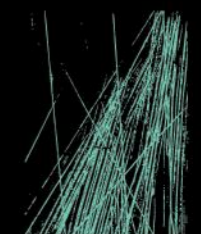




SERVICES INFRASTRUCTURE REPORT  
**OPAL HEALTHCARE, ST IVES CARE COMMUNITY**

**ELECTRICAL, TELECOMMUNICATIONS & HYDRAULIC SERVICES**



**JHA**

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## DOCUMENT CONTROL SHEET

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Project	Opal Aged Care, St Ives
Description	Electrical, Telecommunications & Hydraulic Services
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## 1. EXECUTIVE SUMMARY

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This Services Infrastructure Report is a holistic document which provides assessment of the existing infrastructure (Utilities) on and around the site and identify the associated requirements for these utilities to service the proposed development. This shall include details around demolition and the staged construction works.

The newly proposed Care Community will be a 210-bed premium 6 Star Care Community and will be constructed across the following lots / addresses

- DP 29593
- DP 1040841
- DP 783818
- DP 527824
- No. 293 Mona Vale Road
- No. 295 Mona Vale Road
- No. 285 Mona Vale Road
- No. 287 Mona Vale Road
- No. 287A Mona Vale Road
- No. 289 Mona Vale Road
- No. 1 Flinders Avenue

The new Care Community will consist of the following key areas:

- Care Community Bedrooms/ensuites
- Reception and Administration
- Activity spaces for meaningful engagement
- Common area lounges / dining rooms
- Basement Carpark, Loading Dock
- Commercial Kitchen
- Commercial Laundry
- Serveries
- Waste Stores
- Café
- Wellness and Health Consult
- Salon
- Back of House and Team Areas

The building classifications are assumed as per below, these are to be confirmed by the project BCA consultant.

- Carpark – Class 7a
- Residential Aged Care – Class 9C
- Back of house and administration Class 5

The building consists of lower ground floor, ground floor, level 1, level 2 and level 3.

### 1.1 REPORT QUALIFICATIONS

All analysis and investigation undertaken has been done so with an understanding that a high level of seamless integration with the development is achieved.

Information on existing Electrical Utility Infrastructure (Ausgrid) as detailed within this report has been obtained from:

- Dial-Before-You-Dig (DBYD)
- Ausgrid GIS
- Site investigations
- Provided survey documents

Any potential works on existing authority infrastructure services is subject to negotiation and approvals of the affected authority. Liaison with the authority will be undertaken as part of the detailed design phase works for the site.

## 1.2 EXISTING SERVICES ADEQUACY ANALYSIS

Existing service	Capacity	Proposed development load requirement	Adequacy of existing service for proposal – Y/N	Description of upgrade required to existing service
Hydraulic Sewer drainage	Adequate capacity for site development - Subject to Sydney Water Section 73 Notice of Requirements	Maximum 1500 loading units expected (stage 1&2 combined)	Yes - Subject to Sydney Water Section 73 Notice of Requirements	N/A
Hydraulic Potable water	Adequate flow available via Sydney Water Pressure & Flow Enquiry & Confirmation - Subject to Sydney Water Section 73 Notice of Requirements	Potable water – 7.2 l/s probable simultaneous demand Fire Services – 38 l/s	Yes - Subject to Sydney Water Section 73 Notice of Requirements	N/A
Hydraulic Gas services	Adequate site servicing available. No Gas usage is proposed.	N/A	N/A	N/A
Electrical power – residential LV feeds	N/A	3 phase, 2100A/ph	No	Two dedicated kiosk substations required
Communications- Telstra/NBN conduit	Single 50mm conduit and pillar	New Telstra connection and NBN connections	No	New conduits, trenches and pits from street

## 2. EXISTING INFRASTRUCTURE

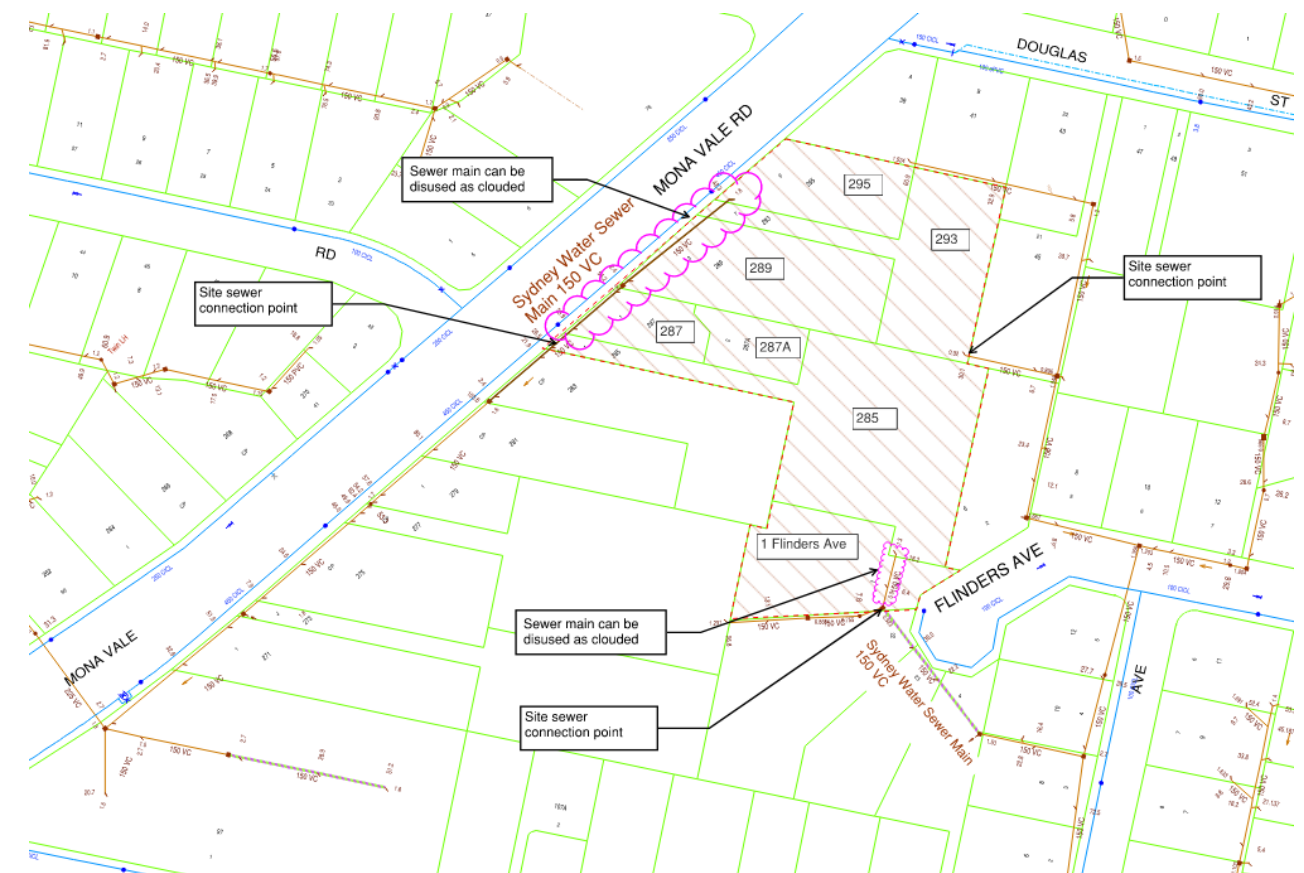
### 2.1 HYDRAULIC INFRASTRUCTURE

#### 2.1.1 SEWER DRAINAGE

The site is serviced by the following Sydney Water sewer mains, as per the following:

- Ø150mm vitrified clay (VC) sewer main on the south of Mona Vale Road within the site boundary;
- Ø150mm VC sewer main, which reticulates perpendicular to Flinders Avenue.
- Ø150mm VC sewer main located on the south-eastern side of No.293 Mona Vale Road

The diagram below illustrates the surrounding Sydney Water sewer mains:



**DBYD – Sydney Water Mains Map (Sewer Infrastructure)**

Based on Sydney Water sewer asset construction drawings, the existing sewer mains are constructed during the 1960s. Therefore, it is recommended to conduct CCTV inspections to confirm their current condition and invert levels. If any sections of the sewer mains are found to be no longer fit for service, replacement or rectification may be required.

#### Proposed sewer connections

Sewer discharge from the proposed development is to be split between the existing wastewater mains within the site.

Although the sewer main within the property adjacent to Mona Vale Road is available for connection, due to the invert levels, no significant area of the site would be able to be drained by gravity to this sewer. Accordingly, this connection is proposed to serve the adjacent areas.

As clouded in the DBYD – Sydney Water mains map, the sewer main serving current lot of 1 Flinders Ave can be disused. We would expect that a portion would be maintained as a sewer main within the site to achieve compliance for the authority's connection point to be within the site boundaries.

Similarly, the existing Sydney water sewer main adjacent to Mona Vale Road serving drainage serving the property of 295 Mona Vale Road can be disused, as clouded in the DBYD. It is expected that a portion of this main would be maintained as a sewer main within the site to achieve compliance for the authority's connection point to be within the site boundaries.

It is proposed to connect to the existing Sydney water sewer connection on the Ø150mm VC sewer main located on the south-eastern side of No.293 Mona Vale Road.

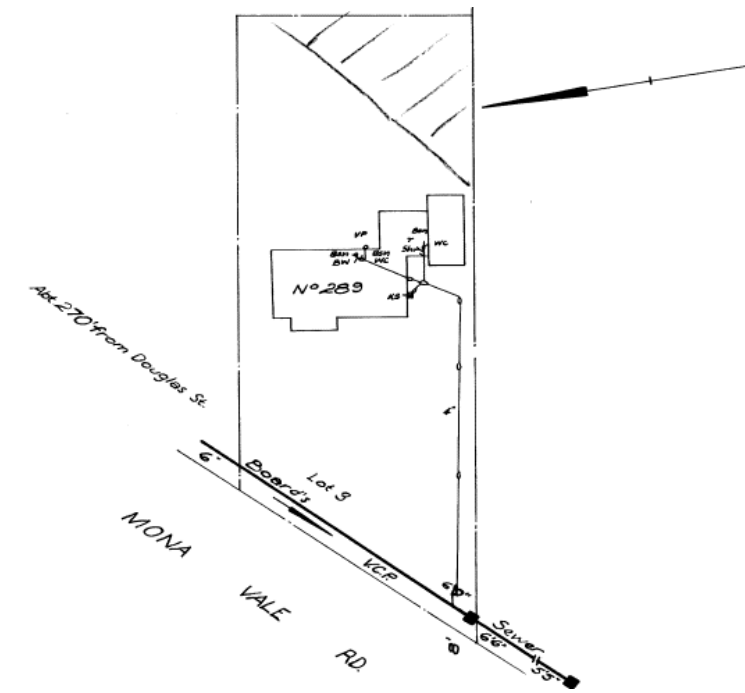
**Redundant sewer connections to be capped off**

The diagrams below are as received from Sydney Water and are included to identify required cap off or redundant sewer connections only.

Sewer Service Diagrams of the seven lots within the site have been obtained from Sydney Water Tap In.

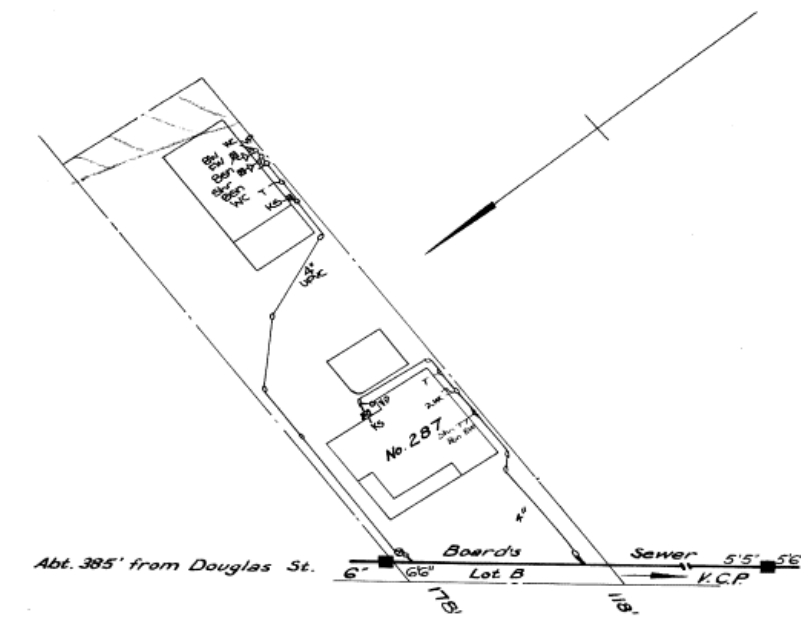
The individual Sewer Service Diagrams have been illustrated from north to south as following:

- No. 289 Mona Vale Road



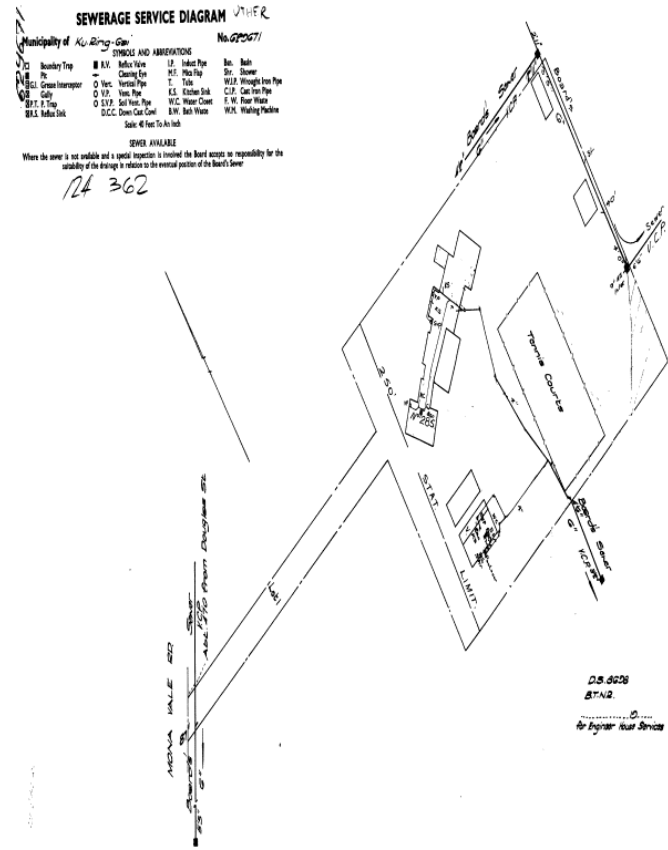
*Sewer Service Diagram of No. 289 Mona Vale Road*

- No. 287 and 287A Mona Vale Road



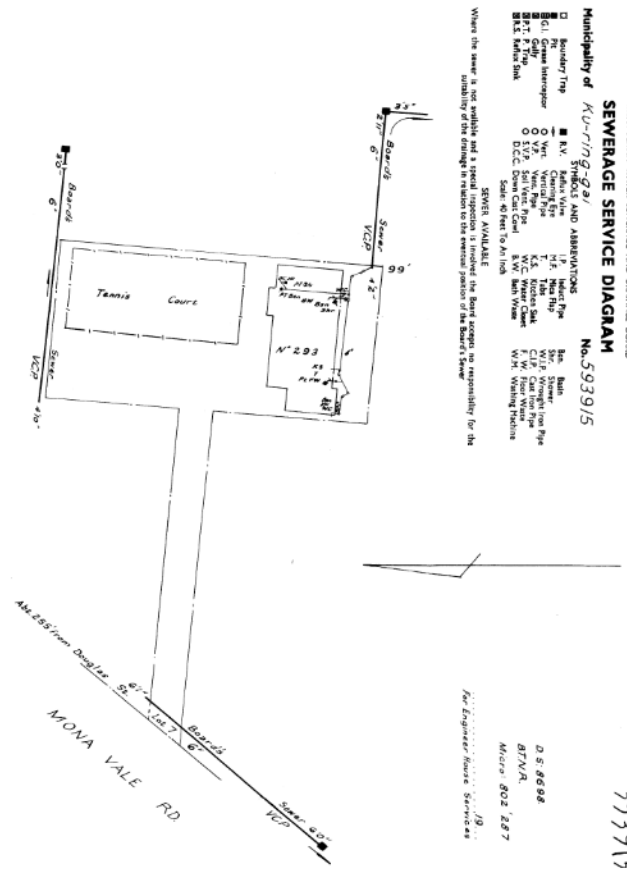
*Sewer Service Diagram of No. 287 and 287A Mona Vale Road*

- No. 285 Mona Vale



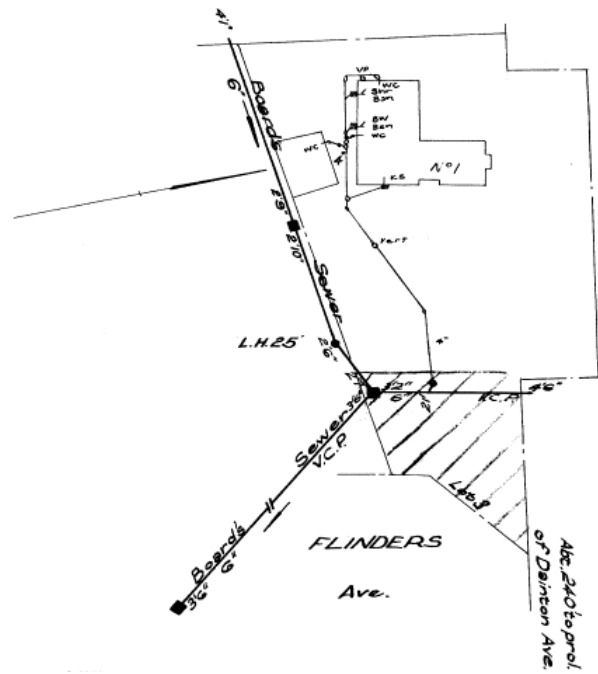
Sewer Service Diagram of No. 285 Mona Vale Road

- No. 293 Mona Vale



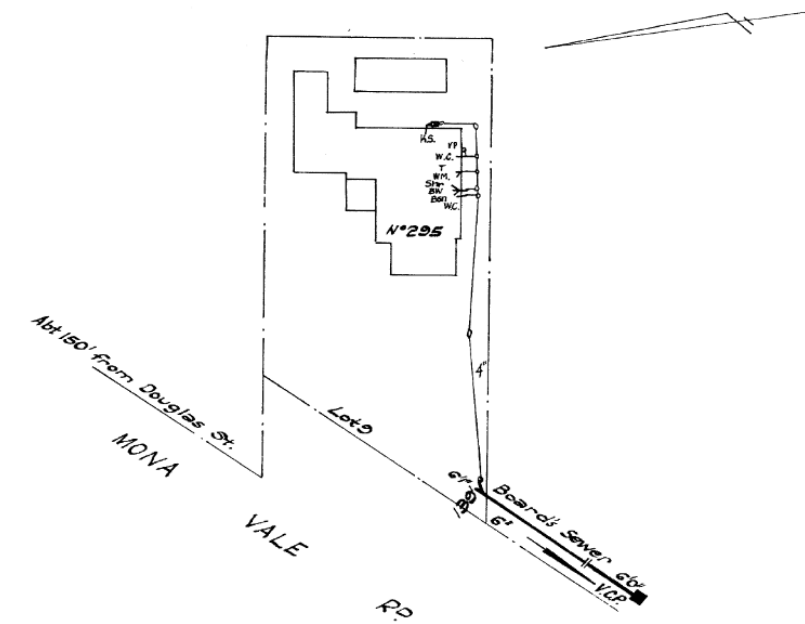
Sewer Service Diagram of No. 293 Mona Vale Road

- No. 1 Flinders Avenue



Sewer Service Diagram of No. 1 Flinders Avenue

- No. 295 Mona Vale



Sewer Service Diagram of No. 295 Mona Vale Road

## 2.1.2 POTABLE WATER

The existing site has frontage to the following Sydney Water mains:

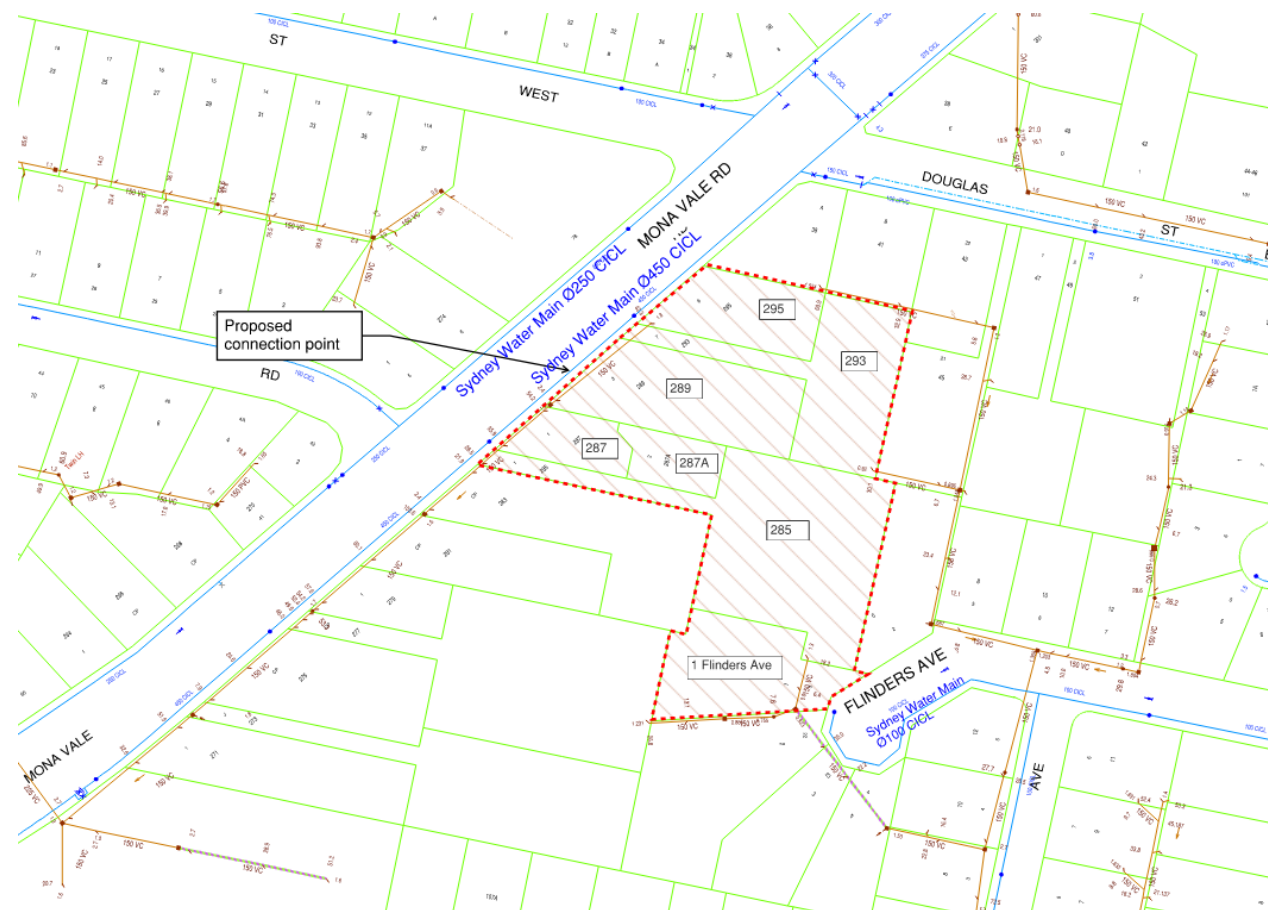
- Ø250mm Cast Iron Cement Lined (CICL) main on the northern side of Mona Vale Road;
- Ø450mm CICL main on the south of Mona Vale Road; and
- Ø100mm CICL main in Flinders Avenue

The 450mm water main is a carrier main and connection for building services is generally not permitted by Sydney Water.

It is expected that the water main in Flinders Avenue, being a dead end 100mm main, would not be adequate to provide sufficient flow for the fire services. Optimum solution is for a combined single connection to the 250mm main on the northern side of Mona Vale Road.

The pressure test results for the 250mm Sydney Water water main in Mona Vale Road can be found in the appendices of this report. The statements of flow and pressure indicate that the flow available is adequate for water services, fire hydrant and fire sprinkler requirements.

The diagram below illustrates the surrounding Sydney Water mains:



DBYD – Sydney Water Mains (Water Infrastructure)

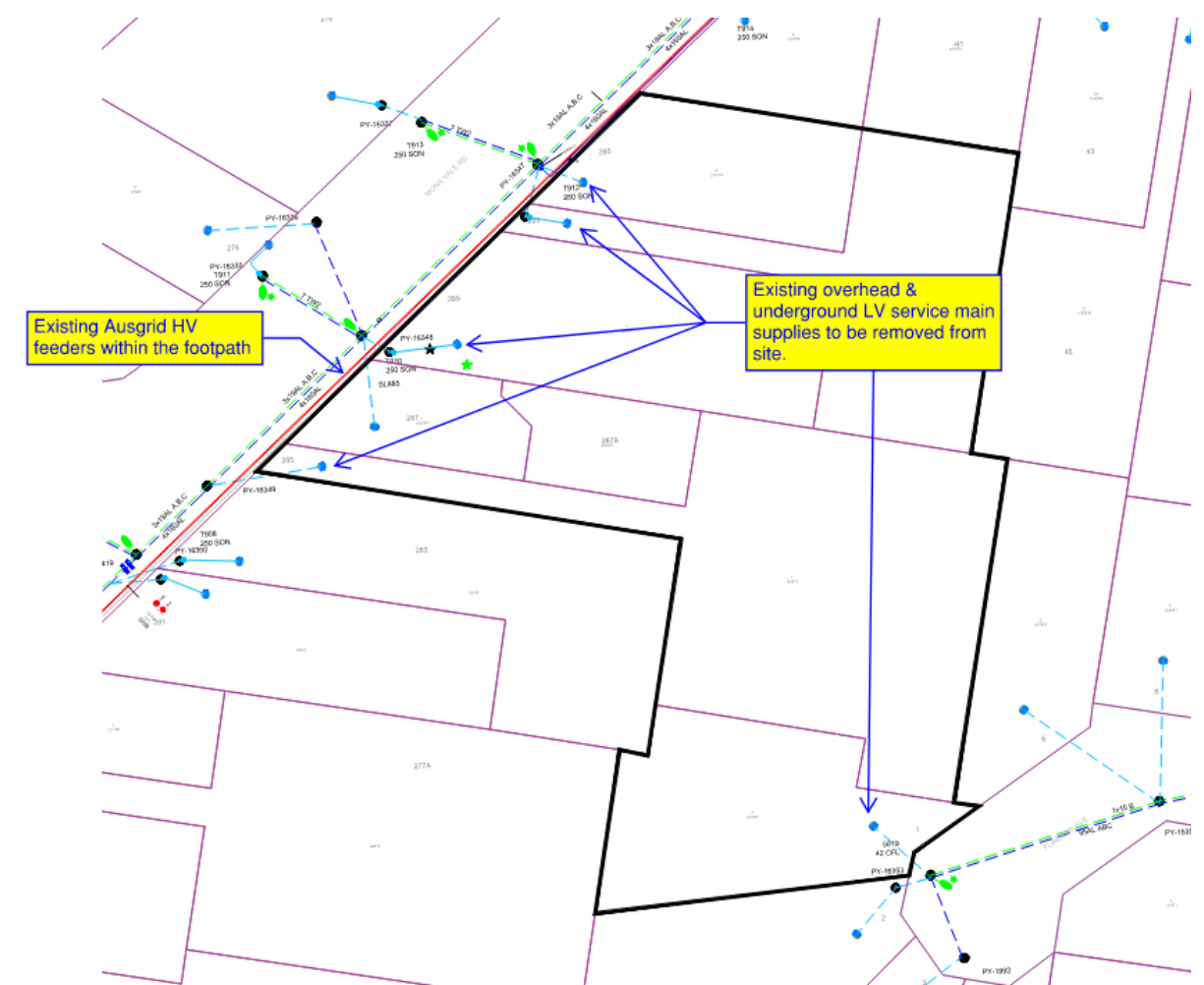
## 2.2 ELECTRICAL AND COMMUNICATIONS INFRASTRUCTURE

### 2.2.1 ELECTRICAL POWER

The site is currently supplied by a number of existing overhead service connections as shown below. The services would each only have a maximum connection of up to 200A. These will require removal as part of the site works.

There is also an underground service main connected to an existing private pole within the property. Similar to the overhead service connections, this underground supply will require removal from site.

There are two (2) existing High Voltage (HV) Ausgrid feeders located within the footpath of Mona Vale Road. These feeders are proposed to be utilised for the new site substation connections (subject to the electrical authority AUSGRID's acceptance).



DBYD – Ausgrid GIS Network Extract Services

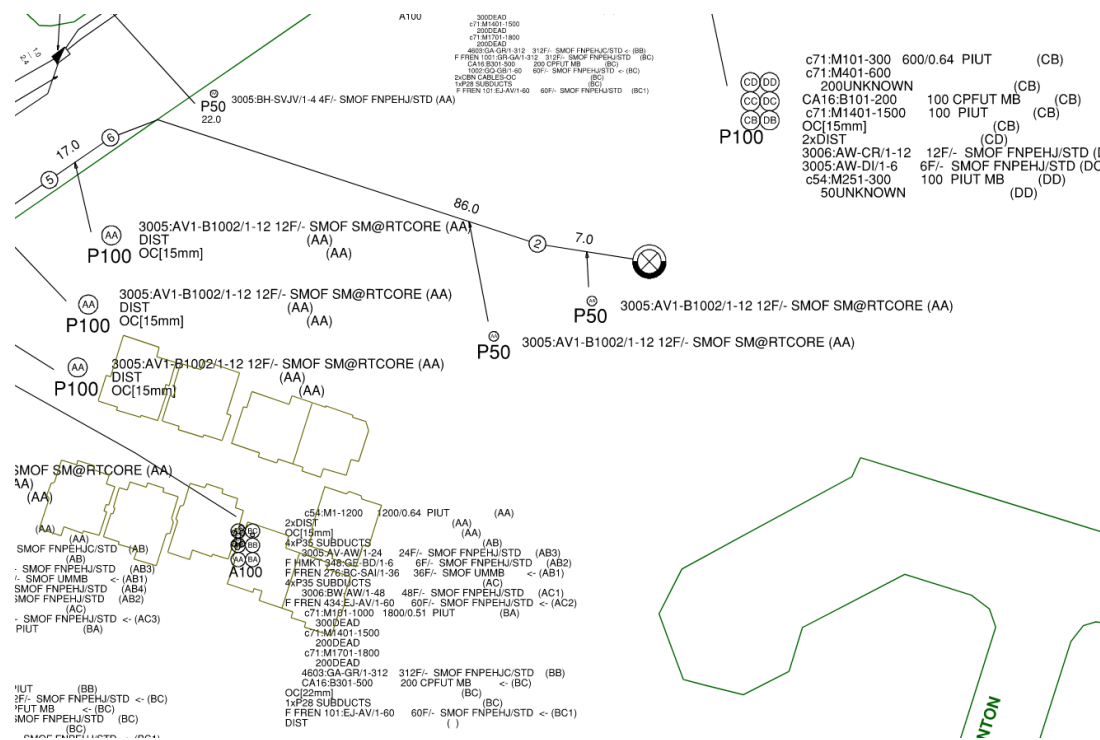
## 2.2.2 TELECOMMUNICATIONS INCOMING SERVICES

Existing Telstra-owned pits and conduits extend on Mona Vale Road in line with the driveway of no. 285 Mona Vale Road.

Telstra DBYD plans show an existing conduit, fibre connection and pillar to 285 Mona Vale Road. Further investigation is to be undertaken to establish the full scope of works for incoming services.



NBN DBYD Plans, Showing Type 6 Pit Adjacent to No 285 Driveway



Telstra DBYD Plans, Showing Type 6 Pit & Incoming 50mm (P50) Conduit With Single Mode Optical Fibre (SMOF) & Existing Pillar

## 3. PROPOSED INFRASTRUCTURE

### 3.1 ELECTRICAL INFRASTRUCTURE

#### 3.1.1 ELECTRICAL DEMAND LOADINGS

A maximum demand has been completed for the new proposed works on the site. This includes a breakup for each floor as follows:

Maximum Demand S- St Ives	kVA
Total area 18228 m2	
<b>TOTAL (80VA/m2)</b>	<b>1193.0</b>
Lifts	44.1
EV allocation	28.0
Opal Spare 20%	253.0
<b>Total</b>	<b>1518.1</b>

Estimated Maximum Load Demand

#### 3.1.2 SUBSTATION

The Care Community, St Ives subject site falls within the AUSGRID operational area for power. In consideration of the development's expected power requirements above in the maximum demand calculations, JHA can estimate that the site will require the installation of one (1) new substation as part of the development works. This is likely to be an arrangement of a 2 x 1000kVA KL-Type Ausgrid kiosk substation.

An application for connection has been made with the authority Ausgrid, and a supply offer has been received (17/08/2022; now expired) that confirms a new substation is required. JHA have been directed by Midson Group that this offer will not be accepted at this time and not progressed until DA has been awarded – to avoid rework should building loads change. Refer to Appendix A of this report for the Supply Offer.

JHA has accredited Level 3 ASP designers that will be carrying out the design works in co-ordination with Ausgrid for this project.

Ausgrid as the authority will service the new substation equipment, with the design and capital installation costs all at the expense of the developer.

#### HV FEEDER CONNECTIONS & RETICULATION

To provide suitable electrical supply connections to the proposed development, it is proposed the existing Ausgrid high voltage feeders located within the Mona Vale Road footpath along the site boundary will be utilised to connect the new Ausgrid kiosk substations proposed for the site. This arrangement is subject to suitable spare capacity in the existing HV feeders and Ausgrid design acceptance.

High voltage joints are proposed to be installed within the Mona Vale Road footpath to the existing high voltage feeders and new cabling installed underground to the new substation infrastructure within the site, under a new easement in favour of Ausgrid.

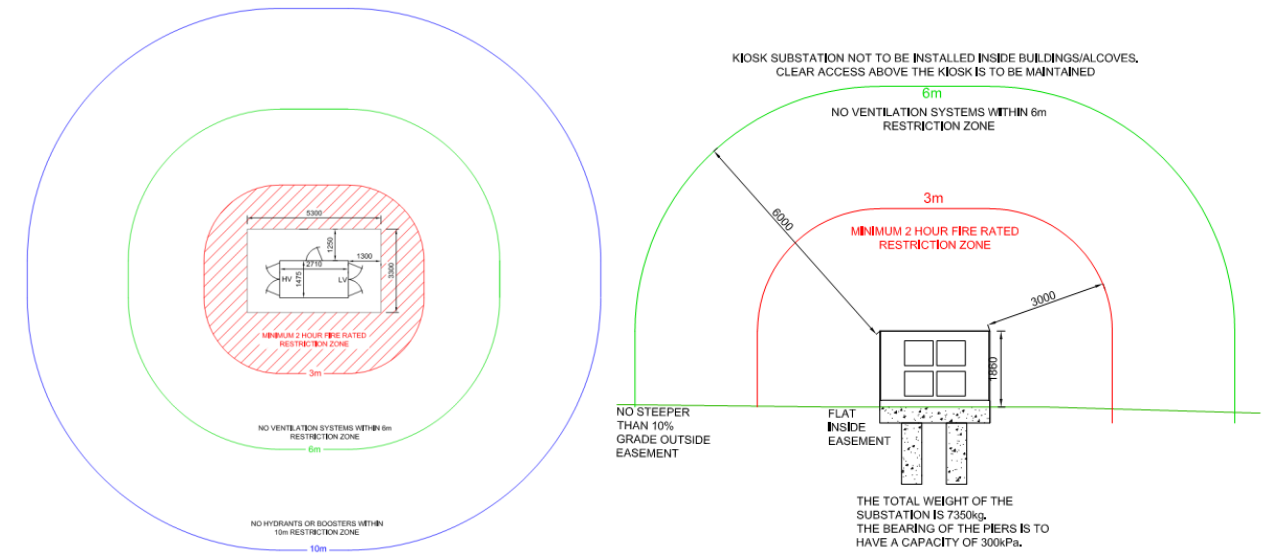
#### AUSGRID SUBSTATION ARRANGEMENTS

The design team has considered a number of options for substation locations. The below image is the chosen location by the design team to achieve Ausgrid compliance arrangements and with consideration to the overall development

The substation has been proposed offset from the boundary line due to an existing Sydney Water sewer main that is located within the property site; substation easement must be void of all third party services and structures.

The following are general spatial requirements/principles adopted for the proposed kiosk substations:

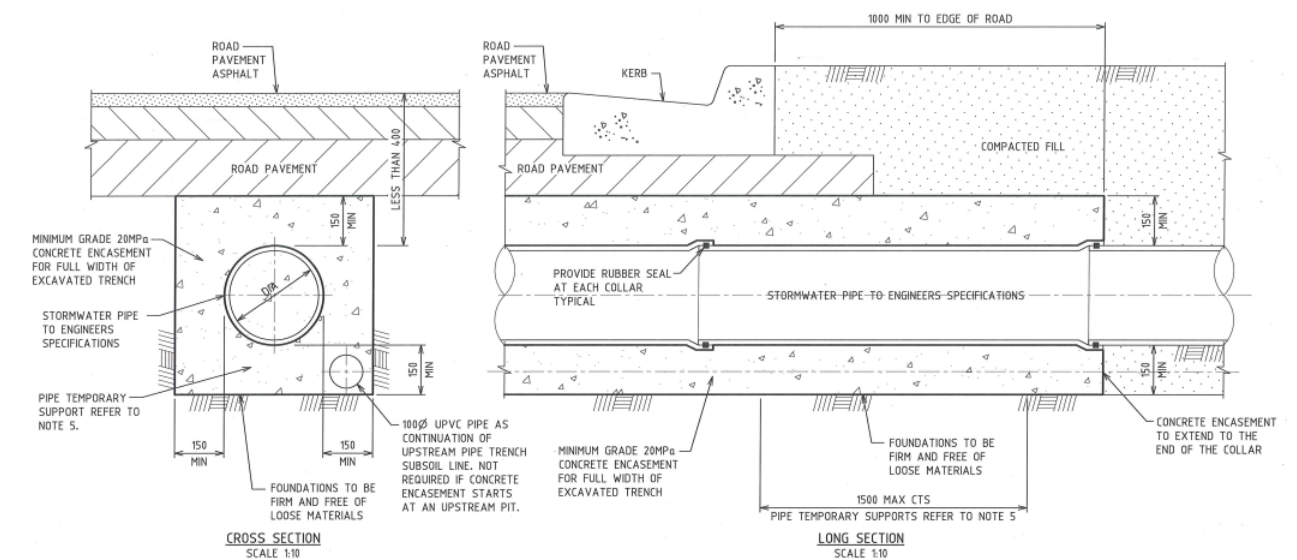
- The kiosk substation must have unimpeded access for AUSGRID personnel and vehicles, directly from a public street. Access from the public road to the substation must not be fenced or enclosed.
- The substation easement area is to be made flat and batter to easement be no greater than 1:4
- 24hr/7day week access is to be provided from Mona Vale Road to the substation from the boundary for heavy vehicle movement and personnel access to the substation; or utilise the indicated driveway which is not to be impeded with gates
- All works are to be in accordance with the site specific Ausgrid Design Information Package, Ausgrid Network Standards, and a certified Level 3 design



Typical Ausgrid Kiosk Substation Arrangements



Proposed Substation Location - Site Plan



NOTES

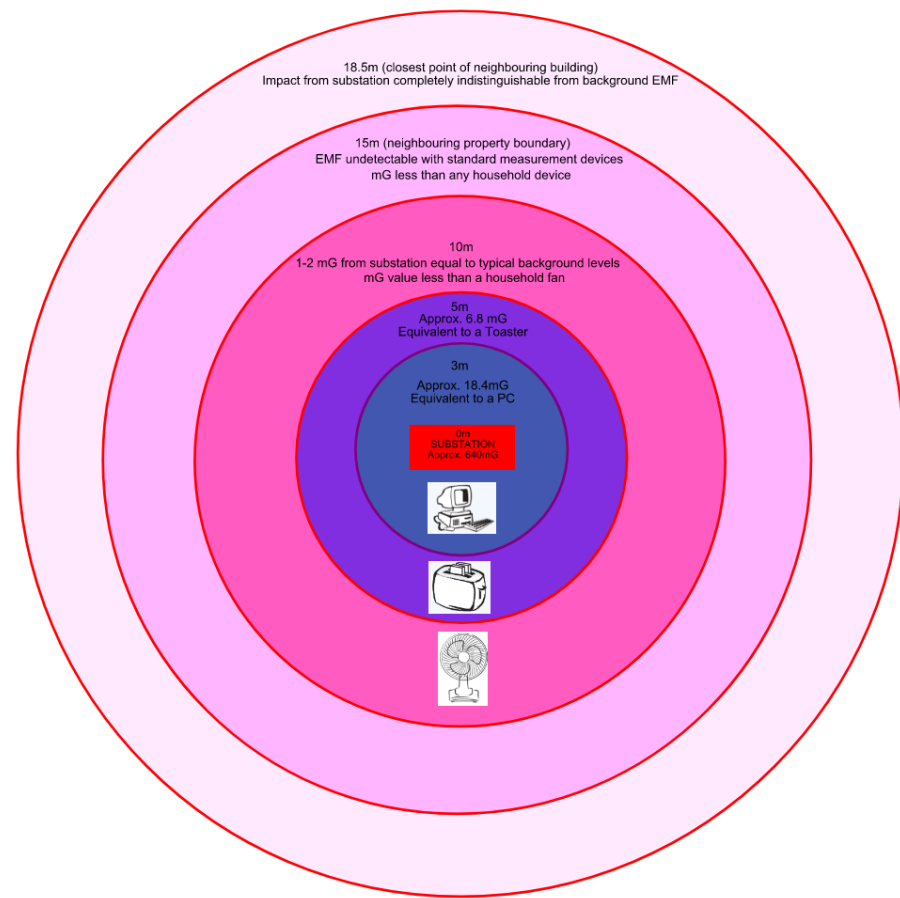
1. CONCRETE ENCASEMENT OF PIPE WORK IS TO OCCUR UNDER ALL PAVEMENTS WHERE MINIMUM REQUIRED COVER OF 400mm CANNOT BE ACHIEVED.
2. ENCASEMENT TO FINISH AT PIPE COLLAR 1000 MINIMUM CLEAR OF THE EDGE OF THE PAVEMENT
3. STEEL REINFORCEMENT OR FIBRE REINFORCEMENT MAY BE REQUIRED FOR THE CONCRETE ENCASEMENT FOR SITUATIONS WHERE ENCASED PIPEWORK SPANS OVER CONFLICTING SERVICES AT THE INSTRUCTION OF NEWCASTLE CITY COUNCIL.
4. CONCRETE TO BE MINIMUM GRADE 20MPa AND PLACED USING MECHANICAL VIBRATION
5. WHEN EXPOSING PIPE, PROVIDE SUPPORT AT 1500 MAXIMUM CENTRES WITH A MINIMUM OF 2 SUPPORTS PER PIPE LENGTH. SUPPORTS SHALL BE MASONRY OR CONCRETE SHAPED AND SIZED TO ENSURE SUPPORT.
6. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATION AND DEFORMATION OF THE PIPELINE DURING ENCASEMENT
7. FOUNDATION MATERIAL TO ACHIEVE A MINIMUM ALLOWABLE BEARING CAPACITY OF 150kPa
8. PIPE CLASS TO BE CLASS 2 STEEL REINFORCED PIPE.
9. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE

Concrete Encasement Detail - Example ONLY

## EMF ANALYSIS

During initial stages of design and coordination, the effects of substation EMF was analysed, to ensure that no neighbouring residents may be affected. The use of Ausgrid's 'EGN 423: EMF Calculator – 11kV,415V Power Lines & Kiosks' formed a key component of the analysis, to predict the magnetic field from the installation at the nearest receiver.

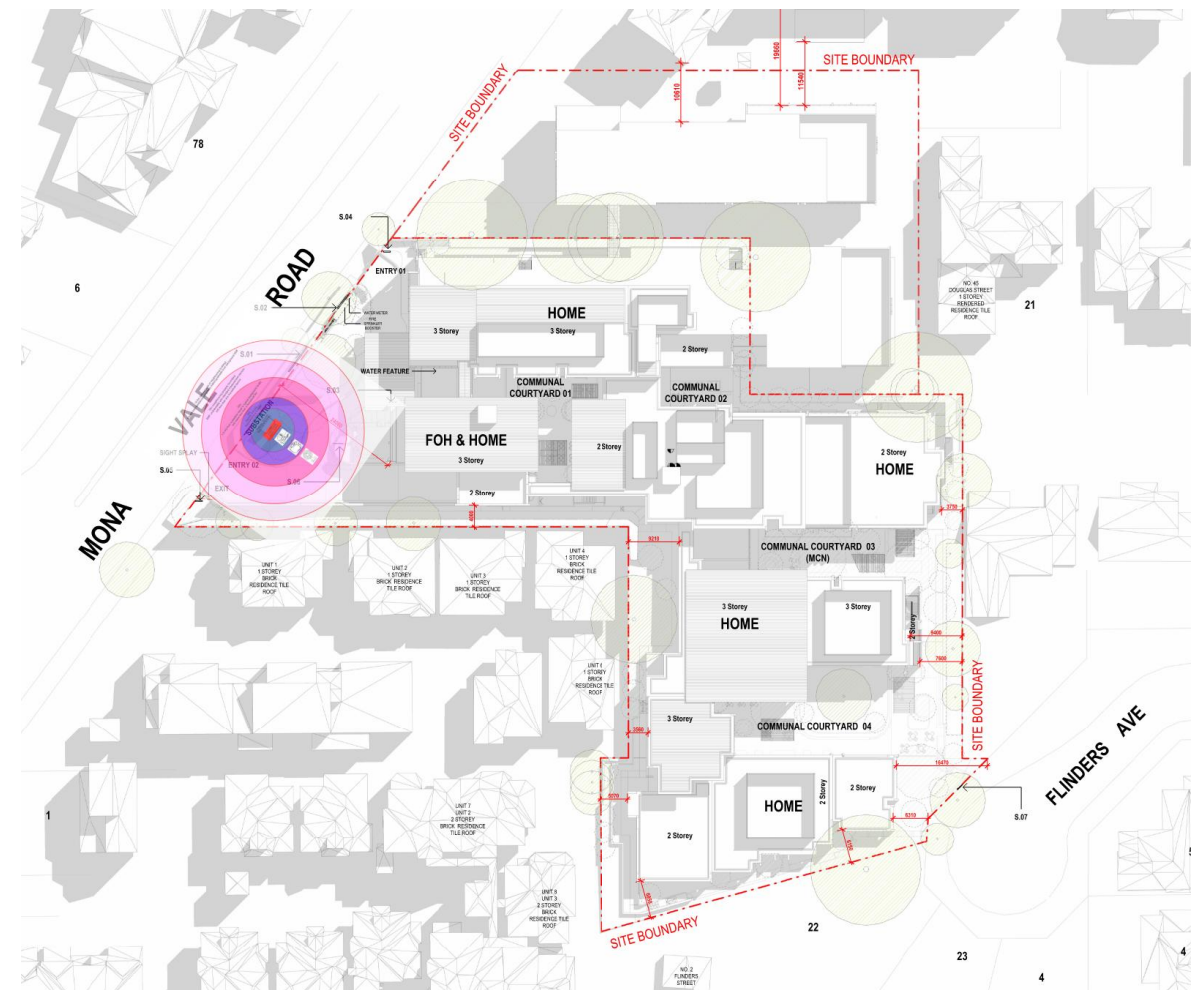
It is understood that substation EMI levels from specified distances are equivalent to the following household items.



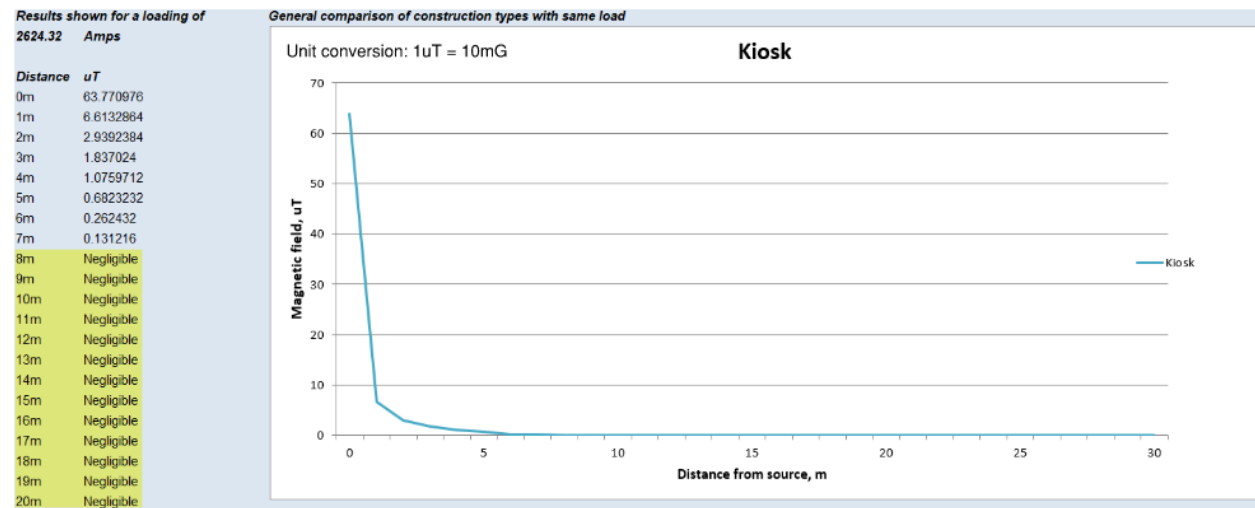
EMI Levels Compared to Household Items

Distance from Substation	Single Kiosk EMF (mG)	Two Kiosks EMF (mG)	Notes
0 m (surface of kiosk)	~640 mG	~905 mG	
3 m	~18.4 mG	~26 mG	Equivalent to a PC (single)
5 m	~6.8 mG	~9.6 mG	Equivalent to toaster (single)
10 m	1-2 mG	1.4-2.8 mG	Typical background levels ~1 mG
15 m	<1 mG (undetectable on most meters)	<1.4 mG	Lower than household appliances
18.5 m	Indistinguishable from background	Same (indistinguishable)	Ambient EMF dominates here

On this basis, the same ranges / clearances were replicated on site and therefore, EMI levels were then calculated and assessed.



Electromagnetic Field Levels Emitted from Substation



Exponential Decrease of EMI Levels Emitted from a Substation Kiosk

Note,

- Levels marked "Negligible" are below typical background levels of 0.1-0.2µT (1-2mG). For distances greater than 8m, the substation has no measurable impact above typical background levels.
- At 15m, the EMF level is in the order of 0.01µT (0.1mG), well below the background level.
- Common EMG meters cannot measure below 0.01µT (0.1mG)

In conclusion, based on the above assessment – there is no detrimental impacts to adjacent neighbours. Both in terms of EMF and any noise (e.g. low humming or otherwise).

### 3.1.3 INTERNAL POWER DISTRIBUTION

Specified pits will be of the precast concrete structure type with lockable lids (carrier approved for comms lead in) and be provided with a brass engraved plate labelling with labels either 'Communications' or 'Electrical'. Pits shall be a minimum load rating to support light vehicles in gardens or walkways. In trafficable areas pits will be rated to suit commercial vehicles. Each pit will be specified to include a rubble drain and graded away from the pit for light drainage. Service conduits entering pits shall be sealed to prevent any ingress.

Where physically possible, cable trays will be sized to possess spare capacity to accommodate future cabling. Cable trays and major catenary support runs shall be concentrated within corridors and general circulation areas, in dedicated service runs. Consideration will be given to the grouping of catenary supports of like services to ensure congestion / derating does not occur.

### 3.1.4 SITE MAIN SWITCH BOARD

A new switchboard will be required for the distribution of power on site. Switchgear, metering equipment, etc. will be housed in a dedicated room which will be co-ordinated with the Architect (we noted mechanical ventilation has been nominated in the service brief on top of standard fire rating requirements, etc.). The switchboard will be sized to accommodate the immediate load plus allocation of spare capacity.

The main switchboard will be designed with the requested features:

- Surge protection

- Form 3BiH
- IP 42 rated (Internal board) IF sprinklers are removed from the room or IP56 if sprinklered.
- Busbar rating min 125%
- 125% spare space
- Moulded case circuit breakers
- Separate chassis for power, lighting, and mechanical services
- The internal colour of the board is to be 'White'; External colour to be 'X15 Orange' (non-essential) or 'Red' (essential)
- Private metering in accordance with NCC
- Supply authority metering in accordance with the NSW Service installation rules



Proposed Switch Room Location On Ground Floor

### 3.1.5 CONSUMERS MAINS AND SUBMAINS CABLING

The design of mains and sub-mains cabling shall be such as to ensure voltage drop is within acceptable limits. Mains and sub-mains cabling shall generally be sized to suit maximum demand assessments plus an allocation of spare capacity of 20-30% depending on the nature of loads and areas supported.

All mains and sub-mains cabling shall be XLPE / PVC with the exception of NCC essential services which will have the appropriate level fire rating.

Mains and sub-mains cabling shall be predominantly reticulated in cable pits, conduits and via cable tray / ladder throughout ceiling voids in trefoil arrangement in/on appropriately sized cable supports to minimize derating.

### 3.1.6 POWER FACTOR CORRECTION UNIT

Space for future Power Factor correction will be provided within the main switchboard.

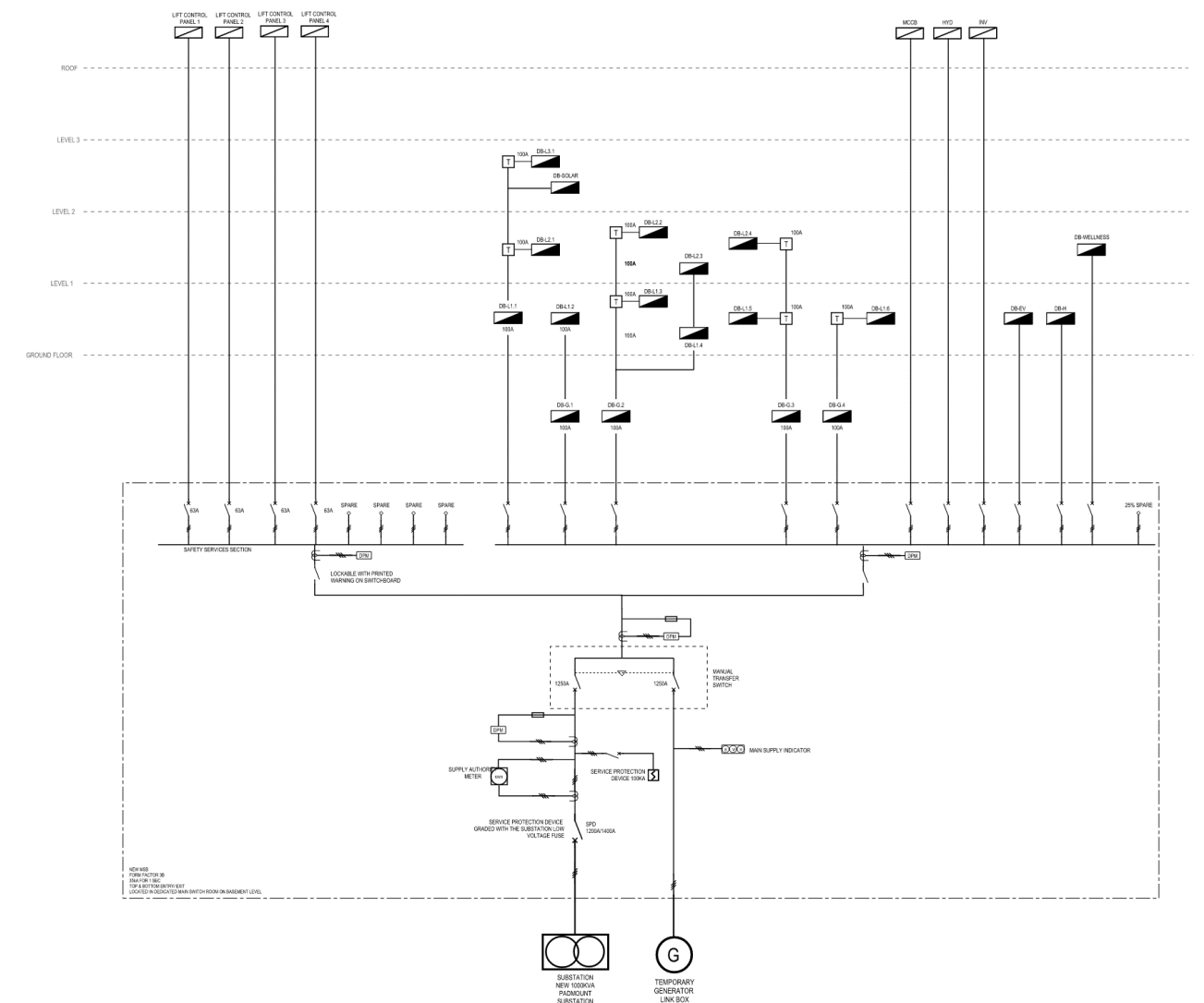
### 3.1.7 DISTRIBUTION BOARDS

Dedicated new electrical distribution boards will be distributed throughout the buildings. Generally, each building will house a Main Distribution board, which will feed the respective floors, and also feed distribution boards on the levels above.

Distribution boards will be housed in dedicated cupboard enclosures with lockable-hinged doors which open to BOH areas where possible. All enclosures will be fitted with smoke seals & be built with non-combustible materials to comply with BCA requirements.

New distribution boards will be provided with the following parameters:

- Surge protection
- Form 2 (Form 3B for main switchboard and safety services switchboard, separate section as per NCC)
- IP 42 rated (Internal board)
- Busbar rating min 125%
- Moulded case circuit breakers
- Separate chassis for power, lighting, and mechanical services
- The internal colour of the board is to be 'White'; External colour to be 'X15 Orange' (non-essential) or 'Red' (essential)
- Be accessible from circulation areas only and be fitted with smoke seals on doors and be lined with a non-combustible material
- All lighting and power (socket) sub-circuits to be 30mA RCD protected in accordance with Australian standards
- Fault level greater than 10kA
- Private metering



**Proposed Electrical Single Line Diagram**

### 3.1.8 PRIVATE SUB METERING

New private metering facilities will be provided in accordance with the requirements of NCC, Section J. Meters shall be selected from the Preferred Suppliers/Manufacturers List and allow for the instantaneous, average and maximum monitoring of the following parameters:

- Voltage (Phase to Neutral)
- Amps (Per Phase)
- Power Factor (Per Phase)
- Watts, kVA, kWh.

### 3.1.9 DIESEL GENERATOR SUPPLY

As part of the design, a temporary diesel generator link box will be provided to back up the entire site as per the Opal Design Brief. Location of generator set down will be within the frontage of the site.

### 3.1.10 PV SOLAR SYSTEM

A solar PV system of approximately **218kW** has been nominated to be designed and installed for the project. Design will be prepared in accordance with the design brief and specified manufacturer requirements. Layout of the PV panels will consider maximum solar exposure and planning constraints and will coordinate with mechanical services plant space and shading restrictions.

The proposed PV system capacity is **272 kW (≈680 panels)**.

For calculation purposes, allowing a 20% contingency for additional/fluctuating roof plant results in a **net available PV capacity of 218 kW**.



### 3.1.11 UNINTERRUPTIBLE POWER SUPPLY SYSTEM

A Class 'A' uninterruptible power supply unit will be specified to support the following building systems for a period of at least 30 minutes. The UPS is to be integrated into the local area network with an SNMP interface to warn of problems.

- Servers

- Duress alarm systems
- VoIP
- Digital telephone systems
- Nurse call
- Security
- CCTV systems
- Intercom

The UPS design should utilise a dedicated UPS switchboard located in the communications room complete with external bypass capability.

### 3.1.12 EV CHARGING

The NCC 2022 preview calls for class 9 buildings to have 20% of the allocated carpark spaces provided with EV charging infrastructure (spaces shown in green) This infrastructure includes a dedicated EV distribution board with charge control system, though no charger installation is proposed at the time of construction.



*Proposed Future Ev Charging Layout & DB Location (Green)*

## 3.2 COMMUNICATIONS INFRASTRUCTURE

### 3.2.1 TELECOMMUNICATIONS INCOMING SERVICES

NBN and Telstra services will be incorporated into the design as the Opal IT Home ICT Standard v4.5.3. Existing Telstra-owned pits and conduits extend on Mona Vale Road in line with the driveway of no. 285 Mona Vale Road. Telstra DBYD plans show an existing conduit, fibre connection and pillar to 285 Mona Vale Road. It is possible this fibre or pathway may be utilised for incoming Corporate Internet and SIP trunk connection to Telstra. Further investigation is undertaken to establish the full scope of works for incoming services.

It is expected a pit and pipe connection to the NBN network will be established from this point to provide connectivity for emergency and essential services, resident internet and smart metering if required (in line with the Opal IT 4.5.2 design brief).

Further investigation is undertaken to establish the full scope of works for incoming services. Final lead in cabling route into the site is yet to be determined and will be co-ordinated with the Architect.

### 3.2.2 MAIN COMMUNICATIONS ROOM

The new site will be served by a main communications room on Ground Level - West with approximate dimensions of 5000mm x 3600mm. The room will be single door access with electronic access control, be independently air conditioned and be initially equipped with 4 off 45RU racks.

One additional communication room on Level 1 -East as per the current plans is provided to ensure there are enough racks to serve the home. This rack will be a departure from the normal Sub Communications room size detailed in the Opal IT standard; it is 5000mm x 3700mm and contains 3 off 45RU racks.

Cabling reticulation will be facilitated via dedicated communications risers situated in an identical position on each floor. Such risers will also house miscellaneous minor "telecommunications" equipment on where required. When absolutely required sufficient clearances and protection between these items will be provided.

Cabling/ reticulation architecture (internal and external) shall adopt a "star" approach. It is proposed that all horizontal/ facility cabling shall be Cat 6A UTP and that all backbone cabling shall be OM4 fibre optic.

All communication services for the new care facility will originate from the communications room on the ground floor and will distribute via a network of cable trays, catenary and risers.

Each level shall have a communications riser which will allow for distributing cables and housing equipment such as MATV/PAY TV distributors, security data gather panels where necessary.

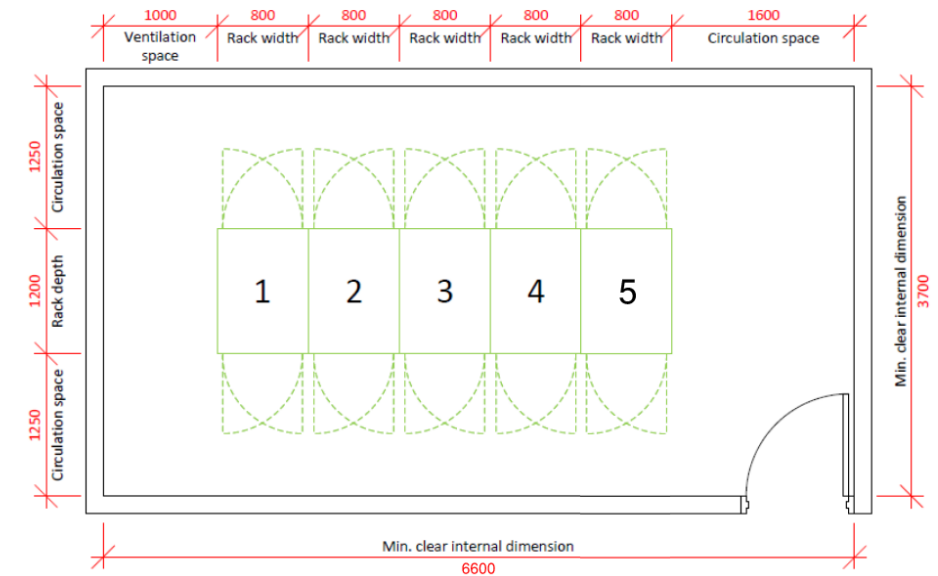
JHA has made a formal application to NBN and this has been accepted as an NBN site. As such the comms room will need dedicated wall space with set out clearances to NBN standards.

A rack mounted UPS system will be installed within the in each communication room as per the Opal IT Brief. After this support time has expired a soft shut down of IT equipment will be initiated.

All ITC works shall be in strict compliance with the Opal standard specification / design guidelines.

Note, the UPS will also serve as an additional form of surge protection for critical and sensitive head end equipment.

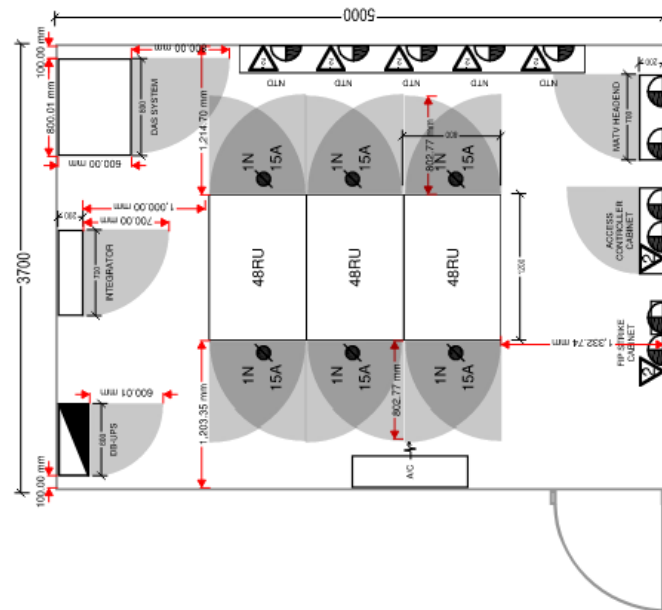
JHA will carry out Telecommunication applications on behalf of Opal.



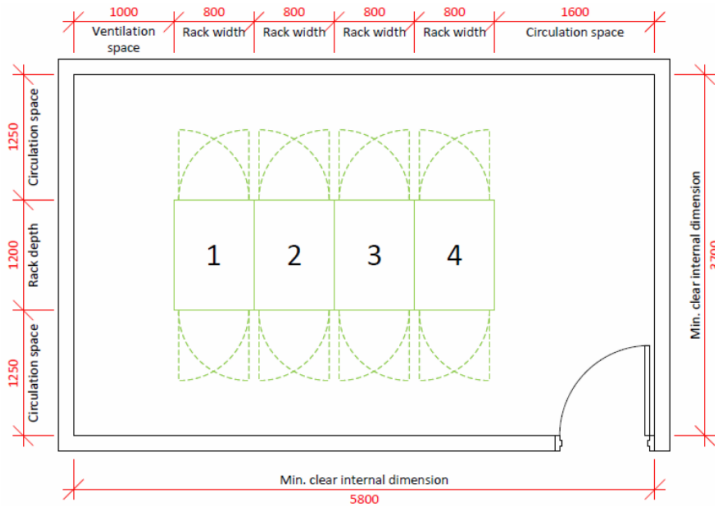
**OAC ICT Approved Main Communications Room Layout**



**Main Communication Room Location (Ground Floor)**



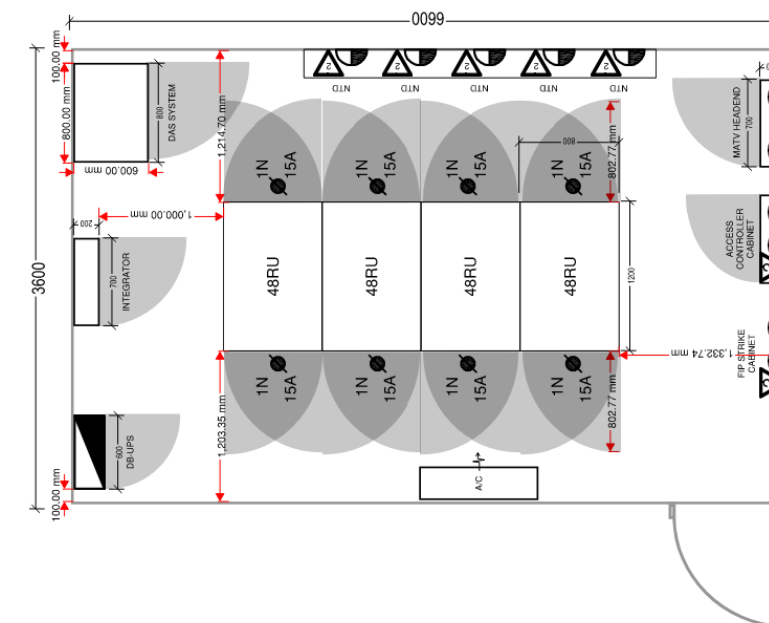
Proposed Primary Communication Room – Layout



OAC ICT Approved Sub Communications Room Layout



Secondary Communication Room Location (Level 1)



Proposed Secondary Communication Room – Layout

### 3.2.3 VOICE/ DATA

The voice / data cabling structured system shall be fully integrated utilising a certified Cat 6A UTP cabling solution with 20 years warranty. The system will generally consist of RJ-45 field outlets wired in Cat 6A UTP cabling from

patch panels within the communication room throughout each level of the development. Generally, a double outlet will be provided to each staff work station and further outlets provided where necessary to support printers, fax machines etc.

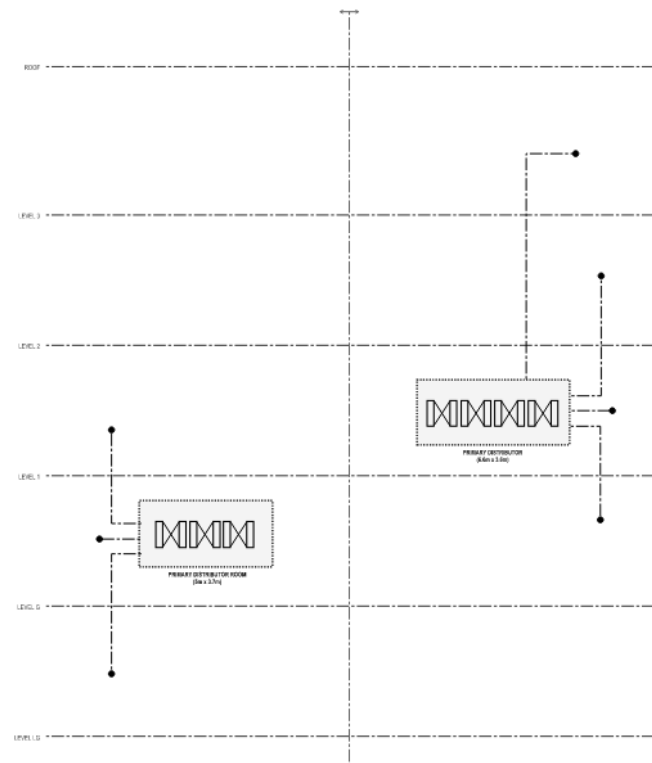
The MDF and PABX shall be rack mounted within the communications room on the ground floor. A wall mounted arrangement shall be explored for the MDF.

Approved vendors as follows:

- KRONE
- PANDUIT
- AMP
- SIEMON
- MOLEX
- CERTECH
- DYNAMIX

Each resident bed head location will be provided with a single RJ-45 outlet suitable for supporting a phone allocation to each resident.

Provisions for a wireless network system will be made throughout the new development. The provisions will include a dedicated single data outlet mounted on the ceiling ready for Wireless RF receivers / Transmitters to be installed at these locations in the future. These will be generally located in the corridors at approximately 10 metre intervals on all levels (subject to predictive survey results).



*Telecommunications Distribution Strategy*

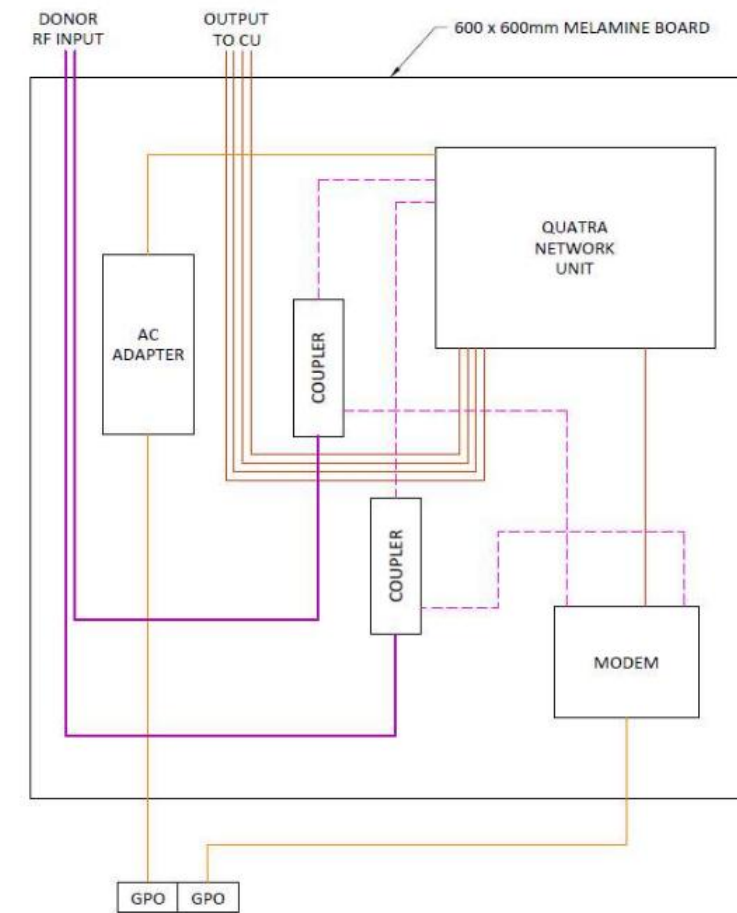
### 3.2.4 MINI DAS SYSTEM

As part of the works, a miniature 'In Building Cellular Mobile Distributed Antenna System' will be installed. This shall provide a network type in an array of separate radio heads, used to provide wireless connectivity to nearby mobile users in poor or no reception areas, supplying strong signals such that staff, residents and guests possess stronger and higher quality mobile reception.

In order to create a strong and accessible mobile signal strengthen, the system shall be designed to:

- a) Provide signal coverage which is achieved to >95%
- b) 5G/4G signals are to the target area must be equal or better than -95dBm RSRP with signal dominance equal or greater than 10dB

In each telecommunications room, a DAS wall panel shall be installed to accommodate for such requirements. See below diagram.



*Typical DAS Setout (700L x 200W) Wall Panel*

### 3.2.5 EXTERNAL LIGHTING

#### LIGHTING CONTROL MEASURES

All light sources will be directional and as concealed as possible to achieve low glare and designed in accordance with AS/NZS 4282 Control of the obtrusive effects of outdoor lighting.

As per Opal Electrical Services Technical Brief (v5), the lights in the facility shall generally be controlled as follows:

	50% switched by PE cell to operate from dusk to dawn.
Open Carpark Lighting & External Walkways	50% switch by PE cell and timeclock to operate from <b>dusk to 9pm</b> . All carpark and walkway lightings to be DALI dimmable to limit the amount of spill light.
Landscape Lighting	Switch by PE cell and timeclock to operate from <b>dusk to 9pm</b> .

#### GENERAL

External lighting will be provided to landscaped areas, external roof, building frontages, docking areas and the driveway.

- Building frontage lighting will be typically wall mounted luminaires to the columns and rear walls providing a subtle illumination to the area. The final design will resolve the number and types of fittings.

All external light fittings will be selected to ensure that light fittings are robust and appropriately IP rated, while not compromising the aesthetic of external and public domain areas.

Control of the external lighting will be by PE cell and Timeclock control, via the lighting control system.

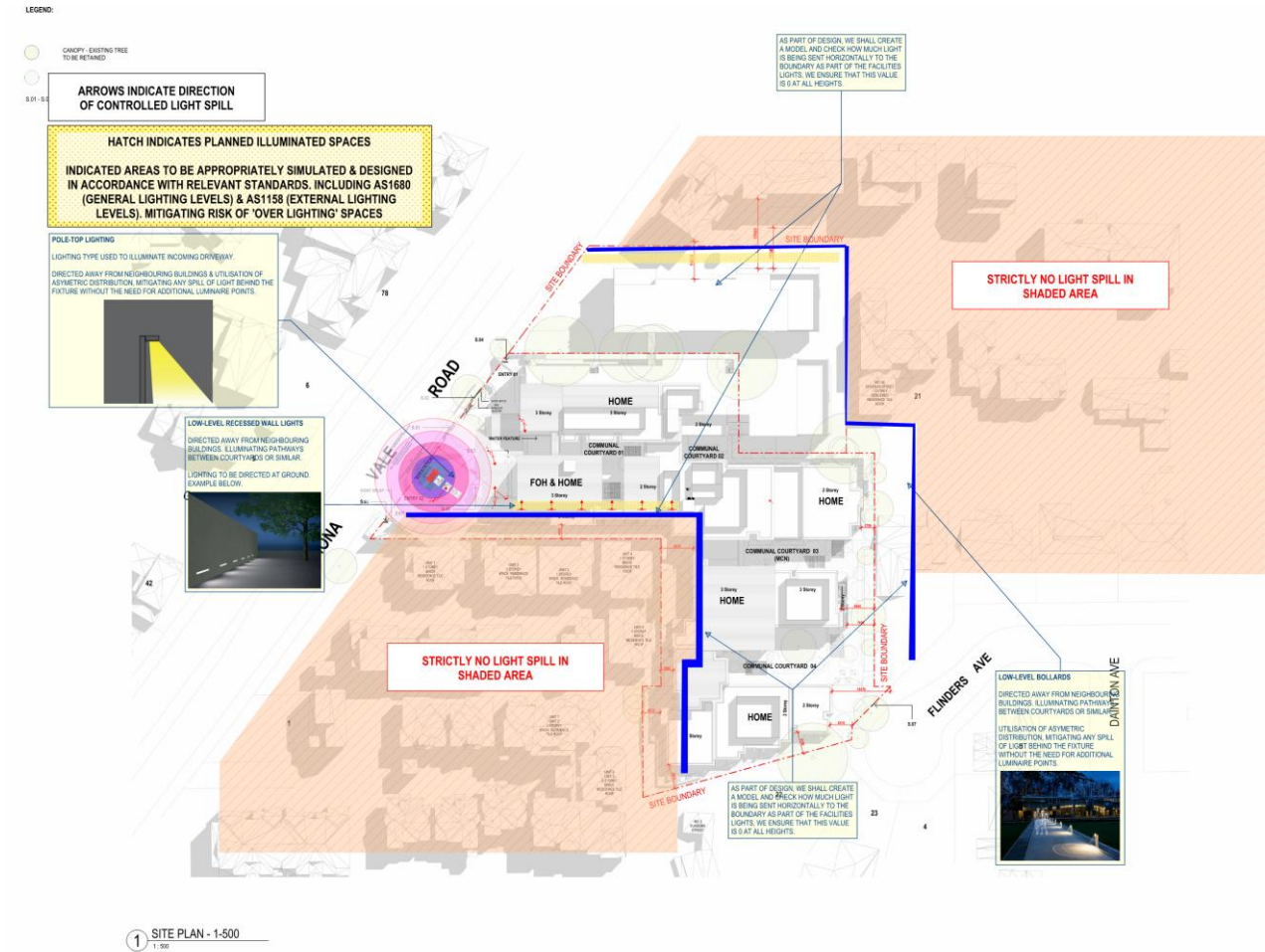
The landscape lighting design should provide external ambiance to the surroundings, visibility to its users for way finding but also potential social activities that may occur before and after sessions held within the building. In order to create these opportunities, the external lighting should allow for pockets of light in areas that create a space that is inviting but will also allow a sense of security for the visitors.

#### FAÇADE LIGHTING

The lighting intent for the façade is to highlight the architectural form in a subtle but considerate way, giving it an inviting night-time presence while maintaining a sophisticated aesthetic. This requires ambient lighting in the surrounding environment and accent lighting to highlight architectural features. E.g. Awnings, columns, vertical features and textures within the building fabric, rather than the blanket illumination techniques.

Such control measures may include:

- Eliminate upward spill light  
Light can be prevented from shining above the horizontal plane by:
  - Installing light fittings with an opaque cover and flat glass, mounted horizontally on both axes, or
  - Mounting the light under part of a building like an awning, veranda or roof, so that light is blocked from shining above the horizontal plane, and
  - Designing buildings to internalise light and prevent it from escaping into the night sky.



#### Controlled Lighting Location

- Direct Light Downwards, not upwards  
Wherever possible, light should be directed downwards, not upwards. This includes light used for roads, and the vertical lighting of structures such as advertising boards and building facades and away from neighbouring properties and property boundaries.  
  
Directional fittings (for example floodlights, spot lights and sign lights) should be installed so that they do not shine directly into a neighbouring residence, onto a roadway, skyward or outside of a property boundary.
- Use Shielded Fittings  
Light fittings that are specifically designed to minimise light shining near to or above the horizontal plane should be used. And away from neighbouring properties and property boundaries.



**Pole Top Lighting Examples**



**In-Ground Up-Light Examples**

d) Avoid 'Over' Lighting

Lighting levels should be appropriate for the activity. To avoid 'over' lighting, select an appropriate bulb type and light the task, rather than the environment.

e) Switch Lights OFF When Not Required

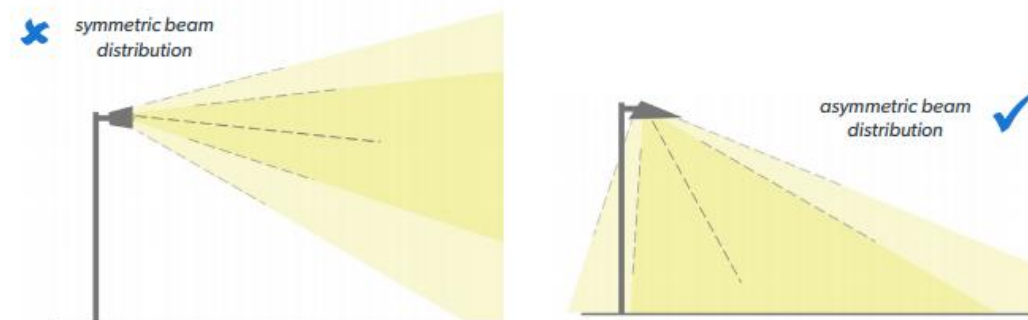
Lights should be switched off when not required to light a task or an area for safety or security purposes. The concept of a curfew with further limitations on lighting levels between agreed hours is encouraged.

As per Opal Electrical Services Technical Brief (v5), the lights in the facility shall generally be controlled as follows:

Open Carpark Lighting & External Walkways	50% switched by PE cell to operate from dusk to dawn.
	50% switch by PE cell and timeclock to operate from dusk to 9pm.
	All carpark and walkway lightings to be DALI dimmable to limit the amount of spill light.
Landscape Lighting	Switch by PE cell and timeclock to operate from dusk to 9pm.

f) Use Asymmetric Beams, where Floodlights are Used

Where floodlights are required, use fittings with asymmetric beams that permit horizontal glazing. These are to be kept at or near parallel to the surface being lit, usually the ground and should only light the area that needs to be lit, preventing spill light.



g) Ensure Lights are NOT Directed Towards Reflective Surfaces

At the design stage, it is desirable that surfaces with a low level of reflectivity be installed in the vicinity of outdoor lighting, compatible with the function of the area.

**Table 3 Reflective properties of common surfaces**

Surface	Reflective properties
Natural grass and vegetation	Low
Painted surface (dark)	Low
Pre-coloured factory metal (dark)	Low
Brick (dark)	Low
Raw or stained timber	Medium
Stone surface	Medium
Uncoloured concrete	High
Painted surface (light)	High
Artificial grass (sand base)	High
Pre-coloured factory metal (light)	High
Brick (light)	High
Zincalume steel (unpainted)	High

## 4. APPENDIX A – AUSGRID SUPPLY OFFER

Note: This Ausgrid supply offer has expired. A new application is to be made post SSDA approval.



New Connection Above 100 AMP

Reference Code : 2082518

New Connection

### LOCATION

Property Name  
Opal St Ives  
Land Title Type  
Torrens  
Street Number/RMB  
289  
Location Address  
Mona Vale Road, St Ives, 2075  
Land Zoning  
Urban  
Location Diagram

File name	Ausgrid filename reference	Size
Screenshot 2025-11-03 164129.png	LocationAttachmentFilePath_1	0.218 MB

### APPLICANT

Applicant Type  
Asp On Behalf Of A Retail Customer Or Real Estate Developer  
Full Name  
Mr Lewyn Dsouza  
Email Address  
lewyn.dsouza@jhaengineers.com.au  
ABN/ACN  
13133090481  
Company Name  
Jha Consulting Engineers  
Floor Number  
20  
Street Number/RMB  
2  
Applicant Address  
Market Street Sydney 2000  
Phone Number  
0284371000  
Asp Number  
3342  
Asp Level  
Level 3

### CUSTOMER

Customer Type  
Retail Customer

Full Name  
Mr Mohammad Ashari  
Email Address  
Mohammad.Ashari@opalhealthcare.com.au  
Phone Number  
0401495675

### LOAD DETAILS

Proposed Point Of Common Coupling  
Substation  
Proposed Asset Identifier  
N/A  
Proposed Connection Point  
Main Switchboard  
Proposed Service Length  
30  
Proposed Service Type  
Underground  
Service Voltage  
Low Voltage 230/400v  
Service Size  
2500 Amps  
Proposed Maximum Demand      Number Of Phases:      Phase A:      2250      Phase B:      2250      Phase C:      2250

Proposed Maximum Demand Calculation

File name	Ausgrid filename reference	Size
AFC Max Demand.pdf	WFAMaxDemandCalc_1	0.031 MB

Are You Intending To Connect Controlled Load At This Premises?  
No

### ADDITIONAL DEVELOPMENT DETAILS

HOUSE SERVICES

Number Of House Service Premises:	1
Proposed Maximum Demand Number Of Phases:	3
Phase A:	2250
Phase B:	2250
Phase C:	2250
Total Number Of Premises:	1

I Will Be Installing Equipment At The Premises That May Result In Non Linear / Fluctuating Loads  
No

Construction Of The Premises Connection Assets Will Commence  
31-Dec-2026

When Do You Wish To Electrify The Premises?  
31-Dec-2026

Ausgrid Has Provided A Certified Design Number(Cdn) For A Network Augmentation Project Associated With The Premises  
No

Asp 1 Has Been Appointed  
No

Do You Have Development Consent (Da) For Your Proposal?  
No

**DESIGN RELATED SERVICES OFFER**

**ACCEPTANCE FEE SUMMARY**

Service Description	Unit	Quantity	Price per unit	Total Price
Administration of Contestable Works - General - Design	Service	1.00000	\$259.17	\$259.17
Design Information - Standard	Hour	7.00000	\$215.03	\$1,505.21
Design Certification - Other - R3	Hour	20.00000	\$215.03	\$4,300.60
<b>SUBTOTAL</b>				\$6,064.98
<b>GST (10%)</b>				\$606.50
<b>TOTAL</b>				\$6,671.48

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 **Customer**, 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 **Customer** 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.

TO AVOID DELAYS, DON'T FORGET TO RETURN A COPY OF THE COMPLETED **CUSTOMER DETAILS FORM** TO AUSGRID ([contestability@ausgrid.com.au](mailto:contestability@ausgrid.com.au))

## 5. APPENDIX B – PRESSURE AND FLOW INQUIRY RESULTS

### Statement of Available Pressure and Flow



Diego Montelvere  
23 101 Miller Street  
North Sydney, 2060

Attention: Diego Montelvere

Date: 28/10/2025

Pressure & Flow Application Number: 2261429

Your Pressure Inquiry Dated: 2025-10-21

Property Address: 289 Mona Vale Road, St Ives 2075

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

#### ASSUMED CONNECTION DETAILS

Street Name: Mona Vale Road	Side of Street: West
Distance & Direction from Nearest Cross Street	55 metres North from Garrick Road
Approximate Ground Level (AHD):	162 metres
Nominal Size of Water Main (DN):	250 mm

#### EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	103 metre head
Minimum Pressure	32 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	32
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10	37
	15	37
	20	37
	25	37
	30	37
	40	37
	50	36
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	60	36
	10	32
	15	32
	20	32
	25	32
	30	32
Maximum Permissible Flow	40	32
	50	31
	60	31
	120	27

(Please refer to reverse side for Notes)

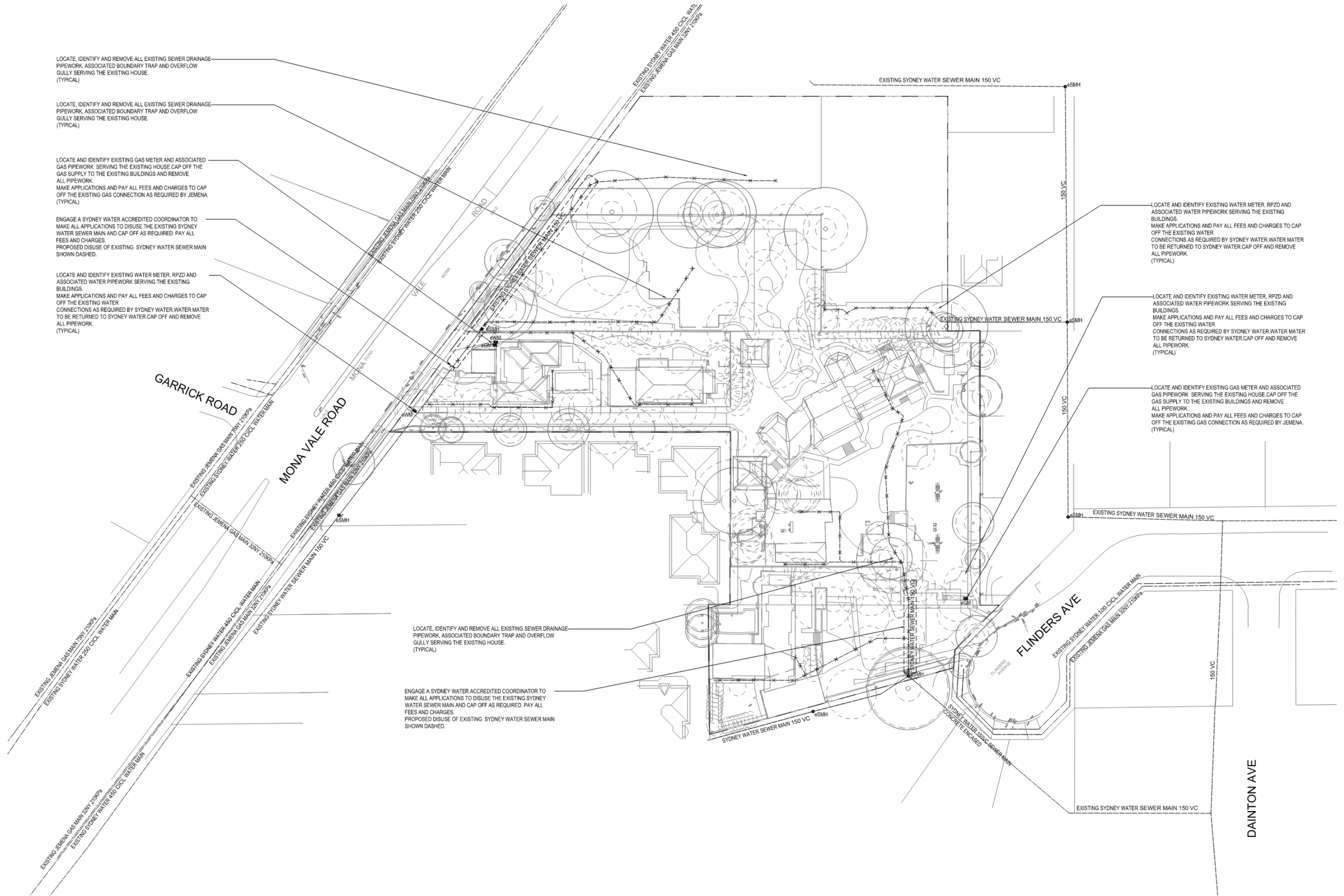
For any further inquiries regarding this application please email :

[hydraulicassessment@sydneywater.com.au](mailto:hydraulicassessment@sydneywater.com.au)

Sydney Water Corporation ABN 49 776 225 038  
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | [www.sydneywater.com.au](http://www.sydneywater.com.au)  
Delivering essential and sustainable water services for the benefit of the community

## 6. APPENDIX C – HYDRAULIC DEMOLITION SITE PLAN

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LOCATE, IDENTIFY AND REMOVE ALL EXISTING SEWER DRAINAGE PIPEWORK, ASSOCIATED BOUNDARY TRAP AND OVERFLOW GULLY SERVING THE EXISTING HOUSE. (TYPICAL)

LOCATE, IDENTIFY AND REMOVE ALL EXISTING SEWER DRAINAGE PIPEWORK, ASSOCIATED BOUNDARY TRAP AND OVERFLOW GULLY SERVING THE EXISTING HOUSE. (TYPICAL)

LOCATE AND IDENTIFY EXISTING GAS METER AND ASSOCIATED GAS PIPEWORK SERVING THE EXISTING HOUSE. CAP OFF THE GAS SUPPLY TO THE EXISTING BUILDINGS AND REMOVE ALL PIPEWORK. MAKE APPLICATIONS AND PAY ALL FEES AND CHARGES TO CAP OFF THE EXISTING GAS CONNECTION AS REQUIRED BY JEMENA. (TYPICAL)

ENGAGE A SYDNEY WATER ACCREDITED COORDINATOR TO MAKE ALL APPLICATIONS TO DISUSE THE EXISTING SYDNEY WATER SEWER MAIN AND CAP OFF AS REQUIRED. PAY ALL FEES AND CHARGES. PROPOSED DISUSE OF EXISTING SYDNEY WATER SEWER MAIN SHOWN DASHED.

LOCATE AND IDENTIFY EXISTING WATER METER, RPZD AND ASSOCIATED WATER PIPEWORK SERVING THE EXISTING BUILDINGS. MAKE APPLICATIONS AND PAY ALL FEES AND CHARGES TO CAP OFF THE EXISTING WATER CONNECTIONS AS REQUIRED BY SYDNEY WATER. WATER METER TO BE RETURNED TO SYDNEY WATER. CAP OFF AND REMOVE ALL PIPEWORK. (TYPICAL)

LOCATE AND IDENTIFY EXISTING WATER METER, RPZD AND ASSOCIATED WATER PIPEWORK SERVING THE EXISTING BUILDINGS. MAKE APPLICATIONS AND PAY ALL FEES AND CHARGES TO CAP OFF THE EXISTING WATER CONNECTIONS AS REQUIRED BY SYDNEY WATER. WATER METER TO BE RETURNED TO SYDNEY WATER. CAP OFF AND REMOVE ALL PIPEWORK. (TYPICAL)

LOCATE AND IDENTIFY EXISTING WATER METER, RPZD AND ASSOCIATED WATER PIPEWORK SERVING THE EXISTING BUILDINGS. MAKE APPLICATIONS AND PAY ALL FEES AND CHARGES TO CAP OFF THE EXISTING WATER CONNECTIONS AS REQUIRED BY SYDNEY WATER. WATER METER TO BE RETURNED TO SYDNEY WATER. CAP OFF AND REMOVE ALL PIPEWORK. (TYPICAL)

LOCATE AND IDENTIFY EXISTING GAS METER AND ASSOCIATED GAS PIPEWORK SERVING THE EXISTING HOUSE. CAP OFF THE GAS SUPPLY TO THE EXISTING BUILDINGS AND REMOVE ALL PIPEWORK. MAKE APPLICATIONS AND PAY ALL FEES AND CHARGES TO CAP OFF THE EXISTING GAS CONNECTION AS REQUIRED BY JEMENA. (TYPICAL)

LOCATE, IDENTIFY AND REMOVE ALL EXISTING SEWER DRAINAGE PIPEWORK, ASSOCIATED BOUNDARY TRAP AND OVERFLOW GULLY SERVING THE EXISTING HOUSE. (TYPICAL)

ENGAGE A SYDNEY WATER ACCREDITED COORDINATOR TO MAKE ALL APPLICATIONS TO DISUSE THE EXISTING SYDNEY WATER SEWER MAIN AND CAP OFF AS REQUIRED. PAY ALL FEES AND CHARGES. PROPOSED DISUSE OF EXISTING SYDNEY WATER SEWER MAIN SHOWN DASHED.