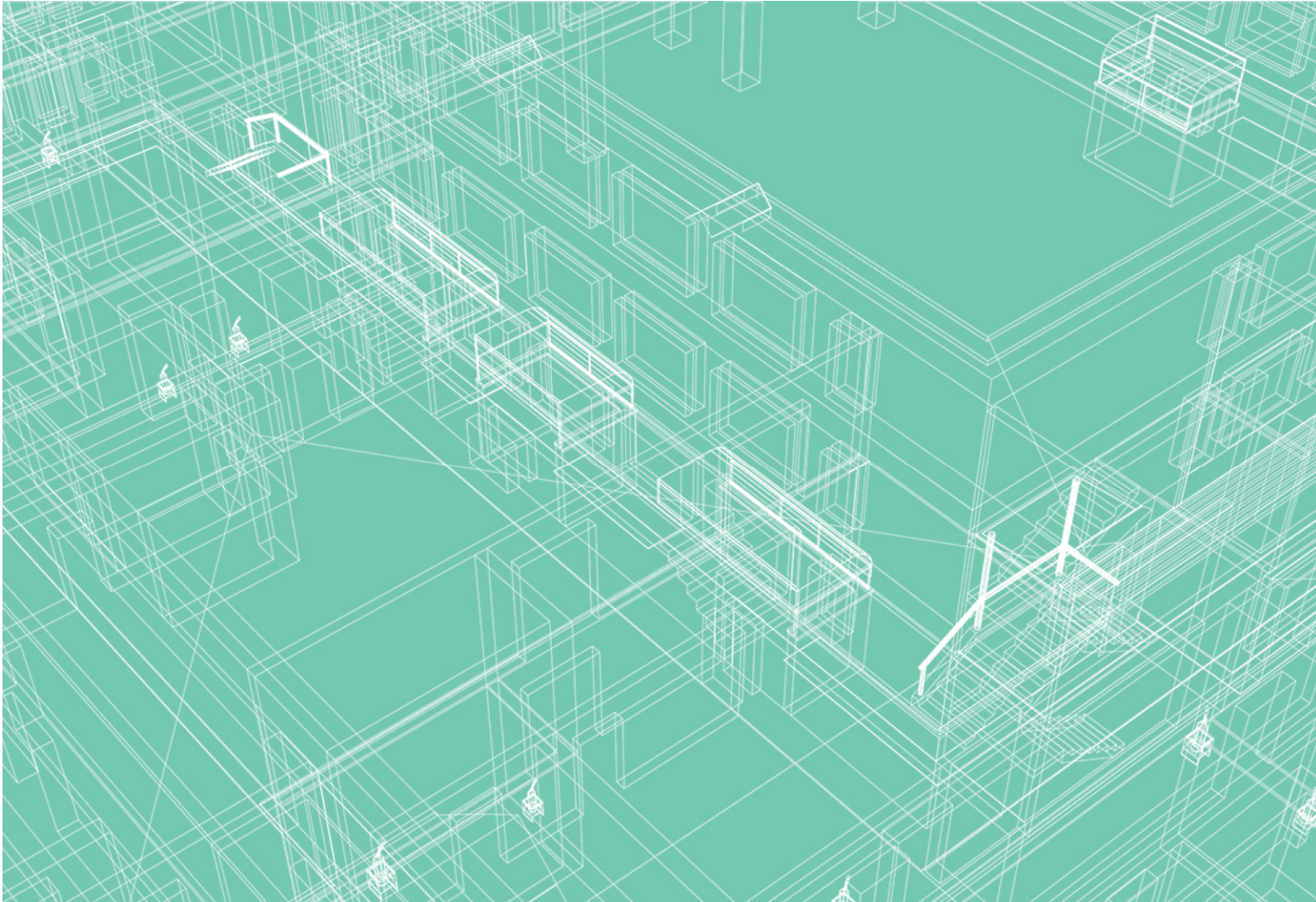
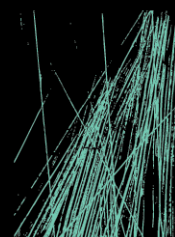




INFRASTRUCTURE ASSESSMENT FOR REF

RICHMOND AGRICULTURAL CENTRE

ELECTRICAL/HYDRAULIC/MECHANICAL SERVICES



JHA

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DOCUMENT CONTROL SHEET

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Key Contact	Mark Ritchie

Prepared By

Company	JHA
Address	Level 20, 2 Market Street, Sydney NSW 2000
Phone	61-2-9437 1000
Email	Mark.Ritchie@jhaengineers.com.au
Website	www.jhaservices.com
Author	Dennis Wong
Checked	Mark Ritchie
Authorised	Mark Ritchie

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1 INTRODUCTION

This electrical, hydraulic and mechanical infrastructure assessment has been prepared by JHA Consulting Engineers on behalf of the Department of Education (DoE) (the Proponent) to assess the potential environmental impacts that could arise from the activities associated with the Richmond Agricultural Centre development at 2 College Street Richmond (Part Lot 2 DP1051798) (the site).

The report has been prepared to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as “development permitted without consent” on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

This report accompanies a Review of Environmental Factors (REF) that seeks approval for the construction and operation of the agricultural centre which will provide facilities for a specialist agricultural curriculum at the site. The activities associated with establishing the Richmond Agricultural Centre involves the following works:

- The removal of trees and fencing
- Construction of a general learning hub
- Construction of a science hub
- Construction of a multipurpose hall
- Construction of an administration building
- Construction of canteen and amenities building
- Construction of a new parking area (including accessible spaces) driveway and kiss and drop facilities
- The provision of outdoor agricultural learning areas comprising:
 - Agricultural plots
 - Aboriginal enterprise
 - Agricultural shed and greenhouse
 - Animal plots with associated stock yard, animal shelters, troughs and stock lane
 - Gravel access road with wash bay
- Landscaping including new trees, entry forecourt, village green and kitchen garden
- Ancillary services and infrastructure upgrades including new substation and HV Works, sewer pump station, water booster, dual carriage vehicle access and pedestrian paths
- Wayfinding and school identification signage

For a detailed project description, please refer to the Review of Environmental Factors (REF) prepared by EPM Projects.

2 DESCRIPTION OF THE PROPOSAL

2.1 SITE DESCRIPTION

The Site is located on 2 College Street, Richmond (Part Lot 2 DP 1051798). The site is located within the Hawkesbury City Council area and is zoned SP1 Special Activities (the SP1 zone) by the *Hawkesbury Local Environmental Plan 2012* (the LEP).

Figure 1 is a site plan showing the location of the proposed Richmond Agricultural Centre within its regional context. **Figure 2** is an aerial image of the site and its immediate surrounds

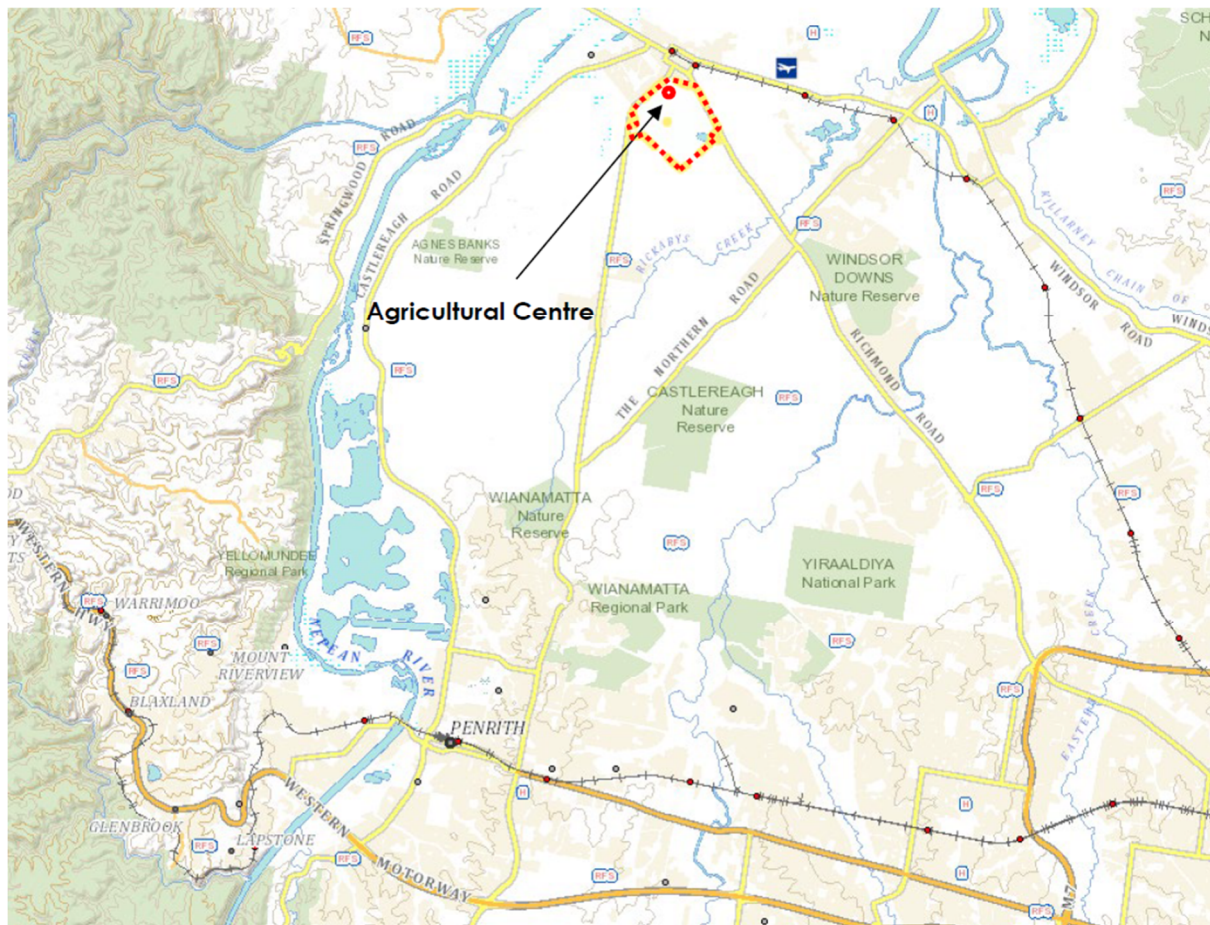


Figure 1: Location of the proposed Richmond Agricultural Centre (source: ePlanning Spatial Viewer)



Figure 2: Aerial image of the site showing the location of the proposed Richmond Agricultural Centre (source: Nearmap, dated 27 October 2024).

The boundary of the REF works is shown in **Figure 3** and comprises:

- **Leased area:** This is the area of land leased by the Department of Education from Western Sydney University (WSU) for the proposed Richmond Agricultural Centre. This area comprises 14.25 ha of land with frontage to College Drive of 480 meters. The future school site comprises existing agricultural land within the WSU campus bound by College Drive to the east, Londonderry Road to the west, WSU facilities to the south and vacant WSU agricultural land to the north.
- **WSU Campus:** This the area of land between the leased area and College Drive

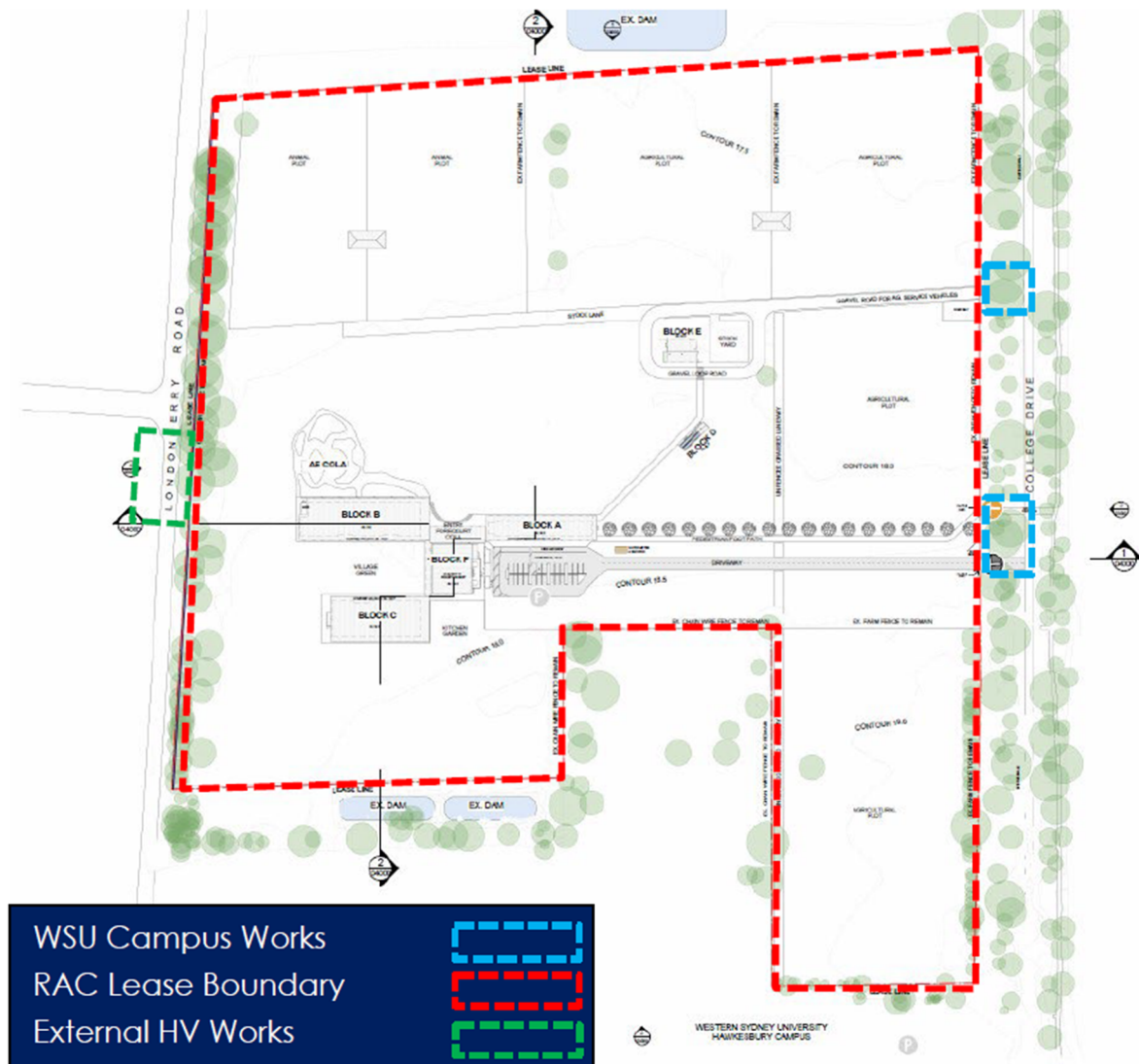


Figure 3: Extent of proposed works at Richmond Agricultural Centre (source: NBR Architecture).

3 ELECTRICAL SERVICES

3.1 GENERAL

As the proposed site is undeveloped, there is no existing power authority infrastructure. The nearest observed power infrastructure is located northwest of the development site on Londonderry Rd, consisting of aerial low voltage and high voltage (11kV and 33kV) Endeavour Energy Authority Infrastructure.



Figure 4: Existing Endeavour Energy Infrastructure with respect to site location.

3.2 PROPOSED CONNECTION ARRANGEMENTS (POWER)

It is understood that Department of Education (DoE) are to lease the site from Western Sydney University to deliver the Richmond Agricultural Centre project outlined in this document. It is also understood that project scope will include augmenting the existing Endeavour Energy infrastructure install new high voltage (HV) cabling and a new substation to provide power to the site, prior to handover to DoE (refer figure 5).

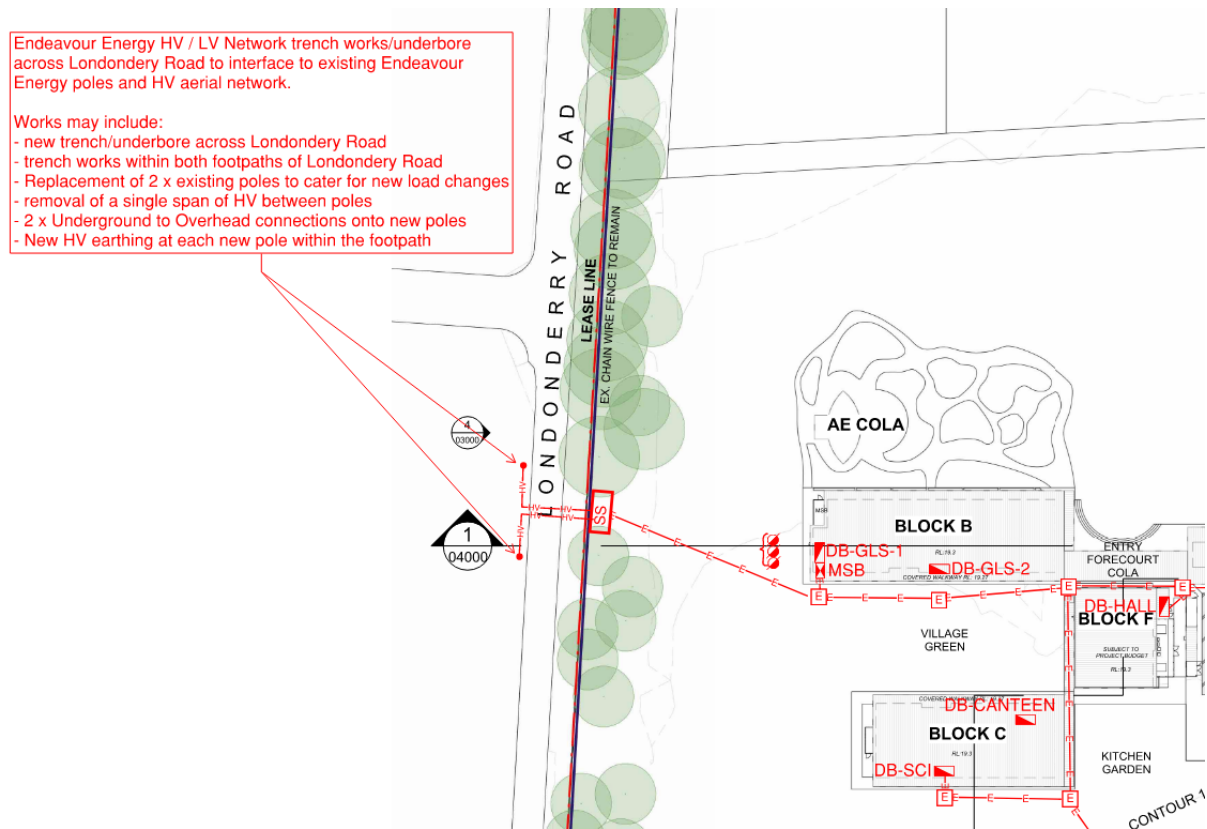


Figure 5: Proposed Substation location (located with the understanding that incoming high voltage cabling will originate from existing HV cabling Londonderry Rd).

New High Voltage cabling will be installed underground from the new substation location to the existing Endeavour Energy high voltage network on Londonderry Rd. A section of existing HV cable is to be removed to loop the proposed substation into an existing HV feeder. This arrangement of a HV ring will provide redundancy should the Endeavour Energy network or upstream substations fail to ensure the school supply is retained online.

A private underground pit and pipe network is proposed to be constructed to provide the school with a pathway for connection to the main switchboard and for connection from the new main switchboards to distribution boards.

3.3 MITIGATION MEASURES

It is expected that there will be a low-to-medium amount of excavation and conduit-laying work internal to the site. This would involve excavation, laying of underground infrastructure and hauling of private cabling. JHA wishes to summarise the environmental impacts of such works, as well as mitigation strategies below.

Action	Environmental Impact	Mitigation Strategy	Section of Report
Excavation works (infrastructure augmentation)	Noise from heavy machinery/Increased personnel presence	Acoustic impact assessment to determine times where noise impact to environment is low.	3.2
Excavation works (infrastructure augmentation)	Soil disturbance due to excavation and laying of new underground infrastructure	Geotech assessment to determine areas at risk to be avoided where possible	3.2
Excavation works (infrastructure augmentation)	Vegetation potentially impacted (e.g. trenching through a tree root structure)	Accurate planning and surveying to ensure excavation works minimise vegetation destruction where possible.	3.2
Excavation works (infrastructure augmentation)	Excess soil generated from works	Geotech REF assessment to determine areas where excess soil can be relocated to	3.2

Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

3.4 EVALUATION OF ENVIRONMENTAL IMPACTS

An assessment of the environmental impacts of the proposed Richmond Agricultural Centre has been conducted. Based on the information presented in this report, the extent and nature of potential impacts are low and will not have a significant impact on the locality, community and/or the environment. Potential impact can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

4 ICT SERVICES

4.1 GENERAL

As the proposed site is undeveloped, there is no existing authority communications infrastructure. The nearest observed communications infrastructure is located northwest of the development site on Londonderry Rd, consisting of underground Telstra assets.



Figure 6: Existing Telstra Infrastructure with respect to site location.

4.2 PROPOSED CONNECTION ARRANGEMENTS (COMMUNICATIONS)

As there is existing Telstra communications infrastructure on Londonderry Rd (refer figure 6), it is understood that SINSW IT Directorate would communicate with Telstra to provide service to the site. The building works will provide incoming lead-in pits, as well as a pathway to the Campus distributor prior to handover to DoE.

A private underground pit and pipe network is proposed to be constructed to provide the school with a backbone pathway for connection from the building distributors to the main comms room.

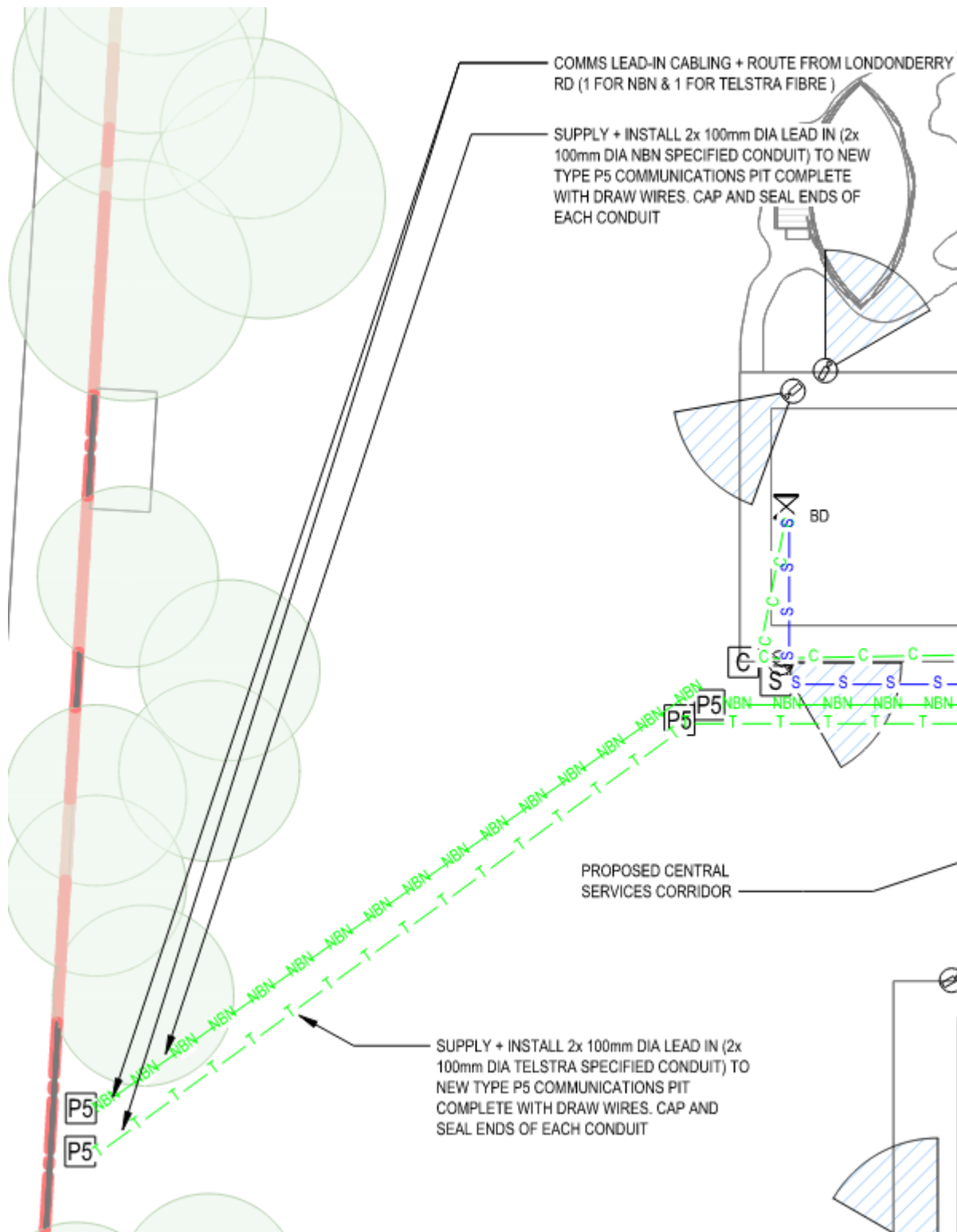


Figure 7: Proposed Comms lead-in (located with the understanding that incoming comms cabling is from Londonderry Rd).

4.3 MITIGATION MEASURES

It is expected that there will be a low-to-medium amount of excavation and conduit-laying work internal to the site. This would involve excavation, laying of underground infrastructure and hauling of private cabling. JHA wishes to summarise the environmental impacts of such works, as well as mitigation strategies below.

Action	Environmental Impact	Mitigation Strategy	Section of Report
Excavation works (infrastructure augmentation)	Noise from heavy machinery/Increased personnel presence	Acoustic impact assessment to determine times where noise impact to environment is low.	4.2
Excavation works (infrastructure augmentation)	Soil disturbance due to excavation and laying of underground infrastructure	Geotech assessment to determine areas at risk to be avoided where possible	4.2
Excavation works (infrastructure augmentation)	Vegetation potentially impacted (e.g. trenching through a tree root structure)	Accurate planning and surveying to ensure excavation works minimise vegetation destruction where possible.	4.2
Excavation works (infrastructure augmentation)	Excess soil generated from works	Geotech REF assessment to determine areas where excess soil can be relocated to	4.2

Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

4.4 EVALUATION OF ENVIRONMENTAL IMPACTS

An assessment of the environmental impacts of the proposed Richmond Agricultural Centre has been conducted. Based on the information presented in this report, the extent and nature of potential impacts are low and will not have a significant impact on the locality, community and/or the environment. Potential impact can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

5 MECHANICAL SERVICES

5.1 GENERAL

Mechanical Design will be in accordance with the Acoustic requirements for the project.

5.2 EVALUATION OF ENVIRONMENTAL IMPACTS

An assessment of the environmental impacts of the proposed Richmond Agricultural Centre has been conducted. Based on the information presented in this report, the extent and nature of potential impacts are low and will not have a significant impact on the locality, community and/or the environment. Potential impact can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

6 HYDRAULIC SERVICES

6.1 GENERAL

This section outlines the preliminary design considerations and strategies for servicing the proposed development with potable water, sewer, and natural gas infrastructure. As the site is currently undeveloped, no internal utility services are available. Existing authority infrastructure for water, sewer, and gas is located externally to the site, along Londonderry Road. New connections will be established to each network to facilitate appropriate service provision to the development in accordance with authority requirements and applicable standards.

6.2 PROPOSED CONNECTION ARRANGEMENTS WATER INFRASTRUCTURE

The nearest potable water asset is a 200mm Cast Iron Cement Lined (CICL) water main owned by Sydney Water, located to the northwest of the site along Londonderry Road. A new connection will be made to this asset to provide water supply for both domestic cold water and the site's fire hydrant system. This infrastructure will be designed to ensure sufficient flow and pressure, with compliance to Sydney Water requirements and AS 2419.1 for fire hydrant installations. The proposed system will incorporate appropriate backflow prevention, isolation valves, and metering as required by local and authority guidelines.

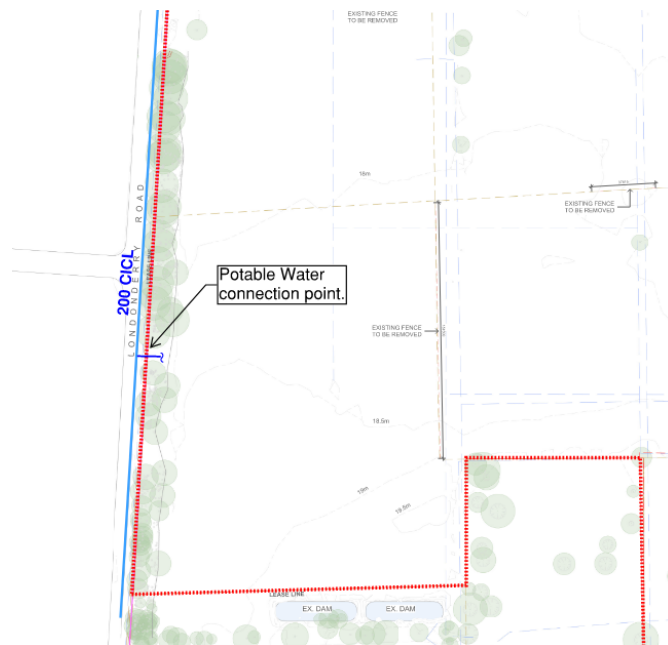


Figure 8: Proposed Water Connection Point

6.3 PROPOSED CONNECTION ARRANGEMENTS SEWER INFRASTRUCTURE

The closest Sydney Water sewer manhole is located approximately 300 metres from the site boundary, along Londonderry Road near the intersection with Smith Street. Due to the site's topography, gravity-based sewer drainage is not achievable across much of the development. To address this, it is proposed that multiple sewer pump-out units be installed throughout the site. These units will collect and transfer wastewater to a newly constructed boundary trap. The boundary trap is proposed to be located near the existing Sydney Water sewer manhole, with discharge into the existing 150mm PVC sewer main. Given the distance to the connection point, a new rising main will be required to traverse land not currently within the site boundary. As such, an easement may be required across land owned by the adjacent university to accommodate the sewer pipework and ensure access for future maintenance. Coordination with Sydney Water and the university will be undertaken during the detailed design phase to confirm alignment, obtain necessary approvals, and secure any required easement rights. This approach will ensure that the development is provided with a reliable and compliant sewer connection, while minimising environmental and operational risks.

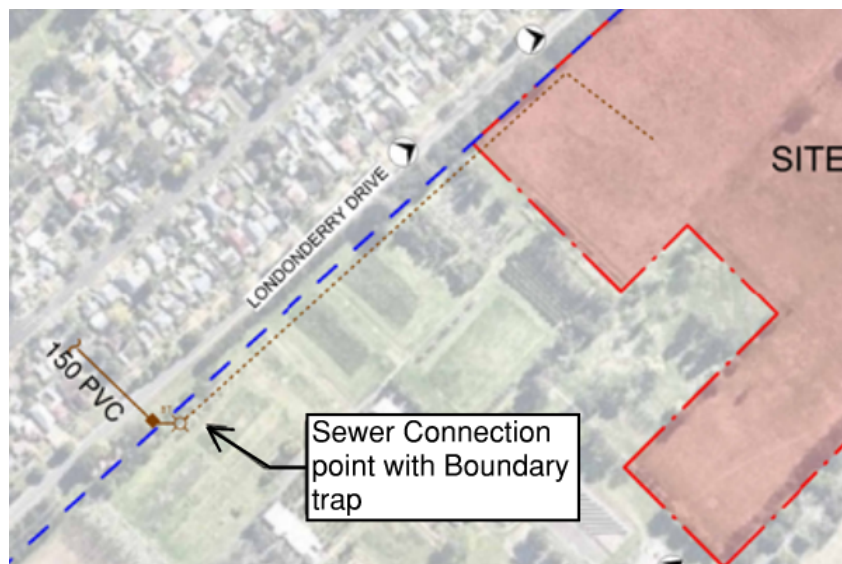


Figure 9: Proposed Sewer Connection Point

6.4 PROPOSED CONNECTION ARRANGEMENTS NATURAL GAS

Natural gas supply to the development will be facilitated via a connection to an existing Jemena asset — a 32mm nylon gas main operating at 210 kPa, located in Londonderry Road. A new gas service connection will be made to this main, including a path valve, boundary regulator, and appropriately sized gas meter. The installation will comply with Jemena's gas supply standards and AS/NZS 5601, ensuring safe and reliable service to meet the site's gas demands. Coordination with Jemena will occur during detailed design and approval stages to finalise connection arrangements and confirm available capacity.

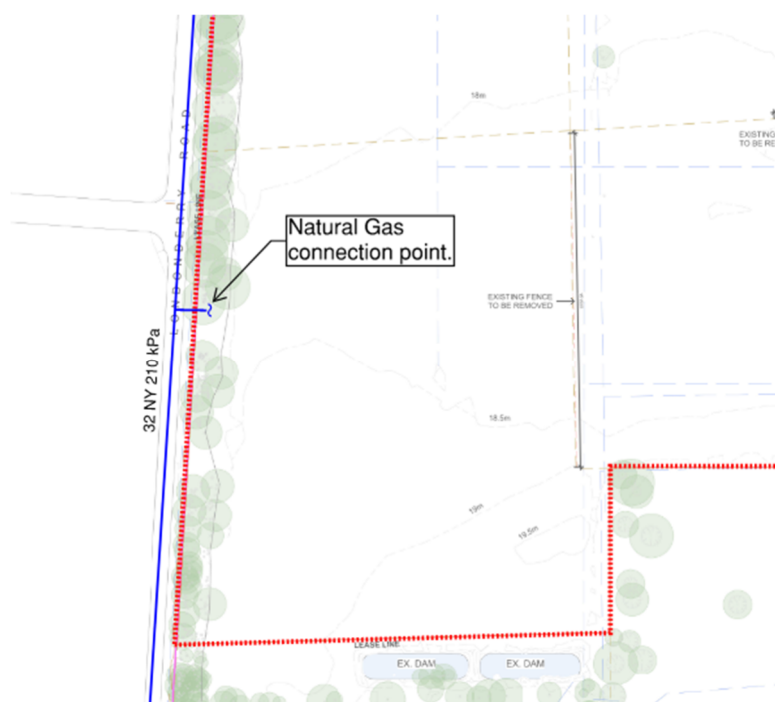


Figure 10: Proposed Natural Gas Connection Point

6.5 MITIGATION MEASURES

It is expected that there will be a medium level of excavation and pipework installation required within the site to establish new utility infrastructure. These works will include trenching and laying of potable cold-water services, sewer infrastructure (including pump-out units and rising mains), gas connections, and potentially easement works across adjoining land for sewer pipework. Activities will involve the use of excavation equipment, haulage vehicles, and site personnel across various stages of the works. JHA Engineers summarises below the potential environmental impacts associated with these activities, alongside the recommended mitigation strategies. These measures will assist in reducing short-term and long-term environmental impacts associated with construction works.

Action	Environmental Impact	Mitigation Strategy	Section of Report
Excavation works (infrastructure augmentation)	Noise from heavy machinery and increased personnel presence	Acoustic impact assessment to determine optimal work hours and minimise disruption during sensitive times	6.2/ 6.3/ 6.4
Excavation works (infrastructure augmentation)	Soil disturbance from excavation and underground service installation	Geotechnical investigation to identify sensitive areas and minimise disruption through appropriate excavation methods	6.2/ 6.3/ 6.4

Excavation works (infrastructure augmentation)	Potential impact on vegetation, including trenching through tree root zones	Site survey and planning to avoid root zones where possible; apply sensitive excavation methods (e.g. hydro excavation) near vegetation	6.2/ 6.3/ 6.4
Excavation works (infrastructure augmentation)	Generation of excess spoil material from trenching and backfilling	Geotechnical REF to identify areas suitable for spoil re-use or designate appropriate off-site disposal locations	6.2/ 6.3/ 6.4
Easement works (potential sewer connection across university land)	Disruption to third-party property and potential legal/operational conflicts	Early engagement with stakeholders, including the university, to secure necessary approvals and define responsibilities. Documented access and reinstatement protocols to be developed	6.3

6.6 EVALUATION OF ENVIRONMENTAL IMPACTS

An assessment of the environmental impacts associated with the utility infrastructure works for the Richmond Agricultural Centre has been conducted, covering potable water, sewer, gas infrastructure, and easement works. Given the nature and scale of the proposed works, and the mitigation strategies outlined in this report, the potential environmental impacts are considered low. These works are typical for a new development and are not expected to result in significant impacts on the locality, community, or environment. Identified impacts, such as noise, soil disturbance, vegetation management, spoil handling, and third-party land use, can be effectively managed through appropriate planning and best practice environmental procedures. The works can proceed with minimal environmental risk, subject to the mitigation strategies in Section 6.5.

7 APPENDIX A – BYDA INFORMATION

Refer to separate attachment "Appendix A - BYDA Information"