HYG

845 Pacific Highway

Preliminary Utility Services Infrastructure Assessment

276157

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ARUP

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1 Introduction

This Preliminary Utility Services Infrastructure assessment report has been prepared by Arup on behalf of HYG. It accompanies a planning proposal for a new commercial office tower located at 845 Pacific Highway, Chatswood (the site) and shown in Figure 1.

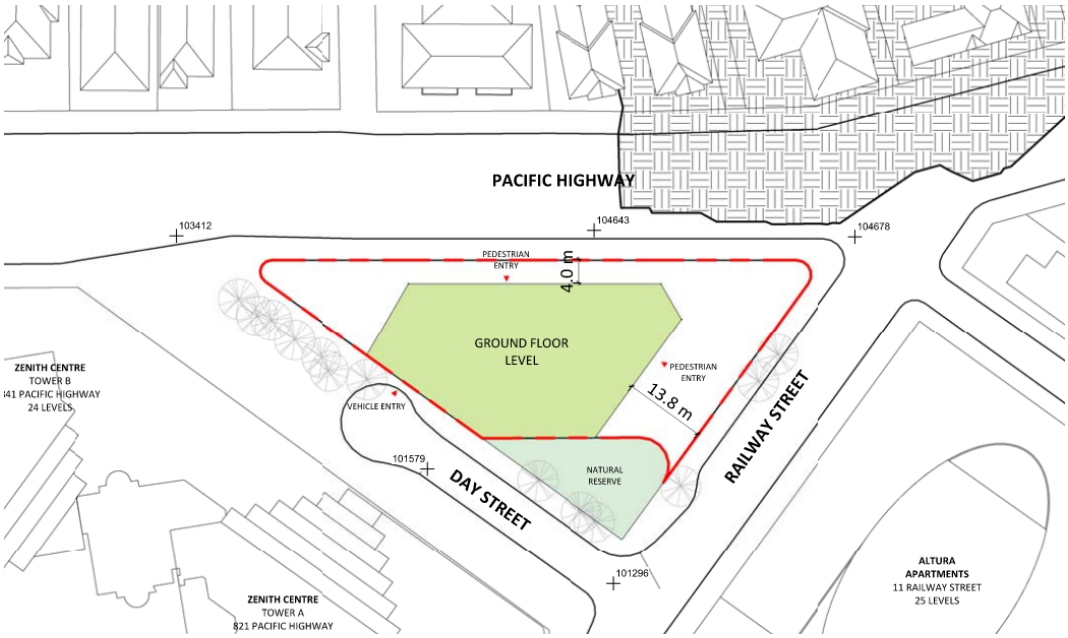

Figure 1: 845 Pacific Highway, Chatswood

1.1 Conceptual reference design

To demonstrate that the proposed building envelope is capable of accommodating a viable scheme, a concept reference scheme prepared by PTW architects accompanies the planning proposal. The reference scheme is indicative only and the final detailed design of the scheme will be the subject of a design excellence review and detailed development application (DA) which will ultimately result in further refinement of the scheme. The ground floor plan is shown in Figure 2.

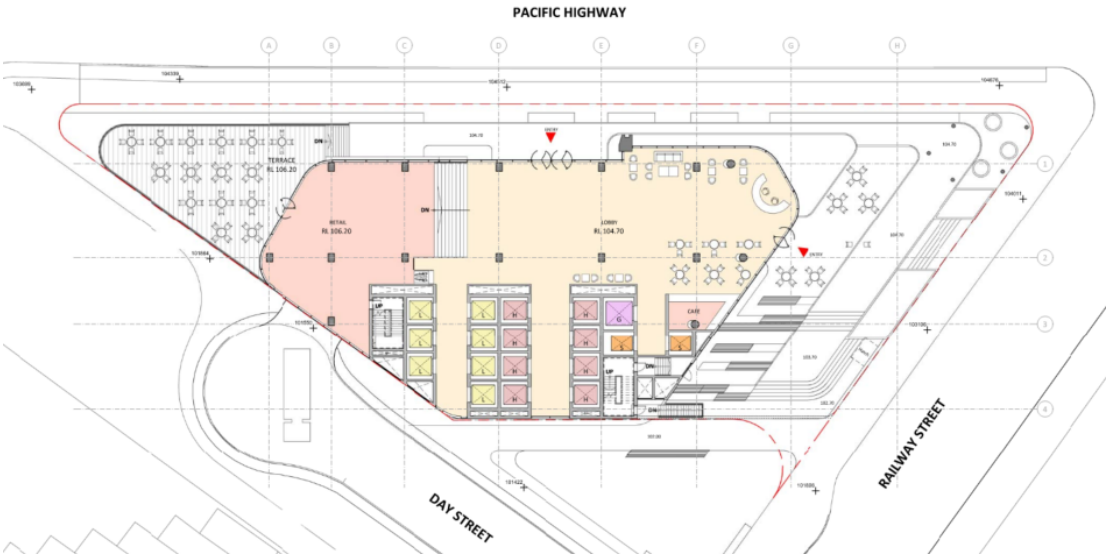

Figure 2: 845 Pacific Highway – Conceptual ground plan (PTW)

The concept reference design includes the following elements:

- Basement car parking and plant
- End of trip, back of house area and plant
- Ground Floor lobby and retail; and
- Tower levels comprising commercial and plant

1.2 Purpose of report

The purpose of this Preliminary Utility Services Infrastructure report is to provide a review of relevant aspects of the proposed planning amendments and conceptual reference design, to evaluate their likely suitability, and requirements for future assessment and detailed design. As the planning submission does not seek consent for the specific development, a detailed quantitative assessment of the conceptual reference design is not considered to be warranted at this stage.

Accordingly, this report provides advice regarding:

- Availability, capacity and location of utility services infrastructure in the vicinity;
- Protection and relocation strategies for infrastructure assets of each utility stakeholders

2 Utility Services Infrastructure

A ‘dial before you dig’ (DBYD) enquiry was sought and the information collated into this report.

The available utility information indicates the existence of the following services serving or traversing the site:

Electricity Supply – Ausgrid:

- Existing HV and LV services

Communications Services :

- Optus
- Telstra
- NBN
- AARNet,
- Nextgen

Water Services – Sydney Water

- Sewer
- Domestic Water

Stormwater and On-Site Detention – Willoughby City Council

Gas Supply – Jemena

- Natural gas supply

2.1 Electricity supply

Estimated maximum demand will be in the order of 4 MVA. This will require two substations, arranged as 2No. ‘triplex’ chamber substations to Ausgrid standards.

To accommodate the proposed load, two new triplex chamber substations will be required within the site boundary. There is an existing connection to the site, which will likely need to be upgraded.

At the next stage a detailed assessment and application to Ausgrid will be undertaken.

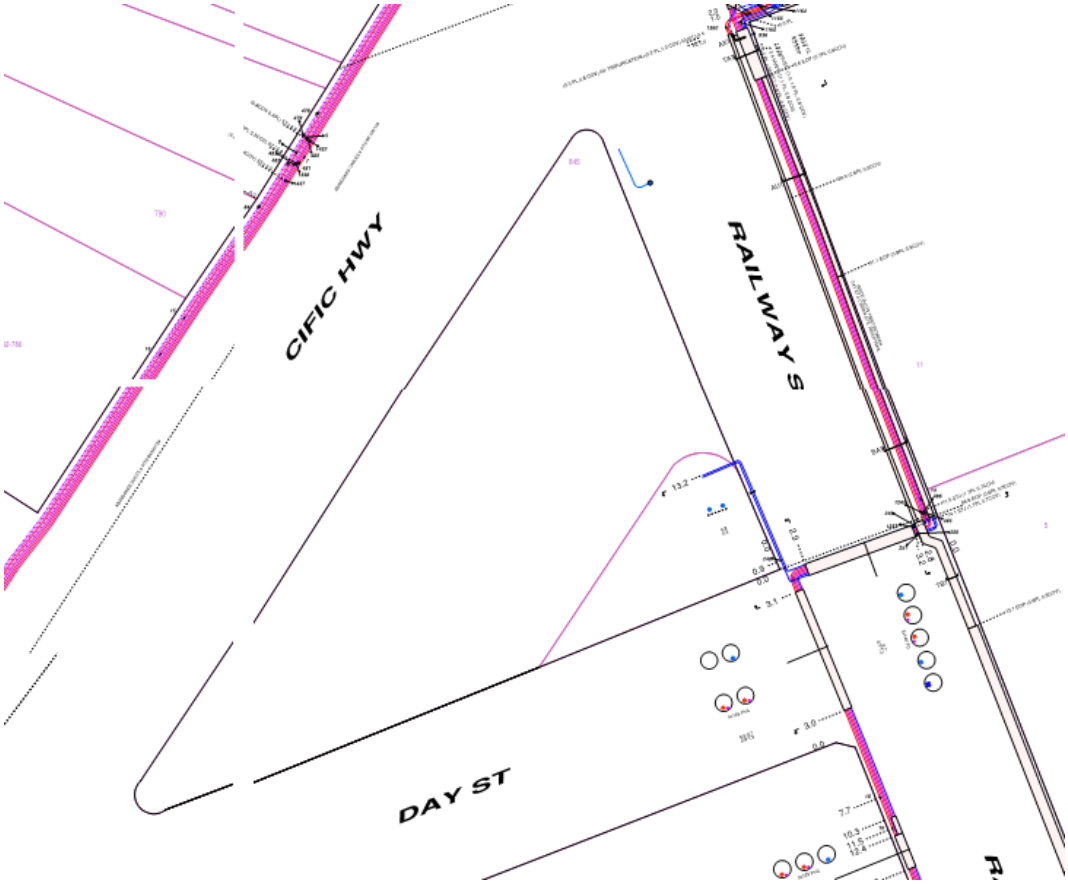

Figure 3: Existing Ausgrid substations and HV cables

2.2 Communications

2.2.1 Existing services

The following communications services networks exist within or in proximity of the boundary of the development site based on our interpretation of the 'Dial Before You Dig' (DBYD) information. The utility communications cabling is generally installed in underground conduits on street verges with regular access points through manholes or pits.

Services identified include:

- **NBN** - NBN services are currently within Railway Street
- **Telstra** – Telstra services are currently within the area
- **Optus** - Optus services exist within Railway Street
- **Nextgen** – Nextgen services exist within Railway Street
- **AARNet** – AARNet services exist within Railway Street

Further discussions are required with the service providers to confirm existing arrangements and can be undertaken at the design stage.

Figure 4: Existing Communications Services lead-ins

Figure 5: Existing AARNet Optical Fibre Routes

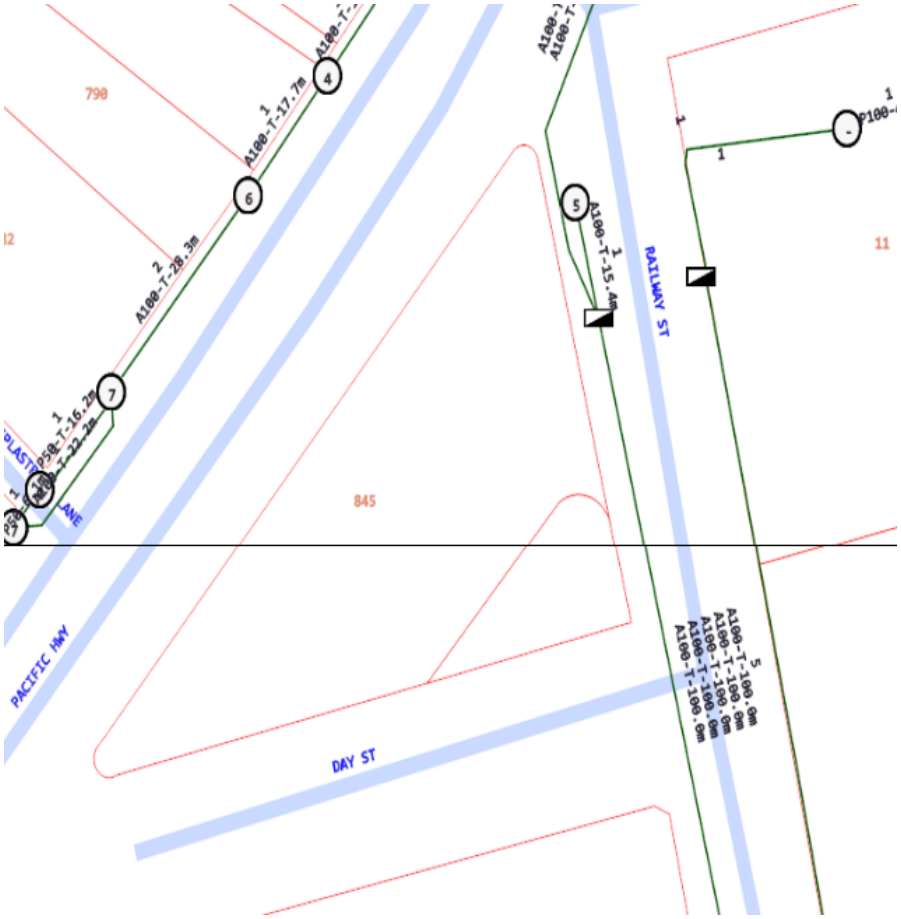

Figure 6: Existing NBN Routes

2.2.2 Required alterations

Depending on the proposed tenant communications services requirements, augmentation of the pit and duct systems will be required to facilitate a connection to the new development.

The proposed development will require lead in cable routes for multiple service providers. New lead in conduits are to reticulate from the property boundary to the new Building Distributor Rooms proposed for the Basement.

Conduit provisions will be provided to allow for servicing from multiple service providers. This will include as a minimum:

- **NBN** – Dedicated 100mm conduit in accordance with NBN design requirements.
- **Other Providers** – 6 x 100mm conduits will be provided to a pit location at the site boundary to facilitate connection to other service providers as required. This will include providing flexibility for connection of fibre services through providers who don't utilise NBN infrastructure.

2.3 Water, Sewer and Stormwater Services

2.3.1 Existing service

The existing services described below are owned by Sydney Water.

Domestic water supplies

The following existing services available around the site and described as follows:

- Railway Street (West) – 150 cast iron cement lined (CICL) water main
- Railway Street (East) – 200 unplasticised polyvinylchloride (uPVC) water main
- Pacific Highway (East) – 300CICL water main
- Day Street (South) – 100CICL water main

Sewer Drainage

The following existing services available around the site and described as follows:

- Railway Street – 225 vitrified clay (VC) Sewer main running north to south
- Day Street – 225VC Sewer main running east to west
- Day Street – 150VC Sewer main running through the site, west to east

Stormwater Drainage

All of the existing services available are described as follows:

- Railway Street – existing 300mm stormwater shown on Willoughby City Council DBYD plans

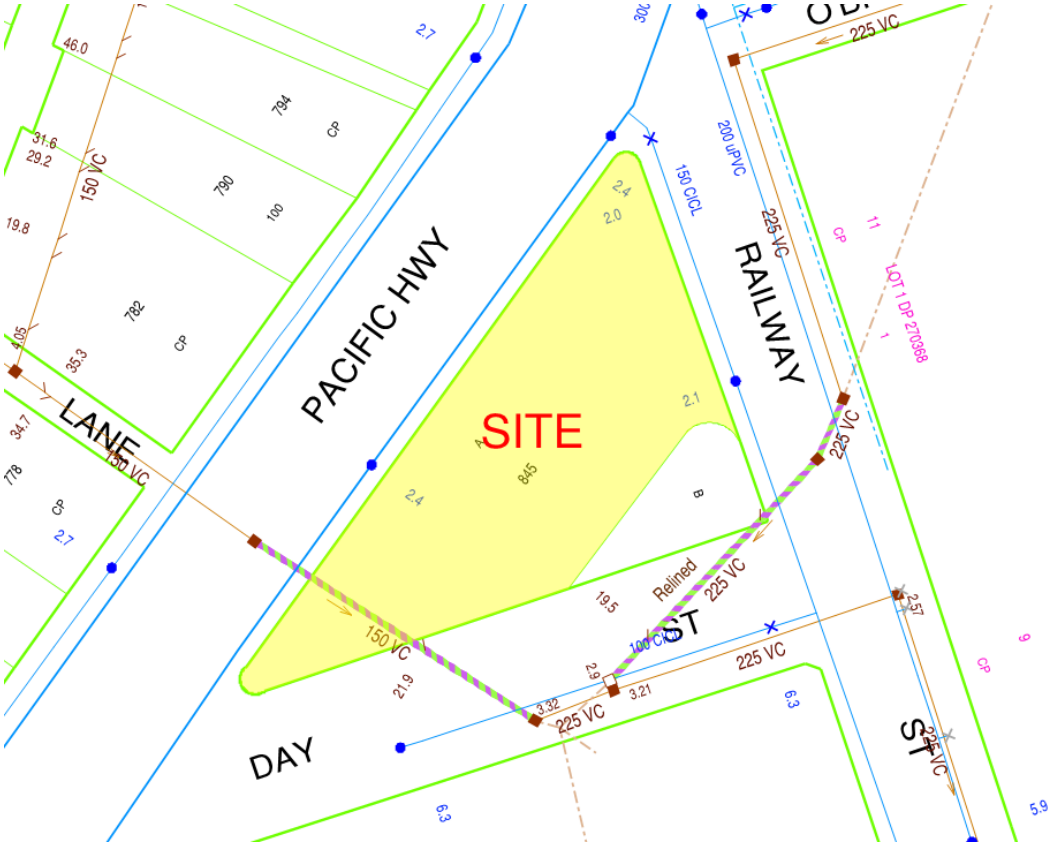

Figure 7: Existing Sydney Water Services shown around the site

2.3.2 Required alterations

Potable water supplies

At present we anticipate an increase in water demand above the existing site supply, so therefore a new connection will be provided. Cold water to the building can be provided from Railway Street of Pacific Highway. These connection points have been described below with the preferred strategy to be taken forward for formal Sydney Water application by Water Services Coordinator (WSC) at a later stage.

Option 1 – Connection from Railway Street:

- A new town main connection and new meter from Railway Street will be established and will be subject to discussion with Sydney Water and coordination with other utilities. The supply requirements and connection point location(s) will need to be confirmed with Sydney Water as part of a future formal Section 73 application by Water Services Coordinator (WSC).

Option 2 – Connection from Pacific Highway:

- Consideration will be given to provide a new cold water supply to the development from Pacific Highway and will be subject to discussion with Sydney Water and coordination with other utilities. The supply requirements and connection point location(s) will need to be confirmed with Sydney Water as part of a future formal Section 73 application by Water Services Coordinator (WSC).

Sewer Service

At present, we anticipate increases in waste water demand over and above the existing site discharge. The drainage discharged requirements and connection point location(s) will need to be confirmed with Sydney Water as part of a future formal Section 73 application by Water Services Coordinator (WSC).

At this stage it is envisaged that sewerage from the development can discharge as per following options:

Option 1 – Day Street (Single connection)

- Waste Water will discharge to the existing 225mm VC Sewer Main in Day Street and new sewer junction /pit will be required to allow this connection

Options 2 – Railway Street (Single connection)

- Waste Water will discharge to the existing 225mm VC Sewer Main in Railway Street and new sewer junction /pit will be required to allow this connection

Any amplification of the Sydney Water assets will be subject to Section 73 application. An early feasibility application to Sydney Water could be lodged to obtain an informal Sydney Water feedback on the proposed connections including review of the existing 150mm VC Sewer main crossing the site.

The following options are proposed and shall be discussed with Sydney Water:

- Divert sewer main around the site; or
- Provide the Sydney Water required easement around the pipe.

Either option will need to be confirmed and approved by Sydney Water as part of a future formal Section 73 application by Water Services Coordinator (WSC).

Stormwater Drainage

At this stage it is envisaged that rainwater from the project will discharge to the infrastructure located in Railway Street. Information regarding the project's stormwater design will be contained within the Stormwater Management Plan as part of the future detailed development application (DA).

Willoughby Development Control Plan (WDCP) Technical Standard No. 1 advises that OSD is required for the development, as listed below, and based on the roof catchment of 1600m^2 and podium of 900 m^2 area.

The following figures have been provided:

- On Site Detention 90 cubic meter
- Permissible Site Discharge 42.5 L/s

2.4 Gas Supply

2.4.1 Existing service

The following existing gas services are available around the site:

Refer to the Figure below for details:

- Railway Street – Distribution medium pressure main 75mm NY @ 210kPa
- Pacific Highway – Distribution medium pressure main 75mm NY @ 210kPa

Detailed 'Dial Before You Dig' drawings have been received on 22/07/2020, identifying the existing gas services in and adjacent to the development site.

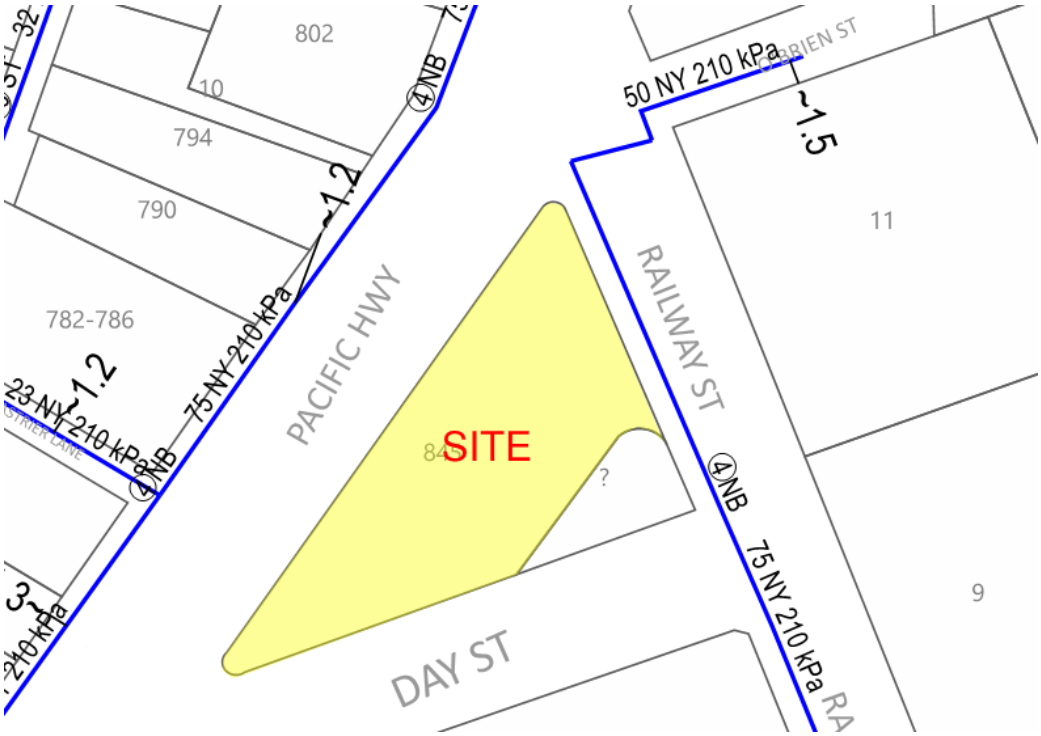

Figure 8: Existing Gas Services shown around the site

Based on our initial review the site appears to be provided with adequate natural gas infrastructure.

To determine any required alterations, demand, metering and pressures will need to be confirmed with Jemena via formal application at a later stage.

2.4.2 Required alterations

It is anticipated that the development will be required to establish one common connection with one gas meter / regulator room from the existing Jemena network located in either Railway Street or Pacific Highway. The exact connection point will be discussed with Jemena once the application for connection is lodged.

The need for amplification of the city network is considered highly unlikely.

3 Protection and Relocation Strategies for Infrastructure Assets

A ‘dial before you dig’ (DBYD) enquiry was sought and the information collated for proposing preliminary plan of protection and relocation strategies to allow for minimal impact and appropriate protection of infrastructure assets. The following lists strategies.

- Being aware of affected utility stakeholders, including: Ausgrid, Willoughby City Council, Jemena, Optus, Roads and Maritime Services, Sydney Water, and Telstra.
- Locating assets: Assets’ and permanent survey marks’ exact location and assistance will be requested from each utility stakeholders at a reasonable time before work begins. A thorough site examination will be conducted for visible structures through field survey including the use of appropriately qualified personnel and equipment.
- Acquiring approvals: Relevant approvals will be obtained prior to commencement of works on or near infrastructure assets of various utility stakeholders. And all works are undertaken in accordance with the requirements of any approval.
- Reporting damage: Damage of assets will be reported immediately to utility stakeholders any time, any day.

4 Conclusion

In conclusion, the surrounding infrastructure services required to support the proposed development appear to be available with only one service that may be required to be relocated which currently runs through the site. Hence, there are no significant impediments to the future development from a services and infrastructure perspective.