Infrastructure Report - Electrical and Communications

220081 28-32 BOURKE ROAD, ALEXANDRIA NSW

Client:
Alexandria Property Development Pty Ltd

Revision:
D

Date:
5/07/2022

REPORT INFORMATION

Project	28-32 Bourke Road, Alexandria NSW
Title	Infrastructure Report - Electrical and Communications
Client	Alexandria Property Development Pty Ltd
Revision	D
Revision Date	5/07/2022
Prepared By	LCI Consultants Sydney Office Level 5 73 Miller Street North Sydney 2060
ABN/ACN	92 124 107 973 / 124 107 973
Author	GM, DM, MM

REVISION SCHEDULE

Revision	Date	Issue Name	Author	Authorised
A	06.05.2022	Preliminary Draft	GM,DM	LP
B	01.06.2022	Final	MM	LP
C	06.06.2022	Final	MM	LP
D	05.07.2022	Final	MM	LP

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Table of Figures

1 Executive Summary

This Infrastructure Report has been prepared by LCI to accompany a concept Stage 1 – State Development Application (SSDA) for the mixed-use redevelopment proposal at 28-32 Bourke Road, Alexandria, NSW, 2015 (the site). The site is legally described as Lots 1,2 and 3 in Deposited Plan 324707.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the SSD DA (SSD-38600121). Specifically, this report has been prepared to respond to the SEARS requirements summarised in the table below.

Table 1:SEARs Requirements

Item	Description of requirement	Section reference (this report)
20 (a) – Infrastructure Requirements and Utilities	In consultation with relevant service providers assess the impacts of the concept development on existing utility infrastructure and service provider assets surrounding the site.	Section 4
20 (b) – Infrastructure Requirements and Utilities	In consultation with relevant service providers identify any infrastructure upgrades required on-site and off-site to facilitate the concept development and any arrangements to ensure that the upgrades will be implemented on time and be maintained.	Section 5
20 (c) – Infrastructure Requirements and Utilities	In consultation with relevant service providers provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the concept development.	Section 5
20 (d) – Infrastructure Requirements and Utilities	In consultation with relevant service providers identify potential impacts to existing utility infrastructure, as a result of the concept development	Section 4

This report also has identified a number of existing overhead and underground electrical and communication services that reticulate along Bourke Rd adjacent to the development boundary (i.e. above or below the street and footpath). Refer to Section 5 of this report for further details.

To mitigate the risk of damaging these existing services, protection strategies and controls may need to implemented by the Managing Contractor during the demolition and construction phases to physically safeguard these services.

2 Glossary

Table 2: Glossary and Abbreviations

Abbreviation	Meaning
AFC	Ausgrid Application For Connection
ASP	Accredited Service Provider
CBD	Central Business District
CMP	Construction Management Plan
CSSI	Critical State Significant Infrastructure
DA	Development Application
DBYD	Dial Before You Dig (link)
DIP	Ausgrid Design Information Package
EIS	Environmental Impact Statement
HV	High-Voltage
LCI	LCI Consultants
LV	Low-Voltage
NBN	NBN Co (link)
NSW DPIE	NSW Department of Planning, Industry and Environment
OSD	Over-Station Development
RL	Reduced Level
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development

3 Introduction

This report has been prepared to accompany a concept Stage 1 – State Development Application (SSDA) for the mixed-use redevelopment at 28-32 Bourke Road, Alexandria, NSW, 2015.

The Minister for Planning, or their delegate, is the consent authority for the SSDA and this application is lodged with the NSW Department of Planning, Industry and Environment (NSW DPIE) for assessment.

Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Table 3: Urbis SEARs Requirements Matrix Extract

Item	Description of requirement	Section reference (this report)
20. Infrastructure Requirements and Utilities	In consultation with relevant service providers: • Assess the impacts of the concept development on existing utility infrastructure and service provider assets surrounding the site. • identify any infrastructure upgrades required on-site and off-site to facilitate the concept development and any arrangements to ensure that the upgrades will be implemented on time and be maintained. • provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the concept development. • identify potential impacts to existing utility infrastructure, as a result of the concept development	Sections 4 & 5

Development consent is sought for a concept proposal for the 'Alexandria Health Centre' comprising medical centre uses and anchored by a mental health hospital. Specifically, the application seeks concept approval for:

- In principle arrangements for the demolition of existing structures on the site and excavation to accommodate a single level of basement car parking (partially below ground level).
- A building envelope to a maximum height of 45 m (RL 53.41) (including architectural roof features and building plant). The podium will have a maximum height of RL 28.41.
- A maximum gross floor area of 11,442.20 sqm, which equates to a maximum FSR of 3.85:1. The total FSR will comprise a base FSR of 2:1, a community infrastructure bonus FSR of 1.5:1 and a 10% design excellence bonus FSR (subject to a competitive design alternatives process).
- Indicative use of the building as follows:
  - Mental health hospital at levels 5-7.
  - Medical centre uses at levels 1-4; and
  - Ground level reception/lobby and pharmacy.
- Principles for future vehicular ingress and egress from Bourke Road along the site's western frontage.
- Subject to agreement on a public benefit offer submitted with this application, the proposal includes the indicative dedication of the following land to Council as envisaged by the Draft Sydney Development Control Plan 2012 – Southern Enterprise Area Amendment (Draft DCP):

- A 2.4m wide strip of land along the site's frontage to Bourke Road for the purpose of footpath widening
- A 3m wide lane along the site's western boundary contributing towards a 6m wide lane (it is noted that the concept proposal will allocate an additional 3 m strip of land within the site along the western boundary to enable two-way vehicle movement into and out of the site).
- A 3m wide lane along the site's southern boundary, contributing towards a 9m wide lane.

4 Site Description

The site is located within the City of Sydney Local Government Area (LGA). The site is situated approximately 4km to south of the Sydney CBD and approximately 2km north-east of the Sydney International Airport within the suburb of Alexandria.

The site comprises approximately 3,000 sqm and currently contains a one storey warehouse building used for the purpose of vehicle repairs. The surrounding context consists of similar structures utilised for light industrial purposes.

The street address for the property is 28-32 Bourke Road, Alexandria, NSW, 2015 and is known as is Lots 1,2 and 3 in Deposited Plan 324707.

Figure 1: Site plan.

5 Existing Services

5.1 Dial Before You Dig

The existing utility services assessment for the site was established through information provided by Dial Before you Dig (DBYD). A DBYD enquiry was lodged on the 4th of May 2022 and identified the following services adjacent the development:

Table 4: Dial Before You Dig (DBYD) Summary

Provider	Service	Assessment/Impact
City of Sydney (Contaminated lands)	Council	There is no records indicating of listed contaminated land areas in the vicinity of the area.
City of Sydney (Assets)	Council	City of Sydney Assets along Bourke Rd; lighting points, Stormwater structures and conduits, survey points
AARNet	Communications	No Assets near site
Ausgrid	Electricity	HV feeders, distributors, service conductors, substations, supply points, poles and switch stations are identified along Bourke Rd and in the area
Jemena Gas	Gas & Petroleum	Gas distribution and valves located alongside Bourke Rd
NBN Co	Communications	Manholes, trenches, pillar containing in service copper/RF/fibre along Bourke Rd
Airport Rail Link	Transport	HV cables between Bourke Rd and O'Riordan St
Sydney Water	Water	Sydney water asset found along Bourke Rd
Telstra	Communications	Underground Telstra asset found along Bourke Rd and within the area of development.
Verizon Business	Communications	Ducts and pits along Bourke Rd past Huntley St and on the corner of Bourke Rd and O'Riodarn St
Vocus Communications 2	Communications	Vocus group pit and conduit along Bourke Rd
FibreconX	Communications	Conduit and pit along Bourke Rd

In summary, major electrical, communications and other services reticulate along Bourke Rd adjacent to the development boundary. Any works outside or crossing the boundary must be coordinated with the affected utilities.

5.2 Electrical Services

It is noted that are no existing Ausgrid substations within the proposed development site.

There are also existing electrical services in the vicinity of the site, located along the development frontage on Bourke Rd. These Ausgrid services primarily consist of underground high-voltage (HV) and authority communications cables, where ducts (conduits) can be seen from Figure 2 below.

Additionally, there are existing overhead low voltage cables, and street lighting, where this overhead network services other external network connections.

The HV network cabling that runs along the development frontage can potentially be connected into, and diverted into the site for supply (subject to Ausgrid approval).

No street lighting is proposed to be affected under these works, unless from local Council advise otherwise.

To mitigate the risk of damaging existing underground and overhead services located adjacent to the site (i.e. above or below the street and footpath), additional protections and controls may need to implemented during the demolition and construction phases. This will need to be assessed and implemented by the Managing Contractor.

Figure 2: Ausgrid DBYD Extract

5.3 Communication Services

It is understood there are existing communications services in the vicinity of the site reticulated below Bourke Rd. These services primarily consist of telecommunication pits, underground conduit and fibre. Refer to Figure 3 through to Figure 9 for the extracts of the relevant telecommunication assets. Telecommunication assets that are crossing or on-site such as Telstra/NBN assets shown on Figure 7.

To mitigate the risk of damaging the existing communication services located adjacent to site, the existing pits, conduits/ducts, underground cabling and optical fibre may require additional protections. This will need to be addressed in the Construction and Environmental Management Plan (CEMP) by the Managing Contractor.

A fixed line NBN connection is available in the area surrounding the site, as seen in figure 10. The NBN connection currently provided in the area is fibre to the node (FTTN). Enabling works may be required at NBN's discretion prior to connection of the premise. Additionally, the site could be eligible for an NBN Enterprise Ethernet connection with fibre to the premises (FTTP) (subject to NBN approval).

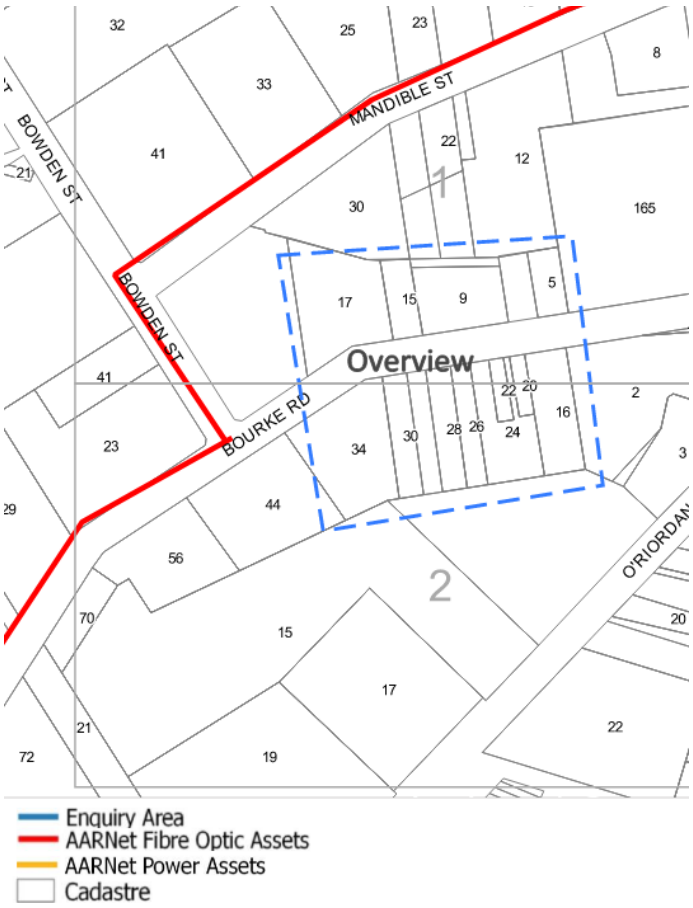

Figure 3: AARNET DBYD Extract

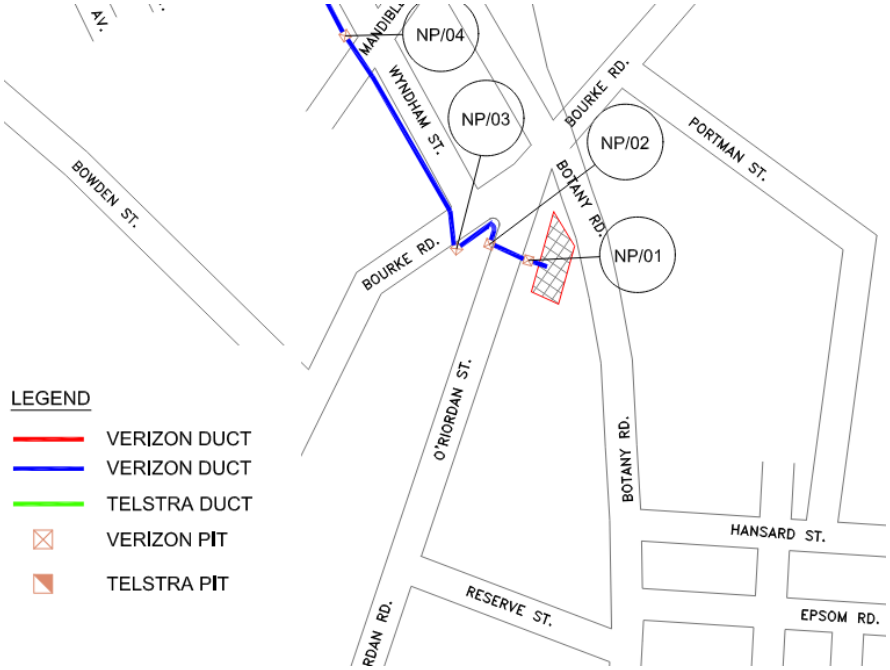

Figure 4: Verizon Business(NSW) DBYD Extract

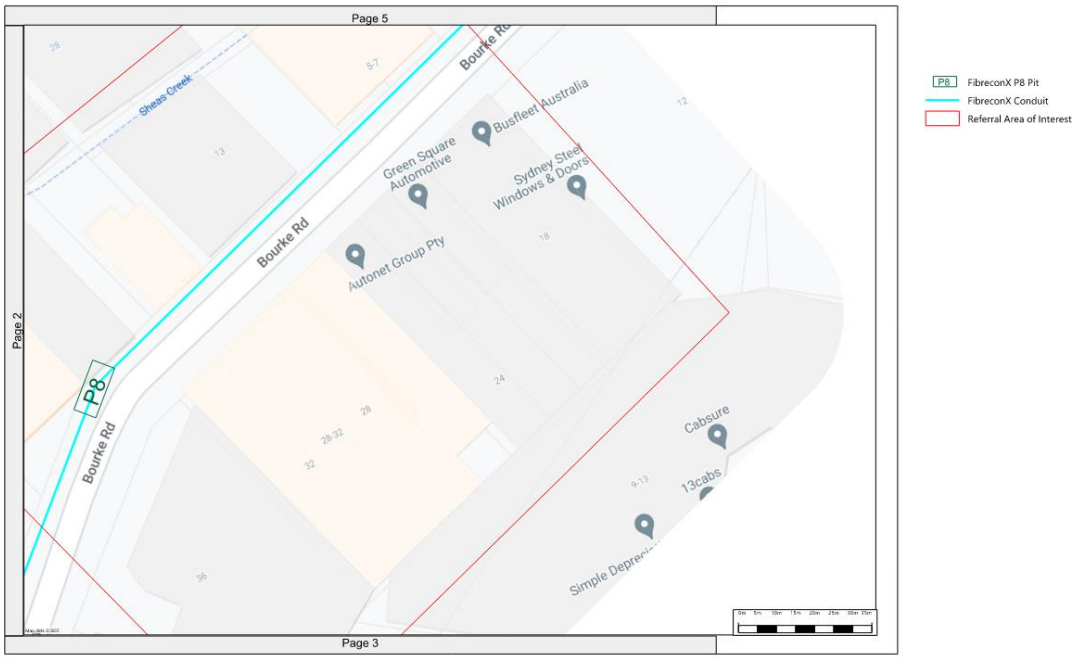

Figure 5: FibreconX DBYD Extract

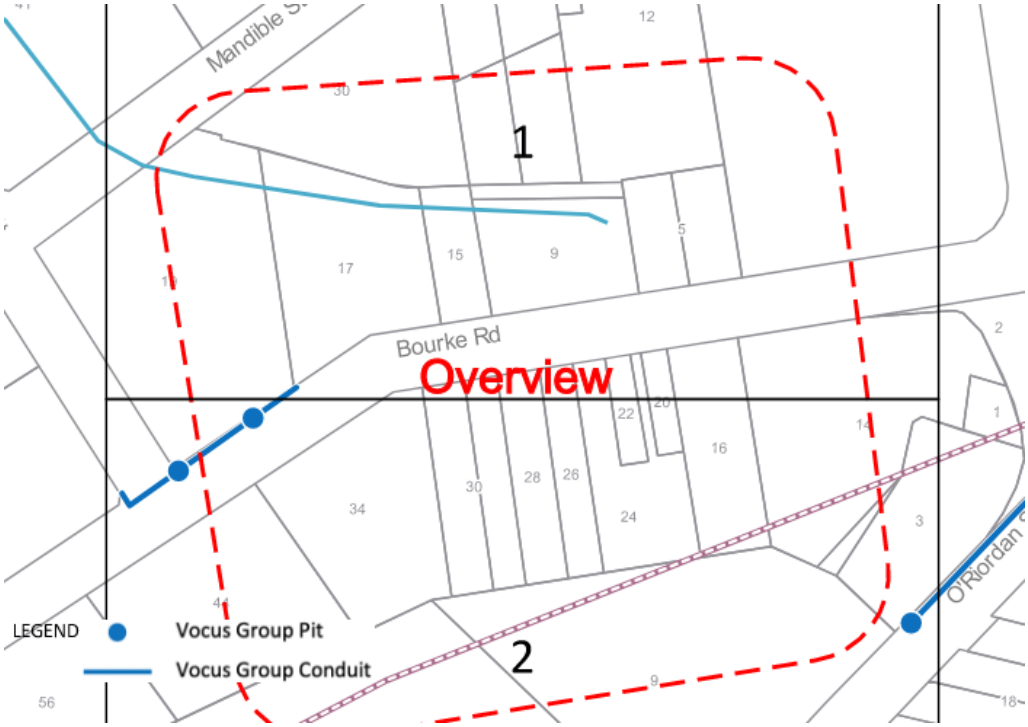

Figure 6: Vocus Communication 2 DBYD Extract

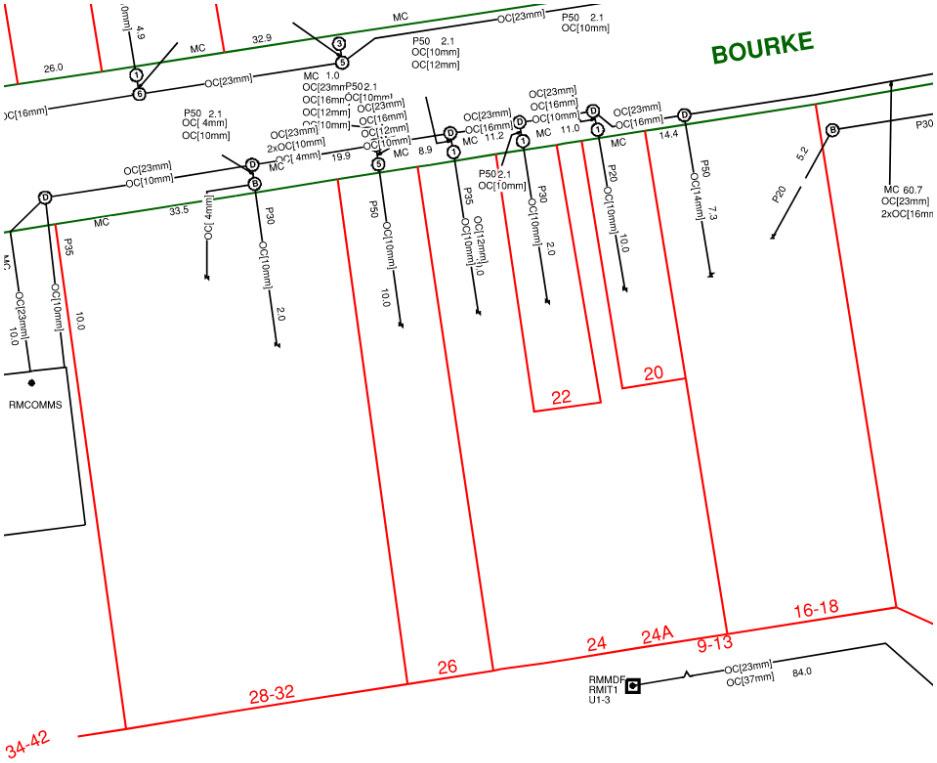

Figure 7: Telstra DBYD Extract

Figure 8: NBN Co DBYD Extract ½

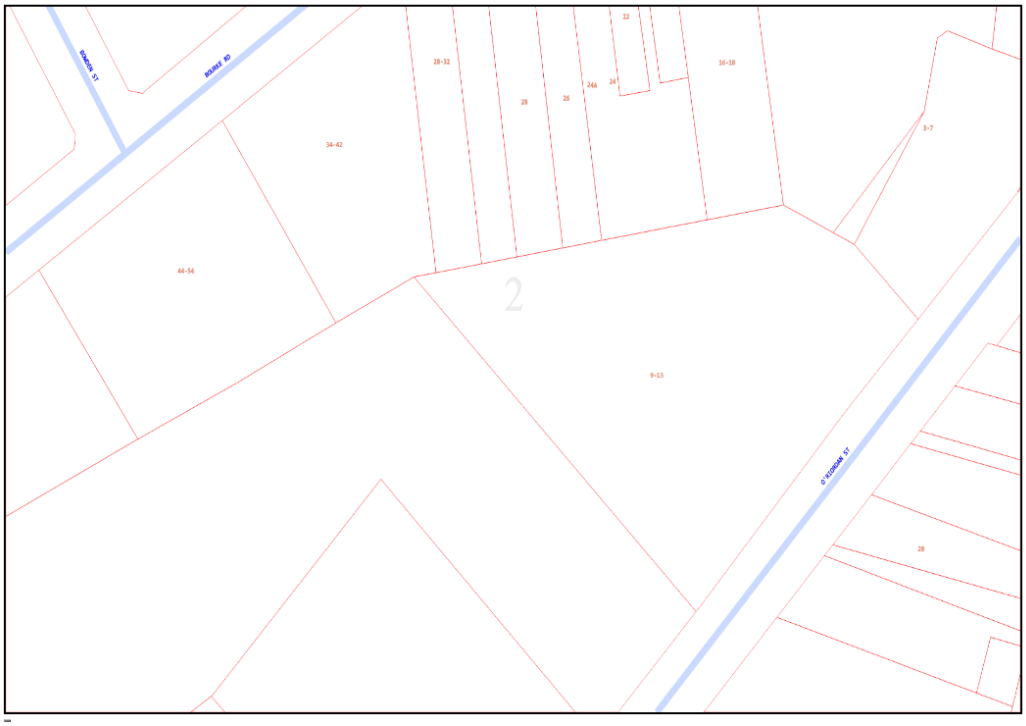

Figure 9: NBN Co DBYD Extract 2/2

Figure 10: NBN Rollout Extract

6 Infrastructure Requirements

6.1 Electrical Services

The estimated electrical maximum demand for the proposed development was calculated using a combination of recommendations outlined in the NSW Health Infrastructure Engineering Guidelines (Levels 5 to 7), the PCA Grade A guidelines (Levels 1 to 4), AS/NZS 3000 Tables C2 and C3 (Levels B1 to 4 and roof) and information provide by other consultants (i.e. vertical transportation). Based on this assessment, LCI estimated the maximum demand of the building to be in the order or 1719kVA (2406A), including 20% spare capacity.

Ausgrid have been consulted in term of providing capacity for this site via a connection application dated 2nd May 2022, and a response is forthcoming at the time of writing. It is anticipated that two (2x) kiosk-type substations are required to provide capacity for this demand. A contestable design and construction project will be needed to bring new high-voltage cabling into the development.

The provision of the new supply is classified as contestable works, managed according to the Accredited Service Provider (ASP) Scheme. A Level 3 design will be developed and submitted to Ausgrid for certification, while construction will be by a Level 1 ASP.

With the Application for Connection (AFC) having been recently lodged with Ausgrid and a design offer is expected to be issued shortly. This offer is to be subsequently accepted and a Design Information Package (DIP) will be issued that confirms electrical connectivity.

At present conceptual designs are being proposed to accommodate alternatives of substations into the site.

6.2 Communication Services

It is envisioned that the development at 28-32 Bourke Rd will be connected to the NBN to provide telephone and data services. Review of the NBN Rollout service maps indicates that NBN Fibre to the Node (FTTN) service is available for this development. There is also potentially an opportunity for a NBN Enterprise Ethernet connection with Fibre to the premises (FTTP). However, details of the incoming communications services will be confirmed during design development and upon submission to NBN of an application for connection. This will need to be undertaken in the next stage of design development, once the preliminary building spatial design and the locations of the building distributor rooms have been finalised.

The site currently contains two pathways from a single Telstra cable pit that could potentially be retained but would put constraints on the design and not provide diversity.

It is anticipated that six 100mm conduits will be provided per each diverse lead-in pathway (total of 2) from separate cable pits in the street into the 28-32 Bourke Rd development for the connection of NBN and other carrier services (i.e. dark fibre) subject to design development.

7 Consultation History

The following is a summary of the consultation with utilities to date:

Dial Before You Dig (DBYD)

- A DYBD application was lodged on the 4th of May, 2022
- DYBD application responses reviewed on the 5th of May, 2022
- DYBD to be renewed prior to construction

Ausgrid

- The Ausgrid connection application was lodged on the lodged on the 2nd May,2022

NBN

- NBN asset reviewed on the 5th May 2022 as part of the DYBD application responses
- Application for Connection to be lodged once building spatial are finalised and Building Distributor room locations are finalised

Telstra, Optus, Vodaphone, TPG

- The major mobile carriers will be consulted during design development to determine the lead DAS provider and confirm requirements for the site

8 Methodology

Utilising survey information from both Dial Before You Dig(DBYD) and authority database (Ausgrid) an initial assessment on the existing services was made to find out which stakeholders may be affected during the development of 28-32 Bourke Rd, are outlined in this report. These were outlined in sections 5 & 6 of this report.

9 Assessment and Findings

The assessments and findings are outlined in sections 5 & 6 of this report.

10 Cumulative Impacts

There were no cumulative impacts identified for the project which are related to services (Electrical and Communications).

11 Mitigation Measures

No mitigation measures have been identified.

12 Conclusion

Based on the preliminary information available at the SSDA stage, there is existing electrical and telecommunication services in the vicinity of the site. However, further consultation will be required with Ausgrid and any nominated telecommunication providers (i.e. Telstra or NBN) during the next stage of the development to ensure the relevant assets are maintained, removed or established as part of a staged process during construction.

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VISIT US
www.lciconsultants.com.au

MELBOURNE
L2/616 St Kilda Rd
Melbourne, VIC 3004
P (03) 9230 5600

SYDNEY
L5/73 Miller St
North Sydney, NSW 2060
P: (02) 9157 0570

BRISBANE
L9/490 Upper Edward St
Spring Hill, QLD 4000
P (07) 3831 3300

PERTH
L15/123 St Georges Terrace
Perth, WA 6000
P: (08) 9242 5857

CANBERRA
L2/1 Farrell Place
Canberra, ACT 2601
P: (02) 9157 0570

5 July 2022

28-32 BOURKE ROAD, ALEXANDRIA

INFRASTRUCTURE UTILITY REPORT

REVISIONS

Revision B	05/07/2022	Infrastructure Utility Report
Revision A	07/06/2022	Infrastructure Utility Report
Revision	**Date**	**Description of Change**

APPROVALS

Revision B	D. Power	Current	D. Bolt
Revision A	F. Pinto & J. Singer	Superseded	T. Wise
Rev #	**Author**	**Status**	**Reviewer**

PREPARED BY:

WARREN SMITH CONSULTING ENGINEERS

Consulting Engineers

ACN 002 197 088 **ABN** 36 300 430 126

Level 9, 233 Castlereagh Street

Sydney 2000 NSW Australia

T 02 9299 1312

PREPARED FOR:

ALEXANDRIA PROPERTY DEVELOPMENTS PTY LTD

Project Managers

EXECUTIVE SUMMARY

Development description

Development consent is sought for a concept proposal for the 'Alexandria Health Centre' comprising medical centre uses and anchored by a mental health hospital. Specifically, the application seeks concept approval for:

- In principle arrangements for the demolition of existing structures on the site and excavation to accommodate a single level of basement car parking (partially below ground level).
- A building envelope to a maximum height of 45m (RL 53.41) (including architectural roof features and building plant). The podium will have a maximum height of RL 28.41.
- A maximum gross floor area of 11,442.20 sqm, which equates to a maximum FSR of 3.85:1. The total FSR will comprise a base FSR of 2:1, a community infrastructure bonus FSR of 1.5:1 and a 10% design excellence bonus FSR (subject to a competitive design alternative process).
- Indicative use of the building as follows:
  - Mental health hospital at levels 5-7.
  - Medical centre uses at levels 1-4; and
  - Ground level reception/lobby and pharmacy.
- Principles for future vehicular ingress and egress from Bourke Road along the site's western frontage.
- Subject to agreement on a public benefit offer submitted with this application, the proposal includes the indicative dedication of the following land to Council as envisaged by the Draft Sydney Development Control Plan 2012 – Southern Enterprise Area Amendment (Draft DCP):
  - A 2.4m wide strip of land along the site's frontage to Bourke Road for the purpose of footpath widening
  - A 3m wide lane along the site's western boundary contributing towards a 6m wide lane (it is noted that the concept proposal will allocate an additional 3m strip of land within the site along the western boundary to enable two-way vehicle movement into and out of the site).
  - A 3m wide lane along the site's southern boundary, contributing towards a 9m wide lane.

Descriptor	Site Details
Street Address	28 Bourke Road and 30-32 Bourke Road, Alexandria
Legal Description	28 Bourke Road, Alexandria – Lot 3 in Deposited Plan 324707 30-32 Bourke Road, Alexandria - Lots 1 & 2 in Deposited Plan 324707
Site Area	2,972m^2

Table A: Site details

Existing environment

The existing site currently accommodates a single storey warehouse building which is used for vehicle repairs.

The site is proposed to be developed from current industrial to accommodate the "Alexandria Health Centre", which will comprise of a multi-purpose Hospital with two levels focused on a mental health hospital and lower levels comprised of medical centre spaces. The building is proposed to consist of a level of basement carpark, ground level retail, plant located on a mezzanine level, five levels of commercial use, two levels of mental health facilities and a roof top plant level.

The project is proposed to be undertaken under an approval pathway of an SSDA application. The application number is SSD-38600121.

Potential impacts

The site will require utilities assessments for impacts to the following infrastructure:

- Drinking water
- Stormwater (refer to civil package)
- Sewer

Mitigation measures

To mitigate the impacts to the above infrastructure the following are mitigation measures:

Drinking water

A future Section 73 application will allow the authority to fully review the demands of the site on the local infrastructure and advise of network suitability or required upgrades. Demands on the local infrastructure are being mitigated by including a 150kL rainwater tank for reuse in non-potable demands.

Stormwater

Refer to civil package

Sewer

A future Section 73 application will allow the authority to fully review the demands of the site on the local infrastructure and advise of network suitability or required upgrades.

1.0 CONTENTS

1.0 INTRODUCTION

Warren Smith Consulting Engineers (WSCE) has been engaged by Alexandria Property Development Pty Ltd to prepare an Infrastructure Utility Requirements Report in relation to the proposed development at 28-32 Bourke Road, Alexandria, NSW.

The site is located;

- On Bourke Rd, near the intersection of O'Riordan St and Bourke Rd, Alexandria, NSW.

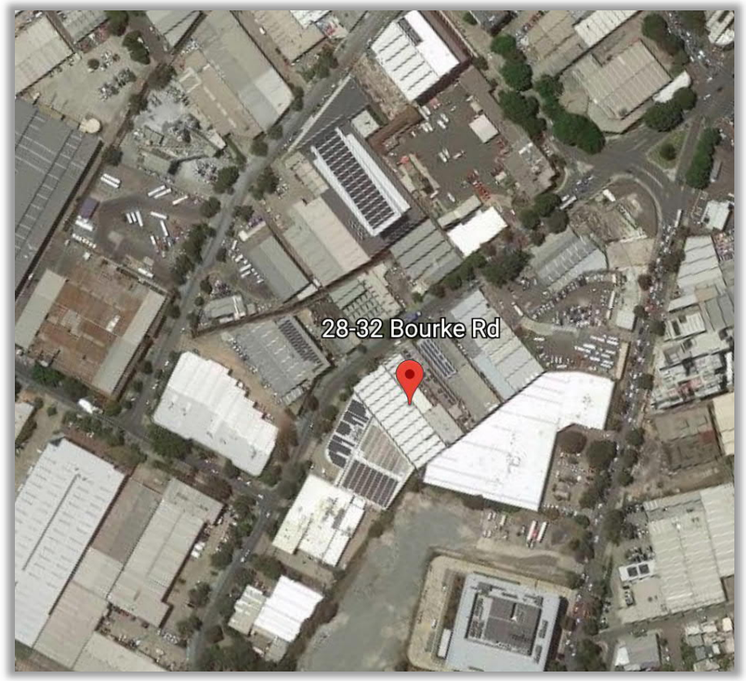

Figure 2.1 - Site Location (source Six maps)

1.1 OBJECTIVES OF THIS REPORT

The preparation of this report has been undertaken to assist with the following objectives in relation to the proposed project for domestic water supply, fire services water supply, and sanitary drainage services:

- Identification of the current status of adjacent utility infrastructure services
- Outline potential diversions / augmentations required;
- Arrange a point of contact within each authority for liaison;

1.2 LIMITATIONS OF REPORT

This document is based on preliminary information provided by the architects, design team, survey drawings and information communicated during design team meetings and as such is considered conceptual and not to be relied upon for the purposes of tendering or construction.

WSCE have based this document on the assumption that the information provided can be taken at face value and the design requiring design development in a future design phase.

WSCE have not received an engagement for Sydney Water servicing coordinator services at this stage. This report is limited to general assessments of the sanitary drainage and water loadings, information received from Dial before you dig site searches and the concept architectural drawings.

WSCE does not accept any liability regarding the accuracy of the reference design documentation.

1.3 PROJECT TEAM

SERVICE	COMPANY
Project Manager	Johnstaff Projects
Electrical, ICT and Security	LCI Consultants
Mechanical	LCI Consultants
Hydraulic & Fire	Warren Smith Consulting Engineers
Architect	NBRS Architecture

1.4 REFERENCE DOCUMENTS

The brief is based on the following reference documents;

COMPANY	DOCUMENTS
NBRS Architecture	Architectural Drawings issued 14/04/2022
Johnstaff Projects	Request for Proposal dated 01/2022
Dial before you dig	Site Search
EP Risk	Detailed site investigation (soil contamination report) 10/03/2022
Urbus	Scoping Report V2

1.5 SOURCES OF INFORMATION

The following table lists the sources of information that were received, the document numbers and the dates of when a dial before you dig information was received:

OWNER	DOCUMENT	DATE	COMMENT
DBYD	Referral	02/04/2022	Enquiries summary cover sheet
Airport Rail Link	Referral 209894421	02/04/2022	DBYD return response
City of Sydney (Contaminated Lands)	Referral 209894434	02/04/2022	DBYD return response
City of Sydney (IMS)	Referral 209894433	02/04/2022	DBYD return response
FibreconX Pty Ltd	Referral 209894425	02/04/2022	DBYD return response
NBN	Referral 209894417	02/04/2022	DBYD return response
Telstra	Referral 209894419	02/04/2022	DBYD return response
Optus/Uecomm	Referral 209894429	02/04/2022	DBYD return response
Jemena	Referral 209894430	02/04/2022	DBYD return response
Sydney Water	Referral 209894432	02/04/2022	DBYD return response
Ausgrid	Referral 209894423	02/04/2022	DBYD return response
FibreconX	Referral 209894425	02/04/2022	DBYD return response
Verizon	Referral 209894431	02/04/2022	DBYD return response
Vocus Communication	Referral 209894427	02/04/2022	DBYD return response

***Table 1.2** – Sources of information*

1.6 AUTHORITY CONTACT INFORMATION

The below table shows the relevant surrounding authorities and provides a contact number.

AUTHORITY NAME	CONTACT NUMBER
Airport Rail Link	(02) 9848 9578
Ausgrid	(02) 4951 0899
City of Sydney (Contaminated Lands)	(02) 9265 9546
City of Sydney (IMS)	(02) 9265 9819
Jemena Gas South	1300 880 906
NBN Co NSWACT	1800 687 626
Optus/Uecomm NSW	1800 505 777
Sydney Water	13 20 92
Telstra NSW Central	1800 653 935
Verizon Business (NSW)	(02) 8210 3243
Vocus Communications 2	1800 262 663

***Table 1.3** – Authority Contact Information*

1.7 SCOPE

The hydraulic services scope has considered the following services:

- Sewer drainage reticulation.
- Sanitary plumbing system including sanitary fixtures and fittings.
- Water supply.
- Domestic hot and cold water reticulation systems, including thermal fixtures to bathrooms and kitchens.
- Rainwater gutters and downpipes to main stormwater lines – reticulation to a rainwater tank and to an OSD (by civil).
- Wastewater drainage to sewer infrastructure / in the case of stormwater to civil infrastructure – drainage services to include grease trap and filtration systems (refer to civil package) where required to maintain drainage waste streams within authority requirements,

1.8 SCOPE EXCLUSIONS

This report has excluded the following services:

- Civil stormwater (Mains connection and OSD)
- Sydney Water Applications (Section 73 works / feasibility studies to be undertaken by Sydney Water Coordinator under separate engagement)
- Natural gas (not included at this stage)

1.9 AUTHORITY APPLICATION PROCESS – SYDNEY WATER

The steps to engage Sydney Water may include a combination of the below:

- Feasibility application
- Building plan approval
- Anticipated notice of requirements
- Section 73 application

Where Sydney Water assess that their assets are affected by building footprints, they will deem the building plan to be referred for a non-standard process which may then involve protecting or potentially diverting their assets.

Each development proposed on the site that requires a development application will in turn require a Section 73 lodgement, that will be independently assessed on its own merits as part of the SSDA conditions. In order to lodge a section 73 with Sydney Water a copy of the signed development consent is required along with development / subdivision plans as approved under the development consent.

Sydney Water then processes the application and issues a notice of requirements (NOR) based on an assessment of the development and its impact on Sydney Water's local assets.

The section 73 NOR will specify any minor / major works required to be undertaken to ensure each development / lot has a frontage to a water main and a connection point to the sewer main and any other minor / major works such as amplification, extension or adjustment of the system or building over sewer protection.

Once these works are completed satisfactorily, they are taken over as part of the Sydney Water system. The Section 73 Development Application will only take into consideration the development works associated with the proposal. The works associated with Sydney Water applications are subject to the authority timeframes and can take more than 6 months for completion.

The Feasibility Application or Anticipated Requirements Application would be for information purposes only, this is a non-enforceable document and a separate application fee would apply.

1.10 SYDNEY WATER INPUT TO SEARS

Refer to Appendix C for Sydney Water's input to SEAR's. Sydney Water have outlined four main concerns summarised below with mitigation strategies.

Item	Summary	Mitigation strategies
1	Servicing investigations to satisfy arrangements for drinking water, wastewater and recycled water	**Drinking water** A pressure and flow enquiry has been undertaken, adequate flows and pressures are available to serve the proposed project. A section 73 application will confirm local infrastructure is suitable. **Waste water** A section 73 application is required to confirm which asset is suitable for connection. Section 3.3 highlights the business as usual drainage infrastructure although the application **Recycled water** Authority recycled water is not being connected to at this stage. Rainwater reuse is being included.
2	Impact to Sydney Water assets	A Sydney Water building plan approval will be required to be undertaken in future design phase to satisfy this requirement.
3	Sydney Water stormwater assets	Refer to civil package.
4	Sustainability initiatives	A rainwater harvesting tank is proposed to be included (final size to be confirmed by ESD consultant).

Table 1.11 – Sydney Water input to SEARS summary

2.0 SYDNEY WATER INFRASTRUCTURE ASSESSMENT

2.1 SANITARY DRAINAGE & POTABLE WATER PEAK DEMANDS

The architectural drawings available at this stage do not show all of the hydraulic fixtures within the proposed building. Some amenity areas require a fixture estimate. The probable simultaneous potable water demands have been calculated using the provisions in AS/NZS 3500.1:2018 deemed to satisfy requirements and fixtures estimated. Detailed design is required to bring the final usage figures down as AS/NZS 3500.1 generally overestimates the buildings usage. The breakup of the estimated fixtures have been shown in Appendix B.

To determine the total water usage for the building the Sydney Water average daily water usage patterns of different property types documented from Sydney Water has been used which nominates 2.48 L / day / m^2 and an allowance for the mental health unit beds.

The Sydney Water average daily water usage of different properties has been included in Appendix A.

				componenet
Commercial	Aged Accom - Self Care	Net Floor Area	square metres	2.50
	Aged Accom - Hostel	Bed	each bed	271.00
	Aged Accom - Full Care	Bed	each bed	271.00
	Childcare	Net Floor Area	Square Meter	3.60
	Hotel / motel / serviced apartments	Room	each room	359.94
	Office	Net Floor Area	Square Meter	2.27
	Shopping Centre	Net Floor Area	Square Meter	3.00
	Laundry / Dry Cleaner	Net Floor Area	Square Meter	10.50
	Café / Fast Food / Butcher / Deli	Net Floor Area	Square Meter	2.48
	Retail Units	Net Floor Area	Square Meter	2.48
	Medical / Veterinary	Net Floor Area	Square Meter	2.48
	Mechanical Repair	Net Floor Area	Square Meter	2.48
	Car / Boat Sales	Net Floor Area	Square Meter	2.48
	Car Wash	Net Floor Area	Square Meter	9.40
	Club	Net Floor Area	Square Meter	3.77

Figure 2.1 – Excerpt from Sydney Water daily usage (average demand (L/ metric unit / day 2.48 L/day / m^2)

Refer to Table 2.1 below for a breakdown of expected daily usage for both sewer and drinking water:

APPROXIMATE COMMERCIAL FLOOR SPACE*	WATER PEAK DEMAND**	COOLING TOWER DEMAND**	SEWER PEAK DEMAND***
17,000	12 L/s 42.16 kl / day	1.1 L/s 39.6 kL	10.2 L/s 75.44 kl / day

Table 2.1 *- Peak Sydney Water demands breakdown*

* Floor space is to be validated against future BCA report.

** Based on estimated fixtures, fire tank top-up, fire hose reel supply and cooling tower usage (to be validated in detailed design)

*** Estimate based on 10 hours operation

**** Estimate based on 85% of potable water usage and cooling towers

2.2 BAU PROPOSED SANITARY DRAINAGE CONNECTIONS

The table below with cost estimates are based on a standard business as usual (BAU) connection case and subject to a Sydney Water assessment and approval under the Section 73 process. Should Sydney Water assess the connections as non-standard requiring minor or major works these cost estimates will change based on the complexity of the works. The estimates below are based on a BAU connection at least one metre inside the site boundary to an adjacent authority sewer. Each connection is sized to accommodate the loading from the proposed building and located to enable maximum gravity drainage for the building.

SANITARY DRAINAGE CONNECTION DETAILS	BAU SANITARY DRAINAGE CONNECTION OPINION OF COSTS
*150mm (at a depth of less than 2m basement to be pumped)	**$150,000

*All sizing to be confirmed and basement drainage strategy to be confirmed and validated in detailed design.

** All opinion of costs based on 2022 pricing feedback and to be validated at the time of construction

Note: Estimates above do not include any diversion or amplification works

2.3 BAU PROPOSED POTABLE WATER CONNECTION

The table below with cost estimates are based on a standard business as usual (BAU) connection case and subject to a Sydney Water assessment and approval under the Section 73 process. Should Sydney Water assess the connections as non-standard these estimates will change based on the complexity of the works.

CONNECTION DETAILS	BAU POTABLE WATER CONNECTION OPINION OF COSTS
*100 mm	** $ 120,000

Table 2.3: BAU potable water mains connection estimated costs

*All sizing to be validated and basement drainage strategy to be confirmed and validated in detailed design.

** All opinion of costs based on 2022 pricing feedback and to be validated at the time of construction

Note: Estimates above do not include any diversion or amplification works

2.4 BAU PROPOSED FIRE SERVICES WATER CONNECTION

The table below with cost estimates are based on a standard business as usual (BAU) connection case and subject to the Sydney Water assessment and approval under the Section 73 process. Should Sydney Water assess the connections as non-standard these estimates will change based on the complexity of the works.

CONNECTION DETAILS	BAU FIRE SERVICES WATER CONNECTION OPINION OF COSTS
*150mm	** $ 140,000

Table 2.4: BAU fire services main connection estimated costs

*All sizing to validated in detailed design.

** All opinion of costs based on 2022 pricing feedback and to be validated at the time of construction

Note: Estimates above do not include any diversion or amplification works

3.0 SANITARY DRAINAGE

3.1 SANITARY DRAINAGE MAINS (UTILITY)

A water servicing coordinator is not yet assigned and the section 73 application process has not been commenced. The notice of requirements once received from Sydney Water will inform which sanitary drainage asset can have connections made to it and the available capacities.

3.2 SANITARY DRAINAGE MAIN AVAILABLE CAPACITY

A Sydney Water Notice of anticipated requirements is not yet available and the authority will assess the loading on their infrastructure through this process.

The below image shows the relationship of the proposed buildings and adjacent Sydney Water infrastructure.

It is through the section 73 process that Sydney Water will perform their own capacity checks for the proposed development.

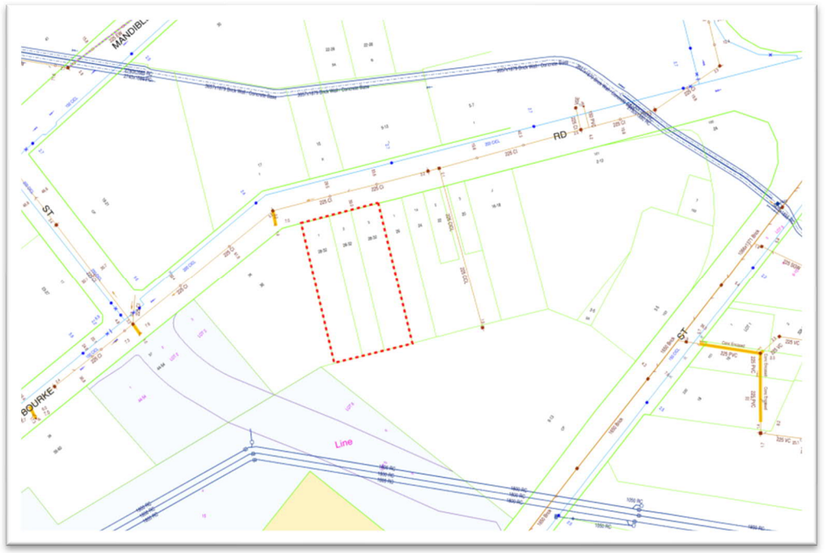

Figure 3.2 – Site building footprint and relationship with adjacent Sydney Water sanitary drainage infrastructure

3.3 PROPOSED SEWER MAIN CONNECTION POINT

Subject to authority acceptance the below red shaded zones are potential sanitary drainage connection locations. The sewer main material is shown on the dial before you dig as cast iron. It is noted that there are no existing connection stubs shown on this dial before you dig, which may indicate that a new sideline / connection would be required (note only as the dial before you dig do not always have complete information). Any new extensions will be confirmed in the Section 73 application process. Any fixtures below the sanitary drainage main would not be feasible for a gravity connection and require pumping.

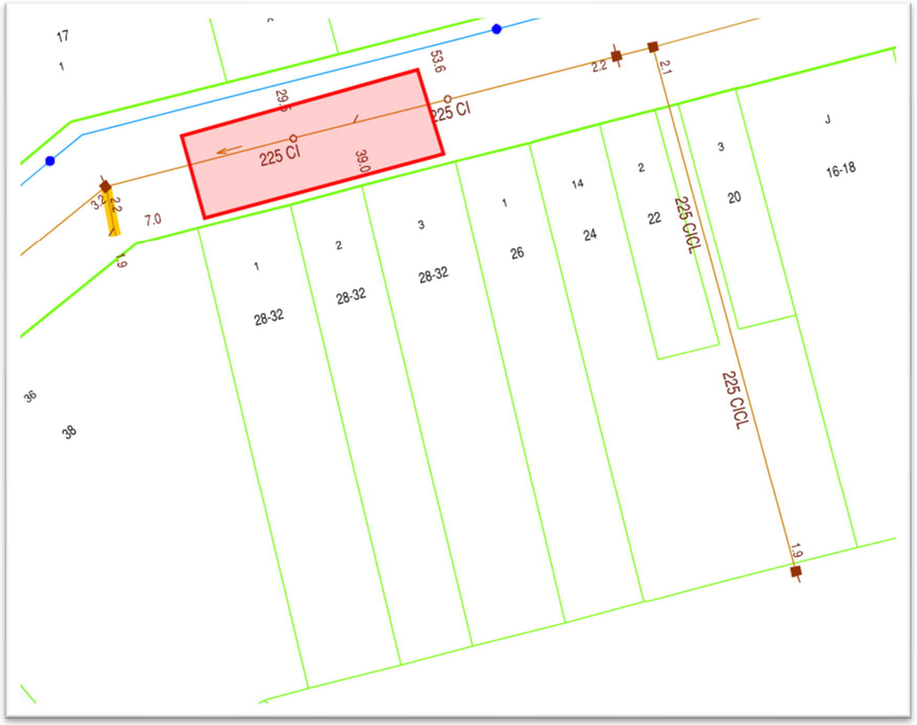

Figure 3.3 – Potential sewer connection options

3.4 EXISTING AUTHORITY SANITARY DRAINAGE DIVERSIONS

The building plans would have to be assessed by Sydney Water in a building plan approval process but noting that there is one level of basement and the distance to the sanitary drainage asset it presents as a low likelihood of impact to the Sydney Water drainage infrastructure.

4.0 POTABLE WATER SERVICES

4.1 WATER MAIN AVAILABLE CAPACITY

The adjacent water main available for the proposed property Is available for connection. The table below summarises the water mains available, but any future connections are subject to Section 73 applications:

Main size (mm)	Asset ID	Location	Materials
200mm	2570713	Bourke Road	CICL

Table 4.1 – Summary of site adjacent water mains

The below figure shows information available on the water main on Bourke Road.

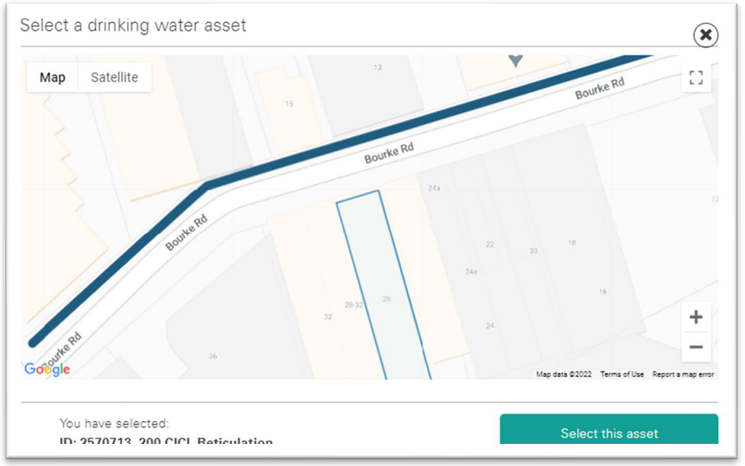

Figure 4.1 – Water main Bourke Road

4.2 PRESSURE AND FLOW

Pressure and flow applications have been made for the water main and is included in Appendix C.

4.3 PROPOSED WATER MAIN CONNECTION POINTS

Should an additional or modified potable connection to the authority main not be preferable, the existing site infrastructure would require testing of available flows and pressures with additional loads from proposed works. Should the pressure and flows not be sufficient the existing main connection and meter may require upgrading, subject to section 73 applications.

5.0 FIRE WATER SERVICES

5.1 FIRE SPRINKLER

The proposed areas are required to be protected by a fire sprinkler system.

5.1.1 FIRE SPRINKLER DEMAND LOADS (DESIGN CRITERIA)

Occupancy	Hazard Class	Minimum Flow per Head	Number of Heads
General Areas	Light Hazard	67 L/Min	6 heads
Plant	OH1	60 L/Min	6 heads
*Storage Areas	OH3	60 L/Min	18 heads
Office, administration	Light Hazard	67 L/Min	6 heads

Table 5.1.1.1 – Fire Hydrant Design Criteria

*NOTE: Storage Areas – Ordinary Hazard 3 (Storage area limitations shall apply)

NOTE: All ceiling voids greater than 200mm in depth will be sprinkler protected.

5.2 FIRE HYDRANT SUPPLY

A Fire Hydrant System as part of the Combined Fire Sprinkler/Hydrant system shall be provided in accordance with AS 2419.1 – 2005 and E1.3 of the BCA.

A fire hydrant service shall be provided to the new building with hydrants provided externally and internally as required to satisfy hydrant coverage to all internal floor areas. Hydrants will be located within fire stairs with on-floor access, and on floor adjacent to fire compartments with fire hose reels as required.

Temporary Fire Hydrants shall be provided during construction and staged to suit the construction sequence.

All new fire hydrants to feature locking wheel covers.

5.3 MAXIMUM FIRE HYDRANT DEMAND LOADS (DESIGN CRITERIA)

Fire hydrant services shall be sized with adequate capacity to supply a minimum of 10 L/sec to each fire hydrant location. It is noted that the performance of the fire hydrant system is to be able to cater for the larger fire scenario.

Fire Compartment Floor Area	< 5,000 m^2
Building Classification	All classes
No. off hydrants to operate simultaneously	2
Minimum flow rate	20 L/s total at the two most hydraulically disadvantaged hydrants (10 L/s each)
Minimum outlet pressure each hydrant non-boosted	700 kPa @ 10 L/s for each hydrant
Minimum outlet pressure when boosted	700 kPa
Maximum outlet pressure when boosted	1200 kPa

Table 5.2.1.1 – Fire Hydrant Design Criteria

5.4 FIRE SERVICES WATER CONNECTION

The fire services are proposed to be supplied from the adjacent water main and a booster.

The fire services are proposed to have a mains feed connection for the hydrant supply and a tank supplementation for flow for the sprinklers.

APPENDIX A - SYDNEY WATER AVERAGE DAILY WATER USAGE OF DIFFERENT PROPERTIES

AVERAGE DAILY WATER USAGE OF DIFFERENT PROPERTY TYPE

Water Supply Code of Australia

MWH/PB Flow Study Report

Water Usage Survey

Development Type	Development Sub-Type	Key Metric	Metric Unit	Average Demand (L / Metric Unit / Day)
Residential	Single Lot Torrens	Dwelling	each dwelling	623.00
	Flats Torrens	Net Floor Area	Square Meter	2.36
	High Rise Units	Net Floor Area	Square Meter	3.34
	Single Lot Community	Dwelling	each dwelling	623.00
Mixed	Residential / Commercial	Combined Floor Area	each dwelling / Square Meter	use separate rates for each componenet
	Commercial / Industrial	Combined Floor Area	Square Meter	use separate rates for each componenet
Commercial	Aged Accom - Self Care	Net Floor Area	square metres	2.50
	Aged Accom - Hostel	Bed	each bed	271.00
	Aged Accom - Full Care	Bed	each bed	271.00
	Childcare	Net Floor Area	Square Meter	3.60
	Hotel / motel / serviced apartments	Room	each room	359.94
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	Laundry / Dry Cleaner	Net Floor Area	Square Meter	10.50
	Café / Fast Food / Butcher / Deli	Net Floor Area	Square Meter	2.48
	Retail Units	Net Floor Area	Square Meter	2.48
	Medical / Veterinary	Net Floor Area	Square Meter	2.48
	Mechanical Repair	Net Floor Area	Square Meter	2.48
	Car / Boat Sales	Net Floor Area	Square Meter	2.48
	Car Wash	Net Floor Area	Square Meter	9.40
	Club	Net Floor Area	Square Meter	3.77
Industrial	Heavy Process	As required		
	Chemical Manufacturing	As required		
	Printing Manufacturing	As required		
	Beverage Manufacturing	As required		
	Light Factory Unit	developed floor Area	Square Meter	2.82
	Warehousing	developed floor Area	Square Meter	2.82
	Transport / Bus Depot	Site Area	Square Meter	0.91
Special Uses	University	Student	each student	20.00
	School	Student	each student	20.00
	Hospital	Bed	each bed	271.00
	religious assemblies	developed Floor Area	Square Meter	1.30
	Government Depot	Site Area	Square Meter	0.91
	Community Centre / Library	Floor Area	Square Meter	1.84
	Sport Fields With Amenities	As required		
	Park & Reserves	As required		
	Services - Police / Ambulance etc	Floor Area	Square Meter	1.40

APPENDIX B - PRESSURE FLOW ENQUIRY

Statement of Available Pressure and Flow

Sydney WATER

Michael Cahalane
233 Castlereagh Street
Sydney, 2000

Attention: Michael Cahalane Date: 06/04/2022

Pressure & Flow Application Number: 1379026
Your Pressure Inquiry Dated: 2022-03-28
Property Address: 28-32 Bourke Road, Alexandria 2015

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: Bourke Road	Side of Street: North
Distance & Direction from Nearest Cross Street	130 metres North-East from Bowden Street
Approximate Ground Level (AHD):	9 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	66 metre head
Minimum Pressure	38 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	38
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10	38
	15	38
	20	38
	25	37
	30	37
	40	36
	50	35
	60	34
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10	37
	15	37
	20	37
	25	37
	30	36
	40	35
	50	34
	60	33
Maximum Permissible Flow	118	22

(Please refer to reverse side for Notes)

For any further inquiries regarding this application please email :

swtapin@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
Delivering essential and sustainable water services for the benefit of the community

Warren Smith
Consulting Engineers

General Notes

This report is provided on the understanding that (i) the applicant has fully and correctly supplied the information necessary to produce and deliver the report and (ii) the following information is to be read and understood in conjunction with the results provided.

1. Under its Act and Operating Licence, Sydney Water is not required to design the water supply specifically for fire fighting. The applicant is therefore required to ensure that the actual performance of a fire fighting system, drawing water from the supply, satisfies the fire fighting requirements.
2. Due to short-term unavoidable operational incidents, such as main breaks, the regular supply and pressure may not be available all of the time.
3. To improve supply and/or water quality in the water supply system, limited areas are occasionally removed from the primary water supply zone and put onto another zone for short periods or even indefinitely. This could affect the supply pressures and flows given in this letter. This ongoing possibility of supply zone changes etc, means that the validity of this report is limited to one (1) year from the date of issue. It is the property owner's responsibility to periodically reassess the capability of the hydraulic systems of the building to determine whether they continue to meet their original design requirements.
4. Sydney Water will provide a pressure report to applicants regardless of whether there is or will be an approved connection. Apparent suitable pressures are not in any way an indication that a connection would be approved without developer funded improvements to the water supply system. These improvements are implemented under the Sydney Water 'Urban Development Process'.
5. Pumps that are to be directly connected to the water supply require approval of both the pump and the connection. Applications are to be lodged online via Sydney Water Tap in™ system - Sydney Water Website – www.sydneywater.com.au/tapin/index.htm. Where possible, on-site recycling tanks are recommended for pump testing to reduce water waste and allow higher pump test rates.
6. Periodic testing of boosted fire fighting installations is a requirement of the Australian Standards. To avoid the risk of a possible 'breach' of the Operating Licence, flows generated during testing of fire fighting installations are to be limited so that the pressure in Sydney Water's System is not reduced below 15 metres. Pumps that can cause a breach of the Operating Licence anywhere in the supply zone during testing will not be approved. This requirement should be carefully considered for installed pumps that can be tested to 150% of rated flow.

Notes on Models

1. Calibrated computer models are used to simulate maximum demand conditions experienced in each supply zone. Results have not been determined by customised field measurement and testing at the particular location of the application.
2. Regular updates of the models are conducted to account for issues such a urban consolidation, demand management or zone change.
3. Demand factors are selected to suit the type of fire-fighting installation. Factor 1 indicates pressures due to system demands as required under Australian Standards for fire hydrant installations. Factor 2 indicates pressures due to peak system demands.
4. When fire-fighting flows are included in the report, they are added to the applicable demand factor at the nominated location during a customised model run for a single fire. If adjacent properties become involved with a coincident fire, the pressures quoted may be substantially reduced.
5. Modelling of the requested fire fighting flows may indicate that local system capacity is exceeded and that negative pressures may occur in the supply system. Due to the risk of water contamination and the endangering of public health, Sydney Water reserves the right to refuse or limit the amount of flow requested in the report and, as a consequence, limit the size of connection and/or pump.
6. The pressures indicated by the modelling, at the specified location, are provided without consideration of pressure losses due to the connection method to Sydney Water's mains.

APPENDIX C - SYDNEY WATER INPUT TO SEARS

30 March 2022

Megan Fu
Principal Planner
Social and Infrastructure Assessments
Infrastructure Assessments
Department of Planning and Environment
4 Parramatta Square, Parramatta NSW 2150
megan.fu@planning.nsw.gov.au

RE: Sydney Water input to SEARs for SSD-38600121 Alexandria Health Centre

Thank you for seeking Sydney Water's input on the Secretary's Environmental Assessment Requirements for SSD-38600121 at 28-32 Bourke Road, Alexandria. We have reviewed the proposal and provide the following comments for your consideration.

Sydney Water requests that the Department of Planning, Industry and Environment include the following Secretary's Environmental Assessment Requirements relating to the provision of water-related services for the subject site:

Water-related Infrastructure Requirements

1. The proponent of the development should determine service demands following servicing investigations and demonstrate that satisfactory arrangements for drinking water, wastewater, and recycled water (if required) services have been made.
2. The proponent must obtain endorsement and/or approval from Sydney Water to ensure that the proposed development does not adversely impact on any existing water, wastewater or stormwater main, or other Sydney Water asset, including any easement or property. When determining landscaping options, the proponent should take into account that certain tree species can cause cracking or blockage of Sydney Water pipes and therefore should be avoided.
3. Strict requirements for Sydney Water's stormwater assets (for certain types of development) may apply to this site. The proponent should ensure that satisfactory steps/measures been taken to protect existing stormwater assets, such as avoiding building over and/or adjacent to stormwater assets and building bridges over stormwater assets. The proponent should consider taking measures to minimise or eliminate potential flooding, degradation of water quality, and avoid adverse impacts on any heritage items, and create pipeline easements where required.

Integrated Water Cycle Management

4. The proponent should outline any sustainability initiatives that will minimise/reduce the demand for drinking water, including any alternative water supply and end uses of drinking and non-drinking water that may be proposed, and demonstrate water sensitive urban design (principles are used), and any water conservation measures that are likely to be proposed. This will allow Sydney Water to determine the impact of the proposed development on our existing services and required system capacity to service the development.

If you require any further information, please do not hesitate to contact Thomas Mudgway, Senior Development Consultant in the Growth Planning team, via urbangrowth@sydneywater.com.au.

Yours sincerely,

Kristine Leitch
Commercial Growth Manager
City Growth and Development, Business Development Group
Sydney Water, 1 Smith Street, Parramatta NSW 2150

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
Delivering essential and sustainable water services for the benefit of the community