | 1.00000 | \$236.71 | \$236.71 |
| Design Information - Complex - R5 | Hour | 60.00000 | \$216.03 | \$12,961.80 |
| Design Certification - Other - R5 | Hour | 80.00000 | \$216.03 | \$17,282.40 |
| SUBTOTAL | | | | \$30,480.91 |
| GST (10%) | | | | \$3,048.09 |
| TOTAL | | | | \$33,529.00 |

These fees are an **initial estimate** for the services we will require to provide throughout the design contract and are payable up front by the **Applicant**, on acceptance of the contract.

IMPORTANT: Additional services may be required through the course of the design contract (e.g. asset number requests, specialist services, consultancy services). The fee for such services will be billed to the **Applicant** in accordance with the contract, and are payable prior to design certification. Typical examples include, but are not limited to, fees for asset creation, additional certification effort and requests to vary network standards.

Appendix B – Ausgrid Design Information Package (DIP)

Project Number: AN-21089

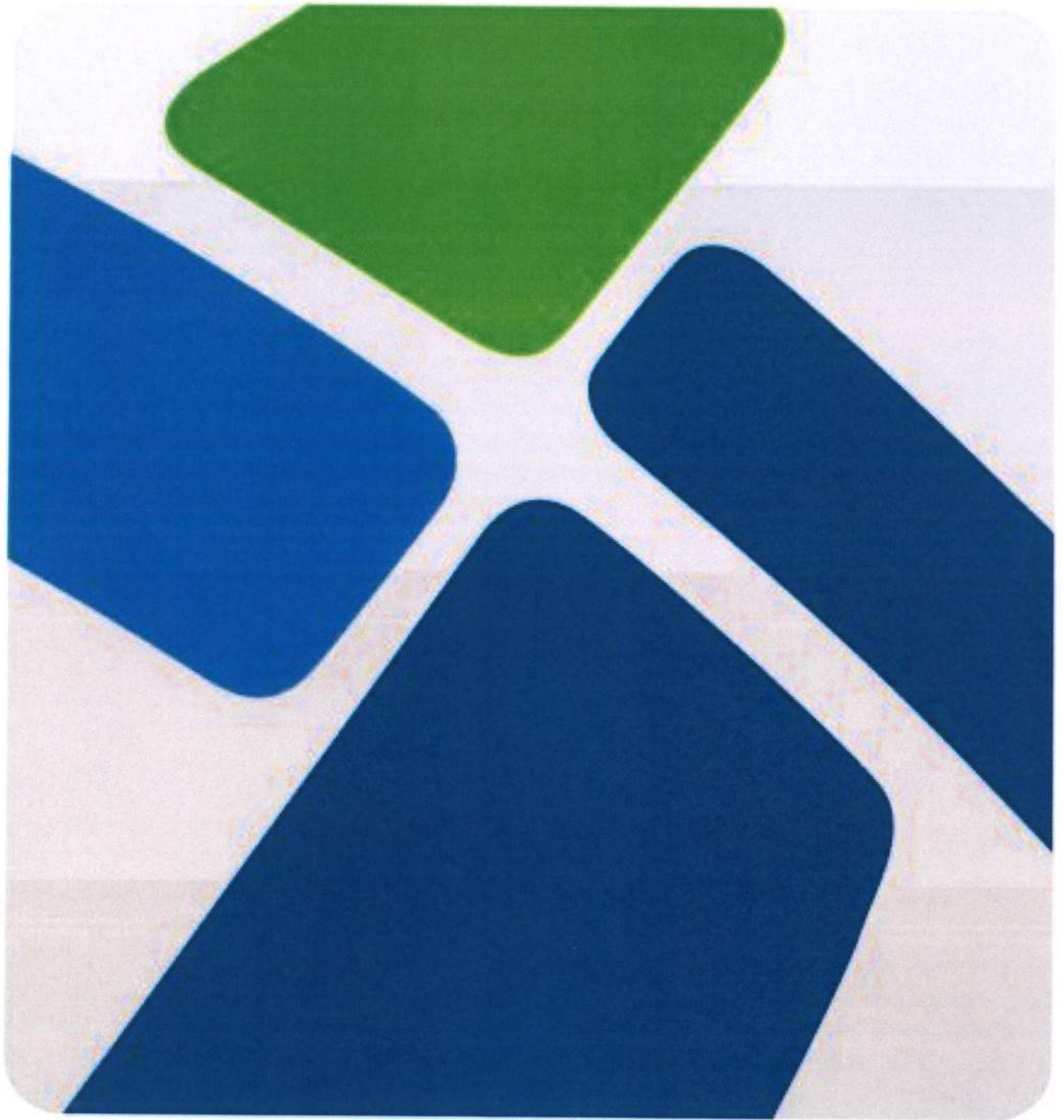
Establish 1 Control Point and 2 CBD Type Substations

8 to 10 Lee St Haymarket

Design Information

Site Specific Requirements - Complex

Date: 3 June 2020



CONTENTS

| | |
|-------------------------------------------------------------------------------|----|
| SITE SPECIFIC DESIGN INFORMATION REQUIREMENTS..... | 2 |
| 1. Ausgrid Project References | 2 |
| 2. Ausgrid Contact Details | 2 |
| 3. Network Extension Connection Point – | 2 |
| 3.1. High Voltage Connection Point | 2 |
| (S.32285 Lee Ambulance Ave No.1 & S.32286 Lee Ambulance Ave No.2) | 2 |
| 4. Details of Ausgrid Network in Vicinity of the Development | 2 |
| 5. Proposed Works | 2 |
| 5.1. HV Extension Works | 3 |
| 5.2. SCADA Extension Works | 4 |
| 5.3. LV Relocation Works | 5 |
| 6. Customer Point of Supply (Connection Point) | 5 |
| 7. Fault Level | 5 |
| 8. Cable/Conductor Route and Type | 5 |
| 8.1. Route Information | 5 |
| 8.2. Underground | 5 |
| 8.3. Street Conduits into Substations | 5 |
| 9. EQUIPMENT | 6 |
| 9.1. S.32285 Multiple Transformer Basement Level CBD Chamber Substation | 6 |
| 9.2. S.32286 Multiple Transformer Basement Level CBD Chamber Substation | 6 |
| 10. Asset Number Allocation | 9 |
| 11. Redundant Equipment | 9 |
| 12. Apportionment of Costs | 9 |
| 12.1. Funding | 9 |
| 13. Design Information Attachments | 9 |
| 14. Notations to be placed on Design | 10 |
| 15. Remarks / Other Comments | 10 |
| 16. Ausgrid City Substation Reference Drawings List | 10 |
| 17. Design Information Revision History | 10 |

SITE SPECIFIC DESIGN INFORMATION REQUIREMENTS

The Design Information Site Specific Requirements Complex is complementary to, and must be read in conjunction with, the Design Information General Requirements, which can be found on the Ausgrid web site.

NOTE:- THIS DOCUMENT HAS BEEN PREPARED ON THE BASIS THAT THERE WILL BE NO EMBEDDED GENERATION ON SITE. PLEASE CONTACT AUSGRID IMMEDIATELY IF EMBEDDED GENERATION IS TO BE INSTALLED AS IT MAY ALTER SOME OF THE EQUIPMENT DETAILS AND SPECIFICATIONS CONTAINED IN THIS DOCUMENT.

1. Ausgrid Project References

| | |
|--------------------|-----------------|
| SAP Project Number | AN-21089 |
| Prjtrak Number | XCZ021836 |
| Drawing Number | AN-21089 |

2. Ausgrid Contact Details

Note that this information is not to be placed on the design.

| | |
|-----------------|------------------------|
| Ausgrid Contact | JOE MARCON |
| Telephone No | 9663 9498 |
| Email Address | jmarcon@ausgrid.com.au |

3. Network Extension Connection Point –

3.1. High Voltage Connection Point

(S.32285 Lee Ambulance Ave No.1 & S.32286 Lee Ambulance Ave No.2)

Zone substation City South Zone - 11kV feeder: 42K , 42L , 42M from HV pit 55244 in Lee St in the vicinity of 2 Lee St

4. Details of Ausgrid Network in Vicinity of the Development

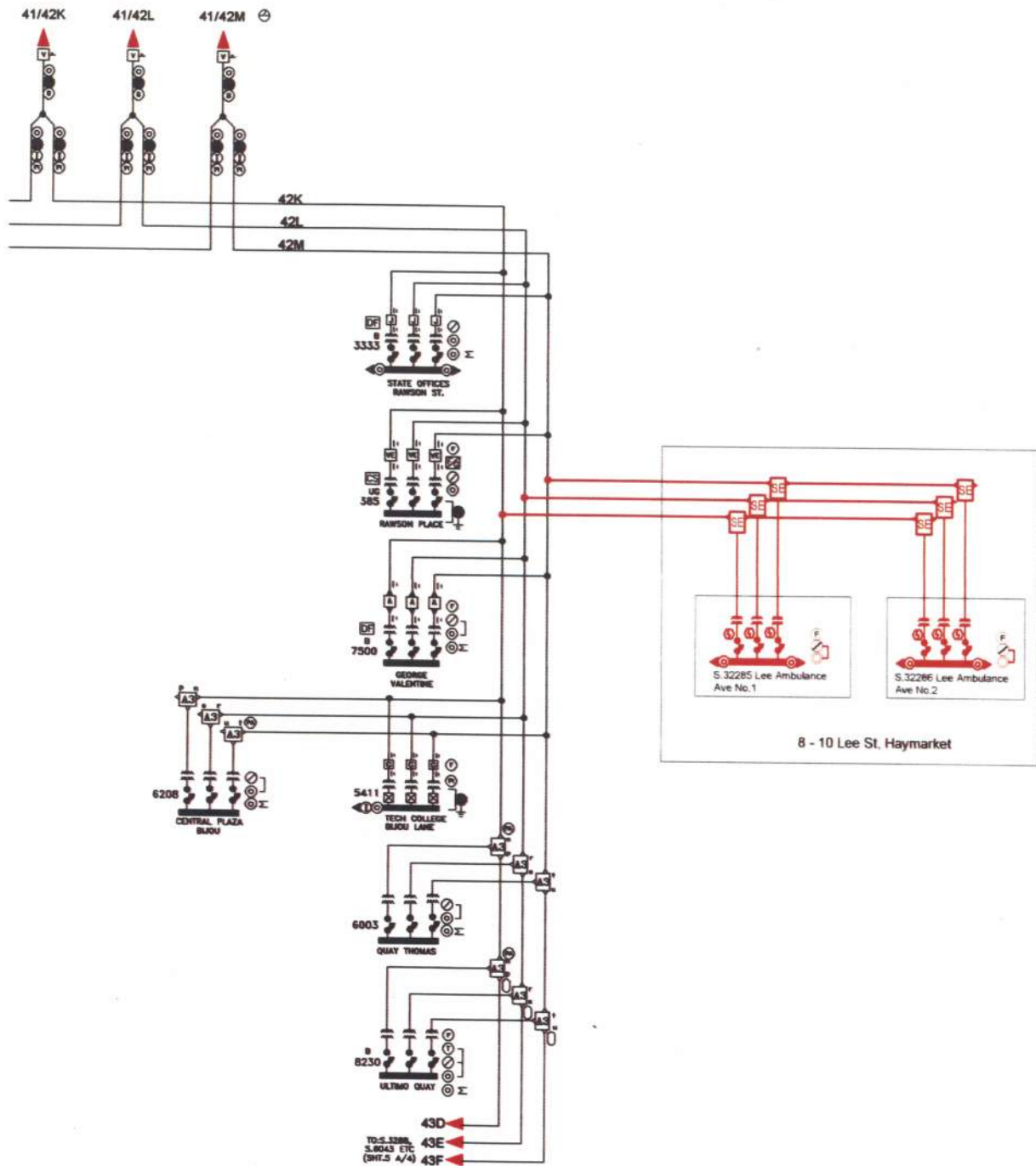
Recorded details of the Ausgrid network, including cable codes, soil codes, etc, are shown in Ausgrid's WebGIS. The ASP/3 designer must login to the WebGIS to obtain relevant information. The ASP/3 designer should contact Ausgrid for any further clarification or if information appears to be missing.

Note: Ausgrid's WebGIS information has not been verified against actual site assets. The ASP/3 designer is responsible for the accuracy of information on designs and it is strongly advised that the ASP/3 designer verifies WebGIS asset details on site prior to undertaking the design.

5. Proposed Works

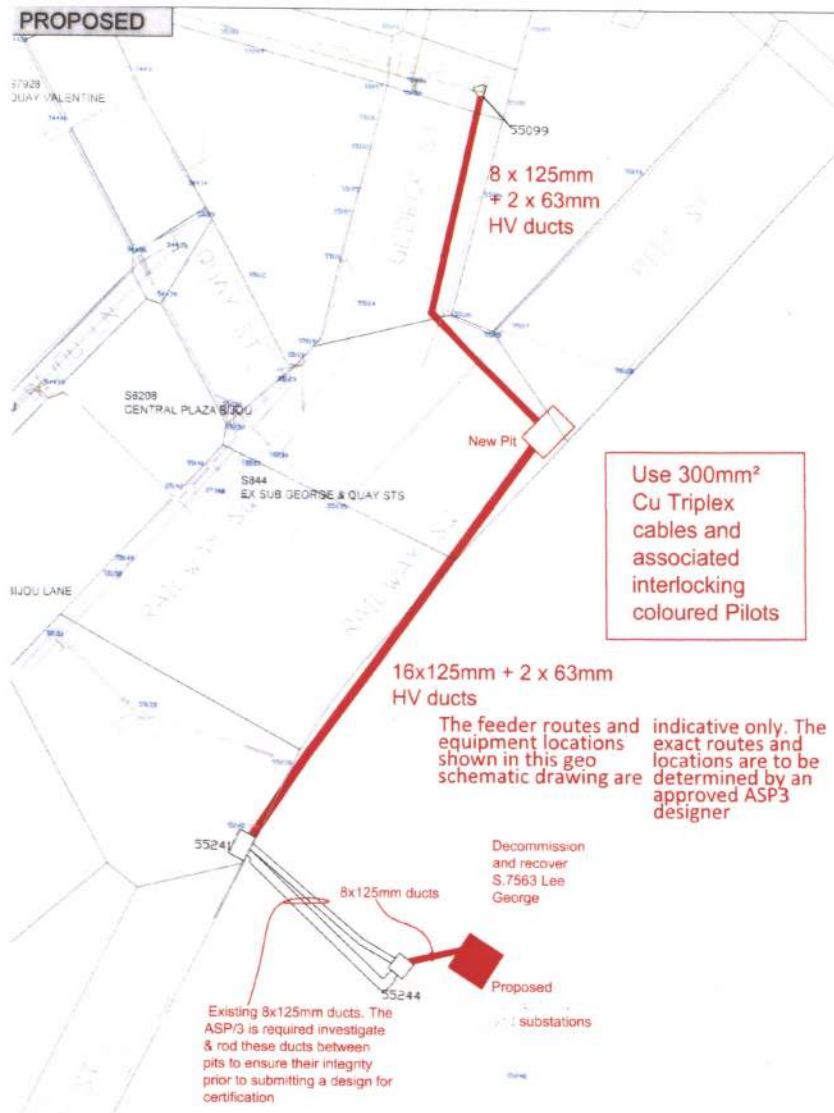
Alter the existing high voltage and low voltage network systems, in accordance with the schematic representations, for the required electrical works as shown on the following diagrams.

CITY SOUTH ZONE No.67 (10 of 12)
(41KLM/42KLM)



5.1. HV Extension Works

- Lay a 8 x 125mm + 2 x 63mm HV duct line in 'Thermally Stable Bedding' (TSB) – *as per the requirements of Section 12.9 NS130*, from Ausgrid HV pit 55099 at the corner of Valentine & George Sts to a **new HV pit** at the eastern side of the intersection of Pitt St & Railway Square.
- Lay a 16 x 125mm + 2 x 63mm duct line in TSB from the **new HV pit** at the intersection of Pitt St & Railway Square to Ausgrid pit 55241 on the eastern side of Lee St.
- Lay 8 x 125mm + 63mm ductline from Ausgrid pit 55244 along Ausgrid's easement to the south side of 2 Lee St to one of the proposed Basement Substation chambers.
- 4 x 125mm HV Ducts are required to interconnect the basement substations S.32285 and S.32286 chambers.



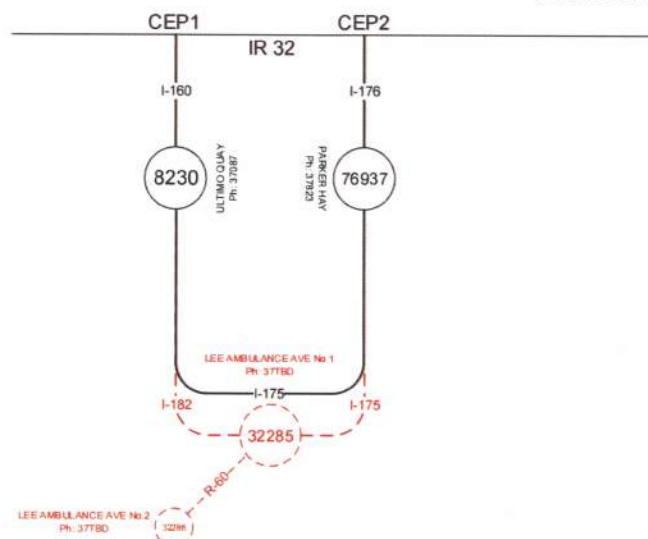
Fit out 2 Basement Level CBD chamber substations EACH with 3 x 1500kVA oil filled transformer CBD chamber substations on, (S.32285 & S.32286), that is to be constructed on the development property within the proposed building.

Decommission the existing Basement substation S.7563 Lee George and return all recoverable material to Ausgrid (transformer(s), switchgear, protection equipment etc).

5.2. SCADA Extension Works

Re-establish SCADA Intermediate Node at proposed Substation S.32285, and Radial Node at proposed substation S.32286.

ZN.5959



5.3. LV Relocation Works

The existing 1200A Direct Distributor to 2 Lee St presently connected to substation S.7563 to be connected to S.32285.

The existing 400A Direct Distributor to "Inwards Parcel Shed" presently connected to substation S.7563 to be connected to S.32286.

6. Customer Point of Supply (Connection Point)

Provide 2 off 3000 amp three phase low voltage points of supply at the low voltage switchgear terminals *within the each chamber substation enclosure*.

7. Fault Level

11kV node: at the HV Terminals at S.32285 & S.32286

~ Existing maximum three phase 11kV fault level is **16.2 kA**.

8. Cable/Conductor Route and Type

8.1. Route Information

It is generally the responsibility of the ASP/3 designer to select an appropriate route. However, Ausgrid reserves the right to require variation(s) of any proposed cable route.

Ausgrid makes no warranty expressed or otherwise that any proposed route depicted in the design information by Ausgrid is suitable for the intended purpose.

8.2. Underground

| | |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11kV | Cables from street to Substations - 11KV 300CU1 EPR 70 CU(WS) Z YQ / Triplex. |
| City Pilot Protection Cable | 1.5 CU4 Q QZ NY/TR#RED (Ref NUS100 Cable Code 32001) 1.5 CU4 Q QZ NY/TR#WHITE (Ref NUS100 Cable Code 32002) 1.5 CU4 Q QZ NY/TR#BLUE (Ref NUS100 Cable Code 32003) |
| Low Voltage Cables | LV Interconnector: 185 CU1 XQ Z / COLOUR ("Parrot Cable" – Cable Code '2264') LV Direct Cable Supplies: Select appropriate cable as per NS112. |
| Control & Protection SCADA / Telecontrol | UGFO - 60 Fibre Nylon Jacketed Dry Core Cable <i>to be installed & connections by Ausgrid contractor Plus ES</i> |

8.3. Street Conduits into Substations

| | |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Spare Conduits available for use | NIL |
| Conduits to be laid as part of this project | <p>10-way (8 x 125mm + 2 x 63mm) HV conduit bank to be installed from Ausgrid pit 55099 at the intersection George & Valentine Sts to a new HV pit to be constructed in the vicinity of the intersection of Pitt St & Railway Square.</p> <p>18-way (16 x 125mm + 2 x 63mm) HV conduit bank to be installed from the new HV pit near the intersection of Pitt St & Railway Square, to pit 55241 in Lee St.</p> <p>S.32285</p> <p>Four 125mm HV conduits from HV pit in chamber to pit 55244.</p> <p>Eight 150mm LV Conduits from LV pit in chamber to 1 metre outside chamber wall, with Four of these to re-connect the 1200A Direct Distributor to 2 Lee St, and Four for future use.</p> <p>S.32286</p> <p>Four 125mm HV conduits from HV pit in chamber to pit 55244.</p> <p>Eight 150mm LV conduits from LV pit in chamber to 1 metre outside chamber wall, with One of these to re-connect the 400A Direct Distributor to "Inwards Parcel Shed", and Seven for future use.</p> |

9. EQUIPMENT

9.1. S.32285 Multiple Transformer Basement Level CBD Chamber Substation

| | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------|----------------------------|
| 32285 Multiple Transformer Basement Level CBD Chamber Substation | | | | |
| Substation Number | 32285 | Substation Name | Lee Ambulance Ave No.1 | |
| Ultimate Capacity | 3 x 1500kVA transformers | | Initial Capacity | 3 x 1500kVA transformers |
| Rating (Firm) | 5000A | | Load Cycle | A: Commercial / Industrial |
| Voltage Ratio | 10943/433 (Tap Pos 4) | | Vector Group | Dyn 1 |
| Description | | | Stock Code | Quantity in substation |
| Transformer | 1500kVA Oil Filled | | 180359 | 3 |
| HV Switchgear | Siemens 8DJH 3-Way Isolating and Earthing 'RRR' Switchgear | | 185191 | 3 |
| LV Board (as manufactured by Schneider to Ausgrid CBD OAFD Substation specification – see note below) "E" type low voltage board that consists of free standing modular units as described. | 3000 amp ACB incoming panel (LV isolation of the transformer) ACB's to be motorised & fitted with 2 x DC Trip Coils | | 179996 | 3 |
| | 3000 amp ACB customer point of supply panel – cable ACB's to be motorised & fitted with 2 x DC Trip Coils | | 179617M | 2 |
| | 2000 amp Switch outgoing with 1200A fuses | | 179993 | 1 |
| | 400/400/400/400 amp SAIF fused distributor panel | | 179618 | 1 |
| | Surge arrestor and 62 amp auxiliary fuse panel (Right hand or Left hand | | 180221 (RH) 179619 (LH) | 1 |
| S.32285 ACB Supply 1: | 3000 amp | Atlassian Building Supply No.1 | | |
| S.32285 ACB Supply 2: | 3000 amp | Atlassian Building Supply No.2 | | |
| Distributor 3: | 1200 amps | 2 Lee St | | |
| Distributor 4: | - amps | W.D.N.O. | | |
| Distributor 5: | - amps | W.D.N.O. | | |
| Distributor 6: | - amps | W.D.N.O. | | |
| Distributor 7: | - amps | W.D.N.O. | | |
| ~ Customer to procure the whole LV board (note: lead times are in the order of 24 weeks). | | | | |
| ~ NOTE – The specification of the LV Board will change if there is embedded generation installed | | | | |
| ~ Any stock item not purchased from Ausgrid must conform with Ausgrid's current specifications. | | | | |

9.2. S.32286 Multiple Transformer Basement Level CBD Chamber Substation

| | | | | |
|--------------------------------------------------------------------|------------------------------------------------------------|-----------------|------------------------|----------------------------|
| 1500kVA Multiple Transformer Basement Level GDB Chamber Substation | | | | |
| Substation Number | 32286 | Substation Name | Lee Ambulance Ave No.2 | |
| Ultimate Capacity | 3 x 1500kVA transformers | | Initial Capacity | 3 x 1500kVA transformers |
| Rating (Firm) | 5000A | | Load Cycle | A: Commercial / Industrial |
| Voltage Ratio | 10943/433 (Tap Pos 4) | | Vector Group | Dyn 1 |
| Description | | | Stock Code | Quantity in substation |
| Transformer | 1500kVA Oil Filled | | 180359 | 3 |
| HV Switchgear | Siemens 8DJH 3-Way Isolating and Earthing 'RRR' Switchgear | | 185191 | 3 |

| | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------|---|
| LV Board (as manufactured by Schneider to Ausgrid CBD OAFD Substation specification – see Note below) "E" type low voltage board that consists of free standing modular units as described. | 3000 amp ACB incoming panel (LV isolation of the transformer) ACB's to be motorised & fitted with 2 x DC Trip Coils | | 179996 | 3 |
| | 3000 amp ACB customer point of supply panel – cable ACB's to be motorised & fitted with 2 x DC Trip Coils | | 179617M | 2 |
| | 1200/400 amp SAIF fused distributor panel | | 179990 | 1 |
| | 400/400/400/400 amp SAIF fused distributor panel | | 179618 | 1 |
| | Surge arrestor and 62 amp auxiliary fuse panel (Right hand or Left hand | | 180221 (RH) 179619 (LH) | 1 |
| S.32286 ACB Supply 1: | 3000 amp | Atlassian Building Supply No.3 | | |
| S.32286 ACB Supply 2: | 3000 amp | Atlassian Building Supply No.4 | | |
| Distributor 3: | - amps | W.D.N.O. | | |
| Distributor 4: | - amps | W.D.N.O. | | |
| Distributor 5: | 400 amps | Inwards Parcel Shed | | |
| Distributor 6: | - amps | W.D.N.O. | | |
| Distributor 7: | - amps | W.D.N.O. | | |
| Distributor 8: | - amps | W.D.N.O. | | |
| ~ Customer to procure the whole LV board (note: lead times are in the order of 24 weeks). | | | | |
| ~ NOTE – The specification of the LV Board will change if there is embedded generation installed | | | | |
| ~ Any stock item not purchased from Ausgrid must conform with Ausgrid's current specifications. | | | | |

9.2.1. S.32285 & S.32286 Multiple Transformer CBD Basement Substations Protection Equipment with Optical Arc Fault Detection

| Required Protection | Optical Arc Flash Detection Transformer Differential Transformer Over-Current & Earth Fault Customer Over-Current | | |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------|
| Description | | Stock Code | Quantity in EACH substation |
| DLAC Control Equipment NOTE – NO STOCK CODES AVAILABLE. ORDER FROM AUSGRID WORKSHOPS MANAGER 9394 6833 | Automation Controller - Schweitzer SEL-3530 3530HC2BX323X0XXXXXX Ref Dwg No. 222615 Firmware SEL-3350-R134-V1-Z001001-D20150417 | - | 1 |
| | Network Switch - Siemens Ruggedcom RS8000-48MM-MS-XX 8 x 100BASE-FX LC, ROS Version 3.12.1, Boot Version 2.20.0 | - | 1 |
| | Power Supply Module – Schneider SCD5200 Wide Range Power supply Module Invensys Part No. SY-0399131 | - | 1 |
| | Card File – Schneider SCD5200 One Slot Card File Invensys Part No. SY-2003104 | - | 1 |
| | Communications Unit Distribution Board Sub | - | 1 |
| | Comm Tel OAP-SE P21002.02-003 | - | 1 |
| | 4xETH, 1x100BASESX/10BASE-FL, 2xFXS, 1xX2.1, 2xSFW 100 BASE-FX, C50 Mech | - | 1 |
| | | | |

| | | | |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|
| Control Equipment (cont) | Rittal Enclosure (Wired) | - | 1 |
| | Asserta Electronic Sounder | - | 1 |
| | ECTU (Fibre Splicing Unit) | - | 1 |
| | Telephone | - | 1 |
| Protection Panels | Free Standing OAFD / Transformer / Transformer Protection Panel (<i>General Layout Dwg No. 227381, Schematic 227380</i>) | 183076 | 1 |
| | Free Standing Protection Transformer / Customer Overcurrent Relay Panel (<i>Schematic 227380</i>) | - | 1 |
| | OAFD Indicator Panel | - | 1 |
| | DLAC Panel includes Signal Panel, OAFD Indicator Panel & SCADA Cabinet (<i>General Layout Dwg No. 227388, Schematic 227380 to 227391 inclusive</i>) | - | 1 |
| | Options per Drawing Note 5 - SW-5 is required (2 Customer overcurrent panels) - PB-1, PB-2, L-4 are not required if no Co-Generation is to be installed - SW-6 & SW-7 are not required if there is no auto-closing function | - | 1 |
| Current Transformers Additional components not already included in the "E" Type LV Board | 100/5 HV Differential CT (10P25F20) | 89722 | 9 |
| | 2450/1837/2.89 OAFD EF Check Epoxy CT | 67173 | 3 |
| Relays | ESP K3M Differential Fuse Relay | 91058 | 3 |
| | Self Powered Transformer Overcurrent Relay (Schneider P11574610111511). 1 per Transformer <i>Ref Dwg No. 225082</i> | - | 3 |
| | Customer Overcurrent Relay (1 per Customer ACB) Schneider P142 12BB6M0449J <i>Ref Dwg No. 224809</i> | - | 2 |
| | Arc Flash Protection Schweitzer 0751A62C1C1C7481430. <i>Ref Dwg No. 222614</i> | 182548 | 3 |
| | Latching Multi trip RMS TR12-BD-22 (32V) <i>Ref Dwg No. 223206</i> | - | 6 |
| | Latching Multi trip RMS TR12-CD-22 (48V) <i>Ref Dwg No. 223206</i> | - | 6 |
| | P115 Relay (24/48V AC/DC) | 182547 | 3 |
| | FF5 Fan Failure Relay | 60962 | 1 |
| | PIR Pilot Interlock Relay. <i>Ref Dwg No. 53829</i> | 62158 | 3 |
| | DMT Auxiliary Relay | 62141 | 3 |

| | | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------|---|
| Miscellaneous | Marshalling Box–Polynova PC 360(H) x 360(W) x 205(D) | EXTERNAL | 1 |
| | Manufacturer B&R Enclosures Pty Ltd Cat No PC363620 | SUPPLIER | |
| | Fibre Optic Assembly for OAFD | 18241 | 1 |
| | Signal Cabinet – City System (Part of DLAC Equipment) | 81174 | 1 |
| | ECTU Intermediate Cabinet | | 1 |
| | Service Board Ref Dwg No. 227387 | | 1 |
| | Pilot Isolation Boxes | 81208 | 6 |
| Batteries | Standard 30V Protection Battery (per NS114 16.6.1) | 75168 | 3 |
| | 3 x 8 cell set = 24 cells. Mounting as per dwg no. 10635 | | |
| | 48V Optical Arc Flash Detection Protection Battery (per NS114 16.6.2) | 96602 | 5 |
| | 5 x 8 cell set = 40 cells. Mounting as per dwg no. 10635 | | |
| Battery Chargers | Standard 30V Protection Battery (per NS114 16.6.1) | 75168 | 1 |
| | 48V Battery Charger (per NS114 16.6.2) | 182540 | 1 |
| Test Box | 30V Battery Test Box (Ref Dwg No. 22212) | 123703 | 1 |
| Battery termination box | 48V Battery Termination Box (Ref Dwg No. 227379) | - | 1 |
| Note: any stock item not purchased from Ausgrid must conform with Ausgrid's current specifications. | | | |

10. Asset Number Allocation

During the design stage the ASP/3 designer will need to request from Ausgrid any additional asset numbers.

11. Redundant Equipment

Redundant equipment to be removed from service and returned to Ausgrid.

The redundant equipment is expected to be:

| Equipment | Safety Hazard |
|--------------------------------|---------------------------------------------------|
| Sub S.7563 basement substation | Oil filled equipment , possible PCB and asbestos. |
| Sub S.7563 LV panel | Possible asbestos. |

The nominated return point for this equipment is:

| Depot | Address | Telephone Number |
|---------|--------------------------|------------------|
| Zetland | 130 Joynton Ave, Zetland | 02 9663 9435 |

12. Apportionment of Costs

The information this section contains is based on assumptions of the likely design solution. Certification of a design that does not conform to such assumptions may require Ausgrid to reassess the apportionment of costs and funding of the project, including re-assessment of any quotations issued prior to Design Certification.

12.1. Funding

At this stage the costs associated with these installations are totally borne by the Developer or Building Owner.

13. Design Information Attachments

The following documentation is readily available and can be found on our website www.ausgrid.com.au

- Design Information – General Terms and Conditions document.
- Ausgrid's external CAD design template.
- Design Certification Check Sheet.
- Asset Number Request Spreadsheet.
- Asset Valuation Spreadsheet (AVS).
- Network Earthing Information Sheet.

The following can only be obtained from the Ausgrid WebGIS portal.

- A translated GIS extract of the proposed work area in DWG format (includes soil codes).
- Relevant additional asset information including cable codes.
- Relevant system diagram(s). **NOTE – Loads and ratings shown on system diagrams is for internal Ausgrid use only.**
- Environmental Analysis report.

The ASP/3 designer intending to undertake the design must obtain and use the electronic format of the relevant design information attachments (refer to NS104).

14. Notations to be placed on Design

In addition to the standard notations on the attached CAD design template add the following notations.

- The ASP/1 is required to comply with the correct procedure(s) for working with and/or near asbestos material (refer to Ausgrid NUS 211 – Working with Asbestos Products). Old Ausgrid conduits are likely to contain asbestos. Furthermore a note on the design is requested to ensure all conduits penetrations into HV pits and chambers to be 'bell mouthed'.

15. Remarks / Other Comments

The ASP/3 designer needs to contact Ausgrid early in the design phase should any of the proposed works require an alteration and/or extension to the Ausgrid fibre optic network. Ausgrid will then advise the ASP/3 designer of the scope of fibre optic network works that needs to be undertaken by Ausgrid and the works that will need to be done by the ASP/1. Generally Ausgrid only undertakes the final terminations and commissioning of the fibre optic network installation, however, the fibre optic network design and funding review is undertaken on a case by case basis.

16. Ausgrid City Substation Reference Drawings List

Refer to Annexure A

17. Design Information Revision History

| | |
|-------------|----------------------------------------------|
| 3 June 2020 | Initial issue using template version v161027 |
| | |

ANNEXURE A

| AUSGRID REFERENCE DRAWINGS Always refer to the latest versions on our website | | |
|------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DWG. No. | SHEET No. | PROTECTION / SIGNALING |
| 115836 | 1 | CITY TYPE USING MOTORISED ACBS SIGNAL MARSHALLING BOX CONNECTIONS |
| 115839 | 1 | CITY TYPE USING MOTORISED ACBS PILOT MARSHALLING BOX CONNECTIONS |
| 116004 | 1 | CITY TYPE PILOT ISOLATING BOXES AND INTERCONNECTOR PILOT BOXES CONNECTION DETAILS |
| 121156 | 1 | CITY TYPE TYPICAL LAYOUT OF SCADA INSTALLATION IN ACCESS CHAMBERS |
| 178237 | 1 | E TYPE LV BOARD MERLIN GERIN MASTERPACT AIR CIRCUIT BREAKERS EXTERNAL CONNECTIONS |
| 178241 | 1 | CITY AND SUBURBAN DISTRIBUTION SUBSTATIONS PROTECTION PANELS MOULDED TYPE LINKS AND LABEL DETAILS |
| 205952 | 1 | CITY SUBSTATION FREE STANDING PROTECTION CABINET SPECIFICATION |
| 227380 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION AC SCHEMATIC |
| 227380 | 2 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION TRANSFORMER DC SCHEMATIC |
| 227380 | 3 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION CUSTOMER OVERCURRENT DC SCHEMATIC |
| 227380 | 4 | CITY DISTRIBUTION SUB WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION, DLAC PANEL SCHEMATIC, GENERAL DC SUPPLIES INTER-PANEL WIRING, FIBRE COMMS & CABLING DIAGRAM |
| 227381 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH OPTICAL ARC FLASH DETECTION (E TYPE LV) TRANSFORMERS AND CUSTOMER OVERCURRENT FREE STANDING PANELS LAYOUT DETAILS |
| 227382 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD & OAFD, TRANSFORMERS AND CUSTOMER OVERCURRENT PROTECTION FREE STANDING PANELS LABEL DETAILS |
| 227383 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD, DRY TYPE TX & OAFD, TRANSFORMER PROTECTION PANEL WIRING DIAGRAM |
| 227383 | 2 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD, OIL TYPE TX & OAFD, TRANSFORMER PROTECTION PANEL WIRING DIAGRAM |
| 227384 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD, DRY TYPE TX & OAFD, TRANSFORMER PROTECTION PANEL CABLE CONNECTION DIAGRAM |
| 227384 | 2 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD, OIL TYPE TX & OAFD, TRANSFORMER PROTECTION PANEL CABLE CONNECTION DIAGRAM |
| 227385 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION CUSTOMER OC No.1 (No.2) PROTECTION PANEL WIRING AND CABLE CONNECTIONS |
| 227386 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION CABLING DIAGRAM |
| 227386 | 2 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OPTICAL ARC FLASH DETECTION CABLE SCHEDULE |
| 227387 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OAFD 1500kVA TX'S AND VENTILATION FAN AC SERVICE BOARD LAYOUT, WIRING & CONNECTIONS |
| 227388 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OAFD DISTRIBUTION LOCAL AUTOMATION CONTROL PANEL LAYOUT AND LABEL DETAILS |
| 227389 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD, OAFD & CUSTOMER OC No.1 & No.2 PROTECTION DISTRIBUTION AUTOMATION CONTROL PANEL WIRING & CABLING DIAGRAM |
| 227389 | 2 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD, OAFD & CUSTOMER OC No.1 PROTECTION, DISTRIBUTION AUTOMATION CONTROL PANEL WIRING & CABLING DIAGRAM |
| 227390 | 1 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OAFD TRANSFORMER ACB INTERNAL WIRING AND ACB PANEL CONTROL WIRING SCHEMATIC |
| 227390 | 2 | CITY DISTRIBUTION SUBSTATIONS WITH E TYPE LV BOARD AND OAFD CUSTOMER ACB INTERNAL WIRING AND ACB PANEL CONTROL WIRING SCHEMATIC |
| 227350 | 5 | RMICB SUBSTATIONS WITH E TYPE LV BOARD WITH OPTICAL ARC FLASH DETECTION FIBRE LOOPING AND GENERAL MOUNTING DETAILS |
| 228882 | 2 | DISTRIBUTION SUBSTATIONS SCHNEIDER E TYPE LV BOARD ACB INCOMING PANEL MODIFICATIONS TO MANUFACTURERS WIRING DIAGRAM |
| 227357 | 1 | E TYPE LV BOARD MERLIN GERIN MASTERPAC TP AIR CIRCUIT BREAKERS EXTERNAL CONNECTIONS FOR AFD DIST. SUBSTATIONS |
| 178227 | | E TYPE LV BOARD ACCEPTABLE COMBINATIONS |
| 125190 | | EPOXY RESIN ENCASED PROTECTION CURRENT TRANSFORMER OUTLINE AND DETAILS |
| THE LATEST VERSIONS OF THE ABOVE STANDARD DRAWINGS CAN BE DOWNLOADED FROM AUSGRID'S WEBSITE | | |

ANNEXURE A (continued)

| AUSGRID REFERENCE DRAWINGS Always refer to the latest version on our website | | |
|-----------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------|
| DWG. No. | SHEET No. | MISCELLANEOUS |
| 25121 | 1 | SUBSTATION EARTHING TYPICAL INSTALLATION OF EARTHING ELECTRODES |
| 157908 | 1 | STANDARD UNDERGROUND PIT LADDER WITH 75° SLOPE ARRANGEMENT AND DETAILS |
| 31858 | 1 | SUBSTATIONS OPERATORS LOCKER |
| 48008 | 1 | MISCELLANEOUS CONSTRUCTION DETAILS |
| 50740 | 1 | TRANSFORMER HATCHCOVER AND REBATE |
| 63678 | 1 | PULLING EYES |
| 121950 | 1 | STANDARD SERVICES BOARDS CITY TYPE SUBSTATIONS WITH FAN CONTROL ARRANGEMENT & DIAGRAM WITH DRILLING DETAILS |
| 162655 | 1 | INDOOR DISTRIBUTION TRANSFORMERS - MOUNTING DETAILS OF CURRENT TRANSFORMERS AND EARTH BAR |
| DWG. No. | SHEET No. | HV SWITCHGEAR |
| 10578 | 1 | CITY TYPE SUBSTATIONS & CONTROL POINTS ISOLATING SWITCH OPERATING WHEEL FOR PULL-OUT GEAR ARRANGEMENT & DETAILS |
| 16500 | 1 | CITY TYPE SUBSTATIONS & CONTROL POINTS EMERGENCY PULL-OUT GEAR OPERATING EQUIPMENT TYPICAL ARRANGEMENT |
| 18894 | 1 | CITY TYPE SUBSTATIONS & CONTROL POINTS EMERGENCY PULL-OUT GEAR OPERATING EQUIPMENT ARRANGEMENT & DETAILS |
| 191085 | 1 | CUSTOMER CHAMBER SUBSTATIONS HV PIT CONSTRUCTION AND HV SWITCHGEAR SUPPORT STEELWORK |
| 234377 | 1 | CUSTOMER CHAMBER TYPE SUBSTATIONS INSTALLATION OF SIEMENS 8DJH SWITCHGEAR |
| DWG. No. | SHEET No. | E TYPE LV BOARD |
| 178228 | 1 | TYPE E LV BOARD CLEARANCES, PIT DESIGN AND CONSTRUCTION |
| 178229 | 1 | TYPE E LV BOARD SUPPORTING STEELWORK GENERAL ARRANGEMENT |
| 178230 | 1 | TYPE E LV BOARD AUXILIARY CABLE LADDER INSTALLATION DETAIL |
| 178238 | 1 | TYPE E LV BOARD SUMMATED MDI WIRING DIAGRAM |
| DWG. No. | SHEET No. | VENTILATION & FIRE SUPPRESSION |
| 2064 | 1 | BASEMENT SUBSTATION CHAMBER CO ₂ CONNECTION UNION & CO ₂ NOZZLE DETAILS |
| 42416 | 1 | BASEMENT SUBSTATION FAN MOUNTING PLATE |
| 48008 | 1 | MISCELLANEOUS CONSTRUCTION DETAILS |
| 48009 | 1 | WEATHERPROOF LOUVRE DETAILS |
| 48849 | 1 | MULTI-BLADE FIRE DAMPER DETAILS |
| 56197 | 1 | WALL MOUNTED CO ₂ CONNECTION BOX |
| 117632 | 1 | TYPICAL FAN AND DAMPER GENERAL ARRANGEMENT |
| 117633 | 1 | EXHAUST FAN DAMPER DETAILS |
| 117634 | 1 | CO ₂ PIPEWORK, BRACKETS AND TRIPWIRE DETAIL |
| 117635 | 1 | INLET AND EXHAUST VENTILATION DAMPER ARRANGEMENTS |
| 184970 | 1 | CO ₂ PIPEWORK, TRIPWIRE AND TRIGGER ARRANGEMENT |
| DWG. No. | SHEET No. | PROTECTION / SIGNALING |
| 1856 | 1 | CITY DISTRIBUTION SUBSTATIONS DETAILS OF SIGNAL SYSTEM DISCONNECTION BOX |
| 10635 | 1 | DISTRIBUTION SUBSTATIONS WALL MOUNTED DOUBLE TIER SUPPORTING FRAME FOR TRIPPING BATTERIES |
| 15230 | 1 | DISTRIBUTION SUBSTATIONS WALL MOUNTED SINGLE TIER SUPPORTING FRAME FOR TRIPPING BATTERIES |
| 18894 | 1 | CITY TYPE SUBSTATIONS & CONTROL POINTS EMERGENCY PULL-OUT GEAR OPERATING EQUIPMENT TYPICAL ARRANGEMENT |
| 22212 | 1 | TRIPPING BATTERY TEST ASSEMBLY & WIRING DETAILS |
| 64599 | 1 | DISTRIBUTION SUBSTATIONS FAN CONTROL MARK III SCHEMATIC DIAGRAM |
| 113432 | 1 | CITY TYPE SIGNAL DISCONNECTION BOX LABEL & CONNECTION DETAILS |
| 115065 | 1 | CITY TYPE PILOT ISOLATION BOXES AND INTERCONNECTOR PILOT BOXES GENERAL ARRANGEMENT |
| 115150 | 1 | CITY TYPE PILOT ISOLATION BOXES AND INTERCONNECTOR PILOT BOXES LABEL DETAILS |
| THE LATEST VERSIONS OF THE ABOVE STANDARD DRAWINGS CAN BE DOWNLOADED FROM AUSGRID'S WEBSITE | | |