
Appendix BB

Utilities and Infrastructural Servicing Assessment

Hunter Street East Over Station Development Utilities and Infrastructure Servicing Assessment

Appendix BB

November 2022

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Contents

Glossary	v
Executive summary	vi
1 Introduction	1
1.1 Sydney Metro West	1
1.2 Background and planning context	1
1.2.1 Critical state significant infrastructure	1
1.2.2 State significant development application	2
1.2.3 Planning proposal	2
1.3 Purpose of the report	2
2 The site and proposal	4
2.1 Site location and description	4
2.2 Overview of the proposal	5
3 Assessment methodology	7
3.1 Assessment steps	7
3.2 Assessment status	8
3.3 Sustainable development initiatives	8
4 Utility investigation	9
5 Coordination with enabling works	11
5.1 Ausgrid Electricity	11
5.2 Sydney Water Corporation	11
5.3 City of Sydney	11
5.4 Telecommunication networks	11
5.5 Gas networks	12
6 Utility assessment CSSI works	13
6.1 Utility scope	13
6.2 Stormwater	13
6.2.1 Existing assets	13
6.3 Wastewater	14
6.3.1 Background	14
6.3.2 Existing assets	15
6.4 Potable water	15
6.4.1 Background	15
6.4.2 Existing assets	16
6.5 Telecommunications	16
6.5.1 Existing assets	16
6.6 Electrical	16
6.6.1 Existing assets	16
6.7 Gas	16
6.7.1 Existing assets	16
7 SSD utility works	17
7.1 SSD scope	17
7.2 Proposed development drainage servicing	17
7.3 Proposed development wastewater servicing	17
7.3.1 Wastewater demand assessment	17
7.4 Proposed development potable water servicing	18
7.4.1 Potable water demand assessment	18
7.5 Proposed telecommunications servicing	19
7.5.1 Telecommunications demand assessment	19

7.6	Proposed development electrical servicing.....	19
7.6.1	Electrical demand assessment.....	20
7.7	Proposed development gas servicing.....	20
7.7.1	Gas demand assessment.....	20
8	Cumulative impacts.....	21
9	Utility authority consultation.....	22
10	Conclusion	23

List of Figures

Figure 1-1 Sydney Metro West	1
Figure 2-1 Location of the site	4
Figure 2-2 Proposed Concept SSDA development and CSSI scope.....	6
Figure 4-1 Existing combined utilities at the eastern site.....	10
Figure 6-1 Stormwater catchment 29 and Hunter Street (Sydney CBD) station	13
Figure 6-2 Bondi wastewater catchment plan (Sydney Water, 2021)	14
Figure 6-3 Potts Hill water delivery system (Sydney Water Corporation, 2021).....	15

List of Tables

Table 2-1 Site legal description.....	5
Table 2-2 Proposed development overview	5
Table 3-1 Demand assessment development profiles (Sydney Metro, December 2021)	8
Table 4-1 Network utility operators	9
Table 7-1 Sewer design loading criteria	18
Table 7-2 Estimated ADWF for wastewater	18
Table 7-3 Potable water design loading criteria	19
Table 7-4 Estimated maximum day demand for potable water.....	19
Table 7-5 Electrical design loading criteria.....	20
Table 7-6 Estimated electrical peak demand, including 0.8 diversity factor (MVA)....	20

Glossary

Term	Definition
Concept and Stage 1 CSSI Application	Application SSI-10038 including all major civil construction works between Westmead and The Bays, including station excavation and tunnelling, associated with the Sydney Metro West line
Concept SSDA	A concept development application as defined in section 4.22 the EP&A Act, as a development application that sets out concept proposals for the development of a site, and for which detailed proposals for the site or for separate parts of the site are to be the subject of a subsequent development application or applications.
Council	City of Sydney
CSSI	Critical Stage Significant Infrastructure
DCP	Development Control Plan
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
FSR	Floor space ratio
GFA	Gross floor area
LEP	Local Environmental Plan
LGA	Local Government Area
OSD	Over Station Development
POEO Act	Protection of the Environment Operations Act 1997
RL	Reduced level
SEARs	Secretary's Environmental Assessment Requirements
SSDA	State Significant Development Application
SSI	State Significant Infrastructure
Stage 2 CSSI Application	Application SSI-19238057, including major civil construction works between The Bays and Hunter Street Station
Stage 3 CSSI Application	Application SSI-22765520, including rail infrastructure, stations, precincts and operation of the Sydney Metro West line
Sydney Metro West	Construction and operation of a metro rail line and associated stations between Westmead and the Sydney CBD as described in section 1.1
TfNSW	Transport for New South Wales

Executive summary

This Utilities and Infrastructure Servicing Assessment supports a Concept State Significant Development Application (Concept SSDA) submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Concept SSDA is made under section 4.22 of the EP&A Act.

Sydney Metro is seeking concept approval for a commercial tower above the Hunter Street metro station eastern site (the site), otherwise known as the over station development (OSD).

The Concept SSDA seeks consent for a building envelope and its use for a commercial and retail premises, a maximum building height of 58 storeys (257.7m and 269.1m reduced level), a maximum gross floor area (GFA) of 84,223m², pedestrian and vehicular access, circulation arrangements and associated car parking and the strategies and design parameters for the future detailed design of development.

This Utilities and Infrastructure Servicing Assessment responds specifically to the Secretary's Environmental Assessment Requirements (SEARs) and summarises existing utility infrastructure, calculate indicative demands for each utility service type and consider required relocations and/or upgrade works to service the proposed development. Additionally, this report identifies preliminary development staging and utility authority consultation. The final staging and delivery of utility infrastructure will form part of subsequent Detailed SSDA.

This assessment relates to the works required for the over station development. Works associated with Sydney Metro West itself is not included within this report, except where utility coordination is required.

Services

The eastern site is currently serviced through the following means:

- Stormwater: Overland flows collect through City of Sydney catch pits and carrier pipes to Sydney Water Corporation (SWC) the local catchment area stormwater assets (Sydney Water City Area 29 Catchment). The site is also serviced by the heritage assets Sydney Tank Stream and Bennelong drains.
- Wastewater: Servicing is provided by SWC gravity sewers to the Bondi Treatment Plant
- Potable water: Potable water is provided by SWC from the Prospect Water Filtration Plant and associated reservoirs via the Potts Hill Water Delivery System.
- Communications: Various communications providers service the site including Telstra, NBN, TPG and Optus.
- Electrical: High and low voltage electrical supply is provided by Ausgrid.
- Gas: Reticulation is provided by Jemena.

Utility Servicing

Key servicing constraints for the site include:

- Stormwater: connections to heritage assets.
- Wastewater: age and condition of existing trunk sewers.
- Potable water: existing potable water reticulation capacity for proposed integrated station development
- Communications: backhaul of new feeder cables to nearest exchange
- Electrical: 11kV high voltage supply in the CBD precinct and existing substations within site boundary and existing buried substation capacity at Hunter Street.

Assessment summary

No upgrades to the existing drainage, sewer and potable water reticulation networks at the site has been proposed, to service the over station development (OSD).

The proposed OSD is subject to further design development as part of Detailed SSDAs, that is required to ensure adequate servicing.

This Utilities & Infrastructure Servicing Assessment has concluded that servicing is available to the proposed OSD site with indicative connections for each service being:

- stormwater flows from the OSD through existing connections to the Bennelong drain along Bligh Street and new proposed connection to O'Connell Street Bennelong drain
- wastewater servicing the OSD is proposed utilising existing connections from the existing lots to the trunk sewers DN300 along O'Connell Street and Hunter Street
- potable water servicing for the OSD via existing DN250 mains reticulation along O'Connell Street, Hunter Street and Bligh Street. Dual DN150 supply is required for OSD fire services
- exiting telecommunications infrastructure and service pits in footpaths surrounding the proposed OSD, providers include Telstra, NBN TPG and Optus. New ducting and connections to existing infrastructure is required to service the OSD along O'Connell Street, Hunter Street and Bligh Street
- electrical high voltage supply to be provided by Ausgrid from a Bligh Street connection to a new substation servicing the proposed OSD
- gas reticulation in the Hunter Street precinct is provided by Jemena. There are no proposed gas connections to the OSD in line with the development's sustainability strategy.

Existing utility services, projected utility demands and potential have been assessed for servicing of the proposed OSD. It should be noted the utility assessment has been based on the initial consultation advice from Sydney Water for stormwater, wastewater and potable water only.

Further utility information will be included as part of future Detailed SSDAs.

1 Introduction

1.1 Sydney Metro West

Sydney Metro West will double rail capacity between Greater Parramatta and the Sydney Central Business District (CBD), transforming Sydney for generations to come. The once in a century infrastructure investment will have a target travel time of about 20 minutes between Parramatta and the Sydney CBD, link new communities to rail services and support employment growth and housing supply.

Stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street.

Sydney Metro West station locations are shown in Figure 1-1 below.

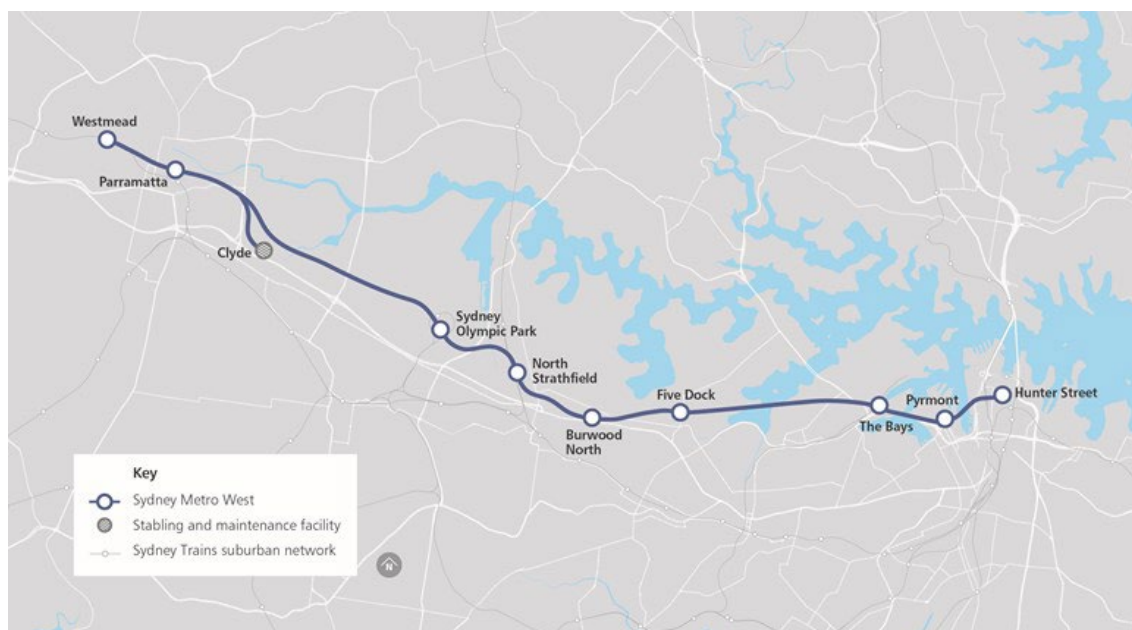


Figure 1-1 Sydney Metro West

1.2 Background and planning context

Sydney Metro is seeking to deliver Hunter Street Station under a two-part planning approval process. The station fit out infrastructure is to be delivered under a Critical State Significant Infrastructure (CSSI) application subject to provisions under Division 5.2 of the EP&A Act, while the over station developments are to be delivered under a State Significant Development (SSD) subject to the provisions of part 4 of the EP&A Act. It is noted a Planning Proposal request has been submitted to the City of Sydney Council to amend the planning controls on the site (refer to section 1.2.3).

1.2.1 Critical state significant infrastructure

The state significant infrastructure (SSI) planning approval process for the Sydney Metro West metro line, including delivery of station infrastructure, has been broken down into a number of planning application stages, comprising the following:

- Concept and Stage 1 CSSI Approval (SSI-10038) – All major civil construction works between Westmead and The Bays including station excavation, tunnelling and demolition of existing buildings (approved 11 March 2021).

- Stage 2 CSSI Application (SSI-19238057) – All major civil construction works between The Bays and Hunter Street Station (approved 24 August 2022).
- Stage 3 CSSI Application (SSI-22765520) – Tunnel fit-out, construction of stations, ancillary facilities and station precincts between Westmead and Hunter Street Station, and operation and maintenance of the Sydney Metro West line (under assessment).

1.2.2 State significant development application

The SSD will be undertaken as a staged development with the subject concept state significant development application (Concept SSDA) being consistent with the meaning under section 4.22 of the EP&A Act and seeking conceptual approval for a building envelope, land uses, maximum building heights, a maximum gross floor area, pedestrian and vehicle access, vertical circulation arrangements and associated car parking. A subsequent Detailed SSDA/s is to be prepared by a future development partner which will seek consent for detailed design and construction of the development.

1.2.3 Planning proposal

A Planning Proposal request has been submitted to the City of Sydney Council to amend the planning controls that apply to the Hunter Street Station under the Sydney Local Environmental Plan 2012 (LEP). Hunter Street Station includes both an eastern site (this application) and western site.

The Planning Proposal request seeks to enable the development of a commercial office building on the site that would:

- comprise a maximum building height of between reduced level (RL) 257.7m and RL 269.10m (as it varies to comply with the relevant sun access plane controls)
- deliver a maximum gross floor area (GFA) of 84,223m² (resulting in a maximum floor space ratio (FSR) of 22.82:1), measured above ground level
- facilitate the adaptive reuse of the existing Former Skinners Family Hotel within the overall development.
- include site specific controls which ensure the provision of employment and other non-residential land uses
- require the mandatory consideration of a site-specific Design Guideline
- allow for the provision of up to 70 car parking spaces
- establish an alternative approach to design excellence.

The Planning Proposal request was submitted to the City of Sydney in May 2022 and is currently under assessment.

1.3 Purpose of the report

This Utilities and Infrastructure Servicing Assessment supports a Concept SSDA submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the EP&A Act. The Concept SSDA is made under section 4.22 of the EP&A Act.

This report has been prepared to specifically respond to the Secretary's Environmental Assessment Requirements (SEARs) issued for the Concept SSDA on 08 August 2022 which states that the environmental impact statement is to address the following requirements.

SEARs requirement	Where addressed
<p>22. Infrastructure Requirements and Utilities</p> <p>In consultation with relevant service provider:</p> <ul style="list-style-type: none"> • Assess the impacts of the 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 development and any arrangements to ensure to 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 coordinated, funded, and delivered to facilitate the development. 	<p>Sections 3, 4, 5, 6 and 7 – The proposal</p>

The Utilities and Infrastructure Servicing Assessment aims to:

- details of the existing utility services in the proposed development area
- identify potential utility connections for the proposed over station development
- summarise recommended strategies and treatments for each utility service in the proposed development area.
- summarise consultation with utility authorities
- detail required next steps and further civil engineering work required to develop the design in subsequent stages.

2 The site and proposal

2.1 Site location and description

Hunter Street Station is in the northern part of the Sydney CBD, within the commercial core precinct of Central Sydney and within the Sydney Local Government Area (LGA). The Hunter Street metro station includes two sites – the eastern site and the western site. This report relates to the eastern site only.

The Hunter Street Station eastern site (the site) is on the corner of O'Connell Street, Hunter Street and Bligh Street adjacent to the existing CBD and Southeast Light Rail that extends from Circular Quay to Moore Park, Kensington and Kingsford. The east site is adjacent to the new Martin Place Station which forms part of the Sydney Metro City and Southwest, Australia's biggest public transport project connecting Chatswood to Sydenham and extending to Bankstown. The remainder of the site is currently occupied by commercial office buildings and a range of ground floor business premises including retail, restaurants and cafes.

The site area is 3,694 m² and will be cleared of all buildings and utilities-prior to commencement of station construction activities. The site location is shown in Figure 2-1.



Figure 2-1 Location of the site

Table 2-1 below sets out the address and legal description of the parcels of land that comprise the site.

Table 2-1 Site legal description

Address	Lot and DP
28 O'Connell Street, Sydney	Lot 1, DP217112
28 O'Connell Street, Sydney	Lot 1, DP536538
28 O'Connell Street, Sydney	Lot 1, DP1107981
48 Hunter Street, Sydney	Lot 1, DP59871
48 Hunter Street, Sydney	Lot 2, DP217112
33 Bligh Street, Sydney	Lot 1, DP626651
37 Bligh Street, Sydney	CP and Lots 1-14, 21-31, 33-36, and 40, SP58859
37 Bligh Street, Sydney	CP and Lots 41-49, SP61852
37 Bligh Street, Sydney	CP and Lots 50-57, SP61922
37 Bligh Street, Sydney	CP and Lots 58-65, SP61923
37 Bligh Street, Sydney	CP and Lots 66 and 67, SP63146
37 Bligh Street, Sydney	CP and Lots 67-70, SP63147
37 Bligh Street, Sydney	CP and Lot 72, SP74004
37 Bligh Street, Sydney	CP and Lots 75-82, SP87437
37 Bligh Street, Sydney	CP and Lots 73-74, SP87628
Total Area: 3,694m²	

2.2 Overview of the proposal

The Concept SSDA will seek consent for a building envelope above the site (the proposed development). As detailed in Table 2-2 and Figure 2-2.

Table 2-2 Proposed development overview

Built form component	Proposed development outcome
Site area	3,694m ²
Height	Building height up to 257.7m (RL 269.10)
Ground Floor Area	Up to 84,223m ²
Land use(s)	Commercial office and retail
Carparking	Up to 70 car parking spaces

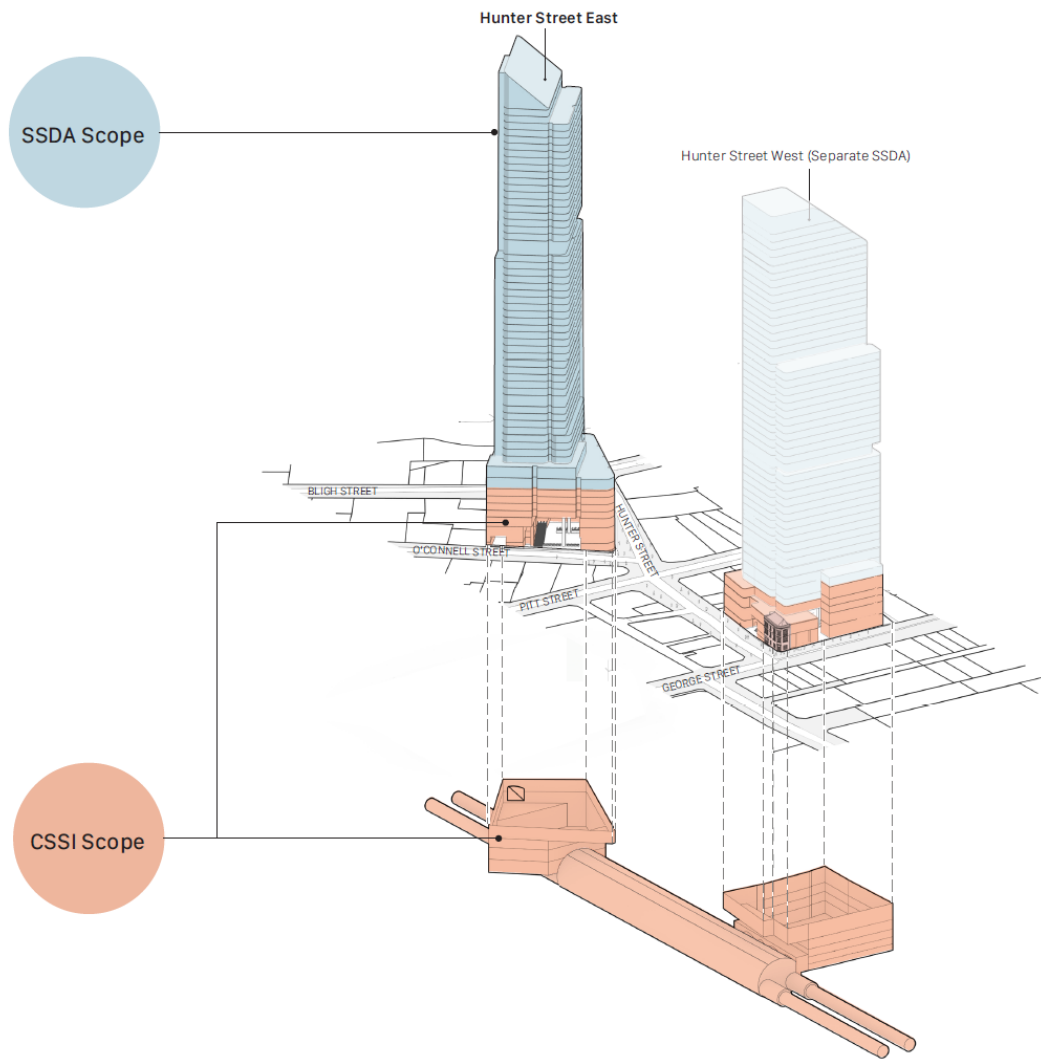
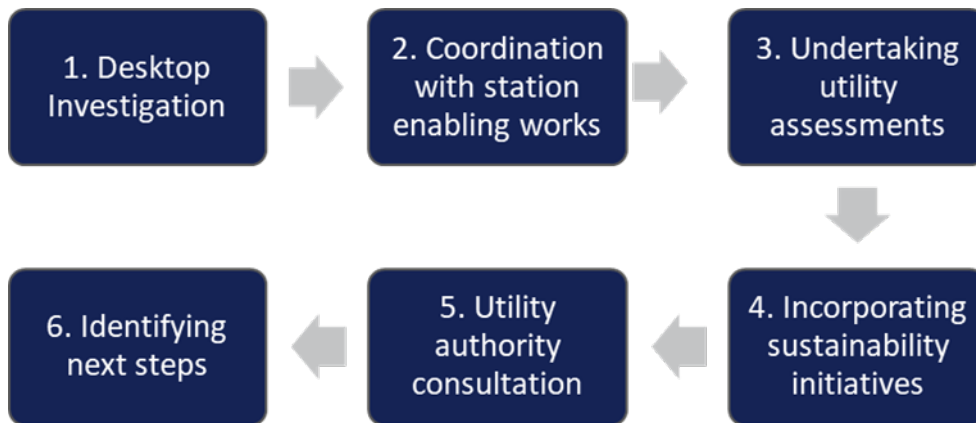


Figure 2-2 Proposed Concept SSDA development and CSSI scope

3 Assessment methodology

3.1 Assessment steps

The utilities and infrastructure servicing assessment methodology is summarised in the flow chart as shown below.



Desktop investigation:

- desktop investigation through ‘Dial Before You Dig’ enquiries of existing utility services
- review of utility information obtained from site surveys
- review of authority utility information from relevant service providers
- gap analysis and advice on further investigations required.

Coordination with station enabling works:

- review of station utility servicing requirements
- assessment of opportunities for coordination with station services approved under the Concept and Stage 1 CSSI Approval.

Undertaking utility assessments:

- undertake demand modelling to determine utility demand rates based on the intended use and using authority demand rates
- consider building specific utility demand draws and the effects of changes in building use such as decreased electrical usage or changes to gas demand.

Incorporating sustainability initiatives:

- incorporate building and station precinct initiatives including BASIX and any other selected sustainability (e.g., Green Star Ratings or NABERS)
- coordination with any precinct wide utility sustainability measures.

Utility authority consultation:

- development and submission of feasibility applications to each utility authority with projected demands
- incorporation of utility agency advice around servicing options, routes, timings, costs and timings for delivery.
- Continual coordination around any changes to demand assessments and detailing of any further assessments or studies required to confirm supply methods (e.g. water or wastewater modelling).

Identifying next steps:

- Plans of potential utility decommissions, supply points and potential constraints
- Detailing of further investigations or additional works required during subsequent design stages
- Confirmation of the feasibility of obtaining utility servicing for the development.

3.2 Assessment status

Baseline demand calculations have been undertaken and feasibility applications to the utility authorities prepared according to the development yields available at the time of application submittal.

Initial feasibility applications have been submitted to the authority owners on 23-June-2021. To date, only Sydney Water has provided input.

The development profile under consideration for the proposed development is shown Table 3-1.

Table 3-1 Demand assessment development profiles (Sydney Metro, December 2021)

Investigation	Indicative commercial space GFA (m ²)
Commercial	81,769
Retail	1,454
Station	1,064
Total site	84,287

The station box and station servicing building are not included in this development profile and have been calculated separately. Both the station box and station servicing building are being assessed under the Stage 3 CSSI Application.

The GFA figures are provided for the purposes of assessing the required utility infrastructure upgrades and may be subject to change as the architectural design of the proposed development continues.

3.3 Sustainable development initiatives

A separate Ecologically Sustainable Development (ESD) Report (Appendix P) has been developed for the site. Key initiatives that may be applicable are covered in section 4.9 Sustainability initiatives of the report. These will be investigated and developed as the design progresses, including evaluation of impact on indicative demands.

- high overall targets for green building ratings, including Climate Positive pathway considerations
- an overall water strategy to reduce potable water consumption and support water resilience
- maximising onsite renewable energy
- electric vehicle capabilities.

4 Utility investigation

This report details the investigation of existing utilities in the vicinity of Hunter Street east development, the likely points of future connection to the utilities; and associated potential upgrades or augmentation that may be required. This report does not consider any utility infrastructure outside the stations Hunter Street precinct and its potential relationship to, or impact on the supply of utility services to the site.

While preliminary development staging and sequencing information has formed the basis of consultation with utility providers to date, the final staging of utility works and the protection of assets is dependent on detailed construction staging and shall be developed in detail at a later stage during the preparation of the Detailed SSDA.

As a part of the desktop investigation, utility information was obtained from a number of sources:

- 'Dial Before You Dig' Enquires
- utility authority GIS systems
- site utility surveys (varying from Quality Level A to D)
- information provided for utility agencies.

Subsurface Utility Investigations (SUIs) were undertaken at Hunter Street eastern sites in January 2022. These included slit trench excavations surrounding the proposed station sites. 3-dimensional survey data has been produced and pit cards of exposed utility assets stored on GIS platform Moata.

Heritage assets Sydney Tank Stream and Bennelong drains were also surveyed, and information collected to date, includes

- a pre-construction dilapidation inspection report of the Sydney Tank Stream.
- Tank Stream cross sections.
- Tank Stream and Bennelong CCTV survey.

Further utility surveys/investigations maybe identified as the design stages progress or gaps in existing utility information is found.

Table 4-1 below is a summary of the identified utility providers in the precinct of the Hunter Street western site.

Table 4-1 Network utility operators

Utility type	Authority name	Potential impacts
Stormwater	City of Sydney	Yes
Stormwater	Sydney Water Corporation	Yes
Wastewater	Sydney Water Corporation	Yes
Potable Water	Sydney Water Corporation	Yes
Telecommunications	Telstra	Yes
Telecommunications	NBN Co.	Yes
Telecommunications	Uecomm	Yes
Telecommunications	Optus	Yes
Telecommunications	TPG Telecom	Yes
Electrical	Ausgrid	Yes

Utility type	Authority name	Potential impacts
Gas	Jemena Gas West	Yes

A combined services plan for the site has been developed in Figure 4-1

- existing utility arrangements within the precinct area
- potential constraints with the utility servicing and crossings
- utilising existing utility infrastructure for proposed OSD connections from O'Connell Street, Hunter Street and Bligh Street.

These services are shown only schematically, and details are to be developed in subsequent design phases as the architectural, survey information and services design develops.

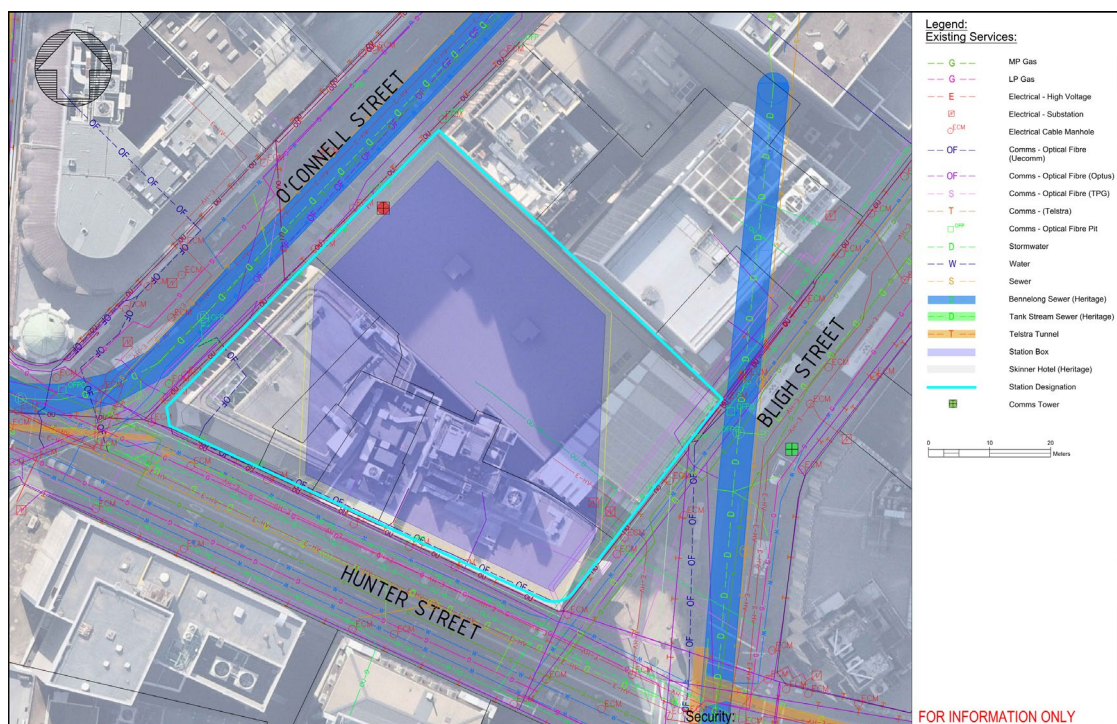


Figure 4-1 Existing combined utilities at the eastern site

5 Coordination with enabling works

As a part of the tunnel and station excavation works for Sydney Metro West, utility protection, amendment or relocation works will need to be undertaken. These will take place prior to any planning works proposed as part of the Stage 3 CSSI Application and include:

- subsurface utility investigations (SUIs) and survey of existing utilities surrounding and impacted by the developments
- pre-condition surveys of gravity networks impacted by developments
- City & Southwest construction power investigated for SMW utilisation
- decommission existing utility services to lots within development's designation
- protection to shallow utility services in footpaths surrounding the developments from construction activities.

The enabling works are still being fully developed and are subject to change. A summary of identified utilities enabling works has been provided in the sections below.

5.1 Ausgrid Electricity

Construction power requirements, approval and design as well as sub-station relocations and decommissions are proposed for the site. It is proposed that the existing City & Southwest construction power supply at 33 Bligh Street could be re-purposed for both the East and West Hunter Street sites' construction power supply.

5.2 Sydney Water Corporation

Asset owners of wastewater, stormwater, and potable water networks within the CBD. Specialist engineering assessments of critical or heritage assets for construction impacts.

Monitoring of heritage and major assets including Sydney Tank Stream, Bennelong drains, critical wastewater sewers and potable water mains surrounding and adjacent to the proposed developments. Mitigation measures employed shall be based on engineering assessment with settlement monitoring during the development's construction.

5.3 City of Sydney

Protection to existing stormwater catch pits within the catchment from impacts during flood events. Pre-condition surveys and cleaning where identified.

Potential stormwater connections identified for the over station developments using existing catch pits and carrier pipes along Hunter Street.

5.4 Telecommunication networks

Decommission communication towers and connections to lots within developments designation. Protection and monitoring to existing communication networks surrounding sites including critical assets such as Telstra tunnels and fibre optic networks.

Ongoing discussions will be held with telecommunications services providers regarding these assets and the proposed development.

5.5 Gas networks

Identification of gas networks and feeds. Decommission existing connections to lots within the site designation.

6 Utility assessment CSSI works

6.1 Utility scope

The CSSI scope has identified various existing utility assets for decommission, relocation or protection for the construction of the Hunter Street station boxes. The utility works would be carried out as part of the CSSI enabling works, to allow for the demolition of existing properties within the site boundary, and the excavation and construction of the station boxes. These works would also enable future connections to the OSD.

6.2 Stormwater

The Hunter Street stormwater network comprises of both Sydney Water Corporation (SWC) and City of Sydney (CoS) assets. The site is located within Sydney Water's city area catchment 29, shown below in Figure 6-1. Stormwater catch pits and carrier pipes are assets belonging to the City of Sydney.

Survey information of the Hunter Street catch pits has been captured in detailed topographic survey and subsurface utility surveys.

A separate stormwater assessment has been undertaken refer to Flooding Assessment (Appendix V of the EIS).

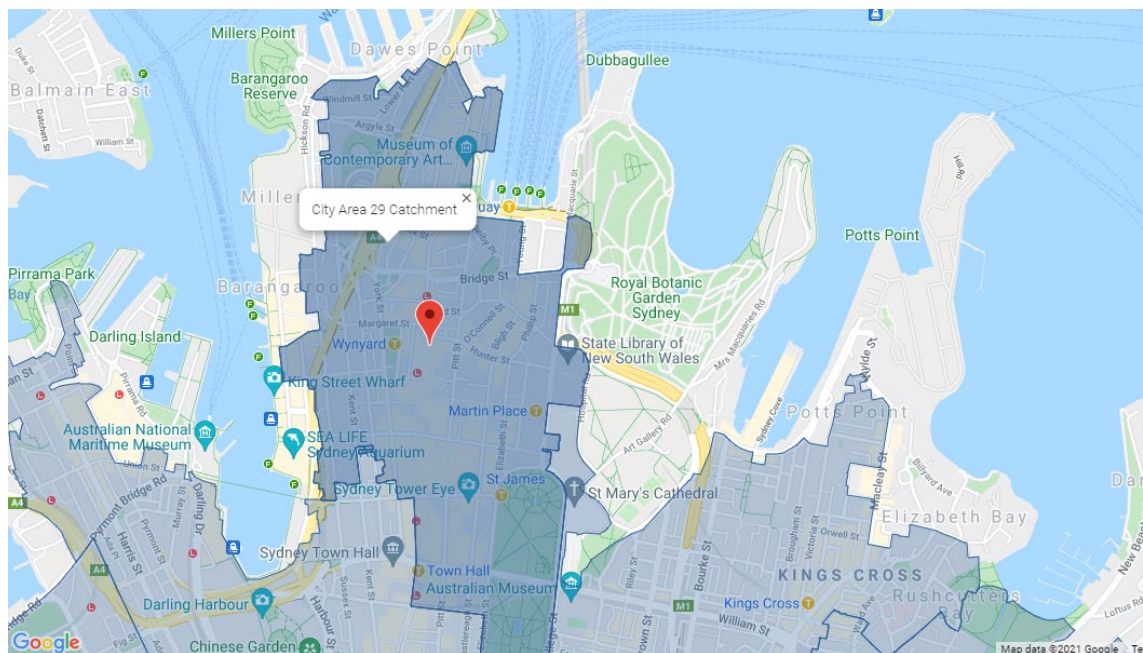


Figure 6-1 Stormwater catchment 29 and Hunter Street (Sydney CBD) station

6.2.1 Existing assets

Treatments to existing drainage assets within the site boundary are part of the CSSI enabling works scope, that require decommission, relocation, temporary connections, or protection for construction of the station shaft.

6.2.2 Heritage assets

A number of stormwater heritage assets (highlighted in blue) are adjacent to and service the site. These include:

- 410x610mm brick oviform, Sydney Bennelong drains along O'Connell Street
- 410x610mm brick oviform, Sydney Bennelong drains along Castlereagh Street, crossing Hunter Street. to Bligh Street.
- protection and monitoring of heritage drains
- decommission existing stormwater connections servicing existing lots within the site boundary
- drainage connection during construction phase of the station

For further discussion on these heritage items, refer to the Historic Heritage Impact Assessment report (Appendix Z of the EIS).

6.3 Wastewater

6.3.1 Background

The site is located within the wastewater catchment serviced by SWC Bondi wastewater treatment plant as per Figure 6-2 below.

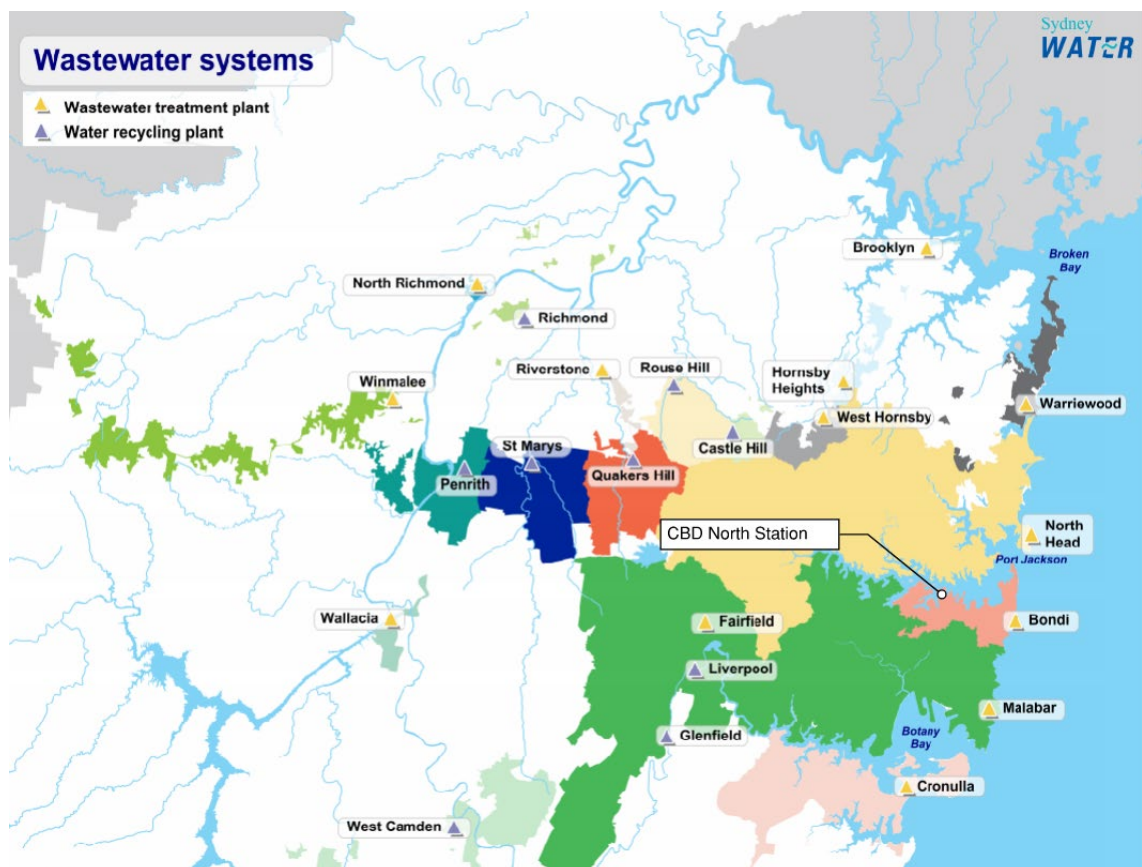


Figure 6-2 Bondi wastewater catchment plan (Sydney Water, 2021)

6.3.2 Existing assets

Utility survey information identifies existing sewer connections and trunk sewers servicing lots within the site boundary.

Treatment to existing utilities would be part of the CSSI enabling works scope that require decommission, relocation or protection as part of the works.

- protect existing DN150mm Vitrified Clay pipe in footpath along Hunter St. of the proposed development.

6.4 Potable water

6.4.1 Background

Water is sourced from a number of water sources including Coxs, Kowmung, Nattai, Wingecaribee, Wollondilly and Warragamba rivers which are stored at Warragamba Dam. When required during droughts, additional sources include Cataract, Cordeaux, Avon and Nepean rivers and Shoalhaven River System.

The water is treated at the Prospect Water Filtration Plant before transported to Potts Hill reservoirs where it is delivered to the local areas via gravity or a pumping station where necessary. The supply can be additionally augmented with desalinated water from the Sydney Desalination Plant. Locations for water infrastructure is shown below in Figure 6-3.



Figure 6-3 Potts Hill water delivery system (Sydney Water Corporation, 2021)

6.4.2 Existing assets

Potable Water servicing is provided by Sydney Water, the desktop information indicates the presence of a number of Sydney Water assets in the surrounding area.

Any treatment to an existing potable water asset would be part of the CSSI enabling works scope that require decommission, relocation or protection as part of the station shaft construction works.

- decommission existing potable water connections to lots within the proposed site boundary

6.5 Telecommunications

6.5.1 Existing assets

Utility survey information to date indicates several ICT assets in the vicinity of the site Telstra, Optus, TPG, Uecomm and NBN. All fibre and telecommunication connections within the site boundary would be decommissioned under the CSSI scope.

6.6 Electrical

6.6.1 Existing assets

Electrical infrastructure in the Hunter Street precinct is provided by Ausgrid, utility survey information identifies high voltage ($\geq 11\text{kV}$) assets including cables and substations within the eastern site boundary.

Any treatments to existing electrical assets within station boundary are part of the CSSI enabling works scope that would require decommission, relocation or protection as part of the station shaft works, including:

- future high voltage connection modifying existing substation located at Bligh Street site boundary
- decommission low voltage power supplies to existing properties, from distribution pits along Bligh Street, Hunter Street and O'Connell Street development
- protection to shallow power utilities from construction activities in footpaths surrounding the proposed station development.

6.7 Gas

6.7.1 Existing assets

Gas servicing in the Hunter Street precinct is provided by Jemena. Utility survey information indicates low pressure and high-pressure gas reticulation surrounding the site.

To allow for construction and servicing of the station shaft, gas decommission works to the existing lots would be carried out as part of the CSSI scope.

7 SSD utility works

7.1 SSD scope

New utilities to service the proposed OSD development is part of the SSDA scope, requiring new connections to existing utility infrastructure in the precinct. Initial feedback from Sydney Water indicates existing utility supplies could service to proposed development. The SSD scope would occur subsequent to the CSSI works.

7.2 Proposed development drainage servicing

New drainage connections servicing the OSD are part of the SSDA scope, a summary of potential stormwater works is provided below.

- OSD drainage connections utilising existing City of Sydney carrier pipes from Bligh Street to the Bennelong drain and a proposed new connection to O'Connell Street Bennelong drain
- proposed stormwater attenuation tank for the OSD.

While these connections have been coordinated with the OSD and Metro teams through Stage 1 design, the full details are contained within the Integrated Water Management Plan report (Appendix U of the EIS).

7.3 Proposed development wastewater servicing

To allow for construction and servicing of the proposed OSD development, the following alteration works are required:

- proposed wastewater connections to vitrified clay pipes DN225 along O'Connell St and DN150 along Hunter Street

Following Sydney Water consultation, Sydney Metro has received a feasibility letter dated 22nd February 2022 which states:

"The proposed development is within Sydney West SCAMP and is a part of Bondi System. Currently the development area is connected to different locations that drains to SP0016. Modelling results show that the existing sewer mains servicing the area have sufficient capacity to service the proposed development and SP0016 has sufficient capacity to service the growth."

There are no proposed upgrades to Sydney Water's sewer network due to the development.

7.3.1 Wastewater demand assessment

The estimated wastewater demand is calculated based on the standard unit rates summarised in Table 7-1 below and the development yields in section 3.2. This development yield was used for the purposes of utilities infrastructure assessments and feasibility applications only and the final architectural designs should be used to confirm the building details. This demand assessment is summarised below in Table 7-2.

Table 7-1 Sewer design loading criteria

Land use	Design criteria	Unit	Demand rate	Source
Commercial	Average Dry Weather Flow	EP/ha	300	Gravity Sewerage Code of Australia WSA 02-2014
Retail	Average Dry Weather Flow	EP/ha	75	Gravity Sewerage Code of Australia WSA 02-2014

Table 7-2 Estimated ADWF for wastewater

Commercial and retail (L/s)	Total ($\pm 15\%$) (L/s)
3.77	3.2 – 4.3

7.4 Proposed development potable water servicing

New utility connections to the OSD are part of the SSDA scope. To allow for the construction and servicing of the OSD development, the following works are required:

- proposed OSD connections to existing watermain along footpaths on O’Connell, Hunter and Bligh Streets
- requirement for dual water supply to the fire services with each connection having a DN150

The Sydney Water feasibility letter reference 6739000 with application date of February 24, 2022 states that:

“The development is within the Centennial Park water supply zone. High level assessment of the trunk system suggests there is sufficient capacity to service the development.”

There are no proposed upgrades to Sydney Water’s potable water network. It is important to note that proposed connections are preliminary and further work is required in subsequent design phases to confirm the final decommissions and servicing arrangements in consultation with Sydney Water Corporation.

7.4.1 Potable water demand assessment

A high-level demand assessment was undertaken based on the indicative building development yield. The development yields are detailed in section 2.2 and 3.2. This development yield has been referenced for the purposes of utilities infrastructure assessments only and the final architectural designs shall be used to confirm the proposed development demands.

The estimated water demand is calculated based on the standard unit rates summarised in Table 7-3, as shown in Table 7-4.

Table 7-3 Potable water design loading criteria

Land use	Design criteria	Unit	Demand rate	Source
Commercial	Max Day Demand	kL/ha/day	63	WSA 03-2011
Retail	Max Day Demand	kL/ha/day	41	WSA 03-2011
BASIX reduction (apartments only)	N/A	kL/Day	40% reduction	Building Sustainability Index

Table 7-4 Estimated maximum day demand for potable water

Commercial and retail (kL/day)	Total \pm 15% (kL/day)
470	400 - 540

7.5 Proposed telecommunications servicing

To allow for construction and servicing of the development, the following alteration works are required:

- new OSD telecommunication ducting and connections to the existing infrastructure including service providers pits along O'Connell, Hunter, and Bligh Streets

Proposed telecommunication works, and potential new building connections are still under development and further work is required in subsequent design phases to confirm the final relocations and servicing arrangements in consultation with the various utility providers.

7.5.1 Telecommunications demand assessment

No demand assessment has been undertaken for ICT services at this stage, however initial site utility survey indicates sufficient telecommunication service pits along George and Hunter Street for connections.

The quantity and type of connections will be confirmed by the building services designers and coordinated with utility service providers at a future design stage.

7.6 Proposed development electrical servicing

To allow for construction and servicing of the development, the following alteration works are required:

- high voltage electrical ducting and connection from Bligh Street
- new OSD substation to service the proposed development
- existing low voltage electrical infrastructure and service pits in footpaths for OSD supply

The proposed electrical works and connection details are still under design development and further work is required for subsequent design stages to confirm the final relocations and servicing arrangements in consultation with Ausgrid.

7.6.1 Electrical demand assessment

A high-level demand assessment was undertaken based on the indicative proposed development yield; this development yield is detailed in section 3.2. This development yield has been referenced for the purposes of utilities infrastructure assessments only and the final architectural designs shall be used to confirm the proposed development demands.

The estimated electrical demand (is calculated based on the standard unit rates) summarised in Table 7-5 and Table 7-6 below and the development yields provided in section 3.2.

Table 7-5 Electrical design loading criteria

Land use	Design criteria	Unit	Demand rate	Source
Commercial – office -	Peak demand	kV/Am ²	110	Ausgrid NS109 – Table 4 Guide to Typical Load Densities.
Retail – air conditioned	Peak demand	kV/Am ²	150	Ausgrid NS109 – Table 4 Guide to Typical Load Densities.
Diversity factor	N/A	%	80	AS3000

Table 7-6 Estimated electrical peak demand, including 0.8 diversity factor (MVA)

Commercial and retail (incl. 0.8 Diversity Factor) (MVA)	Total ± 15% (MVA)
6.20	5.27 – 7.13

7.7 Proposed development gas servicing

No gas connections are proposed for the OSD, and no impacts on the existing network is foreseen by the development.

7.7.1 Gas demand assessment

There are no proposed gas connections to the OSD or metro station in line with the development's sustainability strategy.

8 Cumulative impacts

For the purpose of providing a high-level assessment of the potential environmental impacts directly associated with the Concept SSDA development were considered the subject of this SSD Application, in addition to the cumulative impacts associated with the CSSI (Metro Station), Martin Place North OSD, Martin Place South OSD, 2 Chifley Square, 4-6 Bligh Street, 15-25 Hunter Street, 105-107 Pitt Street and the Hunter Street Eastern OSD.

A high-level cumulative assessment was undertaken in consistency with that undertaken for Stage 3 of the EIS of the CSSI under the assumption that the Hunter Street Station would be constructed at the same time with this proposal as a worst-case scenario.

Limited information regarding the estimated demand of utility requirements of neighbouring sites. Utility providers to determine the effective demand of all sites and coordinate utility works to ensure adequate servicing.

Appropriate diversions, protections and utility upgrades will be facilitated by utility provider inputs following completed consultations.

Any cumulative impacts on utility infrastructure will be discussed with utility providers. No additional mitigation measures will be required for the site.

9 Utility authority consultation

As a part of the utility services assessment process, feasibility applications have been submitted to the following utility authorities with the estimated demand of the development and indicative servicing arrangements for authority review and comment:

- Sydney Water Corporation
- NBN
- Ausgrid
- Jemena

Further consultation to the specific design responses with utility authorities will be required as part of future applications.

10 Conclusion

Assessment summary

This Utilities & Infrastructure Servicing Assessment has concluded that servicing is available to the proposed OSD site with indicative connections for each service being:

- stormwater flows from the OSD through existing connections to the Bennelong drain along Bligh Street and new proposed connection to O'Connell Street Bennelong drain
- wastewater servicing the OSD is proposed utilising existing connections from the existing lots to the trunk sewers DN300 along O'Connell Street and Hunter Street
- potable water servicing for the OSD via existing DN250 mains reticulation along O'Connell Street, Hunter Street and Bligh Street. Dual DN150 supply is required for OSD fire services
- exiting telecommunications infrastructure and service pits in footpaths surrounding the proposed OSD, providers include Telstra, NBN TPG and Optus. Installation of new ducting and telecommunication connections to existing infrastructure to service the OSD along O'Connell Street, Hunter Street and Bligh Street
- electrical high voltage electrical supply to be provided by Ausgrid from a Bligh Street connection to a new substation servicing the proposed OSD
- gas reticulation is provided by Jemena in the Hunter Street precinct. There are no proposed gas connections for the OSD in line with the development's sustainability strategy.

Existing utility services, projected utility demands and potential opportunities/constraints have been considered for servicing of the proposed OSD. It should be noted the utility assessment has been based on the initial consultation advice from Sydney Water for stormwater, wastewater and potable water only.

The proposed OSD is subject to further design development as part of Detailed SSDAs, that is required to ensure adequate servicing includes:

- further coordination with utility agencies on lead-in infrastructure connections and any amplifications of existing assets
- further utility investigation including slit trenching and obtaining Quality Level A survey information of existing utility assets
- implementation of selected sustainability initiatives in the building design and revised demand modelling to determine the impacts on the required lead-in infrastructure
- formal connection applications for utility services through appropriate channels such as Water Service Coordinators and Accredited Service Providers
- development of formal utility relocation and connection packages to the utility agencies including any protection details of existing utility assets.

Further utility information will be included as part of future Detailed SS

