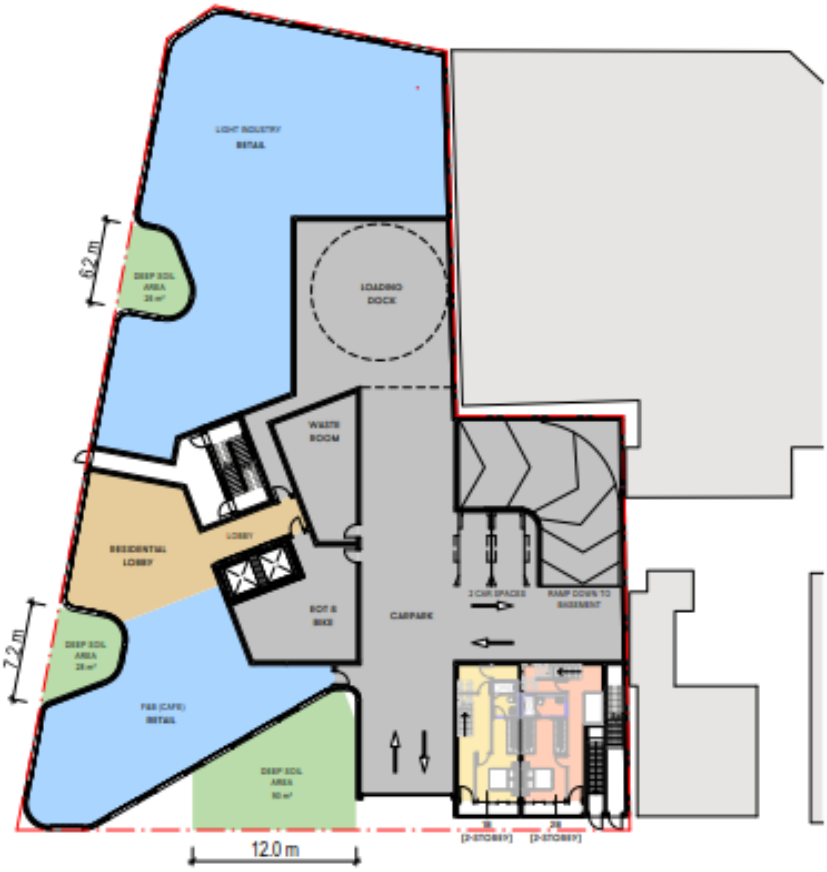
IGS INTEGRATED GROUP SERVICES



75 – 85 CROWN STREET & 116 PRINCES HWY ST PETERS

Engineering Services
Desktop Due Diligence Report

Job Number: EN – N22_555
March 2023
Rev 2.0

VALUE | INNOVATION | TRUST

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1.0	30 September 2022	Oudai Awad	OA	Mays Chalak	MC
2.0	17 March 2023	Oudai Awad	OA	Mays Chalak	MC

CONTENTS

1. INTRODUCTION

1.1 General

C&M Antoniou has commissioned IGS to prepare a building engineering services due diligence report for the proposed residential development at 75 – 85 Crown Street & 116 Princess Hwy, St Peters.

This report has been prepared solely for C&M Antoniou. No warranty is provided to third parties who rely on this report for any other purpose.

We understand that the development consists of a ten-storey building containing 87 residential apartments and 845m2 of commercial / retail space. The proposed development would include a two-level basement car park.

It is understood that the carpark will predominantly be underground and will require carpark ventilation. The effective building height(s) will be greater than 25m therefore **it will** require stair pressurisation, smoke management systems, EWIS, and emergency lifts to comply with the BCA.

The development will however require sprinkler protection throughout because it is four storeys and over 25m.

This report presents the findings of a desk study with respect to:

- Utility infrastructure (electrical, mains water, natural gas, sewer, telecommunications) assessment.

1.2 The Site

The subject site occupies an area of approximately 1,931 m² and is located at 75 – 85 Crown Street & 116 Princess Hwy, St Peters within the local government area of Inner West Council. The site is bound by Princess Hwy to the west, Campbell Street to the south, Crown Street to the east.

Land uses surrounding the subject site comprise of mix of residential and industrial buildings. The site is located less than 1km south of St Peters Station and within 5kms of the Sydney CBD.

The location of the site in this context is shown in Figure 1 below:

Figure 1 – Site location and vehicular access (Source: Google Maps)

1.3 Project Description

The rezoning request is accompanied by an indicative design scheme by Scott Carver Architects which shows:

- Demolition of existing structures
- A mixed use development with:
    - Two basement levels accessed from Crown Street incorporating 81 car parking spaces, end of trip facilities and plant
    - A ten storey building composed of 8 residential levels above two commercial floor levels (retail, light industry and office)
    - A three storey plus mezzanine building component facing Crown Street
    - A four storey street wall to Princes Highway
    - A maximum building height of RL 51 to the top of the lift overrun
    - Gross floor area equal to 9,408 square metres
    - A total of 87 apartments (16 x studio, 24 x 1 bedroom, 40 x 2 bedroom, 7 x 3 bedroom)
    - Common open space areas at levels 1, 2 and 4 with provision for integrated landscaping and 15% canopy tree cover
    - A residential lobby to Campbell Street
    - A loading dock, additional car parking, EOT facilities and waste room at ground floor level
    - Deep soil zones along Campbell and Crown Streets
- Integration of public art into the south façade and materiality that references the industrial heritage of the area.

1.4 BCA Classification

BCA classification(s) of the development are as follows:

BCA Classification	Class 2 Residential/Apartments Class 5 Commercial Class 6 Retail Class 7a Carpark
Rise in Storeys	10 (ten)
Type of Construction	Type A Construction
Effective Height	Greater than 25m

1.5 Mandatory BCA Energy Efficiency Requirements

Mandatory BCA Energy Efficiency requirements are as follows:

- Part J1 – Building Fabric;
- Part J2 – External Glazing;
- Part J3 – Building Sealing;
- Part J5 – Air Conditioning and Ventilation;
- Part J6 – Lighting and Power;
- Part J7 – Hot Water Supply.

Additional Requirements:

- The Inner West Council Requirements;
- BASIX (residential);
- NaTHERS (residential);
- Apartment Design Guide (residential);
- Section J (commercial / retail)

2. UTILITY ENGINEERING SERVICES

2.1 Utilities Services Review / Analysis

A utilities review has been carried out in consultation with the relevant local authorities to identify the existing utilities in the vicinity of the site.

Dial Before You Dig (DBYD) requests were submitted on the 30 September 2022 to investigate the presence of existing utilities such as natural gas, water, stormwater, sewer and telecommunications.

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

Seq. No.	Authority Name	Phone	Status
216546824	Ausgrid	(02) 4951 0899	NOTIFIED
216546829	City of Sydney (IMS)	(02) 9265 9819	NOTIFIED
216546825	FibreconX Pty Ltd	0420 985 185	NOTIFIED
216546823	Inner West Council	(02) 9335 2053	NOTIFIED
216546826	Jemena Gas South	1300 880 906	NOTIFIED
216546821	NBN Co NswAct	1800 687 626	NOTIFIED
216546820	Optus and or Uecomm Nsw	1800 505 777	NOTIFIED
216546827	Sydney Water	13 20 92	NOTIFIED
216546822	Telstra NSW Central	1800 653 935	NOTIFIED
216546830	TPG Telecom (NSW)	1800 786 306	NOTIFIED
216546828	Transport for NSW	(02) 9983 2687	NOTIFIED

2.2 Capacity Calculation Assumptions

The following assumptions have been made in carrying out this assessment:

- Site area 1,931 m²;
- 87 apartments;
- 845m2 of commercial / retail GFA;
- 81 carspaces over 2 basement levels;
- Average population of 2.5 persons per apartment;
- Water demand 10 kL/day;
- Sanitary / Sewer Discharge 9 kL/day;
- Gas 3,000 MJ/h diversified load;
- Fire Sprinkler System 10 L/s
- Fire Hydrant System 10 L/s.

3. ELECTRICAL

3.1 Electrical Maximum Demand

Based on our preliminary electrical maximum demand calculations, the new development will require approximately 650.7 Amp, or 450.8 kVA. This load is subject to final building layouts.

The detailed maximum demand calculation is presented below:

Electrical Maximum Demand Calculation
Crown Street, St Peters
~87 Unit Residential Development
~845m2 of Commercial / Retail NLA
2 Level of Underground Basement Carparking
2 Lifts
0 Escalators

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Basements	Area (m2)	Quantities	VA/m2	VA	I (A)	Subdivided I (A)
Carpark (Mechanically Ventilated)	2709		5	13545	19.4	
Common Space				0	0.0	
Carpark Lighting	2709		5	13545	19.4	
						38.7
General	**Area (m2)**	**Quantities**	**VA/m2**	**VA**	**I (A)**	**Subdivided I (A)**
Common Space	500	1	20	10000	14.3	
Lifts		2			80.0	
Escalators		0			0.0	
						94.3
Apartments	**Area (m2)**	**Quantities**	**VA/Bed**	**VA**	**I (A)**	**Subdivided I (A)**
Boarding House Rooms			1000	0	0.0	
Studios			2000	0	0.0	
1 bed			2500	0	0.0	
1 bed + study			2750	0	0.0	
2 bed		87	3000	261000	372.9	
2 bed + study			3250	0	0.0	
3 bed			3500	0	0.0	
						372.9
	Total	87				
Commercial/Retail	**Area (m2)**		**VA/m2**	**VA**	**I (A)**	
Commercial / Retail Space	845		120	101400	144.9	
						144.9
Total in Amps						650.7
Total in kVA						450.8

The redevelopment of the site is likely to necessitate a new onsite substation.

Based on maximum demand calculations, an onsite mini substation is the most likely option for power supply to the site.

3.2 Existing Services

Based on infrastructure plan provided by Ausgrid, HV and LV infrastructure is located in the vicinity of the development site.

There is existing HV in Campbell Street and Princes Hwy that can service the site.

The existing HV infrastructure on either Campbell Street or Princes Hwy will have the necessary capacity to service the proposed development.

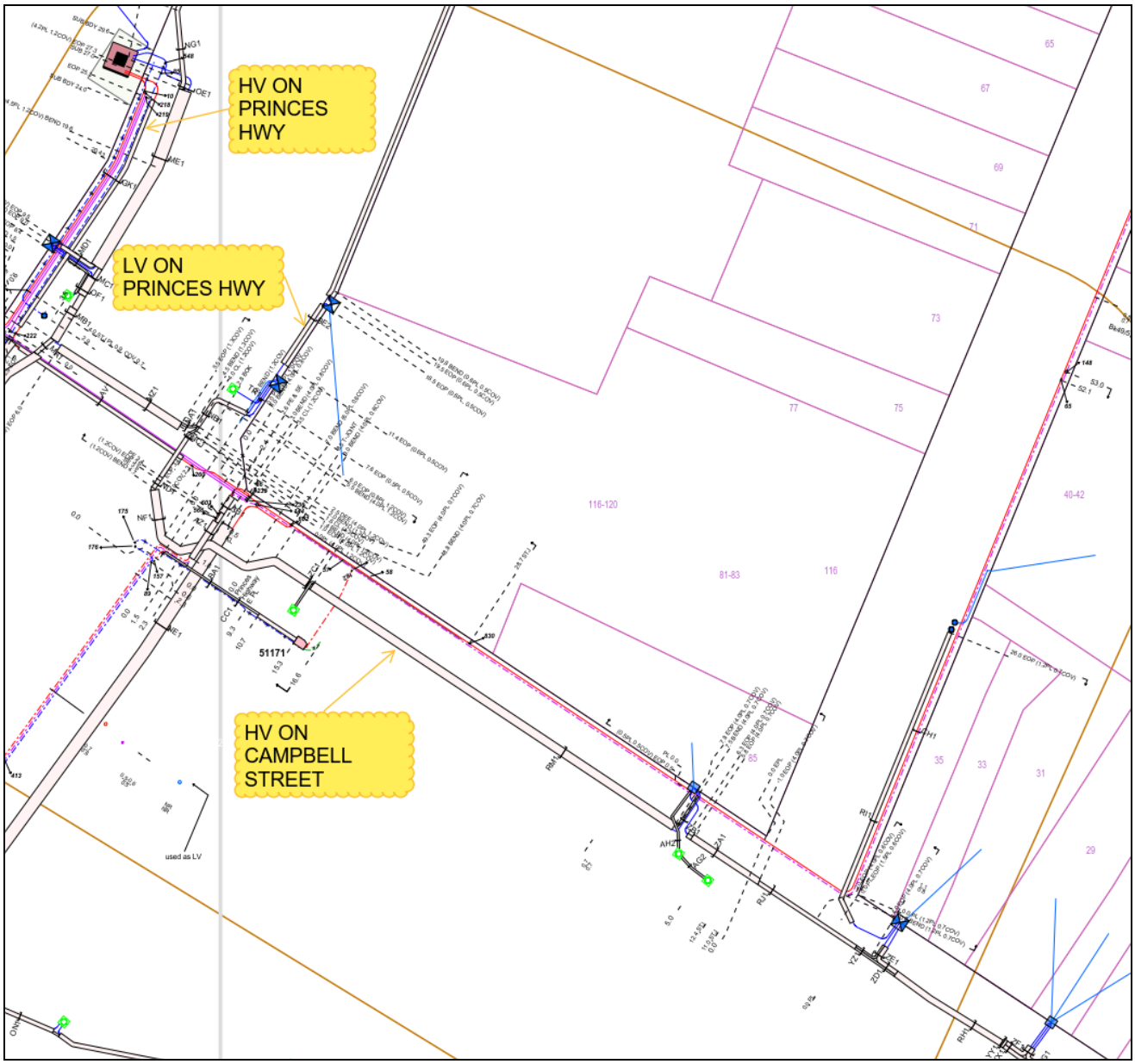

Figure 2 – HV & LV infrastructure in the vicinity of the Site (source: Ausgrid)

There are no overhead services that will require undergrounding.

3.3 Summary & Conclusions

No issues with electrical supply. There is sufficient high voltage (HV) cabling in the vicinity with the required capacity to service the proposed development in the future.

Maximum demand is approximately 650.7 Amps and will likely require an onsite substation.

No underground of overhead cabling is necessary either.

4. NATURAL GAS

4.1 Gas Maximum Demand

The gas maximum demand has been estimated at:

- 3,000 MJ/h diversified load.

This is based on the Heating Ventilation and Air Conditioning (HVAC) System being a reverse cycle, split, air cooled, type system. It has been assumed that centralised hot water plant, cook tops, bbq bayonets and commercial kitchen will require gas.

4.2 Existing Services

There are no major existing gas services within the site that will need to be decommissioned and/or diverted. Refer to details below in Figure 3.

4.3 Jemena Infrastructure in the Vicinity of the Site

There is an existing 50mm NY 210 kPa gas main in Campbell Street and Crown Street, reticulating directly in front of the proposed new development. These mains have adequate capacity for the proposed new development. For details refer below to Figure 3 below.

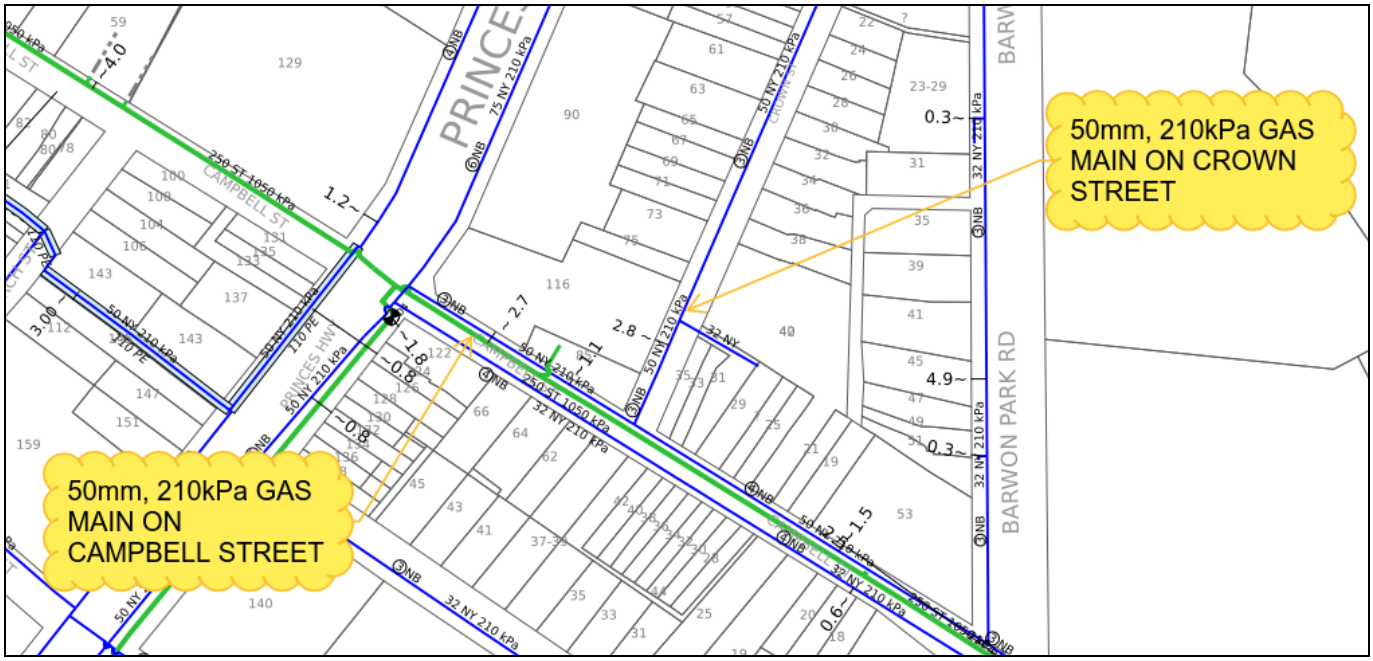

Figure 3 – Jemena Natural Gas Infrastructure

4.4 Summary and Conclusions

Jemena has adequate infrastructure in the vicinity of the site and can easily cater for the proposed new development.

The 50mm NY 210kPa Natural Gas mains in Campbell Street and Crown Street are the most likely points of connection, subject to Jemena approval.

5. TELECOMMUNICATIONS

5.1 Telecommunications Infrastructure in the Vicinity of the Site

Response from the respective Telecommunication suppliers and NBN shows multiple conduits located along Princes Hwy, Crown Street and Campbell Street.

The telecommunications services identified in the vicinity of the site are expected to have the carrying capacity to suit the needs of the proposed development.

It is noted that NBN is applicable to this site and is already installed to the existing site.

5.2 Summary and Conclusions

NBNCo has high bandwith infrastructure in the vicinity of the site and can easily cater for the proposed new development.

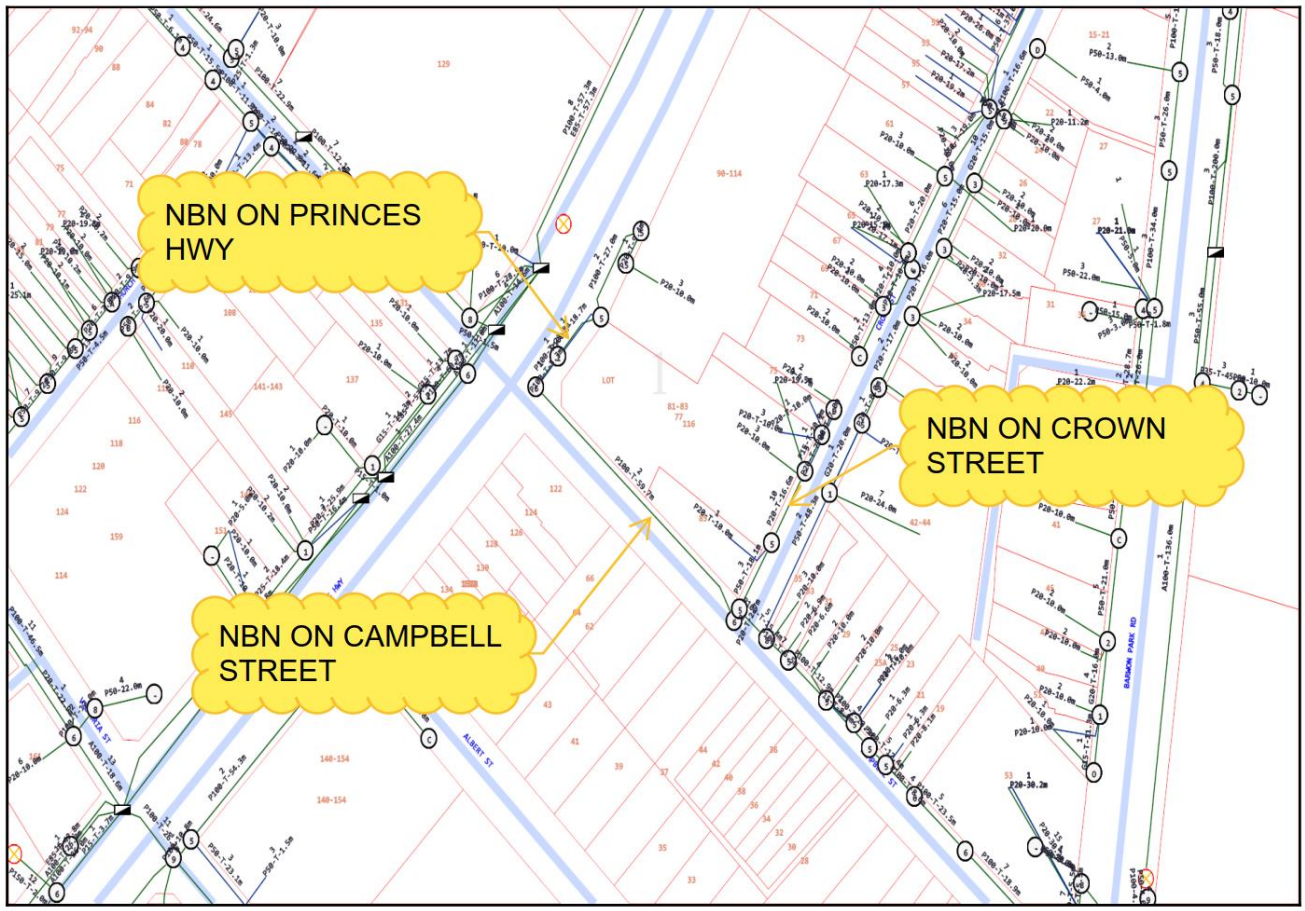

Figure 4 – NBNco infrastructure in the vicinity of the site (source; NBNCo)

6. MAINS WATER

6.1 Water Maximum Demand

Water maximum demand has been estimated as follows:

- Cold Water 10 kL/day;
- Fire Hydrant System 10 L/s;
- Fire Sprinkler System 10 L/s.

6.2 Existing Services

There are no major water services within the site that will need to be decommissioned and/or diverted. Any minor water services within the site, if present, can be readily decommissioned during site works/demolition.

6.3 Mains Water Infrastructure in the Vicinity of the Site

Sydney Water is the responsible authority for the provision of potable water to the site.

There is a 150mm water main located in Princes Hwy, 250mm water main in Campbell Street and a 180mm water main in Crown Street.

Figure 5 below indicates the above mentioned SWC Water infrastructure in the vicinity of the site.

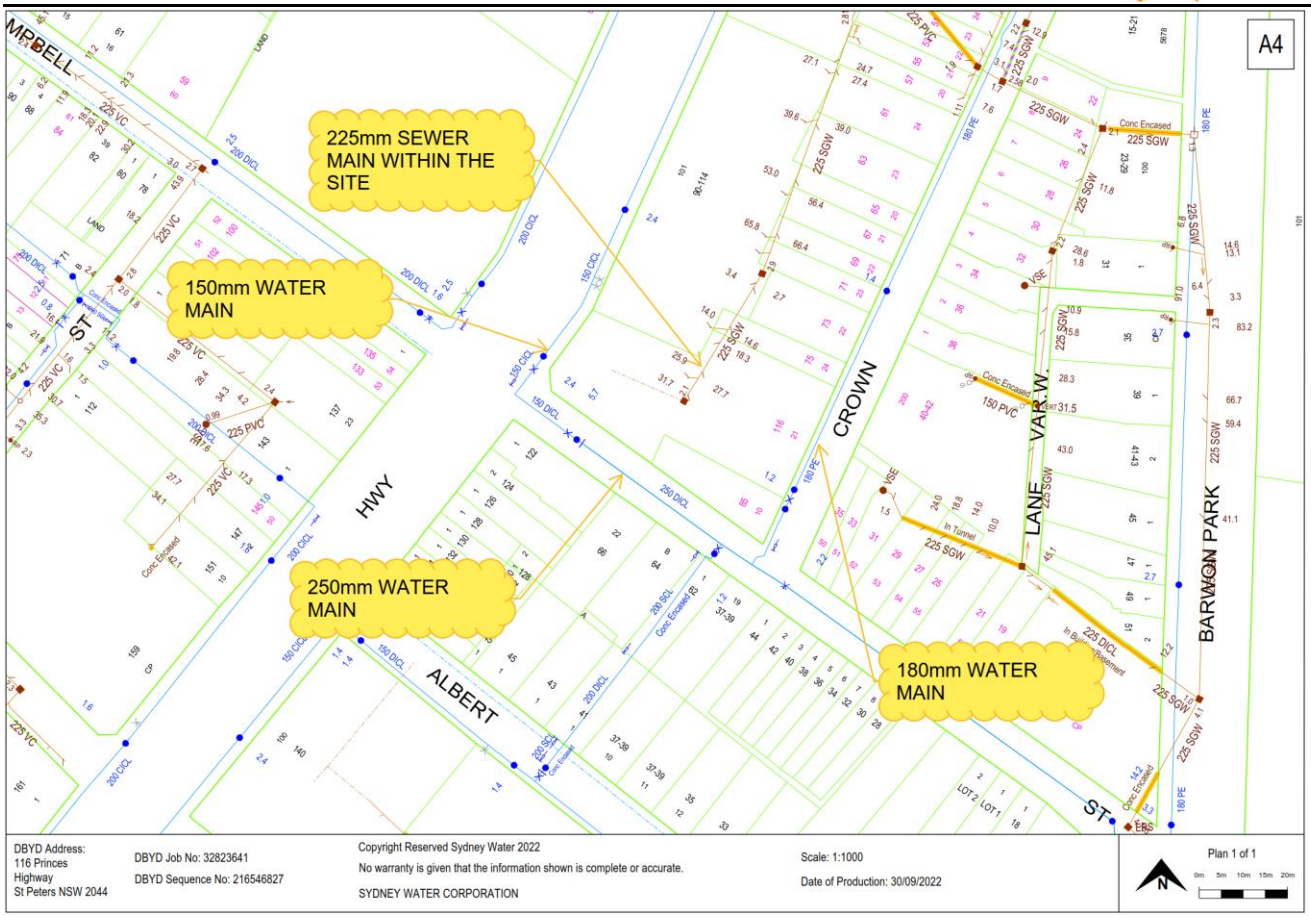

Figure 5 – Sydney Water - Water Infrastructure Map (source: Sydney Water)

6.4 Summary and Conclusions

The existing 250mm water main in Campbell Street will likely be the nominated supply for the proposed new development - subject to Section 73 Notice of Requirements. The water main capacity is subject to Sydney Water pressure and flow report however appears to have the necessary capacity to service the future development.

7. SEWER

7.1 Sewer Maximum Demand

Sewer maximum demand has been estimated as follows:

- Sanitary / Sewer Discharge 8 kL/day.

7.2 Existing Services

There is a 225mm SGW sewer main reticulating within the property as shown in Figure 5 above.

7.3 Sewer Infrastructure in the Vicinity of the Site

Sydney Water is the responsible authority for the provision of sewer services to and through the site. The existing DN225 sewer main located within the site is highly likely to be nominated as point of connection in Sydney Water Section 73 Notice of Requirements. This sewer is estimated to have sufficient capacity to cater for the proposed development.

There is a sideline off the existing sewer main to services 90 – 114 Princes Hwy which will need to be diverted / reinstated.

7.4 Summary & Conclusions

In summary, the 225mm sewer main within the site is likely to have sufficient capacity to serve the new development. The nominated point of connection to Sydney Water sewer network will be confirmed in Section 73 NOR.

The 225mm sewer main within the property will require a Building Plan Approval and needs to be resolved before CC / start onsite.

8. HEADWORKS COST ESTIMATES

SERVICE	BUDGET HEADWORKS COSTS	COMMENTS
Water	$20,000	Direct connection to the Campbell Street water main.
Sewer	$20,000 $20,000 $50,000	Direct connection to the water main. Diversion of existing sideline to 90 – 114 Princes Hwy Building Plan Approval (BPA))
NBN / Telco	$50,000	Allows for NBN connections to apartments & retail / commercial
Electricity	$300,000	Allows for new mini substation
Gas	$20,000	Allow for new connection (path valve installation)

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