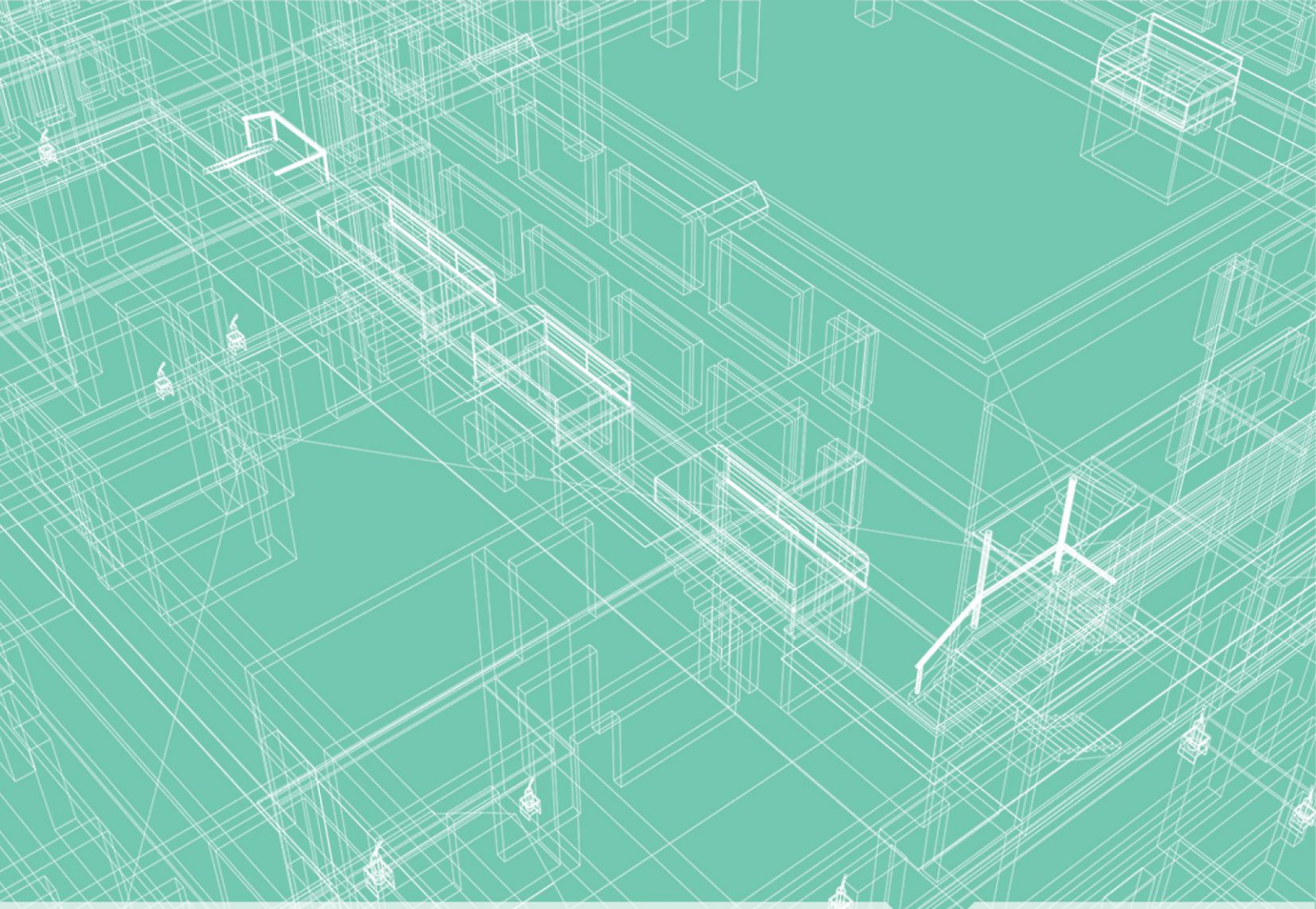

SERVICES REPORT

LEPPINGTON PUBLIC SCHOOL UPGRADE

HYDRAULIC SERVICES

JHA

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DOCUMENT CONTROL SHEET

Project Number	220269
Project Name	Leppington Public School Upgrade
Description	Hydraulic Services Report
Key Contact	Adrian Cassar

Prepared By

Company	JHA
Address	Level 20, 2 Market Street, Sydney NSW 2000
Phone	61-2-9437 1000
Email	Adrian.Cassar@jhaengineers.com.au
Website	www.jhaservices.com
Author	Adrian Cassar
Checked	Adrian Cassar
Authorised	Benjamin Ng

Revision History

Issued to	Revision	Date
Sophia Palmer CTPG	A	05/12/24
Sophia Palmer CTPG	B	17/01/25
Sophia Palmer CTPG	C	03/02/25

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1. INTRODUCTION

This Hydraulic Services Report has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of Leppington Public School (LPS) (the activity). The purpose of the REF is 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.

The proposed activity is for upgrades to the existing LPS at 144 Rickard Road, Leppington, NSW, 2179 (the site).

The purpose of this report is to outline the proposed hydraulic services infrastructure connection and mitigation measures for the project.

Site Description

LPS is located at 144 Rickard Road, Leppington on the eastern side of Rickard Road, north of Ingleburn Road and south of Byron Road. The site has an area of 3.013 ha and comprises 4 allotments, legally described as:

- Lot 1 DP 127446
- Lot 1 DP 439310
- Lot 38E DP 8979
- Lot 39C DP 8979

The site currently comprises an existing co-education primary (K-6) public school with:

- 14 permanent buildings;
- 11 demountable structures (including 2 male/female toilet blocks);
- interconnected paths;
- covered walkways;
- play areas; and
- at-grade parking.

The site also contains locally listed heritage buildings along its southern boundary.

The buildings are 1 storey in height and there is a sports oval in the eastern portion of the site. The existing buildings are clustered in the north-western part of the site.

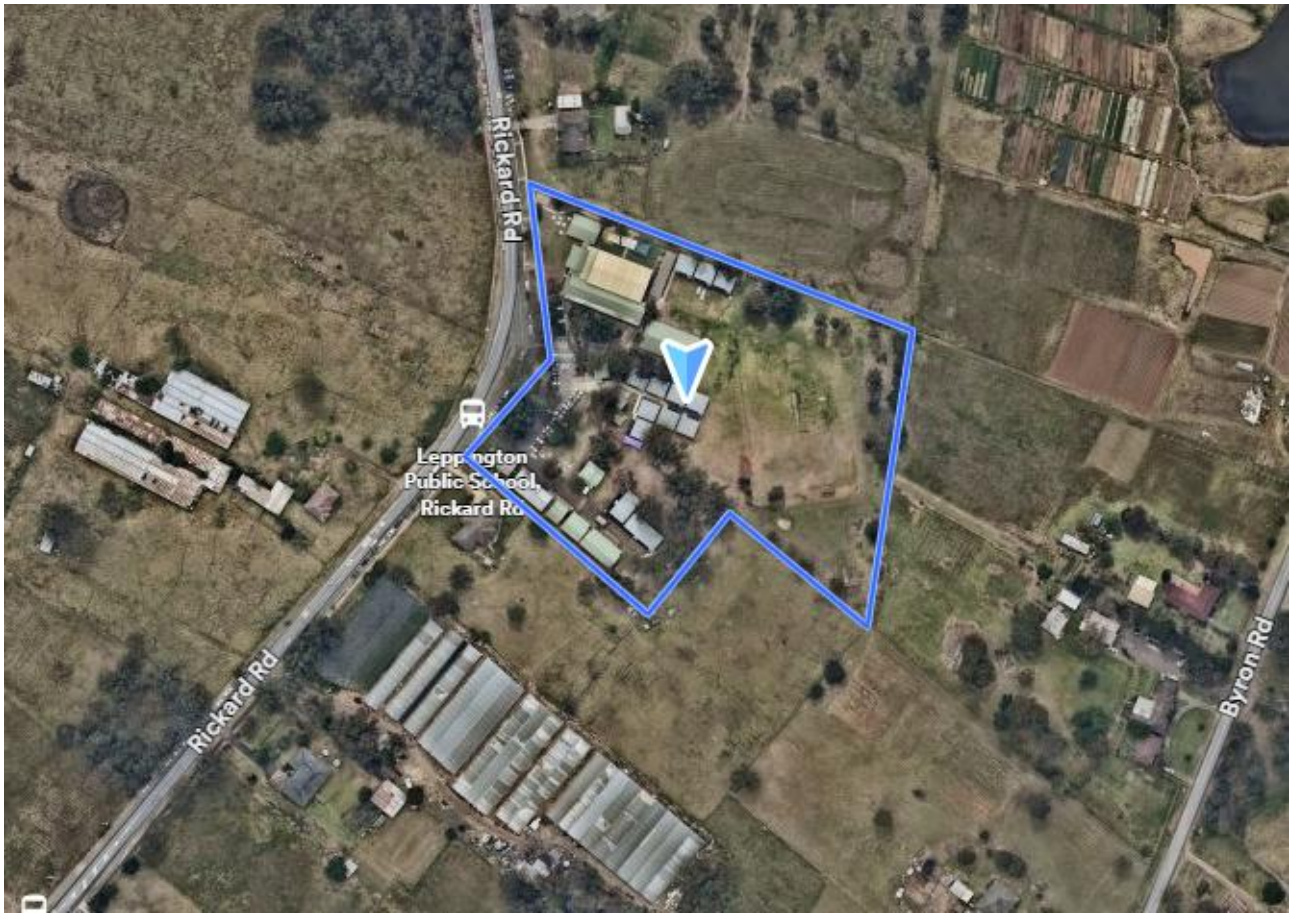

Figure 1: Aerial image of the site, outlined in blue (Source: NearMap, taken 24 Sept 2024)

Proposed Activity Description

The proposed activity involves upgrades to the existing LPS, including the following:

- Demolition of existing structures and trees;
- Erection of a new 3-storey teaching space along the northern boundary that includes 20 permanent teaching spaces and 3 support teaching spaces;
- Erection of a new hall and COLA comprising of a hall, canteen and OSHC hub towards the eastern boundary of site;
- Extension of the existing library (Building E) and adjoining playground;
- Upgraded sports and play facilities;
- Relocation of the Yarning Circle;
- Erection of a substation and upgrades to site services;
- Footpaths, fencing and associated works; and
- Landscaping.

The intent of the activity is to allow for upgrades to LPS that will provide a 'CORE 35' school standard in line with the Educational Facilities Standards and Guidelines (EFSG). The activity will increase the capacity of the school from 430 to 621 students.

Figure 2 below show the scope of works for the proposed activity.

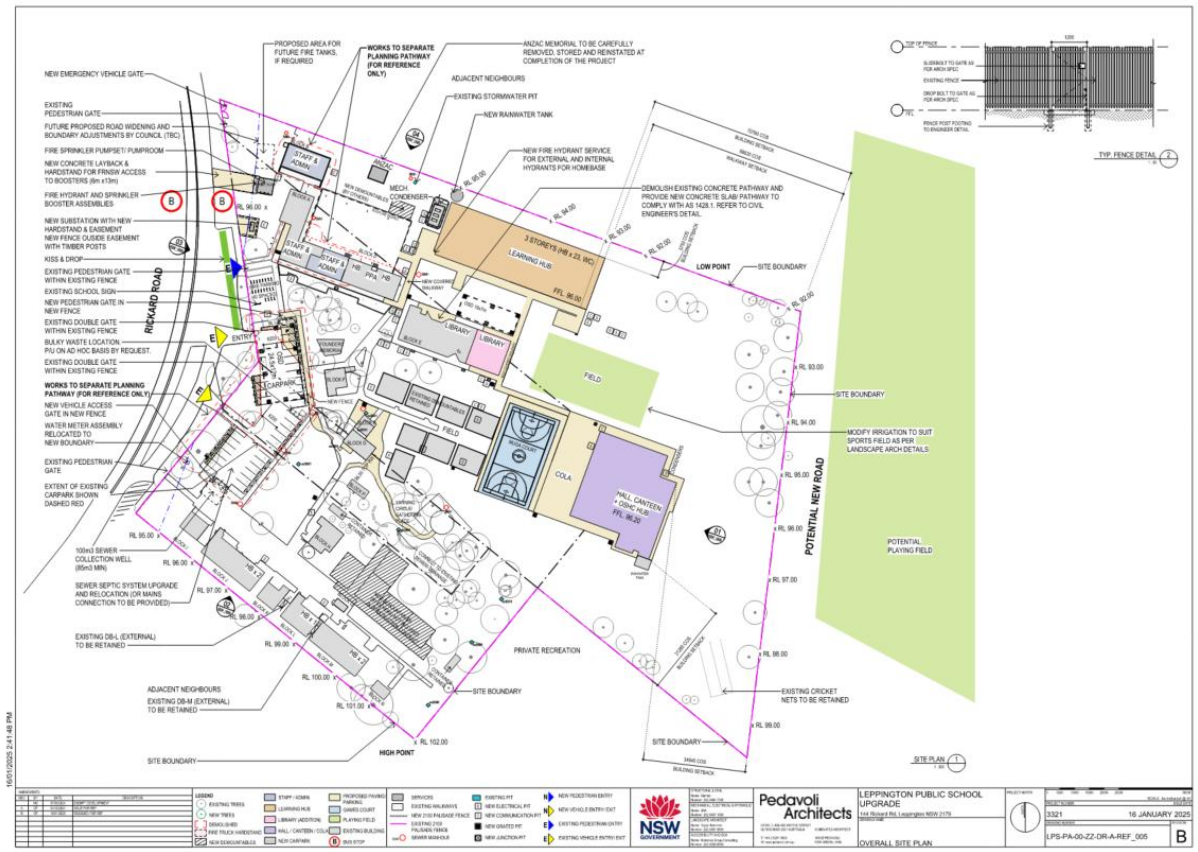

Figure 2: Proposed Activity (Source: Pedavoli Architects, Overall Site Plan (Rev B))

2. HYDRAULIC SERVICES INFRASTRUCTURE

1.1 SEWER DRAINAGE

1.1.1 EXISTING SEPTIC TANKS

There are no existing Sydney Water sewer mains in the immediate vicinity of the site.

The site currently drains to an existing septic sewer system located near the western boundary near Rickard Road. This system is pumped out on a regular basis and has been found to be overflowing in rainfall events.

Figure 3: Existing Septic Tank Locations

1.1.2 GRAVITY SEWER CONNECTION (NOT PRACTICAL)

It is preferable for sewer drainage to be connected to a new Sydney Water sewermain connection by gravity to eliminate ongoing maintenance and pumpout costs and reduce the potential for sewer overflows.

However, the options for extending a Sydney Water sewer to the property were deemed impractical for the project.

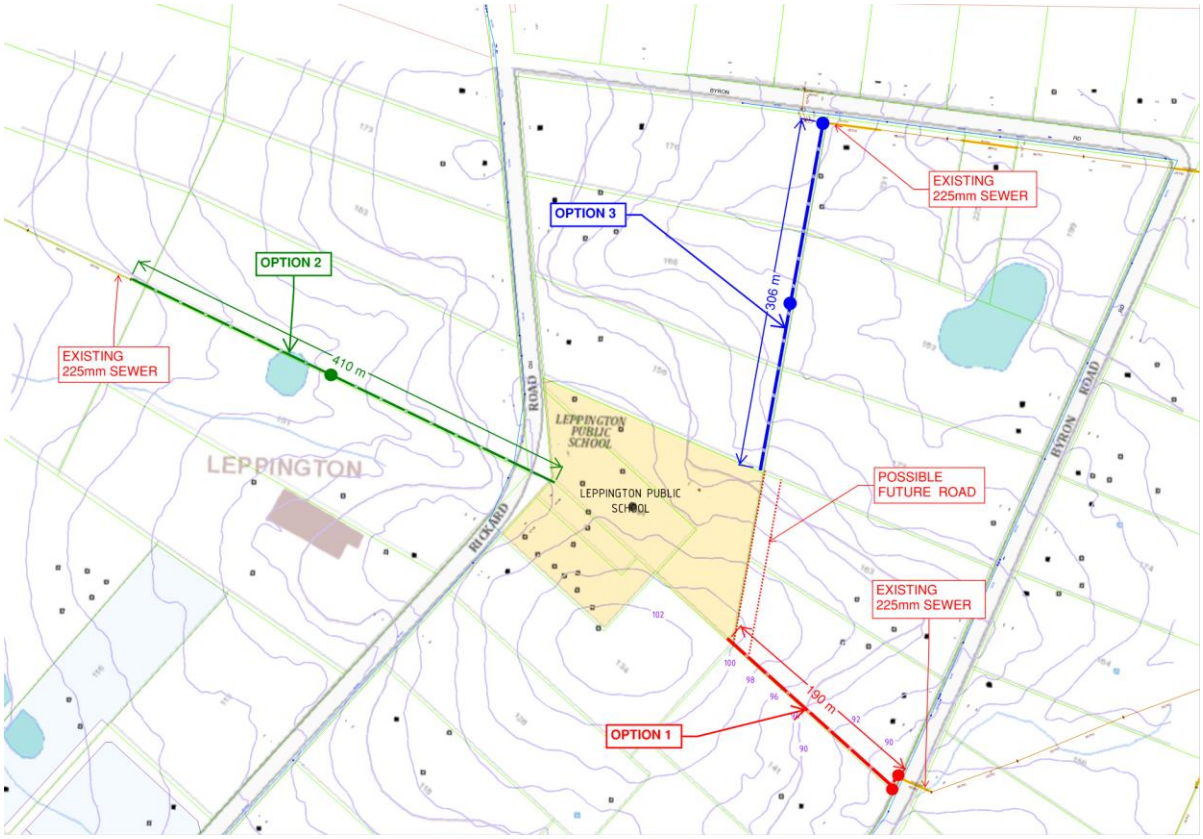

Figure 4: Gravity Sewer Options

1.1.3 SEPTIC PUMPOUT TANK REPLACEMENT

As noted above, a gravity sewer connection is not currently available for the site. Therefore the site will continue to rely on a septic pumpout tank. Given the concerns over the condition of the pumpout system including higher volumes during wet weather, it is proposed to replace the existing septic pumpout system with a new underground tank. The proposed septic tank location will be outside of the proposed Rickard Road widening.

The sizing of the septic pumpout tanks has been based on NSW Health Septic Tank and Collection Well Accreditation Guideline December 2001. For this site, based on total number of persons of 655 (621 students and 34 staff) with allowance of 18L per person per day and 120 students per day with use of the gym / hall with allowance of 36L per student results in a usage of 16,110L/day. Allowing for a weekly pumpout frequency the total capacity of the tank has been determined as 85,000L.

A spatial allowance for a future septic tank of 50,000L (based on a similar calculation method) has been allocated for future expansion.

1.2 WATER MAINS

1.2.1 EXISTING WATER SUPPLY

There is an existing 250mm CICL Sydney Water water main, located on the north western side of Rickard Road which currently supplies water to the site through an existing 40mm water connection and meter assembly on the southern end of the western boundary.

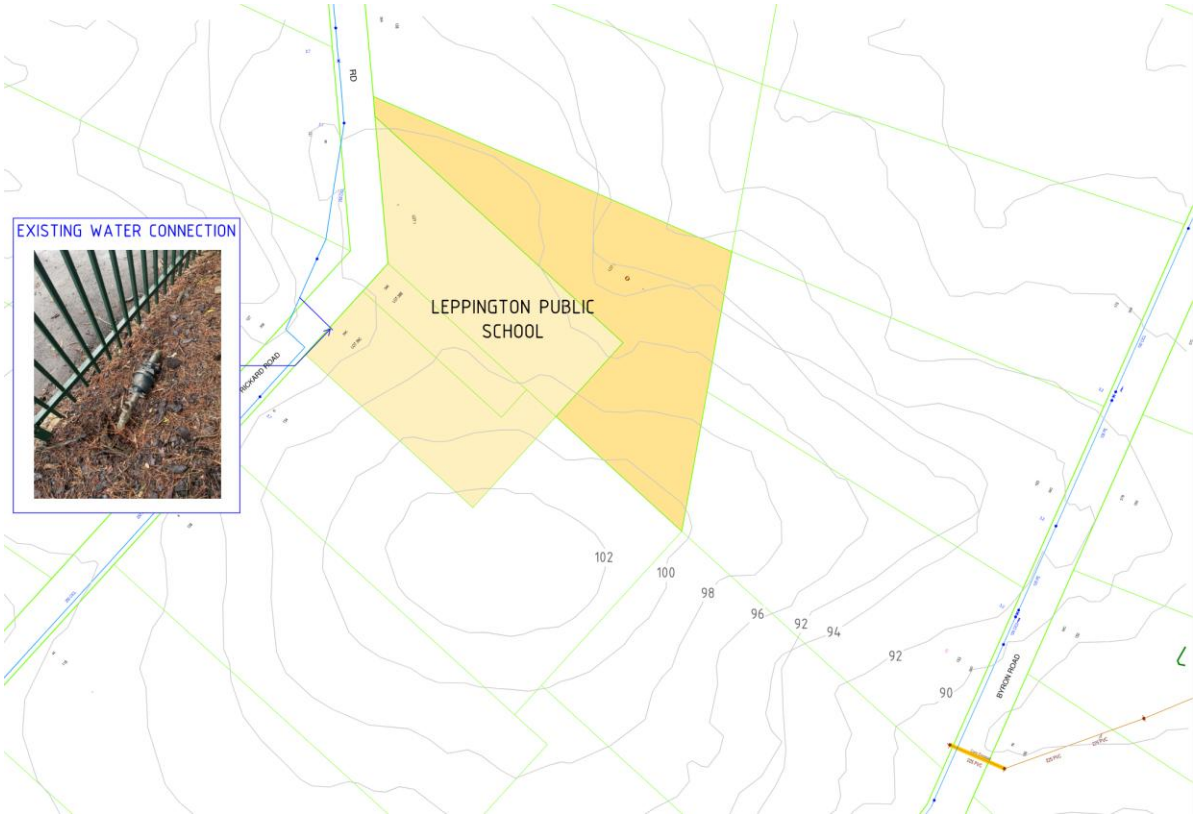

Figure 5: Sydney Water Water Mains Map

1.2.2 PROPOSED WATER SUPPLY

The 250mm CICL Sydney Water water main, located in Rickard Road will be able to cater for the proposed potable water and fire services demand of the site.

JHA Engineers applied for and received the Sydney Water Statement of Available Pressure and Flow on the 250mm CICL water main in Rickard Road, as attached in Appendix A.

There is sufficient flow within the Sydney Water watermain to cater for the site's water supply for potable water and fire fighting water. Pressure in the mains is adequate for potable water supply however, a pumpset will be provided for fire fighting purposes.

A Section 73 application will need to be lodged with Sydney Water once the REF has been lodged in order to confirm the water services availability and / or any associated developer charges or upgrade requirements.

1.2.3 FIRE FIGHTING WATER SUPPLY

While the available flow in the existing Sydney Water main is currently capable of supplying water to the site for potable water and fire fighting purposes, given the amount of development proposed in the surrounding area, there is a risk that the capacity of the main will be reduced and water storage may be required for fire fighting purposes.

An indicative calculation was undertaken on the basis of a 50% reduction in mains water flow. The current mains capacity is 30L/s so we would consider a maximum available flow rate of 15L/s.

With 15L/s in the Town's Water Main, the worst-case scenario for the stored simultaneous operation of the fire sprinklers and hydrants would be at 26L/s (6L/s for sprinklers (plantrooms) + 20L/s for hydrants). With 15L/s available in the water main; we would allocate all of this to the hydrant demand. And have a remaining flow of 13L/s which would need to be stored onsite.

The sprinkler capacity in this new scenario, we would need a tank of 26,000L (1h operation plus 20%). The hydrants capacity would be 5L/s for 4hr, which would add 72,000L. For a Combined Fire Services Tank, the required rounded volume would be 100,000L.

Below is an indicative location for a future fire services tank which would need to be further reviewed if found to be required at any point during the design process or in future.

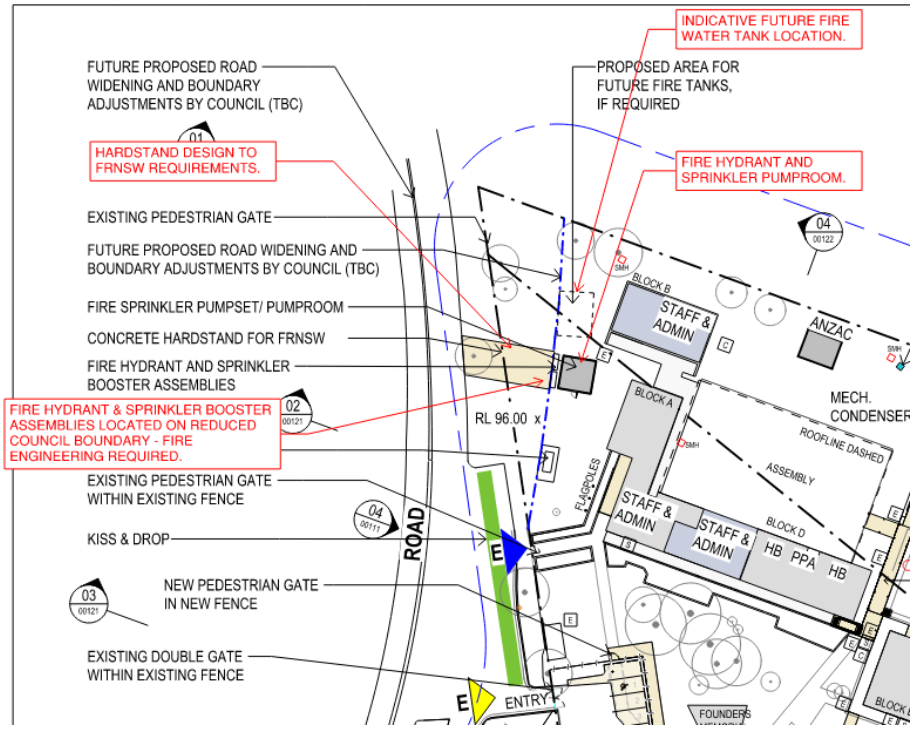

Figure 6: Future Fire Tank Provision

1.3 GAS MAINS

1.3.1 EXISTING GAS SUPPLY

There are no existing gas mains in the vicinity of the site.

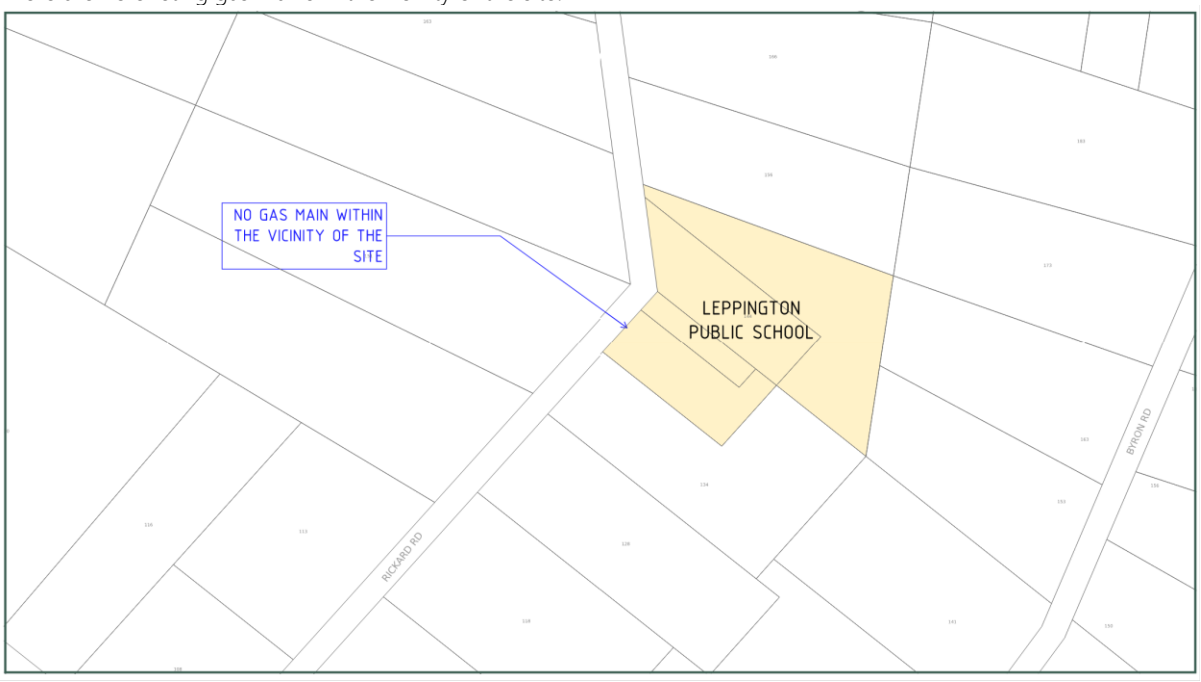

Figure 7: Jemena Gas Mains Map

1.3.1 PROPOSED GAS SERVICE

Gas is not proposed to be provided to the site.

2.1 MITIGATION MEASURES

As described in the sections above, there are two mitigation measures incorporated into the hydraulic services design to minimise adverse impacts of the activity.

The below table summarises the proposed mitigation measures associated with hydraulic services:

Mitigation Number/Name	Aspect/Section	Mitigation Measure	Reason for Mitigation Measure
Sewer Septic Collection Tanks	As Part of Construction works.	Provision of a new sewer septic tank / pumpout system for the site along with provision of space for future expansion for the tank.	To alleviate issues with the existing sewer septic tank system and minimise risks of overflow. Provide space for future expansion of the septic tank to accommodate future population increase.
Fire Fighting Water Supply	Provision for future works	Spatial allowance for a potential fire water storage tank for fire fighting purposes.	To ensure adequate space is available for provision of fire services tanks if required due to drop in watermain capacity due to future town planning. This will lessen the impact on the water supply mains. We note that the tanks are not part of the REF activity (only spatial provisioning has been made).

2.2 CUMULATIVE IMPACT ASSESSMENT

Being located in the South West Growth Area (SWGA), the site and surrounds are likely to experience significant growth and densification. Further, the recently exhibited draft Leppington Town Centre Rezoning review, and associated draft Indicative Layout Plan, seeks to amend the land use zone, density and height of buildings in and around the Leppington Town Centre. This growth generally, together with the establishment of a new high school to the immediate south, necessitate the need to address cumulative impacts of the proposal in context of the growing population in the area.

2.2.1 POTABLE WATER SUPPLY

Water supply to the area is controlled and managed by Sydney Water who review and consider infrastructure capacity to accommodate proposed development in the area. This may include developer charges which fund upgrades to major plant infrastructure and trunk main upgrades and/or local upgrades to watermains to service the area.

The Sydney Water Section 73 applications for developments provide Sydney Water guidance for the proposed development works and allow Sydney Water to plan and provide required upgrades to infrastructure to service all properties in the area. Sydney Water are also likely to be aware of the proposed Leppington Town Centre Growth Plan, so will have some advance knowledge of the proposed development in the area for planning purposes.

Therefore the cumulative impact of the proposed activity in conjunction with surrounding development on water supply will be managed by Sydney Water.

2.2.2 FIRE FIGHTING WATER SUPPLY

Water supply to the area is controlled and managed by Sydney Water, however they do not typically accommodate for fire fighting water supply for properties (only regular potable water demand). It is the site owner's responsibility to account for fire fighting water supply to service the property.

While the Statement of Available Pressure and Flow (Appendix A) indicates that adequate water supply is available for fire fighting, as noted in previous sections, spatial provision has been made for a future fire services tank on site to reduce the water demand for fire fighting, should the mains capacity be reduced as part of future town planning.

Therefore, this provision will manage the result of cumulative impact of the proposed activity and surrounding development on fire fighting water supply.

2.2.3 SEWER DRAINAGE

Sewer drainage from the property will be managed on site through collection and pumpout and therefore will not impact the surrounding infrastructure or contribute to sewer load in the area.

2.3 CONCLUSION

Based on the information contained in this report we confirm that the proposed activity will not have a significant effect on the environment and that the potential risks:

1) can be adequately mitigated through recommended measures and

2) are not considered to be a significant impact.

3. APPENDIX A - SYDNEY WATER STATEMENT OF AVAILABLE PRESSURE & FLOW

Statement of Available Pressure and Flow

Sydney WATER

Diego Montelvere
23 101 Miller Street
North Sydney, 2060

Attention: Diego Montelvere Date: 18/12/2023

Pressure & Flow Application Number: 1787418
Your Pressure Inquiry Dated: 2023-11-30
Property Address: Rickard Road, Leppington 2179

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: Rickard Road	Side of Street: West
Distance & Direction from Nearest Cross Street	385 metres South from Byron Road
Approximate Ground Level (AHD):	95 metres
Nominal Size of Water Main (DN):	250 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	93 metre head
Minimum Pressure	36 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	36
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5 10 20 25 30	40 39 38 38 37
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5 10 20 25 30	35 35 33 33 32
Maximum Permissible Flow	32	31

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

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
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