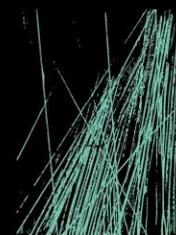


SERVICES REPORT

AUSTRAL PUBLIC SCHOOL UPGRADE

HYDRAULIC SERVICES



JHA

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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 Austral Public School (APS) (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 the upgrades to the existing APS at 205 Edmondson Avenue, Austral, NSW, 2179 (the site).

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

Site Description

APS is located at 205 Edmondson Avenue, Austral on the south-eastern corner of the intersection between Edmondson Avenue and Tenth Avenue. The site has an area of 2.986 ha and comprises of 6 allotments, legally described as:

- Lot 1 DP 398105
- Lot 1 DP 398106
- Lot 1 DP 509613
- Lot 1 DP 512119
- Lot 2 DP 509613
- Lot 865 DP2475

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

- 8 permanent buildings;
- 14 demountable structures;
- interconnected paths;
- covered walkways;
- play areas: and
- at-grade parking.

The Austral Community Pre-school is also located within the site.

The existing buildings are clustered in the northern part of the site, ranging between 1 to 2 storeys in height. There is a sports oval in the south-eastern portion of the site, and a densely vegetated informal play area located in the south-western portion of the site.

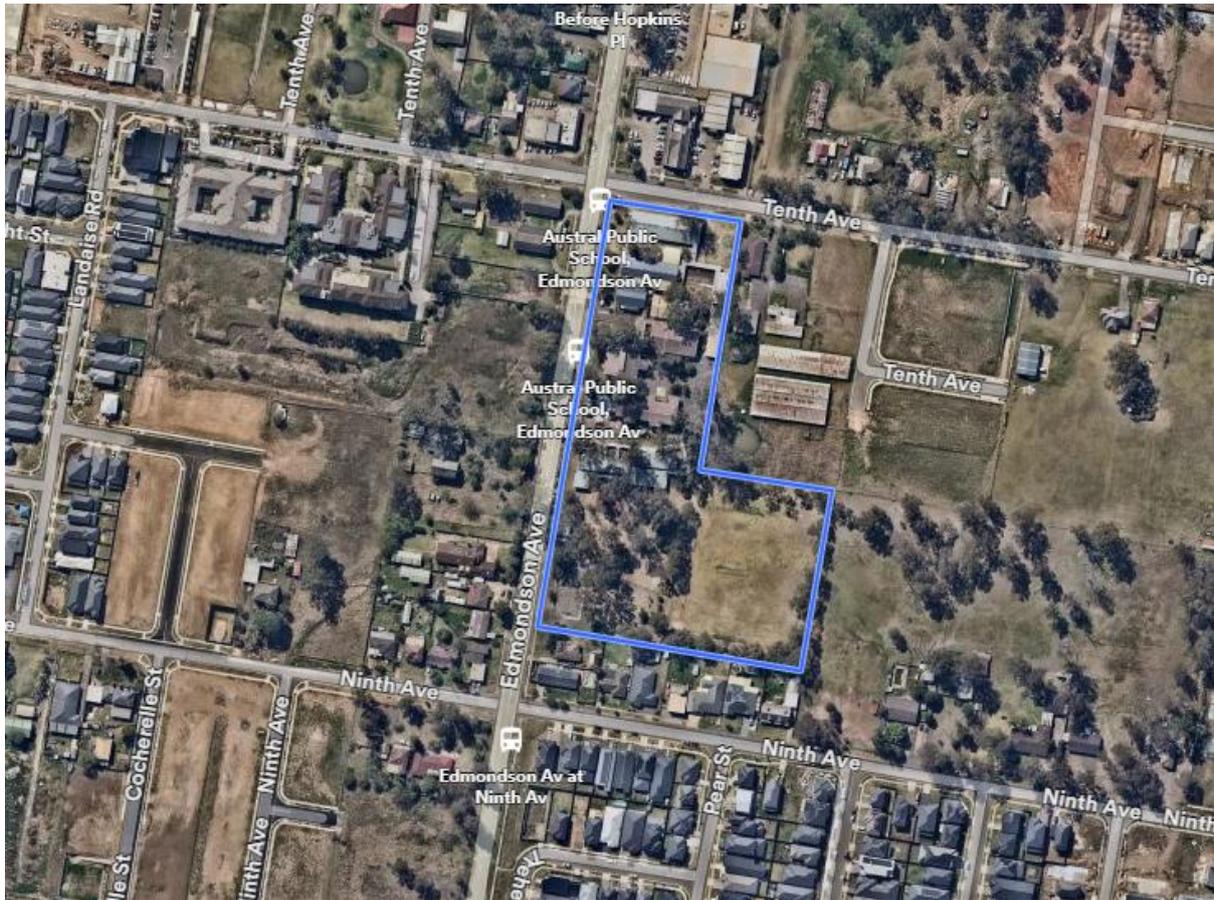


Figure 1: Aerial image of the site, outlined in blue (Source: NearMap, taken 7 Sept 2024)

Proposed Activity Description

The proposed activity involves alterations and additions to the existing APS, including the following:

- Demolition of existing structures and removal of trees, as well as other site preparation works;
- The erection of a new 3-storey building comprising teaching spaces that includes 20 permanent teaching spaces and 3 support teaching spaces;
- Refurbishment and change of school function of Building I from classrooms to a Library;
- At-grade parking (57 new spaces, including 1 accessible space);
- New driveway and access gate from Edmondson Road;
- Erection of a substation within the site on the northern boundary;
- Upgrade of the sports field;
- Internal pathways, fencing, utility upgrades and associated works; and
- Off-site public domain improvements including retention and upgrading of the Kiss & Drop area and a temporary pedestrian road crossing on Tenth Avenue.

The intent of the activity is to allow for upgrades to APS that will provide a CORE 35 primary school compliant with the EFSG. The works will increase the capacity of the school from 681 students and 40 FTE teachers to 734 students and 64 FTE teachers, respectively. Furthermore, provision within the expanded 734 student capacity will be made for the creation of 30 support class students places.

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

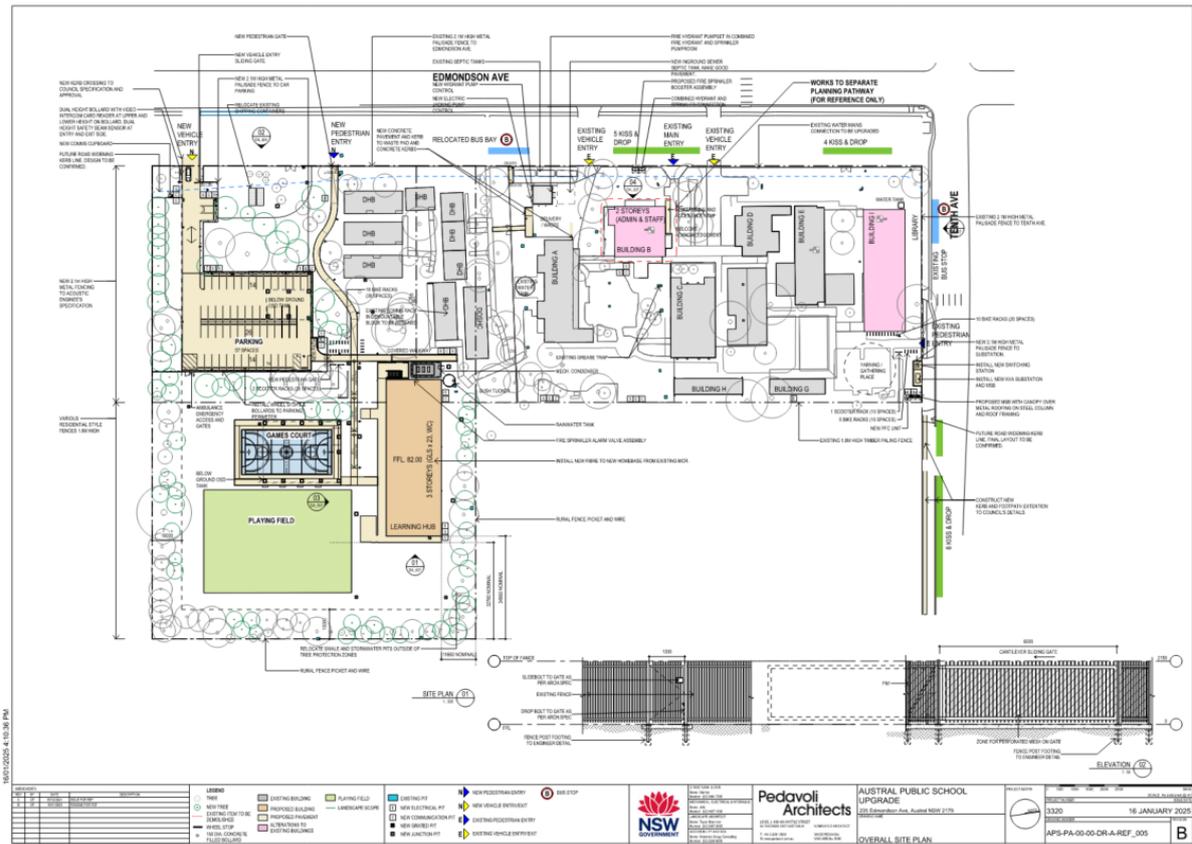


Figure 2: Proposed Activity (Source: Pedavoli Architects, Overall Site Plan (Rev B))

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 Edmondson Ave. 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.

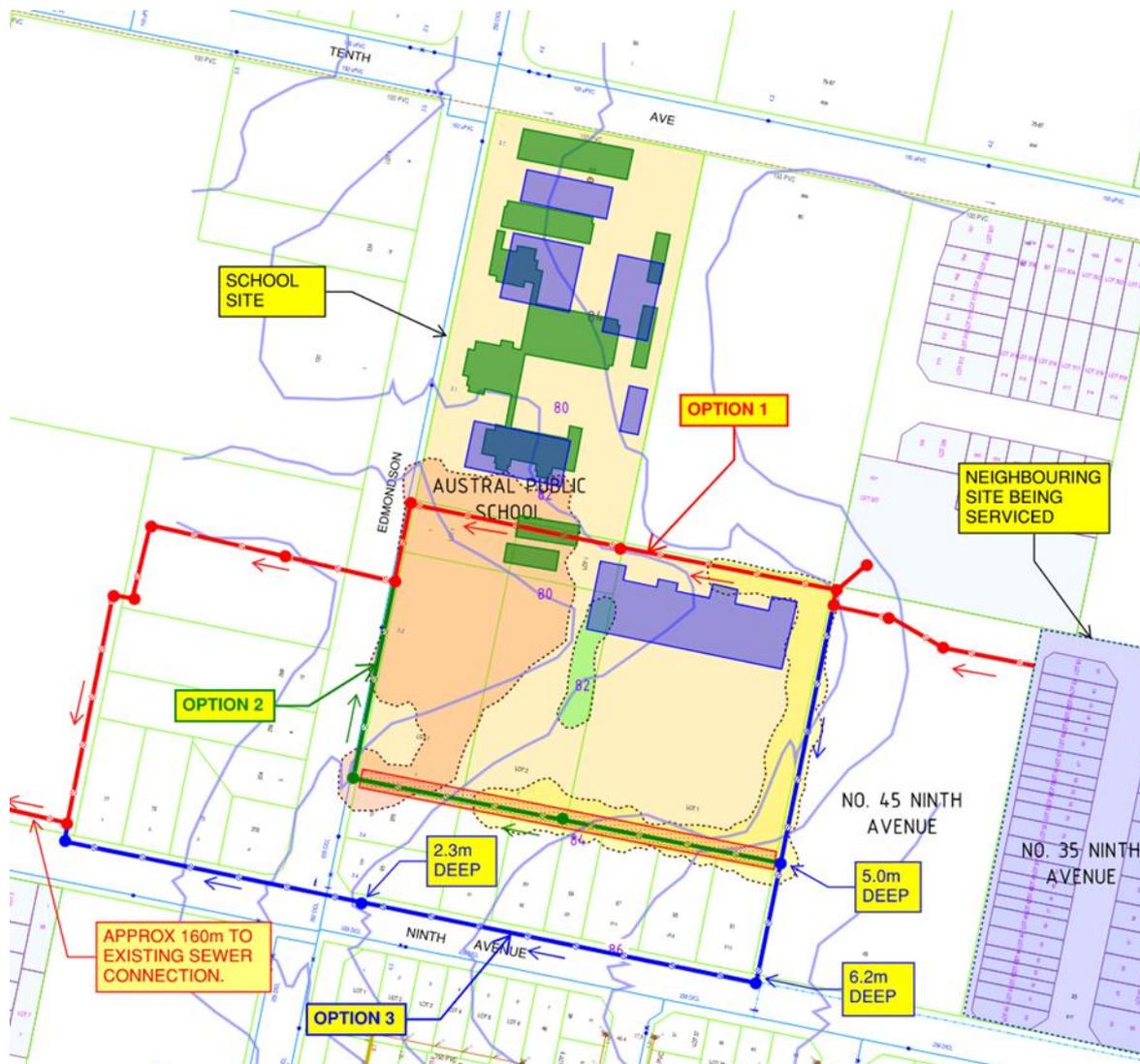


Figure 4: Gravity Sewer Options

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 Edmondson Avenue 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 851 (794 students and 57 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 19,638L/day. Allowing for a weekly pumpout frequency the total capacity of the tank has been determined as 100,000L.

A spatial allowance for a future septic tank of 40,000L (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 CI/CL Sydney Water water main, located on the eastern side of Edmondson Ave which currently supplies water to the site through an existing 80mm water connection and meter assembly on the western boundary. There is also an existing 100uPVC Sydney Water water main located on the northern side of Tenth Ave.



Figure 5: Sydney Water Water Mains Map

1.2.2 PROPOSED WATER SUPPLY

The 250mm CI/CL Sydney Water water main, located in Edmondson Ave 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 CI/CL water main in Edmondson Ave, as attached in Appendix A.

There is sufficient flow within the Sydney Water watermain to cater for the proposed 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 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.

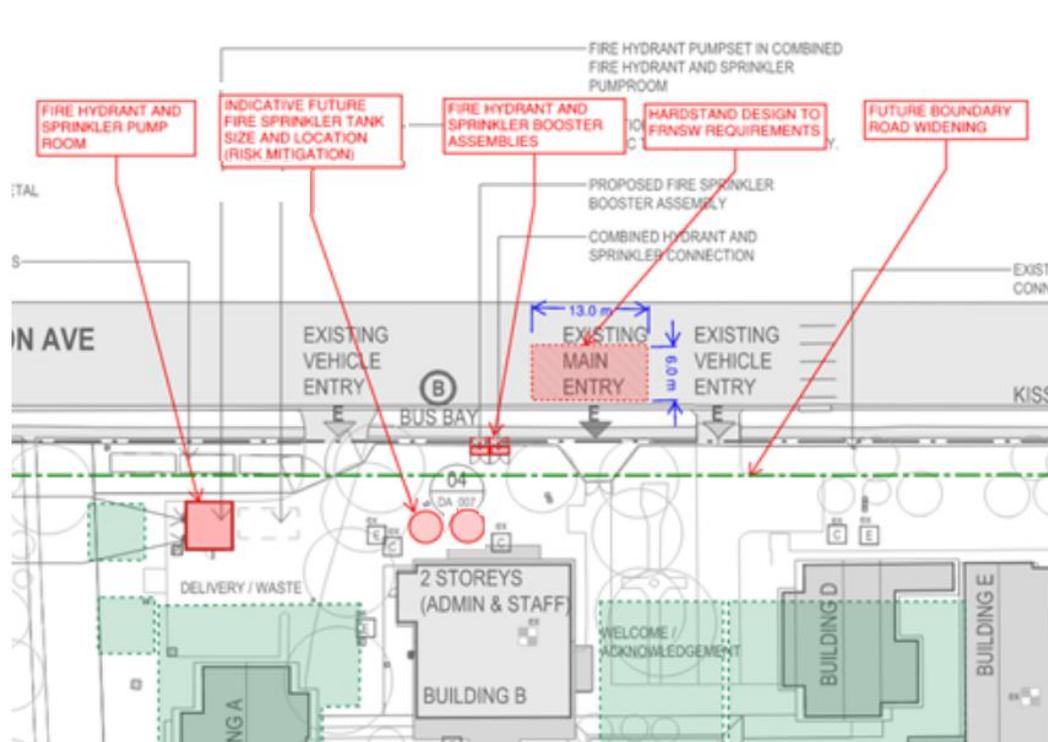


Figure 6: Future Fire Tank Provision

1.3 GAS MAINS

1.3.1 EXISTING GAS SUPPLY

1.1.1 EXISTING

There is an existing LPG storage tank located near the western boundary of the site however this is no longer supplying gas to the site. There is also an existing 210kPa Jemena Gas main, located on the southern side of Tenth Ave.



Figure 7: Jemena Gas Mains Map

1.3.1 PROPOSED GAS SERVICE

Gas is not proposed to be provided to the site and the existing LPG storage tank is to be decommissioned.

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 proposed 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 a 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 surrounding areas are poised for substantial growth and densification. Austral is undergoing significant change and transition following recent rezoning by the NSW Government. Further transformation is anticipated with the future rezoning of the nearby Leppington Town Centre, approximately 750 metres south of the site. This town centre is the focus of an active Planning Proposal which, if approved, is expected to greatly impact the character and context of the surrounding area.

In addition, numerous residential subdivisions in both the immediate and broader vicinity are set to reshape the area, further contributing to the evolving landscape.

This growth will 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 proposed development works and allow Sydney Water to plan and provide required upgrades to infrastructure to service all properties in the area.

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 owners' 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

Diego Montelvere
23 101 Miller Street
North Sydney, 2060

Attention: Diego Montelvere

Date: 18/12/2023

Pressure & Flow Application Number: 1787432
Your Pressure Inquiry Dated: 2023-11-30
Property Address: Edmondson Avenue, Austral 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: Edmondson Avenue	Side of Street: East
Distance & Direction from Nearest Cross Street	42 metres South from Tenth Avenue
Approximate Ground Level (AHD):	84 metres
Nominal Size of Water Main (DN):	250 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	104 metre head
Minimum Pressure	43 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	43
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	49
	10	48
	20	47
	25	46
	30	45
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5	43
	10	42
	20	40
	25	38
	30	37
Maximum Permissible Flow	32	37

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

hydraulicassessment@sydneywater.com.au

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