

# Inner West Health Hub – Camperdown / Annandale

## Utilities Services Assessment Report

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Date: 3 February 2021

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# Revision

Revision	Date	Comment	Prepared By	Approved By
A	03.02.2021	Final Issue	ALM / RBAR	ALM

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# 1. Introduction

The purpose of this report is to provide MHA PBR Pty Ltd with information on the current provision and condition of the existing public utilities and likely authority requirements to support the new Health Hub as well as major services connections and spatial.

This report is based on the following sources of information:

- Dial Before You Dig information
- Publicly available information
- Site Inspection
- Team Meetings
- Authority water main enquiries

A brief overview of the Base building brief commenting on the allowances as nominated for the electrical and Hydraulic services.

Based on this desktop review, it can be concluded that with the infrastructure upgrades suggested within this report, the proposed development will be suitable for the subject site.



## 2. Site Information

The proposed development is located at the corner of Parramatta Road and Pyrmont Bridge Road, Camperdown. MHA will develop and construct a new health care building located in close proximity to Royal Prince Alfred Hospital.

The proposed facility has a GFA of 10,400m<sup>2</sup>



### 3. Infrastructure Cost Estimates

Approximate cost estimate:

Services Description	Estimate
Water connection – Mathieson street Domestic	\$20,000
Water connection – Pymont Bridge Road Fire	\$80,000
Gas Connection	\$20,000
Sewer Connection Option 1	\$20,000
Sewer Connection Option 2	\$100,000
2 X Mini Chamber Substations	\$600,000
New Carrier Lead-ins	\$40,000
Underground low voltage overhead cables (Dependent on DA conditions)	\$100,000
<b>Total</b>	<b>\$980,000.00</b>

- Note that the connections in the Pymont Bridge road are heavily weighted to anticipated road work costs



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### 4.3 Hydraulic Services

#### 4.3.1 General Approval

The services included in the hydraulic scope of work include the following:

Cold water services

Heated water services

Non-drinking water services

Sanitary plumbing systems

Sanitary drainage systems

Roof drainage systems (internal to the building)

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Surface and subsurface drainage systems (internal to the building)

On-site liquid trade waste systems

Natural gas services

Speciality water systems, sanitary plumbing systems, sanitary drainage systems and on-site treatment systems for healthcare facilities

Sanitary Fixtures and Tap ware (to be specified by the architect); and

Mechanical water & drainage requirements.

Hydraulic services piping systems shall not be reticulated through "sensitive" tenanted areas or utility electrical substations and main communication unless permitted by the authority and or within a designated 'zones' approved and coordinated with the client / authority.



## 4. Electrical Services

### 4.1 Review of Brief

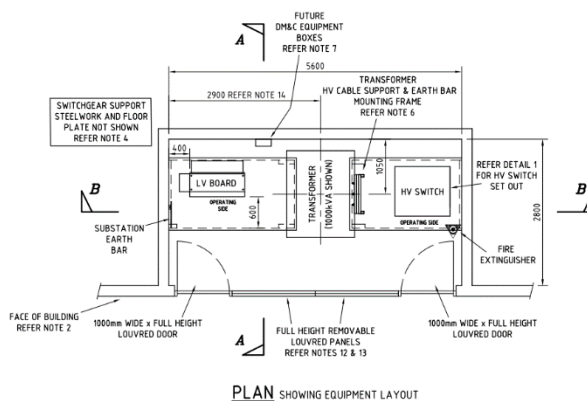
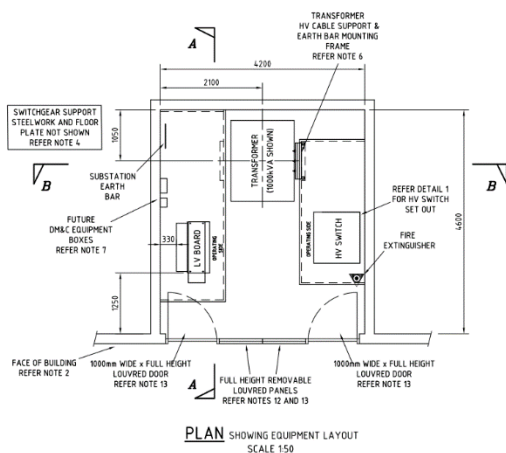
Section 4.1 is a review of the electrical services described in the Inner West Health Hub Base Build brief

#### 4.1.1 Substations

Brief Section 4.2.2.1 (P42) : refers to a 3 x 1500kVA chamber substation being required

Comment : Based on a building GFA of 10,400m<sup>2</sup>, the calculated max demand would be in the order of 1,04MVA (based on 100VA/m<sup>2</sup>). As the health services are not clearly defined, we would recommend that 2 off mini-chamber substations (1MVA transformer per substation) be allowed or. Additional option is to provide 2 x kiosk type substations (1000kVA each).

1. Kiosk type substation
  - Easement of 5,300mm x 6,000mm (both substations, side by side)
  - Fire segregation to building openings (3,000mm) and mechanical ventilation openings (6,000mm)
2. Mini-chamber type substation [2 off required] (needs to be located on ground level).
  - Option 1 : 4,200mm (street front) x 4,600mm (depth) x 3,200mm (clear height)
  - Option 2 : 5,600mm (street front) x 2,800mm (depth) x 3,200mm (clear height)



#### 4.1.2 Standby Generator

Brief Section 4.2.3.2 (P43) : refers to a 1MVA generator being required

Comment : Based on the expected load, conventional health guidelines (HI ESG) and PCA2018 guidelines (Grade A building), a generator in the order of 500 - 650kVA would be required.

#### 4.1.3 UPS requirements

Brief Section 4.2.2.5 (P43) : refers to a UPS with 4 hour autonomy to be allowed for Base build, communication and security systems





## Appendix 12 - Utilities Services Assessment

Comment : 4 hours autonomy appears excessive considering these services would be backed up by the generator. As a guide, Health Infrastructure requires UPS backed up equipment and communications to have 15minute battery autonomy (noted that surgical lighting is required to have 90min UPS backup, but typically supplied from standalone UPS system)

### 4.1.4 Carrier Lead-in Conduits

Brief Section 4.2.6.1 (P47) : refers that an allowance of a minimum of 6 off conduits to be allowed for.

Comment : 6 off 100mm lead-in conduits appears excessive for a 10,400m<sup>2</sup> building. We would envisage that diverse pathways for 2 carriers would be sufficient.

### 4.1.5 DAS

Brief Section 4.2.6.1 (P47) : refers to provision of a DAS system for 3 carriers

Comment : No reference to DAS system to be provided (eg SISO, MIMO, etc). MCF2020 is expected to be available in the near future and this will include for the design of 5G DAS networks (currently excluded from MCF2018 standard)

### 4.1.6 Lighting

Brief Section 4.2.5.1 (P46) : refers that lighting is to be below 7W/m<sup>2</sup>

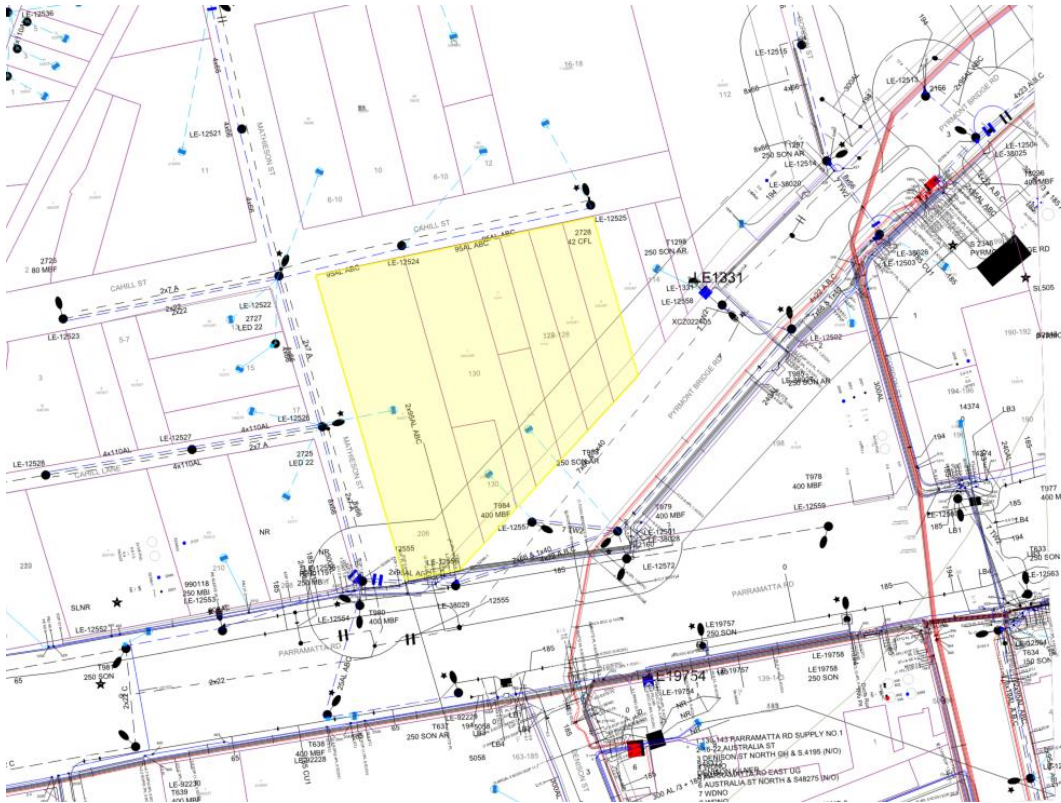
Comment : Energy efficiency prescribed in BCA is 4.5W/m<sup>2</sup>. If Greenstar credits to be targeted the, W/m<sup>2</sup> figure would be lower still.



## 4.2 Existing Service Provisions

### 4.2.1 Existing Supply Authority Network

The Supply Authority for the area is Ausgrid.



**Figure 1 : Ausgrid assets in vicinity of the Site**

It is noted that there are no substations on the site. The site is currently supplied from the Ausgrid LV street network which is shared with other customers. The existing HV network closest to the site is along the Parramatta Road and Pymont Bridge street frontages.

It is noted that there is an overhead LV network on Cahill Street which Council may want underground. In addition, there is a small section of overhead LV network on the corner of Parramatta Road and Pymont Bridge Road



**Figure 2 LV overhead asset – Cahill Street**



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Figure 3 LV overhead asset – Corner Parramatta and Pymont Bridge Roads

### 4.2.2 Telecommunications

#### 4.2.2.1 General

Existing Carrier infrastructure is depicted in drawings below. The site is well serviced by existing Carrier networks, including NBN.

From the available information, No Carrier diversions are required.

#### 4.2.2.2 Carrier Mobile Base Stations

It is noted that there are no carrier mobile base stations located on the site.

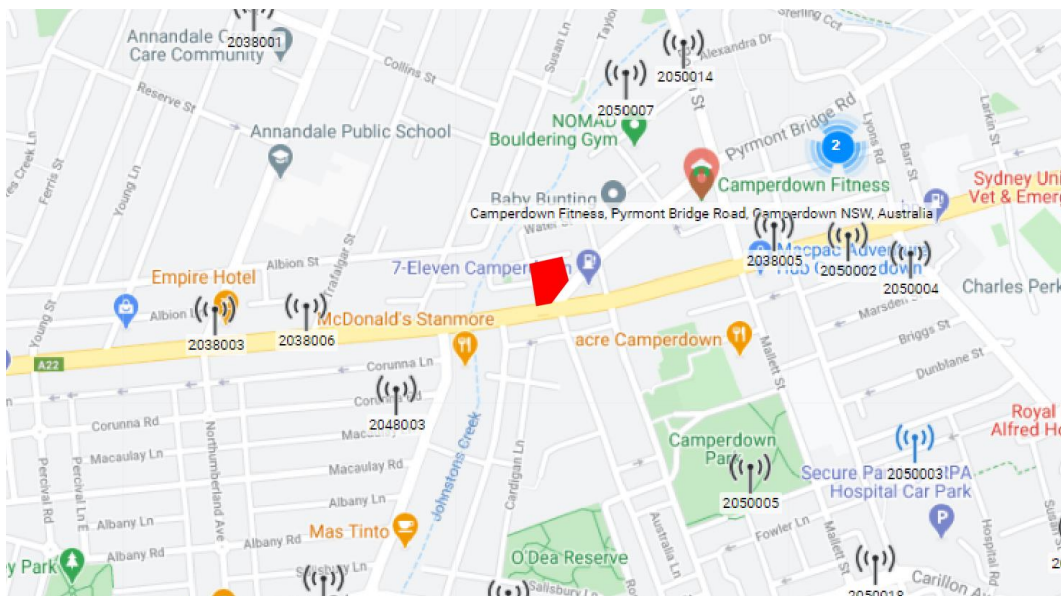
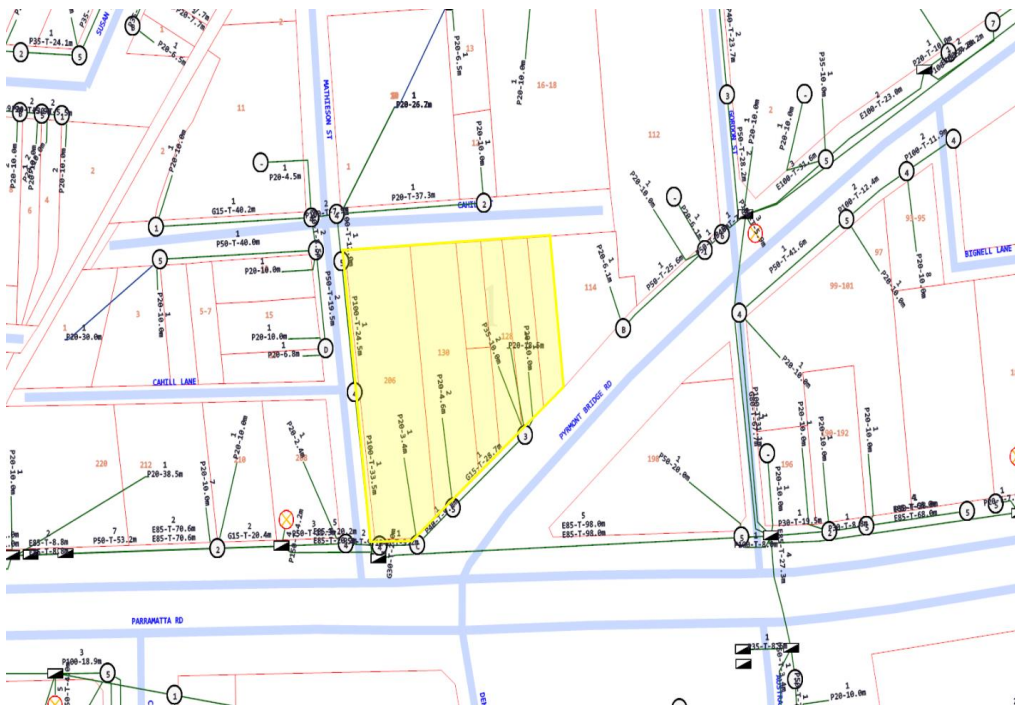


Figure 4 Mobile Carrier Base Stations

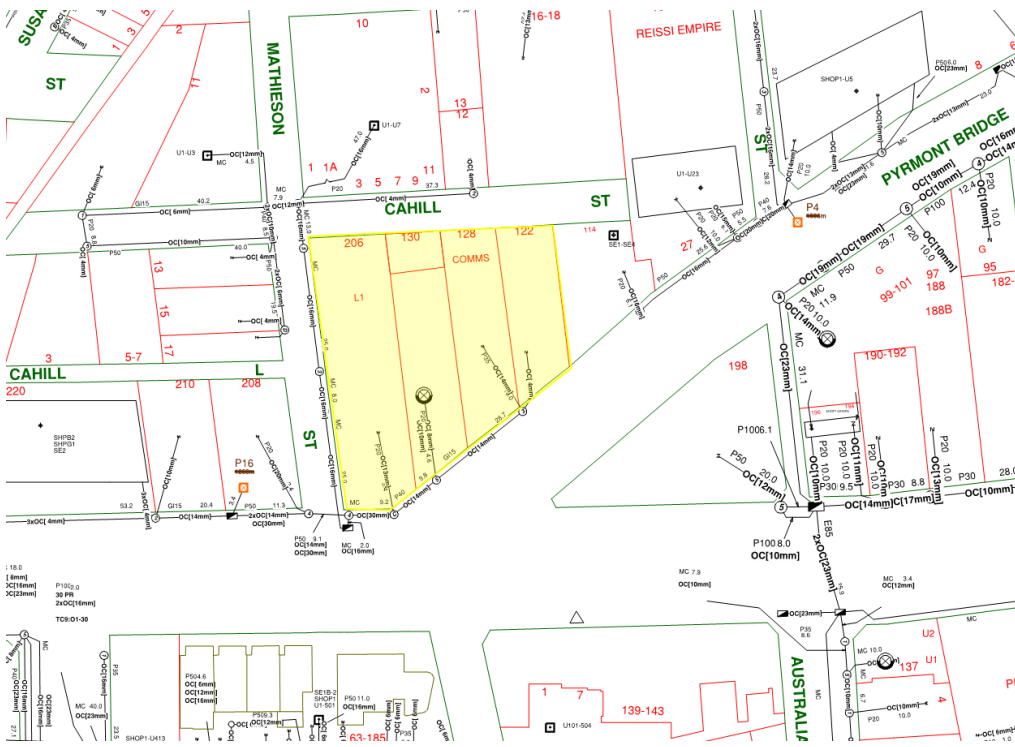


4.2.2.3 Existing Carrier Service Infrastructure

NBN

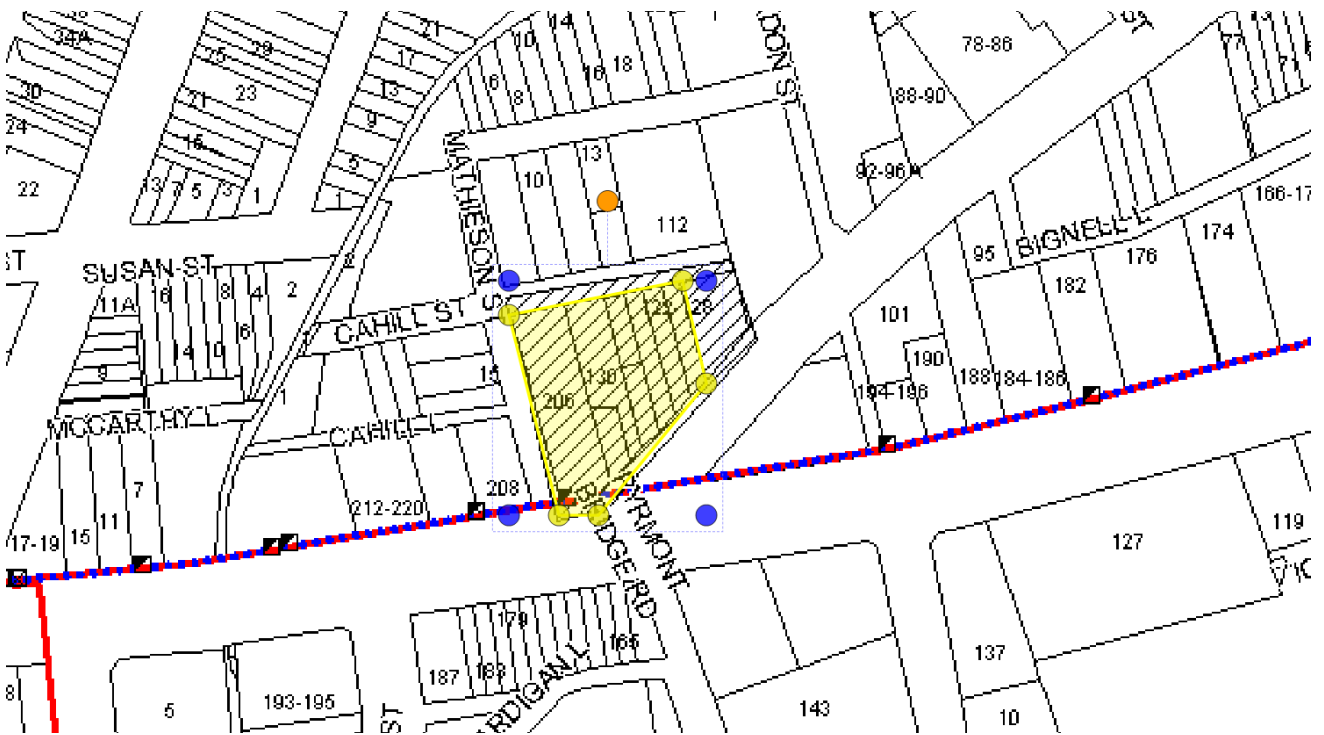


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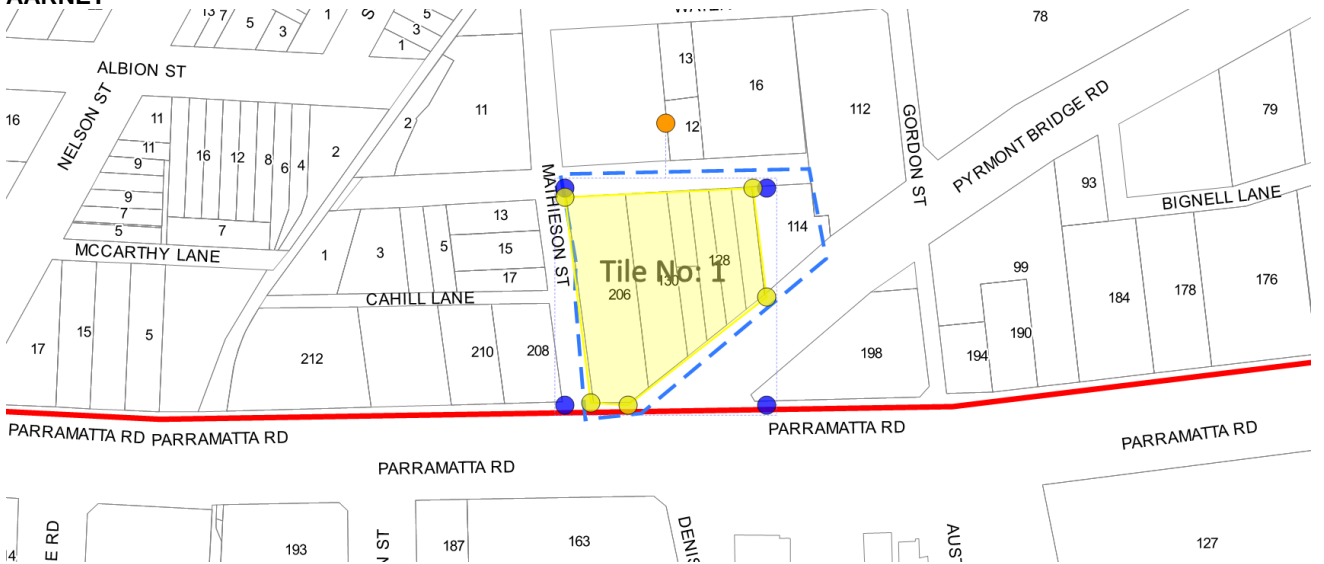


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OPTUS



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## 5. Hydraulic Services

The following section provides infrastructure guidance for the following hydraulic services:

- Review of brief
- Sewer
- Water Supply
- Gas Supply

### 5.1 Review of Brief

Section 5.1 is a review of the Hydraulic services described in the Inner West Health Hub Base Build brief

#### 5.1.1 Surface Drainage

Brief Section 4.3.7 (P50) : refers to surface drainage discharging to subsoil pump out.

Comment : Only basement drainage and restricted to areas not exposed to external rain should be draining to the subsoil pump out pits.

Brief Section 4.3.8 (P51) : refers to 2 hrs on site water storage in event of water main failure.

Comment : Generally on health applications only disaster recovery hospitals are provided with Back up water supplies and these are restricted to emergency operating theatre supplies. The additional water storage also includes cooling tower capacity, this could be dealt with an separate tank for cooling tower water supply which would also assist on Peak temp days above the Australian Standard design levels which are common. Client discussions should be undertaken to determine the desire/ need for potable onsite water storage.



## 5.2 Sewer Services Review

The existing site is abounded by sewer main's in Cahill street, Mathieson Lane & Pymont Bridge Road. The 225mm main in Cahill street (option 1) at the rear of the development is the ideal location to connect the sewer as it allows for the road works to be in a rear lane and not in a main road. Pending final capacity checks and authority approvals if this is not approved by Sydney Water then a connection to the sewer main in Pymont bridge road (option 2) would be required.



## Appendix 12 - Utilities Services Assessment

The expected daily discharge calculated based in accordance with Sydney water's guide is as follow's. Note the average daily water use figures nominate usage – discharge is 80% of the usage.

# Average daily water use

## By property development 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 metre	2.36
	High Rise Units	Net floor area	Square metre	3.34
	Single Lot Community	Dwelling	Each dwelling	623.00
Mixed	Residential / Commercial	Combined floor area	Each dwelling / Square metre	Use separate rates for each component
	Commercial / Industrial	Combined floor area	Square metre	Use separate rates for each component
Commercial	Aged Accom - Self Care	Net floor area	Square metre	2.50
	Aged Accom - Hostel	Bed	Each bed	271.00
	Aged Accom - Full Care	Bed	Each bed	271.00
	Childcare	Net floor area	Square metre	3.60
	Hotel / motel / serviced apartments	Room	Each room	359.94
	Office	Net floor area	Square metre	2.27
	Shopping Centre	Net floor area	Square metre	3.00
	Laundry / Dry Cleaner	Net floor area	Square metre	10.50
	Café / Fast Food / Butcher / Deli	Net floor area	Square metre	2.48
	Retail Units	Net floor area	Square metre	2.48
	Medical / Veterinary	Net floor area	Square metre	2.48
	Mechanical Repair	Net floor area	Square metre	2.48
	Car / Boat Sales	Net floor area	Square metre	2.48
	Car Wash	Net floor area	Square metre	9.40
	Club	Net floor area	Square metre	3.77
Industrial	Heavy Process	As required		
	Chemical Manufacturing	As required		

Based on a generalised commercial building foot print of 10,400 GFa the expected daily load is expected to be 20,633l/day either main in option 1 or 2 are capable of taking this capacity with no anticipated upgrades required.





### 5.3 Water Services Review

The site has water mains in Cahill Street, Mathieson St and on the Pymont Bridge Road frontage. The water mains in Cahill and Mathieson Street are 100mm diameter and the water main in Pymont Bridge Road is 300mm.

A single or separate water supply can be provided for the site. The fire services supply will need to be connected to the 300mm main in Pymont Bridge Road as the mains in Cahill and Mathieson Street are insufficient in size for fire hydrant and sprinkler services.



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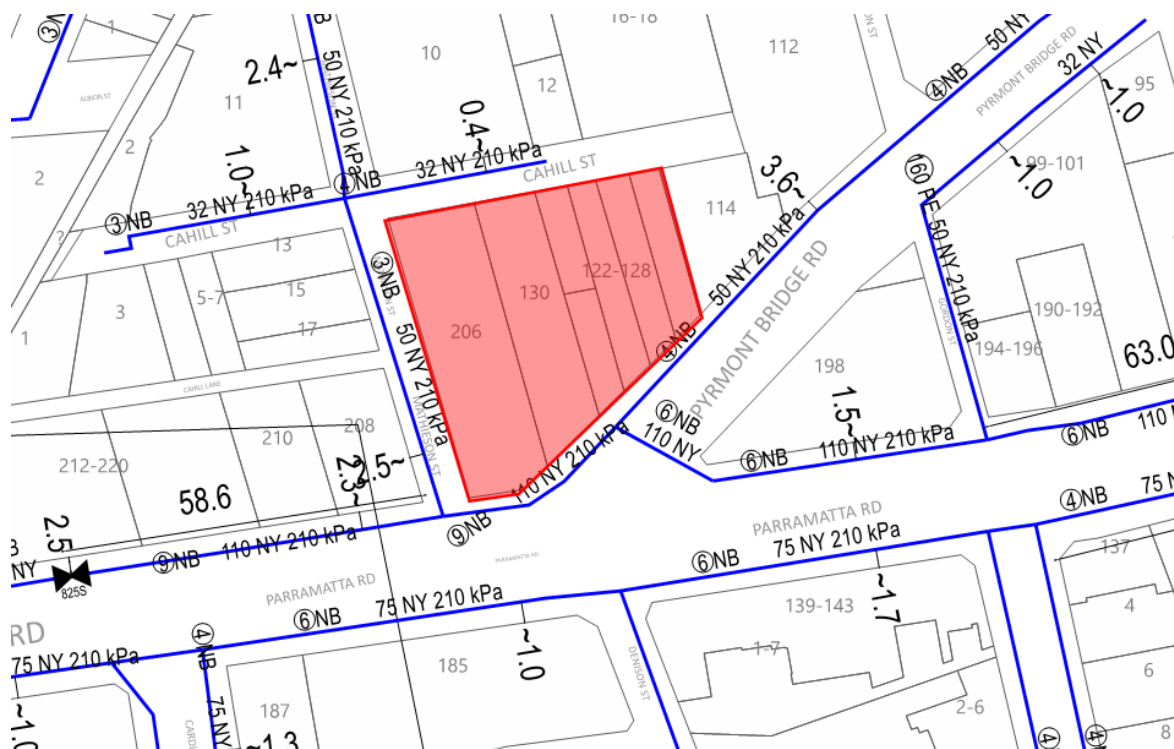
Based on a generalised commercial building foot print of 10,400 GFA the expected daily load is expected to be 25,792l/day



## 5.4 Gas Services Review

The proposed site Gas loads are anticipated to be medium, final loads need to be determined based on the mechanical and building loads, hot water, and food preparation in the tea rooms / kitchenette and for the single commercial kitchen in the building.

Based on our experience we would anticipate the potential gas load to be circa 15,000MJ/hr. This is considered to be a medium load and could be serviced by the 50mm 210kPa main in Mathieson Street.



## 6. Conclusion

The purpose of this report is to provide MHA PBR Pty Ltd with information on the current provision and condition of the existing public utilities and likely authority requirements to support the new Health Hub as well as major services connections and spatial.

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Based on this desktop review, it can be concluded that with the infrastructure upgrades suggested within this report, the proposed development will be suitable for the subject site.



Design with  
community in mind

