

EMERGENCY

DUE DILIGENCE REPORT
RURAL AMBULANCE INFRASTRUCTURE RECONFIGURATION PROGRAM (RAIR)
KINGSCLIFF, NSW

ELECTRICAL & HYDRAULIC SERVICES

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DOCUMENT CONTROL SHEET

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Key Contact	Robert Armitage

Prepared By

Company	JHA
Address	Level 23, 101 Miller Street, North Sydney NSW 2060
Phone	61-2-9437 1000
Email	Robert.Armitage@jhaengineers.com.au
Website	www.jhaservices.com
Author	JG / SL
Checked	ME / ST
Authorised	RA

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1 INTRODUCTION

1.1 GENERAL

The following report has been prepared exclusively for NSW Health Infrastructure in response to proposed development at 771 Cudgen Road, Cudgen NSW 2487.

The development would predominantly consist of ambulance plant areas and supporting facilities.

JHA Consulting Engineers has been engaged for the purpose of providing electrical and hydraulic professional consulting building services report related to the Rural Ambulance Infrastructure Reconfiguration Program’s #2 (RAIR 2)’s operation at 771 Cudgen Road Cudgen NSW 2487.

The report is based on a desktop review of the existing services only. Whilst the report seeks to determine services installed on site and their conditions, no testing of elements or the engineering systems has been carried out for the preparation of this report.

1.2 SITE LOCATION

The proposed site is located on Turnock Street, in close proximity to main roads such as Cudgen Rd and Tweed Coast Rd. It is strategically located next to the new Tweed Valley Hospital.

It is proposed for the existing hospital lot to be subdivided with the ambulance station being located on a newly created lot on the north-east corner of the lot. Furthermore, a test fit for the ambulance station has been proposed within the existing lots by NSW Health Infrastructure.

The approximate outline of the new lot is shown in Figure 2.

The following figures (1 & 2) show aerial detailing of the proposed site location.

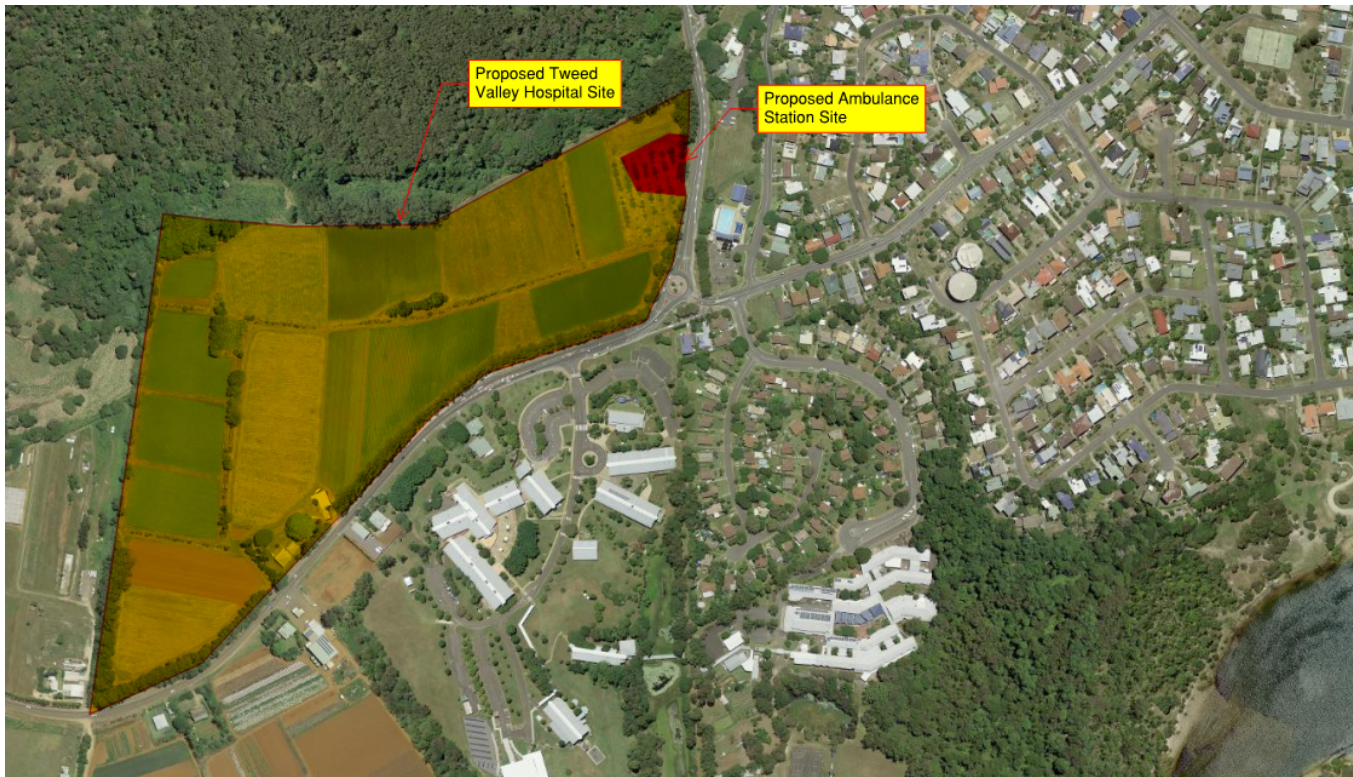


Figure 1 – Overview – Satellite Image



Figure 2 – Station Footprint

Note: Approximate area of the proposed site is located within the translucent polygon.

1.3 UTILITIES SERVICES REVIEW / ANALYSIS

A utility review has been carried out in consultation with the relevant local authorities to identify the existing utilities at the proposed site.

Dial before you dig (DBYD) requests were submitted on the 3rd December 2021 to investigate the presence of existing utilities such as electrical, natural gas, water, sewer and telecommunications.

The following utilities with interests/assets in the vicinity of the site were notified in this process:

Seq. No.	Authority Name	Phone	Status
205959651	Essential Energy	13 23 91	NOTIFIED
205959649	NBN Co NswAct	1800 687 626	NOTIFIED
205959652	Optus and or Uecomm Nsw	1800 505 777	NOTIFIED
205959648	Telstra NSW North	1800 653 935	NOTIFIED
205959650	Tweed Shire Council	(02) 6670 2460	NOTIFIED

Table 1 – Dial Before You Dig utilities notification status.

Furthermore, an in-ground services survey was conducted by Bennett & Bennett Surveyor on 09th August 2021, which was considered for this assessment.

The utility review process of the DBYD information revealed that currently no major underground electrical assets exist on site that require relocation or re-diversion, which was confirmed with the in-ground survey. Essential Energy GIS information, detailed the presence of low voltage (LV) overhead power lines along the north side of Piper St, which could be used as a connection point.

Formal application for connection to Essential Energy is to be lodged upon receipt of NMI (National Meter Identification) number from the NSW Ambulance nominated energy retailer.

Information on the size and location of the authority sewer and water main were obtained through DBYD plans which indicates authority assets are not impacted by the newly proposed building and lot boundaries.

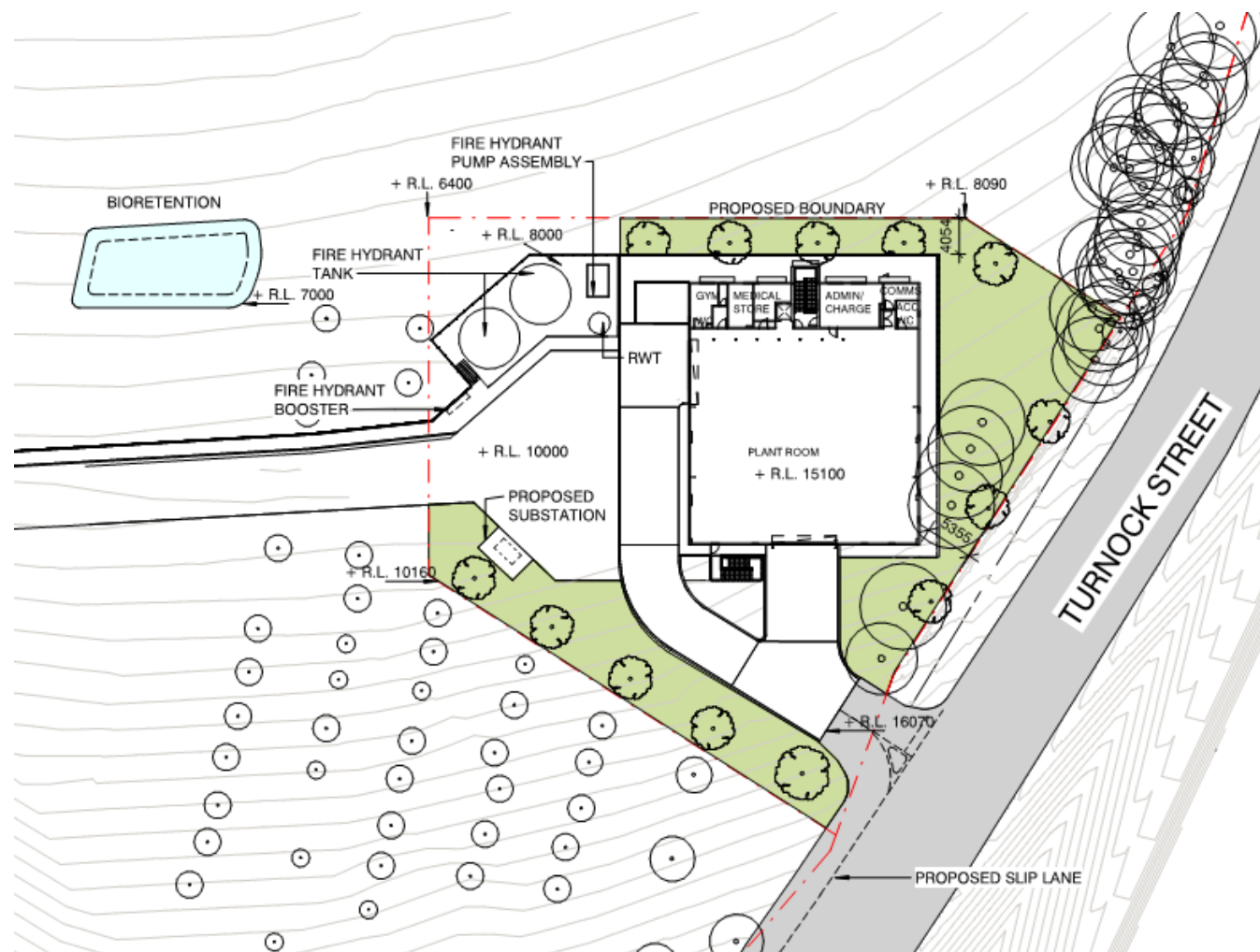


Figure C – Kingscliff Station Test Fit Drawing

2 ELECTRICAL SERVICES

2.1 ELECTRICAL POWER SERVICES

2.1.1 EXISTING SERVICES

Currently, there are no existing electrical services within the proposed site boundary. Therefore no services will need to be decommissioned and/or diverted.

Assessment of Essential Energy GIS revealed assets with Low Voltage (LV) overhead lines reticulated on the junction of Turnnock St and Cudgen Rd. Also, there is an in-ground High Voltage (HV) service reticulated alongside Turnnock St on its eastern side, opposite to the station site.

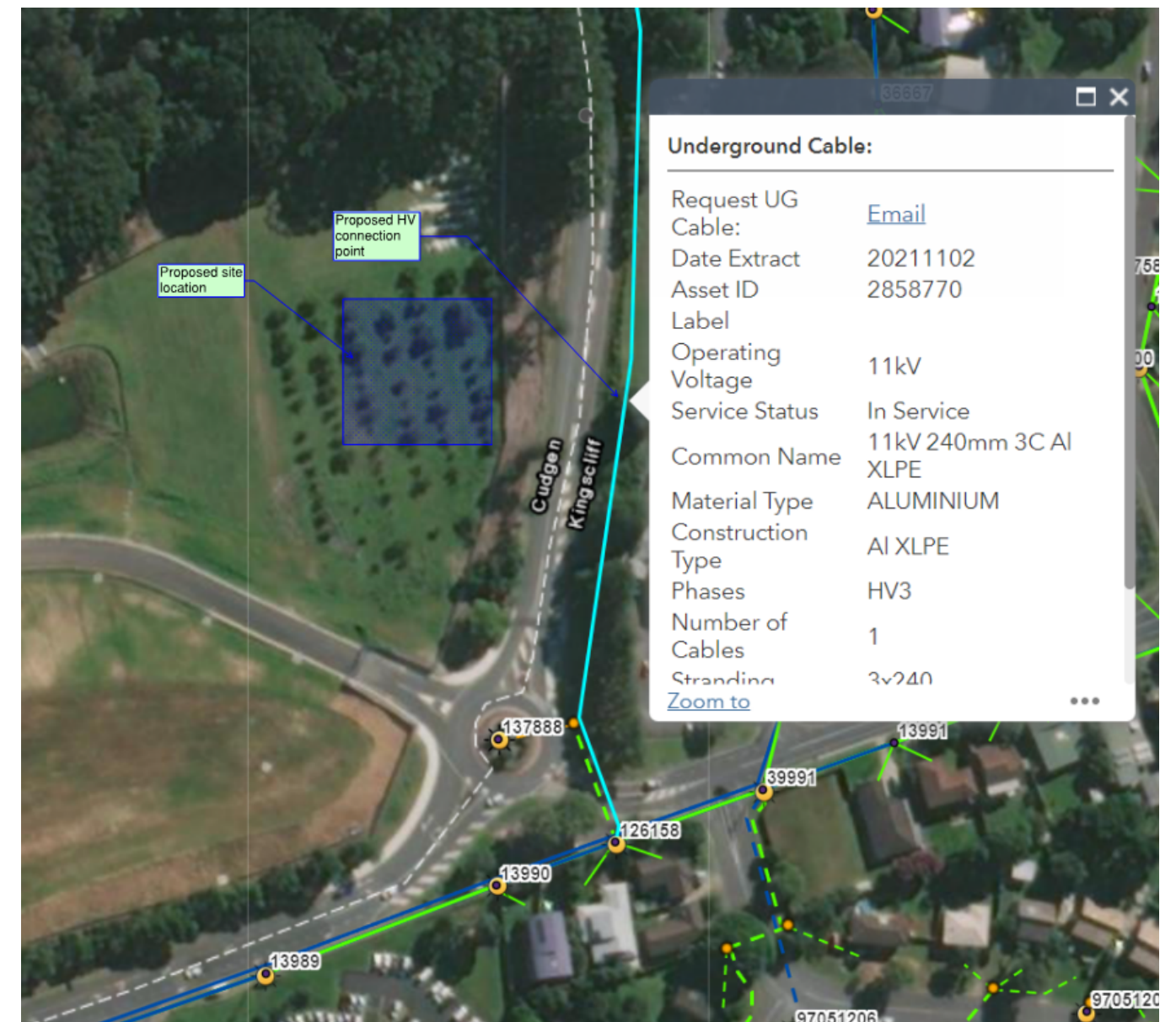


Figure E1 – Essential Energy GIS information including the footprint of the station

An application for connection is to be submitted to Essential Energy upon receipt of NMI number from the Client nominated retailer. Final solution for method of supply of the Lot will be determined by the authority and subject to utility provider's terms and conditions.

Due to the existing overhead LV infrastructure is 200m away from the site, it is proposed to have a new Essential Energy pad-mounted substation adjacent to the site, accessible from a new road within the station lot. A new distributor will be provided to serve the station via a private power pole within the property boundary. From this point, the consumer mains will be reticulated via underground conduits to the MSB. Refer to Figure E1 & E2 for details. It is envisaged that an ASP Level 3 designer will need to be engaged to upgrade & extend the existing utility infrastructure to serve the site.

That being said, it is envisaged that a ASP Level 3 designer will need to be engaged for the documentation of any potential modifications to the Essential Energy network due to the estimated maximum demand is to be above 63Amps 3-phase.

2.2 TELECOMMUNICATIONS SERVICES

2.2.1 EXISTING SERVICES

Currently there are no existing telecommunications services within the proposed site boundary. Therefore no services will need to be decommissioned and/or diverted.

DBYD request revealed NBN/Telstra network infrastructure alongside Cudgen Rd (Figure E3) via underground conduits and pits. It is envisage to use an existing Telstra pit in the intersection of Cudgen Rd & Turnock St and extend the NBN service (by NBN) to the front of the property boundary, and use this new pit as a connection point to serve the site. This strategy is subject to utility provider terms and conditions.

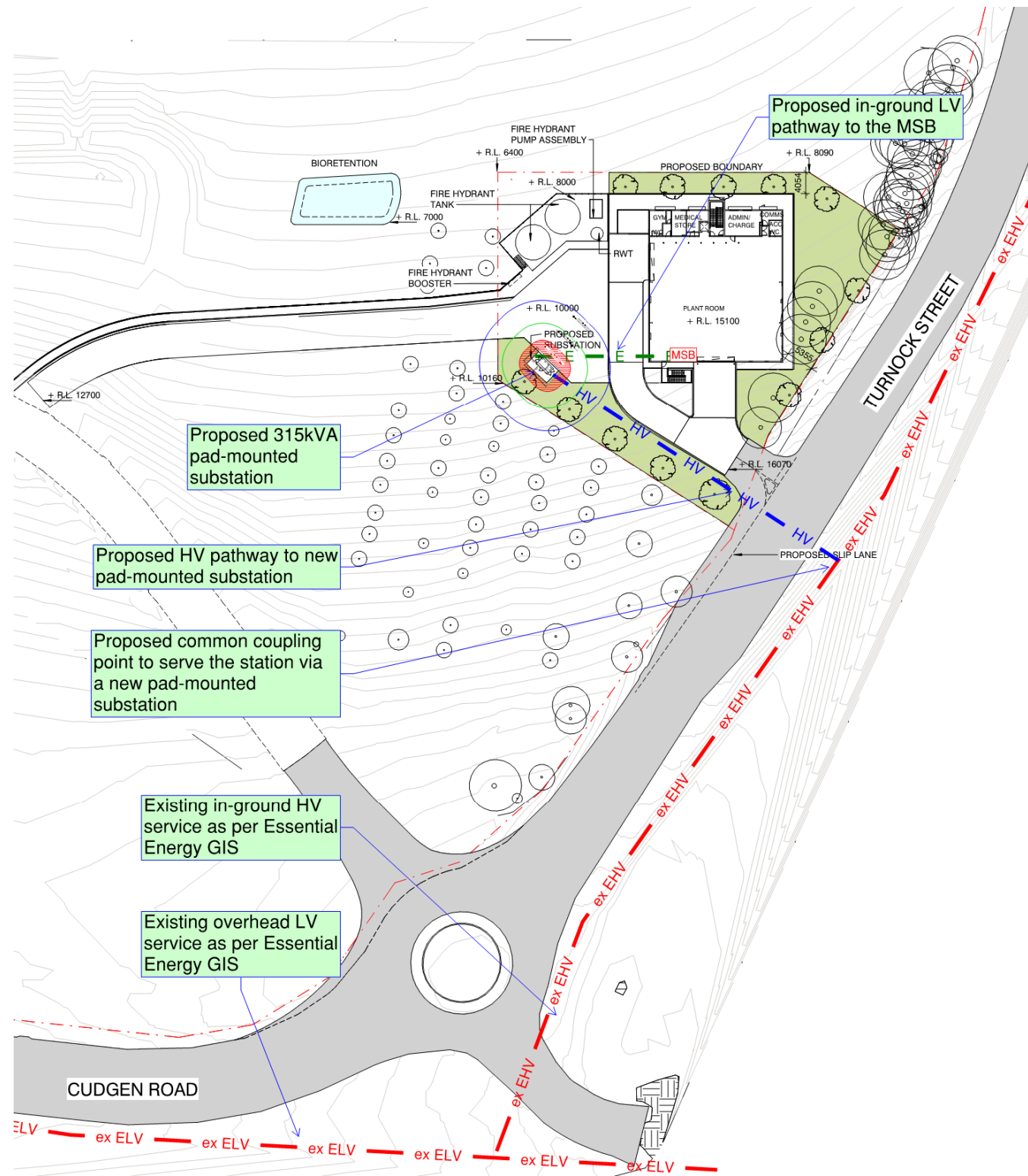


Figure E2 – Existing & proposed utility infrastructure

2.1.2 EXISTING MAXIMUM DEMAND

Preliminary Maximum Demand calculations are based on the RAIR Kingscliff Test Fit shown in Figure C (two levels). Based on this layout, approximately **140 Amps 3-phase** power supply connection is anticipated to provide power to the site. This would be further detailed once more detailed Architectural layouts become available.

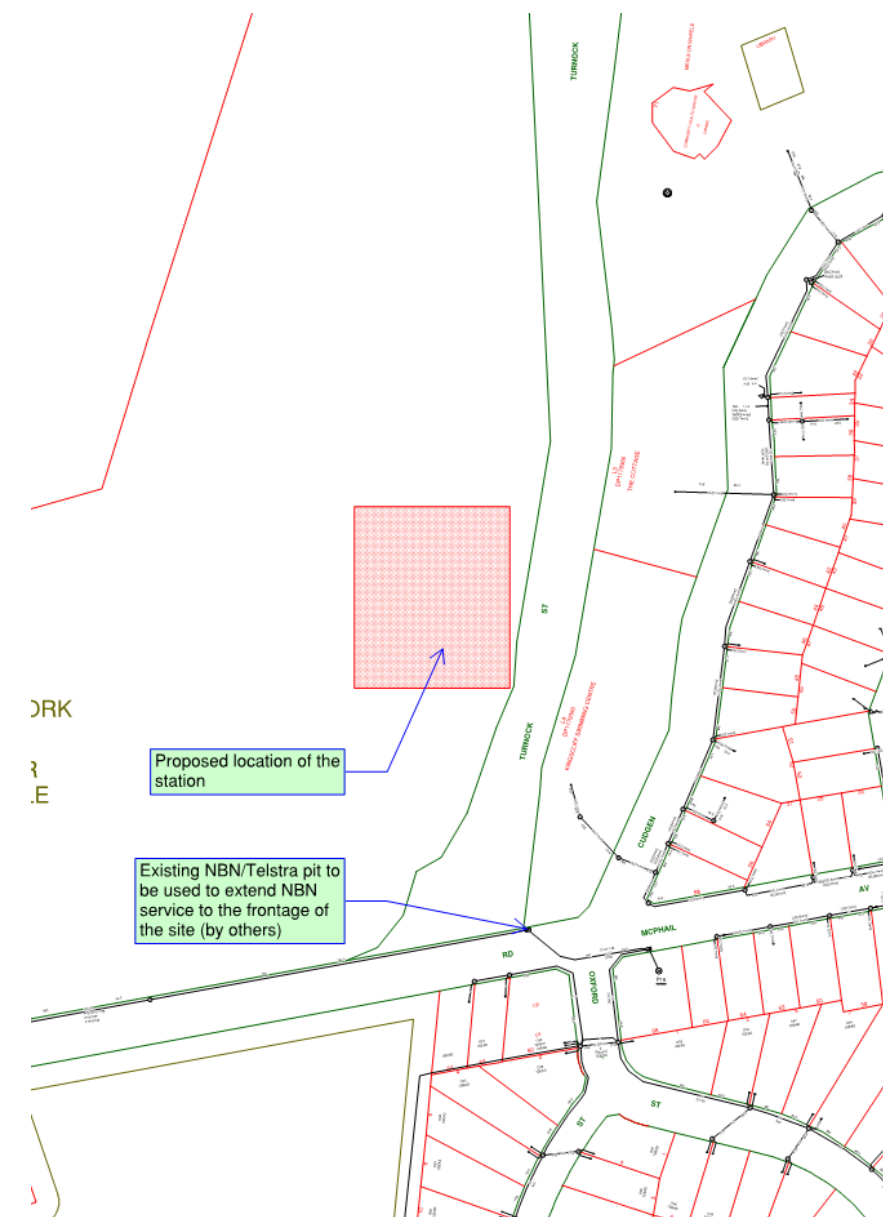
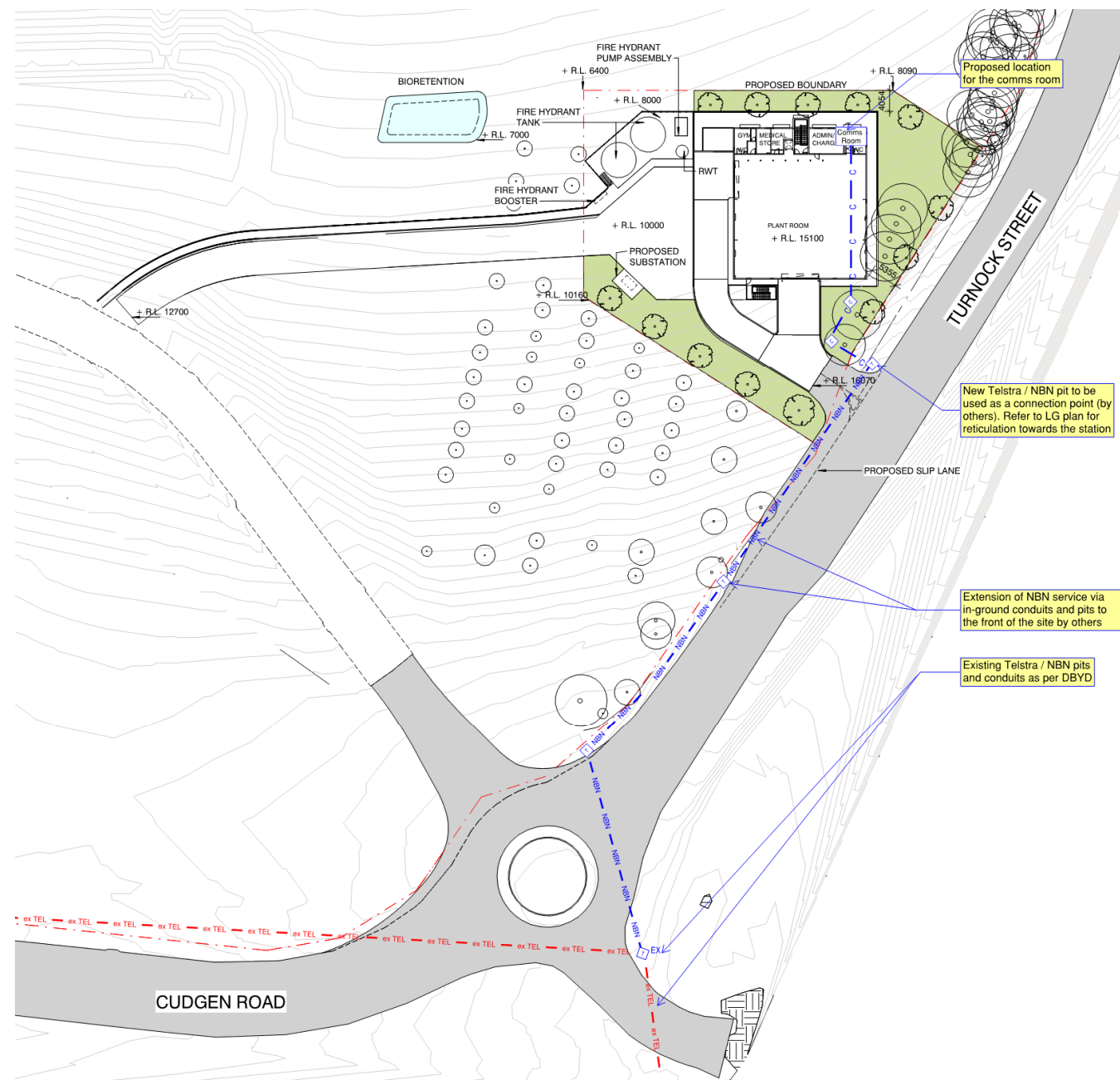


Figure E3: DBYD Telstra information including the footprint of the station

The Figure E4 below shows the proposed Communications connection point on Cudgen Rd, indicative NBN in-ground service extension to the frontage of the site and NBN/Telstra lead-in pathway to the comms room within the station.



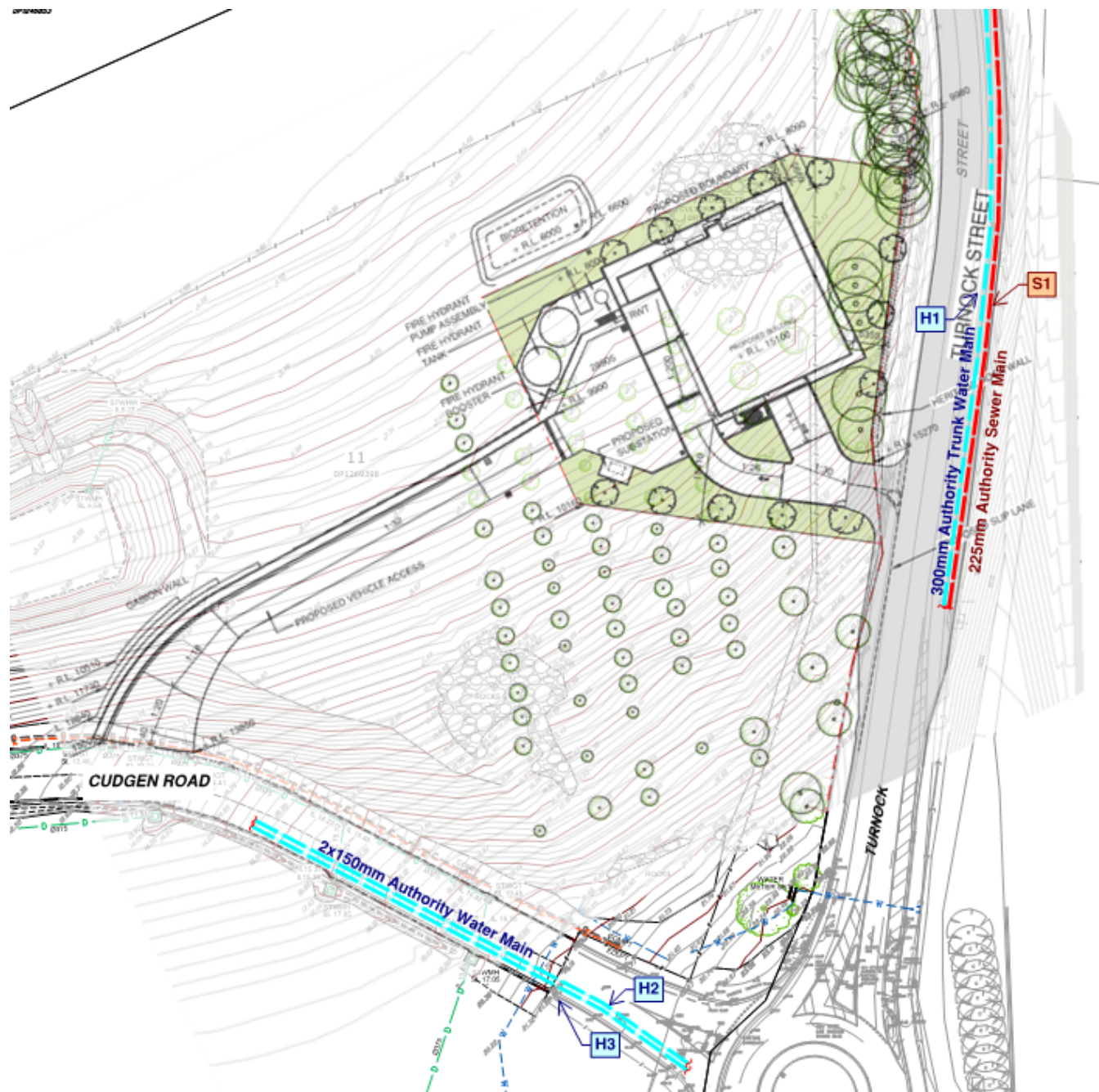


Figure H1 – Authority Water and Sewer main location

3.2 PROPOSED SYSTEM

3.2.1 WATER SERVICE

As mentioned in the early section, a 200mm water main extension from the future 250mm water main on Cudgend Road is required. Pressure and flow information from the 250mm water main, which we are proposing to connect to, will need to be obtained from the council, this application has been made with the authority.

JHA had involvement in the Tweed Valley Hospital project and have completed a pressure/flow inquiry on this water main in June 2021.

The results of this indicate low pressure within the water main which is unable to provide any water pressure for the hydrant system. See the fire hydrant section below where the full 288KL of water is to be stored on site for firefighting.

Final requirements of the site water connection is subject to a Section 68 application and approval from the council which shall be undertaken once development approval is obtained.

Refer to the email received from the council on 31st March 2022 as attached Appendix A

Hot water is proposed to supply the development via a centralized electric storage hot water plant via a flow and return system.

3.2.2 SEWER / TRADE WASTE SERVICE

It is envisaged the new ambulance station's sewer drainage service will be serviced via a connection to the 225mm gravity sewer main located on Turnock Street.

The invert level has been confirmed via a detailed underground survey along with confirmation of the finished floor level (FFL). The gravity sewer connection cannot be achieved for the fixtures, therefore a sewer pump station will be required.

An authority sewer mains extension will be required from the authority's gravity sewer main into the new lot boundary with a boundary kit where the pump station could connect via the rising main.

Final requirements of the site sewer connection are subject to a Section 68 application and approval from the council which shall be undertaken once development approval is obtained.

Refer to the email received from the council on 31st March 2022 as attached Appendix A

The trade waste discharge from the wash bay is proposed to be treated with an oil separator unit prior to discharging to the council's sewer main. A trade waste application has to be made and approved by the council prior to commencement of operation in the premises.

3.2.3 FIRE HYDRANT AND HOSE REEL COVERAGE

There is no on site fire hydrant system or street hydrants available around the site, therefore a fire hydrant water storage tank and dual fire hydrant pumpset's will be required as part of the on-site fire hydrant system.

As noted above, JHA have obtained a pressure and flow statement from the water main nearby which indicates that 100% on site storage of firefighting water must be stored on site.

Below is a summary of the preliminary spatial requirements required to assist in planning:

- Fire hydrant booster assembly: 3m x 0.6m x 1.5m(H)
 - Must be located along the driveway frontage within 8m of the hardstand.
 - Located in sight of the main entrance
- 288kL fire hydrant water storage tank: 2 x RCT 80 Kingspan fire hydrant storage tanks
 - Must be located adjacent to the fire hydrant booster assembly
 - A performance solution is required as a clearance of 10m is required from the fire water storage tanks to the building they protect.
- Fire hydrant pump room to hose dual fire hydrant pumpsets: 2.4 x 3.6m x 2.4m(H)
 - Pump room is required to be fire-rated if within 6m of the main building. TBC by BCA consultant
 - A performance solution is required as a clearance of 6m is required from the fire pump enclosure to the building it protects.
 - 1 m clearance over the entire enclosure is required.

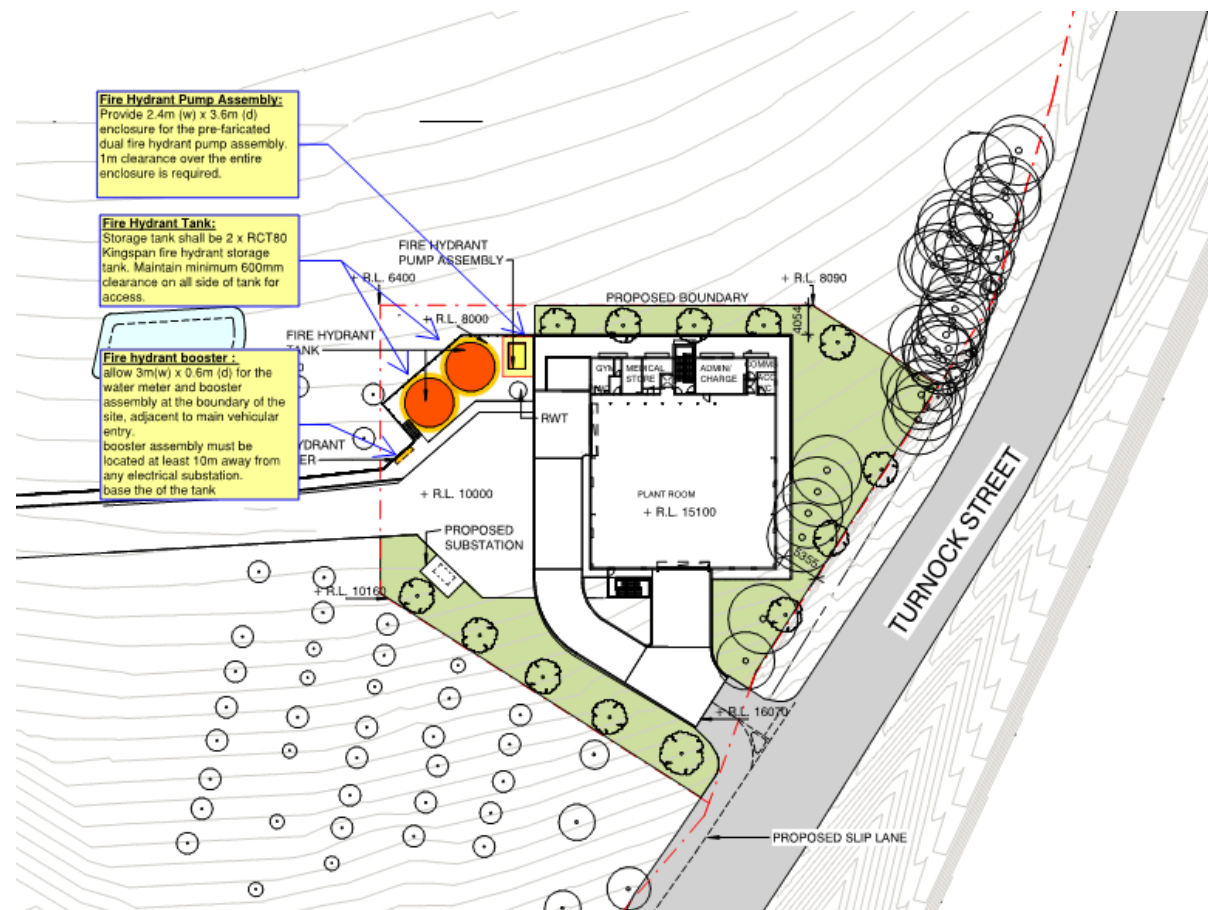


Figure H2 – Preliminary Spatial

Fire hose reels will also be required within the plant area.

3.2.4 NATURAL GAS SERVICE

It is envisaged no natural gas supply will be required for this development.

4 CONCLUSION

JHA Consulting Engineering has conducted an investigation into the proposed site and development plan; the following observations have been made:

4.1 ELECTRICAL SERVICES

- LV utility power network is available on the corner of Turnock St and Cudgen Rd and HV utility power network is available alongside Turnock St, opposite to the station site.

Due to the LV infrastructure is 200m away from the site, it is proposed to install a new pad-mounted substation adjacent to the site. This strategy is subject to utility provider's terms and conditions. Application for Connection with Essential Energy needs to be submitted.

Due to the complexity of the site, terrain and lack of readily available LV supply to the site, it is envisaged that the engagement of an ASP Level 3 designer is required.

- DBYD request revealed Telstra network infrastructure on the corner of Turnock St and Cudgen Rd. Existing NBN infrastructure will need to be extended (by others) to the front of the site boundary on Turnock St. New NBN/Telstra lead-in pathway is required from this point to the communications room of the site. This approach is subject to utility provider terms and conditions. An NBN Application will need to be submitted to assess this strategy.

4.2 HYDRAULICS SERVICES

- The new ambulance station's sewer is envisaged to drain via sewer pump out pit to the authority sewer main east of the site.
- A new authority water main extension is required from the future 250mm water main on Cudgend Road and extends to the site's frontage. Additional information will be required to complete the design from testing the water main.
- Fire hydrant protection is required for the site. Additional information will be required to complete the design from testing of the water main.
- A gas connection is not proposed

Shuo Liu

Hi Todd,

A 200 mm water main extension up to and including the site's frontage from the water connection point (the 250 mm water main in Cudgen road) will be required.

Regarding sewer, the proposal is to connect to the 225 mm gravity main in Turncock Street. Depending on the layout of the development (TBC) a private sewer pump station, rising main and boundary kit may be required. This is also in accordance with advice from Scott Thompson from JHA.

- A Section 68 approval is required for any works on or extensions to Council's sewer or water assets;
- For Council to meaningfully approve a Section 68 application, an approval for the Ambulance Station is required so we can fully appreciate the scope of the works proposed within the confines of conditions of approval;
- The advice provided above is preliminary in nature and subject to a detailed assessment form the Water Unit upon lodgement of the application for the Ambulance Station (and associated referral to TSC).



Nicholas Darwin
Development Engineer

