ENVIRONMENTAL IMPACT STATEMENT

Waterloo Metro Quarter
Over Station Development
Basement Carpark
Detailed State Significant
Development Application

Prepared for
WL DEVELOPER PTY LTD
26 October 2020

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Peter Strudwick
Associate Director	Ashleigh Ryan
Consultant	Jack Kerstens

Reference	Description
Applicable SSD Applications	SSD-10438 – Basement Car Park Detailed Design SSDA
Author	Urbis Pty Ltd Ashleigh Ryan
Reviewed	Waterloo Developer Pty Ltd MR and PM
Document Number	WMQ-BSMT-EIS-RPT-003
Status	Final
Version	5
Date of Issue	26 October 2020
© Waterloo Developer Pty Ltd 2020	

urbis.com.au

CONTENTS

FIGURES

TABLES

DECLARATION

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

This Environmental Impact Statement has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

Environmental Assessment prepared by:

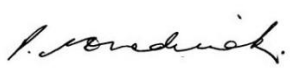
Names:	Peter Strudwick (Director), Bachelor of Town Planning, University of NSW Ashleigh Ryan (Associate Director), Bachelor of Plan (Hons 1), University of NSW Jack Kerstens, Bachelor of Regional and Town Planning (Hons), University of Queensland
Address:	Urbis Pty Ltd Level 8, 123 Pitt Street Sydney NSW 2000
In respect of:	SSD-10438 – Waterloo Metro Quarter OSD – Basement Car Park Detailed Design SSDA

Applicant and Land Details:

Applicant:	WL Developer Pty Ltd
Applicant address	Level 10, 54 Park Street Sydney NSW 2000
Land to be developed:	The Waterloo Metro Quarter site - land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street. The heritage listed Waterloo Congregational Church located at 103–105 Botany Road is within this street block but is not part of the Sydney Metro Waterloo Quarter site boundaries.
Legal description:	The detailed Basement SSDA site: 1368 Raglan Street (Lot 4 DP 215751) (Part); 59 Botany Road (Lot 5 DP 215751) (Part); 65 Botany Road (Lot 1 DP 814205) (Part); 67 Botany Road (Lot 1 DP 228641) (Part); 124-128 Cope Street (Lot 2 DP 228641) (Part); 69-83 Botany Road (Lot 1, DP 1084919); 130-134 Cope Street (Lot 12 DP 399757) (Part); 136-144 Cope Street (Lots A-E DP 108312) (Part); 85 Botany Road (Lot 1 DP 27454); 87 Botany Road (Lot 2 DP 27454); 89-91 Botany Road (Lot 1 DP 996765); and 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891) (Part).
Project Summary	Detailed State significant development application for the detailed design, construction (including excavation) and use of a two level basement car park to service the Waterloo Metro Quarter site.

We certify that the content of the Environmental Impact Statement, to the best of our knowledge, has been prepared:

- In accordance with the requirements of the *Environmental Planning and Assessment Act 1979*, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, *Environmental and State Environmental Planning Policy (State and Regional Development) 2011*;
- Contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which that statement relates; and
- The information contained in this report is neither false nor misleading.

Name/Position	**Peter Strudwick, Director**	**Ashleigh Ryan, Associate Director**	**Jack Kerstens, Consultant**
Signature:			
Date:	26 October 2020	26 October 2020	26 October 2020

GLOSSARY & ABBREVIATIONS

Reference	Description
100 year ARI	1 in 100 year flood (average recurrence interval)
ACHAR	Aboriginal Cultural Heritage Assessment Report
ADG	Apartment Design Guide
AHD	Australian height datum
AMS	Archaeological Method Statement
AQIA	Air Quality Impact Assessment
ARD	Archaeological Research Design
BASIX SEPP	State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
BC Act	Biodiversity Conservation Act 2016
BC Reg	Biodiversity Conservation Regulation 2017
BCA	Building Code of Australia
BDAR	Biodiversity Development Assessment Report
CEEC	critically endangered ecological community
CEMP	Constructional Environmental Management Plan
CHP	Community Housing Provider
CIV	capital investment value
CMP	Construction Management Plan
Concept DA	A concept DA is a staged application often referred to as a ‘Stage 1’ DA. The subject application constitutes a detailed subsequent stage application to an approved concept DA (SSD 9393) lodged under section 4.22 of the EP&A Act.
Contributions Plan 2015	City of Sydney Development Contributions Plan 2015
Council	City of Sydney Council
CPTED	Crime Prevention Through Environmental Design
CPTMP	Construction Pedestrian Traffic Management Plan
CSSI approval	critical State significant infrastructure approval
CTMP	Construction Traffic Management Plan
DA	development application

Reference	Description
DAPS	Disability (Access to Premises - Buildings) Standards, 2010
DCP 2012	Sydney Development Control Plan 2012
DDA	Disability Discrimination Act 1992
DEEP	Design Excellence Evaluation Panel
Design Guidelines	Waterloo Design Amenity Guidelines
DIR	Design Integrity Report
DPIE	NSW Department of Planning, Industry and Environment
DRP	Sydney Metro Design Review Panel
DTS	Deemed-to-Satisfy
EIS	Environmental Impact Statement
EOI	Expression of Interest
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
EPA Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESD	ecologically sustainable design
GANSW	NSW Government Architect's Office
GEM	Gust Equivalent Mean
GFA	gross floor area
GBCA	Green Building Council of Australia
GTP	Green Travel Plan
HCA	Heritage Conservation Area
HIA	Heritage Impact Assessment
HIS	Heritage Interpretation Strategy
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
LAHC	Land and Housing Corporation
LGA	Local Government Area
LSPS	Local Strategic Planning Statement

Reference	Description
MGB	1100L bin
MRV	Medium Rigid Vehicle
NCC	National Construction Code
OSD	over station development
PIR	Preferred Infrastructure Report
PMF	Probable Maximum Flood
POM	Plan of Management
PSI	Preliminary Site Investigation
RL	Reduced Level
RMS	Roads and Maritime Services
SACL	Sydney Airport Corporation Limited
SDRP	NSW State Design Review Panel
SDRP SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SEPP 55	State Environmental Planning Policy No 55—Remediation of Land
SEPP 64	State Environmental Planning Policy No. 64 – Advertising and Signage
SEPP 65	State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development
SLEP 2012	Sydney Local Environmental Plan 2012
SRV	Small Rigid Vehicle
SSD	State significant development
SSD 9393	Concept DA
SSDA	State significant development application
SSI	State significant infrastructure
SSI 15_7440	CSSI Approval
Sydney CBD	Sydney Central Business District
TfNSW	Transport for New South Wales
The Church	Waterloo Congregational Church

Reference	Description
The proposal	The proposed development the subject of this detailed SSDA
The site	The site the subject of the detailed SSDA
The Station Contractor	John Holland
TIA	Traffic Impact Assessment
Transport for NSW	Transport for New South Wales
VIA	Visual Impact Assessment
VPA	Voluntary planning agreement
WMP	Waste Management Plan
WMQ	Waterloo Metro Quarter
WSUD	water sensitive urban design

EXECUTIVE SUMMARY

This Environmental Impact Statement (**EIS**) has been prepared to accompany a detailed State significant development (**SSD**) development application (**DA**) seeking approval for a two-storey shared basement car park and associated excavation located below the northern and central precincts of the Waterloo Metro Quarter site.

The basement car park will primarily support vehicle parking and end of trip facilities (EOTF) for the proposed commercial office building (building 1) at the northern precinct, and vehicle parking and residential storage facilities for the mixed-use residential building (building 2) at the central precinct of the Waterloo Metro Quarter site. The basement also accommodates parking provisions for the social housing component (building 4), as well as a select number of vehicle spaces for the Waterloo Congregational Church and Sydney metro uses.

This EIS should be read in conjunction with the Secretary's Environmental Assessment Requirements (**SEARs**) dated 9 April 2020 and included at **Appendix A**, and the supporting technical documents provided at **Appendix B – Appendix HH**.

This EIS has been prepared in accordance with and meets the minimum requirements of clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (**the EP&A Regulation**) and contains an assessment of the proposal against the relevant considerations under Section 4.15 of the E*nvironmental Planning and Assessment Act 1979* (**EP&A Act**).

SYDNEY METRO

Sydney Metro is Australia's biggest public transport project. There are four core components:

Metro North West Line (formerly the 36 kilometre North West Rail Link)

Services started in May 2019 in the city's North West between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and $1 billion under budget.

Sydney Metro City & Southwest

The Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Barangaroo, Crows Nest, Victoria Cross, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

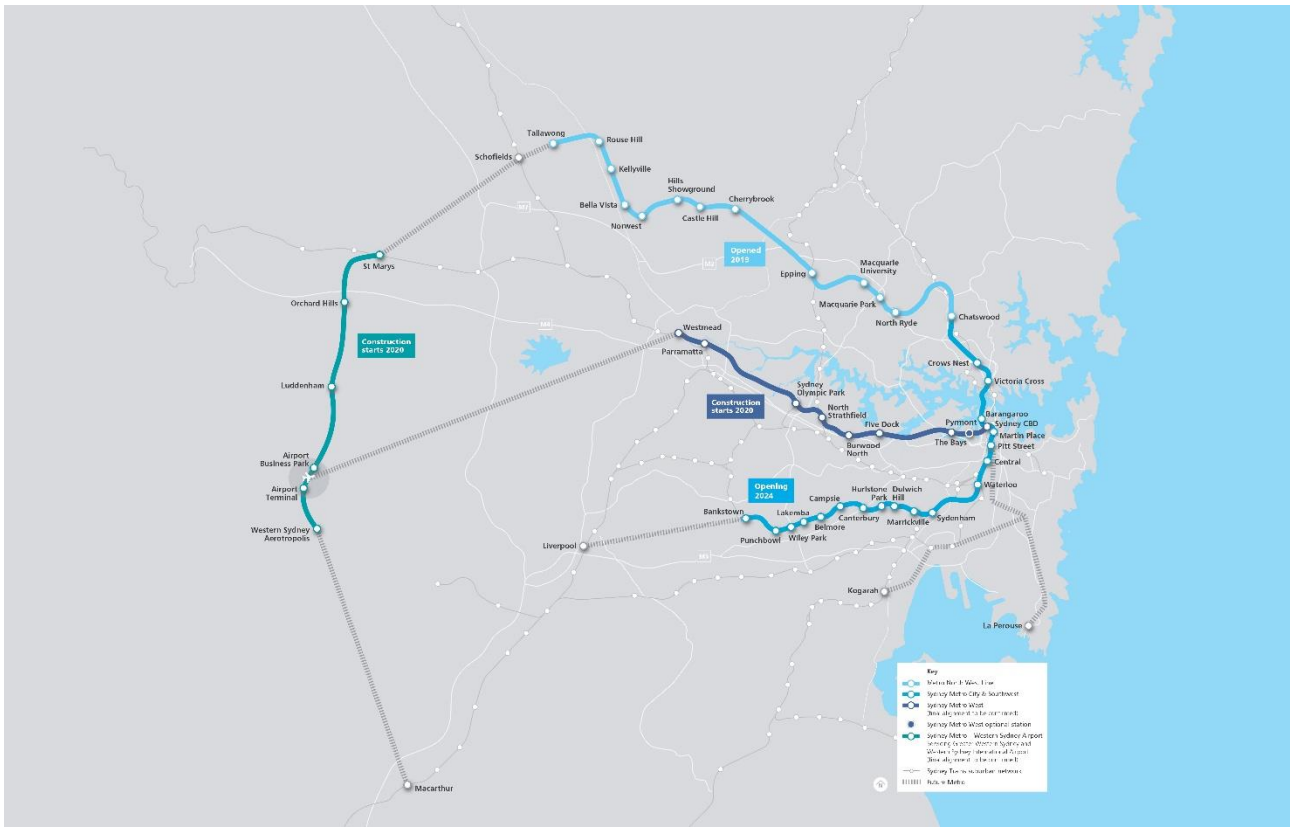
Sydney Metro - Western Sydney Airport

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. Six new stations will be delivered at St Marys, Orchard Hills, Luddenham, Airport Business Park, Airport Terminal and Western Sydney Aerotropolis. The Australian and NSW governments are partners in the delivery of this new railway.

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a Critical State significant infrastructure project (reference SSI 15_7400) (CSSI approval). The terms of the CSSI approval includes all works required to construct the Sydney Metro Waterloo Station, including the demolition of existing buildings and structures. The CSSI approval also includes construction of below and above ground structures associated with the metro station and structures required to facilitate the construction of over station development (**OSD**).

The Sydney metro network is illustrated in **Figure 1** below.

Figure 1 Sydney Metro Alignment Map



Source: Sydney Metro

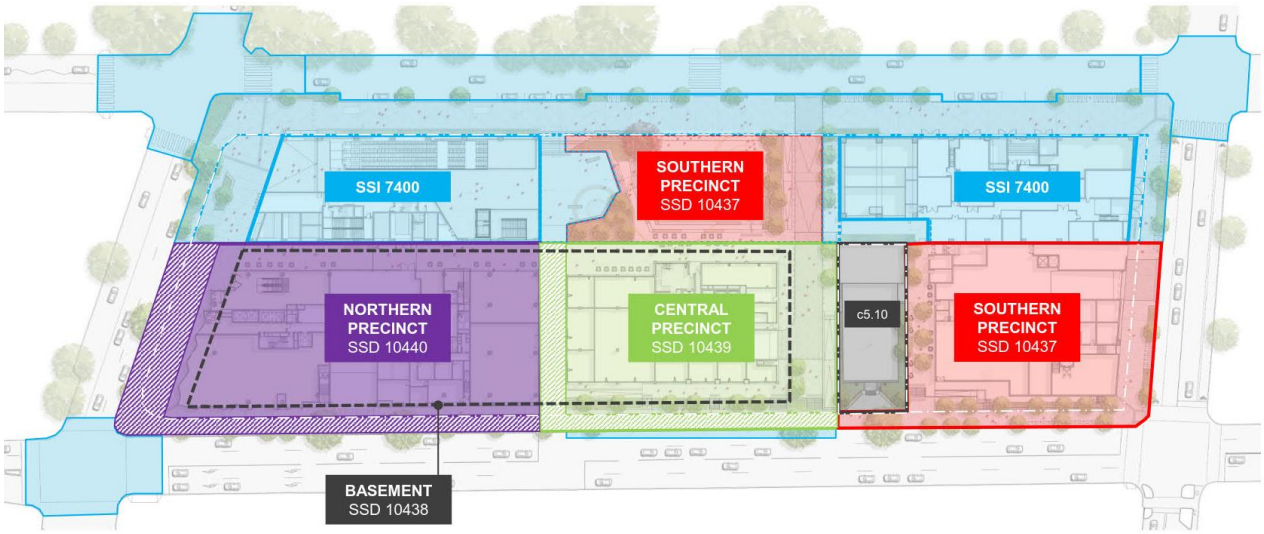
THE SITE

The site is located within the City of Sydney Local Government Area (**LGA**). The site is situated approximately 3.3 kilometres south of Sydney CBD and approximately 7.5 kilometres northeast of Sydney International Airport within the suburb of Waterloo.

The Waterloo Metro Quarter site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to **Figure 2**). The heritage listed Waterloo Congregational Church located at 103–105 Botany Road is within this street block but does not form a part of the Waterloo Metro Quarter site boundaries.

The Waterloo Metro Quarter site is a rectangular shaped allotment and has an overall site area of approximately 1.287 hectares. This detailed SSDA applies to the basement area (the site) of the Waterloo Metro Quarter site. The boundaries of the basement area are illustrated at **Figure 2.**

Figure 2 Waterloo Metro Quarter with sub-precincts identified



Source: The applicant

BACKGROUND

CSSI Approval – CSSI 7400

The CSSI approval (CSSI 7400), as it relates to the Waterloo metro station, includes:

- Demolition of existing buildings within the site.
- Excavation of the rail tunnel, concourse and platforms and therefore the setting of surrounding structural zones, services and accesses.
- Establishment of an aboveground station footprint (station boxes).
- Space provisioning for future lift cores, access, minor associated parking provision, retail and building services for the future OSD.
- Station entry via a Raglan Street, and via the public plaza from Cope Street.
- Public domain works (including to parts of the Raglan Street Plaza and the Cope Street Plaza).

The CSSI approval included Indicative Interface Drawings for the below and above ground works at Waterloo metro station. Section 2.3 of the Preferred Infrastructure Report (**PIR**) noted that the integration of the OSD elements and the metro station elements would be subject to the design resolution process, noting that the detailed design may vary from the concept design assessed within the planning approval.

Condition E101 of that approval requires that a detailed Station Design and Precinct Plan (**SDPP**) be approved by the Secretary of the Department of Planning Industry and Environment (**DPIE**) prior to the construction of above ground works.

Concept Approval – SSD 9393

Development consent was granted on 10 December 2019 for the concept SSDA (SSD 9393) for the Waterloo Metro Quarter OSD including:

- A maximum building envelope for podium, mid-rise and tower buildings.
- A maximum gross floor area of 68,750sqm, excluding station floor space.
- Conceptual land use for non-residential and residential floor space.
- Minimum 12,000sqm of non-residential gross floor area including a minimum of 2,000sqm of community facilities.

- Minimum 5% residential gross floor area as affordable housing dwellings.
- 70 social housing dwellings.
- Basement car parking, motorcycle parking, bicycle parking, and service vehicle spaces.

This subject detailed SSDA seeks development consent for the basement car park located below the northern and central precincts of the site, consistent with the parameters of this concept approval. Separate SSDA's will be prepared for northern precinct, central precinct, and southern precinct proposed across the Waterloo Metro Quarter site.

Proposed Concurrent Amending Development Application

An amending concept DA has been lodged concurrently with this DA in accordance with Section 4.22 of the EP&A Act. It seeks approval to amend the building envelope and description of development approved under SSD 9393.

Specifically, the amending concept DA seeks consent to modify the approved building envelope for the northern precinct (previously comprising 'Building A', 'Building B', 'Building C' and 'Building D' under SSD 9393), as well as minor amendments to building 2 which is located in the central precinct, through:

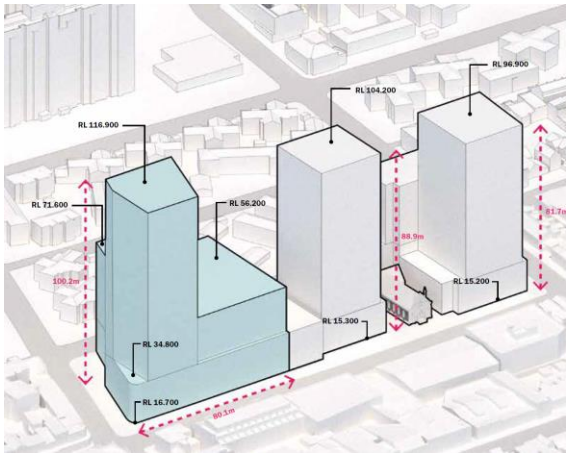
- Increasing the maximum building height for the southern portion of the building envelope from RL56.2 to RL72.60.
- Removing the 'tower component' of the northern precinct, reducing the overall height of the tower envelope from RL116.9 to RL90.40, to enable the redistribution of floor space to commercial office floor plates.
- Amending the description of development to refer to a mid-rise (approximately 17 storey) commercial office building, comprising approximately 34,125sqm of commercial office floor space within the northern portion of the site, rather than a third residential tower.
- Minor amendment to the podium design of Building 2 along the cope street plaza eastern façade to accommodate increased community GFA.
- Condition amendments to enable balustrades, pergola, and the like to be located outside of the approved building envelope and provide clarity on minor design items.

The modification to the approved concept SSDA will enable the detailed design of a new commercial building (comprising office and retail premises) to be pursued on the site, significantly increasing the proportion of employment generating floor space on the Waterloo Metro Quarter site. This new commercial building is proposed in replacement of four building envelopes approved under SSD 9393, which comprised one residential tower, and three mid-rise residential buildings.

This proposal will not exceed the permissible building height for the site under the SLEP 2012 or the maximum height approved under SSD 9393.

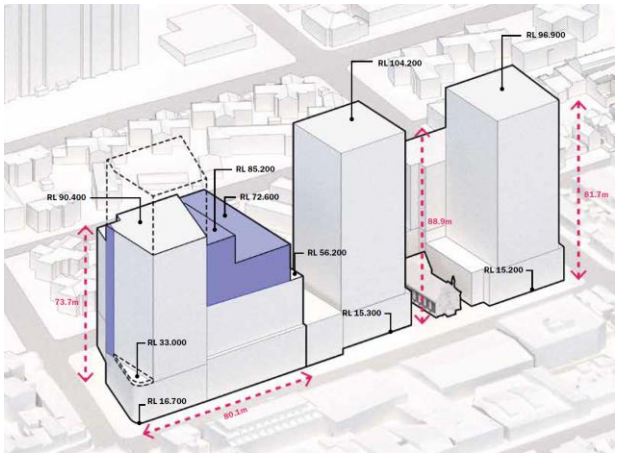
No changes are proposed to the concept approval as it relates to the southern precinct.

Figure 3 Proposed Amendments to Concept Approval SSD 9393



Picture 1 Approved envelope

Source: Hassell



Picture 2 Proposed amended envelope

Source: Hassell

DEVELOPMENT DESCRIPTION

The detailed SSDA seeks approval for the detailed design and construction of two-storey shared basement car park (including associated excavation) located below the northern and central precincts to service the staff, visitors and residents of the of the Waterloo Metro Quarter site.

The design of the proposed car park has considered the future development of the Waterloo Metro Quarter site and its relationship to the northern precinct and central building.

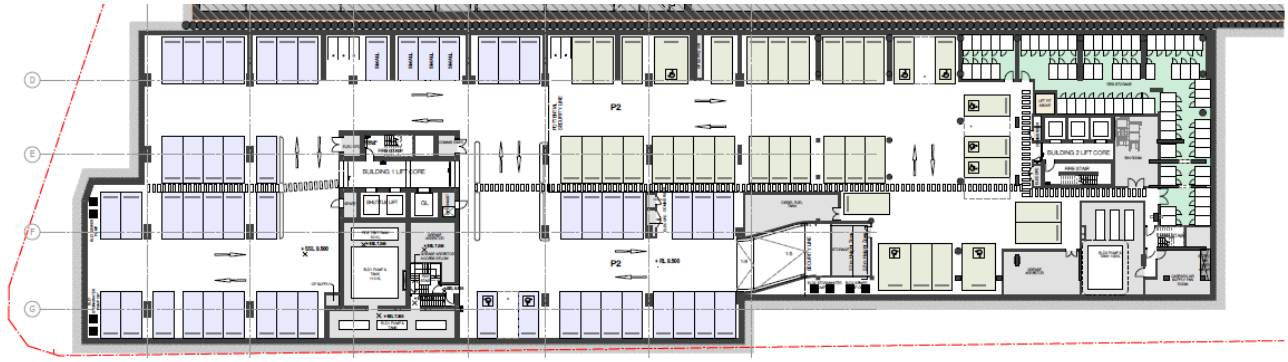
The detailed SSDA for the basement specifically seeks consent for the excavation and construction of a:

- Two-level shared basement comprising:
  - A maximum of 155 car parking spaces to support the operation of the commercial building 1, residential building 2, social housing building 4, car share provisions for the wider Waterloo Metro Quarter site, and spaces to service the Waterloo Congregational Church and Sydney metro users;
  - Ground floor slab structure
  - 13 motorcycle parking spaces for commercial and residential users;
  - Commercial and retail end of trip facilities and bicycle storage facilities;
  - Residential storage facilities and bicycle parking;
  - Shared plant and services provisions; and
  - In ground OSD tank located to south of building 2.

The proposed layout for the two-level basement is shown below in Figure 4.

Figure 4 Proposed Basement Configuration

Picture 3 Basement Level 1



Picture 4 Basement Level 2

Source: Woods Bagot

PROJECT NEEDS & BENEFITS

Waterloo metro station is a key new station on the Sydney metro network, comprising one of five metro stations in City of Sydney LGA, alongside Barangaroo station, Martin Place station, Pitt Street station and Central station (new underground platforms). The Waterloo metro station will be a key catalyst for the revitalisation of the Redfern-Waterloo Area and assist in reducing overcrowding at existing Redfern and Green Square train stations.

The Waterloo Metro Quarter OSD will be integrated with the construction of the station and is an opportunity to capitalise on the significant NSW Government investment into Sydney metro and truly integrate transport and land use.

The overall proposal, which is being delivered in stages, capitalises on the introduction of Sydney metro by providing a mixture of residential accommodation (both private market housing, affordable housing, social housing, and student accommodation), as well as approximately 34,000sqm of commercial office floor space above and adjacent the Sydney metro network, with connections to the Sydney CBD and strategic centres.

This detailed SSDA delivers a two-storey shared basement which accommodates car parking to support the commercial and private market housing, and social housing components of the Waterloo Metro Quarter project, along with parking provisions for the neighbouring Waterloo Congregational Church and Sydney metro uses. In addition, the basement accommodates commercial bicycle parking and end of trip facilities, and residential storage facilities and bicycle parking. The bicycle parking and end of trip facilities encourage active and public transport usage for all future workers and residents

Further, the basement also accommodates required shared plant and services provisions to support development proposed across the northern and central precincts.

PLANNING FRAMEWORK

The proposal is a SSD under Section 4.36(2) of the EP&A Act, as the development has a capital investment value (**CIV**) in excess of $30 million and is associated with railway infrastructure under clause 8(1)(b) of *State Environmental Planning Policy (State and Regional Development) 2011* (**SRD SEPP**).

In addition, the subject application constitutes a detailed subsequent stage application to an approved concept DA (SSD 9393) lodged under section 4.22 of the EP&A Act. This application is consistent with the concept DA as proposed by to modified by the amending DA (SSD 10441).

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

This EIS has been prepared to accompany the detailed SSDA which seeks consent for the proposal, in accordance with section 4.4 of the EP&A Act and the concept DA (SSD 9393) granted for a maximum building envelope on the site as proposed to be concurrently modified.

This EIS considers the relevant regulatory framework applicable to the site and the proposal and contains an assessment of the proposal against the following statutory controls and regulatory instruments:

- *Environmental Planning and Assessment Act 1979;*
- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy No. 55 – Remediation of Land;*
- *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005;*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017;*
- *Draft State Environmental Planning Policy (Environment);*
- *Draft State Environmental Planning Policy (Remediation of Land);*
- *Sydney Local Environmental Plan 2012;*
- *Sydney Development Control Plan 2012; and,*
- *Any exhibited Planning Proposal or draft State Environmental Planning Policy related to the land.*

The proposal has also been assessed in accordance with its consistency with the key planning objectives, priorities and actions outlined within relevant strategic land use and transport planning policies. Further, the proposal is in accordance with the Waterloo Metro Quarter Design and Amenity Guidelines (March 2020).

STAKEHOLDER CONSULTATION

To inform the detailed design of the development, consultation has been undertaken with the local community, government agencies including though not limited to:

- Department of Planning, Industry and Environment
- City of Sydney Council
- Transport for NSW
- Sydney Trains
- Sydney Metro
- Transport Coordination Office
- Land and Housing Corporation
- Department of Community Justice – Family and Community Services
- Aboriginal Affairs NSW

- NSW Fire
- Sydney Water
- Ausgrid
- Jemena
- NSW Police
- Sydney Local Health District
- Surrounding residents and businesses including though not limited to the Waterloo Congregational Church
- Relevant community groups including Waterloo Redevelopment Group, REDWatch, and South Sydney Business Chamber

A specific program to engage with Aboriginal stakeholders was also undertaken by Murawin, an Aboriginal placemaking consultancy.

Various strategies were implemented to ensure collaborative community involvement in the project, including emails to subscribers and stakeholders, stakeholder briefings, website information, community newsletters and updates, pop ups and community information sessions. Specific consultation has also occurred with the Aboriginal community through yarning circles, workshops, formal and informal briefings, updates, and partnerships.

Feedback received through the consultation has informed the detailed design of the proposed OSD. It is noted that feedback received through the consultation process will also inform the detailed design of the station, public domain design, further work related to the future retail tenancy strategy, programming works for the publicly accessible space, and other matters that are outside of the scope of the SSDA for the OSD.

IMPACTS & MITIGATION MEASURES

This EIS has addressed the SEARs requirements issued for the development and includes an assessment against the relevant environmental planning instruments, policies, and guidelines and demonstrates that the proposed development does not result in any significant departures from applicable controls or unreasonable environmental effects.

The general and key impacts resulting from the proposed development are outlined in detail in the EIS. Key impacts resulting from the proposed development include:

- Consistency with the concept approval (particularly with regard to vehicle parking, bicycle parking and end of trip facilities allocation);
- Traffic, parking and access (construction and operation);
- Land use and gross floor area;
- Integration with Sydney Metro Station infrastructure;
- Heritage and archaeology;
- Ecologically sustainable development;
- Noise and vibration impacts (construction and operation);
- Construction impacts;
- Utilities;
- Contamination and remediation; and
- Stormwater and flooding.

In considering each of the above key planning issues and potential impacts associated with the development, the EIS outlines the proposed mitigation measures to address each of these matters.

Each of these outstanding impacts have been addressed within this EIS.

CONCLUSION

The proposed development sought within the detailed SSDA is considered appropriate for the site and warrants approval for the following reasons:

- The proposal contributes to the achievement of the objectives for development within the Eastern City District as outlined within the relevant strategic plans and policies. The proposed basement accommodates car parking, storage, and services to support a mixed-use development on the Waterloo Metro Quarter site.
- The proposal will deliver a two-level basement car park situated below the northern and central precincts to support the Waterloo Metro Quarter site through the provision of vehicle parking for commercial, residential and social housing components, as well as bicycle and end of trip facilities to encourage sustainable modes of transport and maximise patronage of the Sydney metro.
- The proposal satisfies the applicable State planning policies and relevant environmental planning instruments that apply to the site. The proposed uses are permitted with consent and meet the objectives of the B4 Mixed Use zone in *Sydney Local Environmental Plan 2012* (**SLEP 2012**).
- The proposal will not have any unacceptable environmental impacts, as follows:
  - The proposed car parking within the basement is less than the maximum car parking provision permitted under the conditions of SSD 9393 and the SLEP 2012, supporting a reduction in the reliance of private vehicle ownership across the Waterloo Metro Quarter site.
  - The proposed basement accommodates bicycle parking and storage for the proposed residential accommodation within Building 2 proposed under a separate detailed SSDA in accordance with the rates and provisions specified in the Apartment Design Guide and SDCP 2012.
  - The proposed basement accommodates bicycle parking and EOTF for the commercial and retail (building 1, 2 and 3) tenants in accordance with the rates prescribed within the SDCP 2012.
  - The early excavation and construction of the basement will facilitate the efficient staged construction of the Waterloo Metro Quarter ISD, reducing the overall construction programme and ensuring that critical components of the ISD will be completed concurrently with the operation of the new metro station in 2024.
  - The proposed development (including excavation) will not have any impact on significant views towards the Waterloo Congregational Church, broader vicinity heritage items or impact the existing setting.
  - All above ground access points to the basement have been adequately protected from the Probable Maximum Flood event and associated stormwater and flood waters.
  - The dimensions of the proposed basement have been designed to ensure that adequate soil depths can be accommodated within the public domain including to street trees and planting along Botany Road and Raglan Street, including the Raglan Street Plaza.
  - The proposed detailed design of the OSD has considered and is integrated with, the detailed design of the Waterloo metro station and its related works including the construction of the development up to the transfer slab and the public domain.
- The proposal satisfies the SEARs as demonstrated in this EIS and accompanying specialist reports.

In view of the above, it is submitted that the proposal is in the public interest and should be approved subject to appropriate consent conditions.

1. INTRODUCTION

This Environmental Impact Statement (**EIS**) has been prepared to accompany a detailed State significant development (**SSD**) development application (**DA**) which seeks development consent for the design, construction and operation of a two-storey shared basement car park located below the northern and central precincts of the Waterloo Metro Quarter site.

This report has been prepared by Urbis Pty Ltd on behalf WL Developer Pty Ltd, the applicant of the detailed SSDA. Following the completion of a competitive tender bid process, Sydney Metro appointed WL Developer Pty Ltd as the preferred development partner to deliver the Waterloo Metro Quarter over station development (**OSD**).

Lodgement of this detailed SSDA (**SSD-10438**) follows the approval of a concept DA (**SSD-9393**) granted by the Minister for Planning on 10 December 2019.

In order to achieve the project outcomes, an amending concept DA has been submitted concurrently with this application. The amending concept DA seeks approval to modify the building envelopes and description of development for the northern and central precincts of the Waterloo Metro Quarter site approved under SSD 9393.

This EIS is submitted to the NSW Department of Planning, Industry and Environment (**DPIE**) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the detailed SSDA.

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (**SEARs**) dated 9 April 2020 included within **Appendix A** and should be read in conjunction with the supporting documents provided at **Appendix B** to **Appendix HH**.

1.1. PROJECT OVERVIEW

The detailed SSDA seeks approval for the detailed design and construction of two-storey shared basement car park (including associated excavation) located below the northern and central precincts to service the staff, visitors and residents of the of the Waterloo Metro Quarter site and the Waterloo Congregational Church.

The basement comprises vehicle parking for commercial and residential components within the northern precinct and central building, as well as parking allocations for the social housing component (southern precinct), the adjacent Church, Sydney metro and car share services. The basement car park also includes end of trip facilities, bicycle parking, residential storage areas and provision for services.

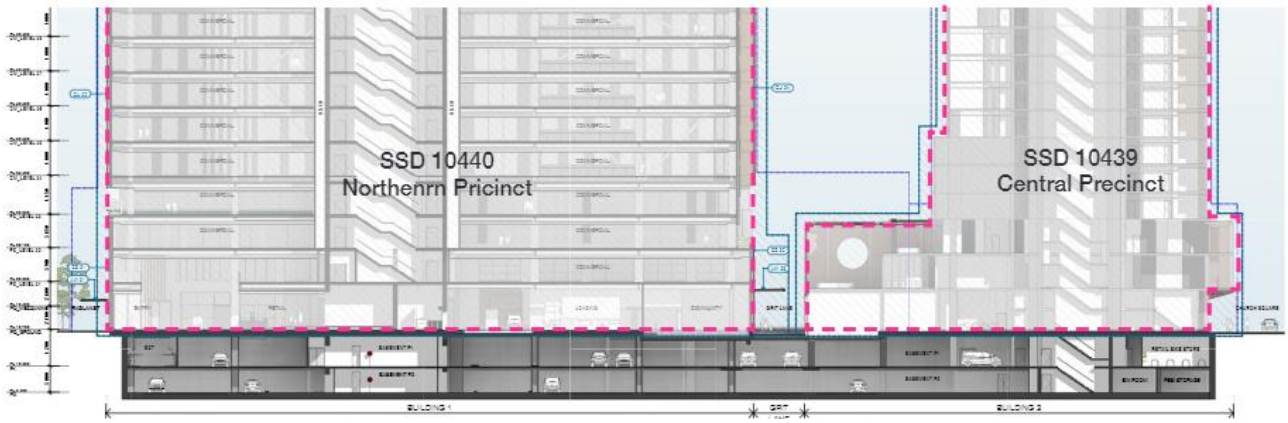
The design of the proposed car park has considered the future development of the Waterloo Metro Quarter site and its relationship and integration with the northern and central precincts, as well as the public domain elements.

In summary, the detailed SSDA seeks development consent for the excavation and construction of a:

- Two-level shared basement comprising:
  - A maximum of 155 car parking spaces to support the operation of the commercial building 1, residential building 2, social housing building 4, car share provisions for the wider Waterloo Metro Quarter site, and spaces to service the Waterloo Congregational Church and Sydney metro users;
  - Ground floor slab structure
  - 13 motorcycle parking spaces for commercial and residential users;
  - Commercial and retail end of trip facilities and bicycle storage facilities;
  - Residential storage facilities and bicycle parking;
  - Shared plant and services provisions; and
  - In ground OSD tank located to the south of building 2

The section view illustrates the location of the basement below the northern and central precinct buildings are included below at **Figure 5**.

Figure 5 Basement longitudinal section below the northern precinct and central precinct



Source: Woods Bagot

1.2. PROJECT OBJECTIVES

The primary objective of the proposal is to deliver a shared basement car park which services the developments and land uses proposed within the Waterloo Metro Quarter site. The proposal also seeks to achieve the following project specific objectives:

- Consolidated all basement functions into a single basement across the Waterloo Metro Quarter site;
- Provide a shared basement that is clearly identifiable and easily accessible;
- Provide the necessary vehicle parking for the commercial, residential, and social housing uses proposed across the Waterloo Metro Quarter site;
- Provide vehicle parking to support the Sydney metro and the existing Waterloo Congregational Church;
- Ensure parking and other facilities are safe and secure;
- Ensure vehicle parking (including accessible parking bays), bicycle parking, end of trip facilities (showers, change rooms and lockers) and residential storage facilities are consistent with the concept DA (as amended);
- Minimise opportunities for pedestrian / cyclist and vehicle conflicts;
- Enable the delivery of shared plant and services provisions to service other proposed land uses across the Waterloo Metro Quarter site;
- Enable the delivery of a basement which provides compliant vehicle parking and manoeuvrability, whilst also minimising the development footprint;
- Encourage the use of sustainable transport modes such as walking and cycling and maximise public transport patronage of the Sydney Metro Waterloo Station; and
- Support the NSW Government's planning strategies and objectives, including the Greater Sydney Region Plan (2018) and the Eastern City District Plan (2018).

1.3. STRATEGIC NEED

As identified in the *Greater Sydney Region Plan* (2018), Sydney's population is forecast to grow to eight million by 2056. Sydney metro responds to the transport demand that will accompany this growth with its plan to deliver a new standalone railway with 31 stations and more than 66 kilometres of new rail. Once completed, the Sydney metro, along with other signalling and infrastructure upgrades across the existing networks, will increase the capacity of Sydney's train services from approximately 120 per hour today up to 200 services beyond 2024 – a 60 per cent increase resulting in an extra 100,000 train customers per hour in the peak. The project has been endorsed by the NSW Government as a key component of *Sydney's Rail Future: Modernising Sydney's Trains*.

Waterloo metro station will be a key catalyst for change in the Redfern-Waterloo area, providing residents, workers and visitors access to the Sydney metro network and connecting to surrounding metropolitan and strategic centres, such as Central Sydney, St Leonards and Macquarie Park.

The proposal capitalises on the introduction of Sydney metro by providing a shared basement that is integrated within the future Sydney Metro Waterloo Station and other land uses proposed across the Waterloo Metro Quarter site. The proposal will support the vision of a '30-minute city' as identified in the Greater Sydney Regional Plan and *Eastern City District Plan* (2018), by delivering vehicle and bicycle parking, end of trip of facilities and residential storage provisions to support other surrounding land uses proposed, in close proximity to the Sydney Metro Waterloo Station.

As detailed in *Sustainable Sydney 2030* (2019), the City of Sydney is seeking to make the city 'more green, global and connected'. The proposal will encourage sustainable transport options and maximise public transport patronage by delivering highly accessible end of trip facilities and bicycle parking for commercial workers, and clearly identifiable bicycle parking for visitors and metro users.

Consistency of the proposal with key strategic plans, strategies and policies is discussed in detail in Section 5 of this EIS.

1.4. PROJECT ALTERNATIVES

This section discusses the consideration of feasible alternatives to the carrying out of the proposed development as per clause 7(1)(c), Part 3, Schedule 2 of the E*nvironmental Planning and Assessment Regulation 2000* (**the EP&A Regulation**). Four options for the proposal could be considered to address the project objectives and site constraints and opportunities, which include:

- Scenario 1 – 'do nothing';
- Scenario 2 – development of the Waterloo Metro Quarter site with no basement;
- Scenario 3 – development of the proposal beneath the Southern Precinct of the Waterloo Metro Quarter site;
- Scenario 4 – development of individual basements for each precinct,

1.4.1. Do Nothing

The 'do nothing' scenario, involving no OSD above the approved Waterloo metro station, is not a feasible development option for the site. OSD forms a key component of the overall Sydney metro project which Transport for New South Wales (**TfNSW**) is committed to delivering.

It is also noted that demolition of the existing structures was approved under the CSSI approval and has been completed on the site. Construction works are currently underway on site for the delivery of the Waterloo station elements approved under the CSSI approval.

No future OSD development on the site provides minimal placemaking benefits and would result in a net loss of floor space on the site. Ultimately a 'do nothing' scenario constitutes gross under-development of a valuable site within Waterloo.

Also, a 'do nothing' scenario could create further issues should the site be developed separately in the future. A separate, future, development would likely result in a less integrated development that does not maximise the opportunities of new transport infrastructure.

1.4.2. Development of the Waterloo Metro Quarter site with no basement

Reducing automobile dependence is a primary objective of the Sydney metro project and the overall development project across the Waterloo Metro Quarter site is dedicated to encouraging active and sustainable modes of transport.

However, development of the Waterloo Metro Quarter site with no basement, would result in no vehicle parking being provided with all vehicle parking being accommodated on-street in the surrounding area. This would place significant pressures on the availability of street parking in Waterloo and would further reduce on-street vehicle parking for existing residents.

In addition, there would be no provisions for bicycle parking, end of trip facilities or residential storage facilities, and service provisions would need to be provided at grade reducing the street frontages available for active uses. Further, other development across the Waterloo Metro Quarter site would not be supported by facilities which encourage active and sustainable transport modes, as well as high patronage of the future Sydney metro project.

1.4.3. Development of the proposal beneath the southern precinct of the Waterloo Metro Quarter site

A third option for the proposal involves proposing the basement at an alternative location beneath the southern precinct of the Waterloo Metro Quarter site.

This would result in a much smaller basement footprint that would likely require additional basement levels and further excavation in order to provide the required parking and end of trip facilities, as well as compliant vehicle parking and circulation.

It is likely that this volume of excavation would have additional impacts on the structural integrity of the CSSI approval works and may obstruct the space provisions required for the Sydney Metro Waterloo Station platform, entrance and other associated infrastructure. It is also anticipated that this could have structural impacts on the Waterloo Congregational Church which is a heritage listed building of local significance.

The primary purpose of the basement is to provide commercial vehicle parking, bicycle parking and end of trip facilities for the northern precinct, as well as residential vehicle parking and storage facilities to service the central precinct. Locating the basement beneath the southern precinct would not enable good accessibility for commercial workers, residents and visitors to other precincts across the Waterloo Metro Quarter site.

1.4.4. Development of individual basements for each precinct

A fourth option is to develop individual basements for each precinct beneath the respective buildings. This would provide each building with direct access to a segregated and specialised basement area to support its use.

Whilst this provides some benefits, it is considered that this option would require multiple vehicle accessways from ground level down to the respective basements, some of which would need to be provided from different road frontages.

This would result in various additional traffic and accessibility impacts both on site and the surrounding street network. In addition, this would negatively impact upon; pedestrian / cyclist movement and safety to and from the metro station and throughout the Waterloo Metro Quarter site, as well as reduce intuitive wayfinding for site visitors.

Further, the addition of vehicle accessways and crossovers would reduce the opportunities for active street frontages and significantly disrupt elements of the public domain and overall podium design for each building.

1.5. STRUCTURE OF THE EIS

The EIS provides the following sections:

- **Section 2:** provides background of the proposal and relevant approvals in relation to the site.
- **Section 3:** a description of the site and surrounding context, including identification of the site, existing development on the site and surrounding development.
- **Section 4:** a detailed description of the proposed development.
- **Section 5:** details the strategic context including the planning policies and guidelines relevant to the site and the proposal.
- **Section 6:** provides a detailed assessment of the State, regional and local strategic planning policies and the development contributions framework.
- **Section 7:** details the community and stakeholder engagement undertaken by the applicant as part of the preparation of this EIS.

- **Section 8:** provides a comprehensive assessment of the existing environment, potential impacts, and mitigation measures for each of the key criteria in the SEARs.
- **Section 9:** details the environmental risk assessment and outlines the recommendations and mitigation measures based on the technical studies undertaken as part of this application.
- **Section 10:** provides concluding statements and a recommendation for determination of the application.

1.6. SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

A request was made to the Minister for the issuance of SEARs, pursuant to clause 3(1), Part 2, Schedule 2 of the EP&A Regulation. SEARs were subsequently issued on 9 April 2020 (**Appendix A**) and have informed the preparation of this EIS and supporting technical documents. **Table 1** provides a summary of the SEARs and identifies the section of this EIS where the relevant requirement is addressed.

Table 1 Summary of SEARs

Requirement	Reference
GENERAL REQUIREMENTS	
The environmental impact statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the EP&A Regulation.	Refer to Statement of Validity and throughout.
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 9 - Environmental Risk Assessment
Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: ▪ adequate baseline data ▪ consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); ▪ measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment; and ▪ a health impact assessment of local and regional impacts associated with the development, including those health risks associated with relevant key issues.	Section 9 - Environmental Risk Assessment
The EIS must also be accompanied by a report from a qualified quantity surveyor providing: ▪ a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company letterhead and indicate applicable GST component of the CIV; ▪ an estimate of jobs that will be created during the construction and operational phases of the proposed development; and ▪ certification that the information provided is accurate at the date of preparation	Refer to **Appendix B**
KEY ISSUES	

Requirement	Reference
This EIS must address the following specific matters:	
1. Environmental Planning Instruments, Policies and Guidelines	
Address the statutory provisions applying to the development contained in all relevant environmental planning instruments, including: ▪ *State Environmental Planning Policy (State and Regional Development) 2011* ▪ *State Environmental Planning Policy (Infrastructure) 2007* ▪ *State Environmental Planning Policy No. 55 – Remediation of Land* ▪ *State Environmental Planning Policy No. 64 – Advertising and Signage* ▪ *State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development (SEPP 65) and accompanying Apartment Design Guide* ▪ *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* ▪ *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* ▪ *Draft State Environmental Planning Policy (Environment)* ▪ *Draft State Environmental Planning Policy (Remediation of Land)* ▪ *Sydney Local Environmental Plan 2012* ▪ Any exhibited Planning Proposal or draft State Environmental Planning Policy related to the land	Section 6 Statutory Context
1. Consistency with the Concept Approval	
The EIS shall: ▪ demonstrate the proposal is consistent with the Concept Approval and provide details of consistency with any modification(s) to the concept approval if sought concurrently. ▪ include a staging and delivery plan (or be consistent with an approved plan) for the coordinated delivery of public domain, car parking and other common facilities and any public benefits such as social and affordable housing.	Refer Section 2.3 Concept Approval (SSD 9393) Staging plan illustrating the various precincts are provided within the urban design report at **Appendix E**
2. Land Use and Gross Floor Area	
The EIS shall: ▪ include plans that identify the extent of the basement that will be used for commercial parking, residential parking, visitor parking, bicycle parking and motorcycle as well as any other uses proposed to be accommodated in the basement area of the development.	Refer to **Appendix D** and **Appendix F**

Requirement	Reference
▪ include GFA plans that identify on plan any use within the basement levels that will contribute toward the overall GFA of the development. ▪ address the site specific SLEP 2012 provisions (under Part 6 and Division 5) in relation to land use mix and floor space requirements.	Refer to Section 6.11
3. Design Excellence	
The EIS shall: ▪ demonstrate compliance with the endorsed Design Excellence Strategy and submit a Design Integrity Report in accordance with the requirements of the Concept Approval or as amended. ▪ demonstrate compliance with the endorsed Design and Amenity Guidelines, dated March 2020 or any subsequent endorsed revision of the guidelines.	Refer to Section 2.5 Refer to Section 6.12
4. Integration with Sydney Metro Station Infrastructure	
The EIS shall: ▪ identify the extent of the proposal that is State Significant Development (SSD) and how this relates to the approved Critical State Significant Infrastructure (CSSI) applications and any modifications to the CSSI. ▪ show how the SSD will integrate with the CSSI infrastructure such as structural design, detailed architectural approach, access, wayfinding, public domain works and construction management.	Refer to Section 4.2 Refer to Section 4.2.2
5. Ecologically Sustainable Development (ESD)	
The EIS shall: ▪ detail how ESD principles (as defined in clause 7(4) Schedule 2 of the EP&A Regulation 2000) will be incorporated in the design, construction and operation of the development ▪ include a framework (or demonstrate consistency with an approved framework) for how the proposed development will reflect national best practice sustainable building principles to improve environmental performance, including energy and water efficient design and technology, use of renewable energy and best practice in waste management strategy. ▪ demonstrate sufficient waste and recycling management facilities storage and holding areas for servicing.	Refer to Section 8.3 and **Appendix M** Refer to Section 8.3 Refer to Section 8.10
6. Heritage	
The EIS shall: ▪ include a detailed heritage impact statement (HIS) that identifies, considers and addresses any potential impact of the proposal to surrounding heritage items, including any built and landscape items, having particular regard to the impact	Refer to Section 8.4

Requirement	Reference
of the proposal on adjoining Waterloo Congregational Church and the neighbouring heritage listed Cauliflower Hotel. ▪ Consider any archaeological impacts. ▪ Consider the extent of Aboriginal heritage impacts of the proposal on the site.	
7. Traffic, Parking and Access (Construction and Operation)	
The EIS shall include a traffic, parking and access assessment that provides but is not limited to, the following: ▪ car parking strategy and Management Plan not exceeding maximum car parking rates as specified in Concept Approval or as amended. ▪ details on the current and likely estimated future mode share for the various land uses (residents, workers visitors, etc) accessing the proposed development ▪ details of the current and likely estimated future daily and peak hour vehicle, public transport, point to point transport, pedestrian and bicycle movements to/from the site, including an indication of whether it relates to the station or OSD, and any associated impacts. ▪ measures to mitigate impacts of the proposed development on the operation of existing and future traffic, public transport, pedestrian and bicycle networks, ▪ modelling and analysis of existing and future pedestrian and cyclist movement, connectivity and circulation within the extent of the site and to surrounding areas having regard to any nearby approved developments in the area. ▪ justification of car parking provision and measures to encourage users of the development to make sustainable travel choices, including a green travel plan, walking, cycling, public transport and car sharing, adequate provision of bicycle parking and end of trip facilities and the minimisation of private car trips. ▪ an assessment and details of proposed car parking access arrangements. ▪ a draft Construction Pedestrian and Traffic Management Plan to demonstrate the proposed management of impact. This Plan needs to include works zone location, vehicle routes, number of trucks, hours of operation, indicative construction program, access arrangements and traffic control measures for all demolition/construction activities	Refer to **Appendix I** and Section 8.1 Refer to Section 8.12.1
8. Nosie and Vibration Impacts (Construction and Operation)	
The EIS shall: ▪ include an assessment of construction noise and vibration impacts. The assessment must also outline proposed noise and vibration mitigation and monitoring procedures having particular regard for potential impacts to the adjoining heritage listed ‘Waterloo Congregational Church’ site.	Refer to Section 8.5 and **Appendix K**

Requirement	Reference
▪ provide a quantitative assessment of any noise and vibration generating sources and activities during operation and outline mitigation measures (if necessary) to ameliorate and manage impacts ▪ The noise and vibration impact assessment shall have regard to the recommendations of the Concept Acoustic Assessment Report, SLR consulting dated 9 November 2019.	
9. Construction Impacts	
The EIS shall include a Construction Environmental Management Plan, developed in consultation with TfNSW and Council, providing: ▪ Waste generated on the site must be classified according to the EPA's Waste Classification Guidelines 2014. ▪ an assessment of potential impacts of the construction on surrounding buildings and the public domain, including air quality and odour impacts, dust emissions, water quality, stormwater runoff, groundwater seepage, soil pollution and construction and demolition waste, and proposed measures to mitigate any impacts. ▪ assessment of the potential cumulative impacts (noise, vibration, traffic, air quality etc) of the proposed development with regards to the works being carried out on site as part of the Sydney Metro Chatswood to Sydenham approval (CSSI 7400) and other developments in proximity to the site during the construction phase.	Refer to Section 8.12 and **Appendix Q**
10. Public Benefits, Contributions and/or Voluntary Planning Agreement Public Benefits	
The EIS shall identify the provision of public benefit, services and contributions that will be delivered as part of the proposal in consultation with key stakeholders, such as the Department, Council and TfNSW, and address voluntary planning agreement (VPA) or other legally binding instrument agreed between a relevant public authority and the Applicant.	Refer Section 5.17.
11. Utilities	
The EIS shall: ▪ identify and address the existing capacity to service the development proposed and any augmentation requirements for utilities in consultation with relevant agencies ▪ identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected, or impacts mitigated.	Refer to Section 4.7 and **Appendix T**
12. Contamination and Remediation	
The EIS shall: ▪ address the provisions of SEPP 55	

Requirement	Reference
▪ demonstrate the suitability of the site for the proposed use having regard to contamination and remediation	Refer to Section 6.5
13. Stormwater and Flood Impact	
The EIS shall: ▪ include an assessment of flood impact having regard to the requirements of Sydney LEP 2012 and the recommendations of the Concept Water Quality, Flooding and Stormwater Report dated 31 August 2018. ▪ include a stormwater management strategy which must consider the relevant local council stormwater management policy and outline measures to manage stormwater impact and run off during remediation works ▪ include details of onsite stormwater capture, storage and re-use measures developed for the site.	Refer to Section 8.8 and **Appendix O**
14. Biodiversity	
The EIS shall provide an assessment of the proposal's biodiversity impacts in accordance with Section 7.9 the *Biodiversity Conservation Act 2016*, the Biodiversity Assessment Method and document the findings in a Biodiversity Development Assessment Report (BDAR) where required under the Act.	Refer to Section 6.2 and **Appendix V**
15. Pre-submission Consultation Statement	
The EIS shall include a report describing pre-submission consultation undertaken, including a record of the stakeholders consulted, the issues raised during the consultation and how the proposal responds to those issues. The statement must include evidence of consultation with the adjoining Waterloo Congregational Church on the following matters (but not limited to) car parking during large church events (funerals and weddings), waste servicing, building maintenance, design of the public domain around the curtilage of the church and design of the setback zones and edge interfaces so as to promote passive surveillance.	Refer to Section 7 and **Appendix U**
PLANS AND DOCUMENTS	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: ▪ site title diagrams and survey plan, showing existing levels, location and height of existing and adjacent structures/buildings ▪ site analysis plan ▪ schedule of proposed gross floor area per land use	Documents required by the SEARs have been prepared to support this application and are included in **Appendix A – Appendix HH**.

Requirement	Reference
▪ social and economic analysis (including social needs, employment and retail studies) ▪ building envelopes showing the relationship with proposed and existing buildings in the locality ▪ staging plan and any associated activation and infrastructure delivery strategy ▪ public domain plans defining extent of works (if any proposed) ▪ landscape design statement and plans ▪ transport, traffic and parking assessment ▪ construction traffic and pedestrian management plan ▪ noise and vibration impact assessment ▪ air quality management plan (where relevant) ▪ access/DDA impact statement ▪ flood impact assessment/storm water management strategy including any geotechnical assessment ▪ services and utilities infrastructure report ▪ waste management plan ▪ contamination and remediation report (including any site audits, soil specification where relevant) ▪ ESD statement (incorporating a sustainability framework) ▪ Arborist report and tree removal plan (where relevant) ▪ archaeological statement (where relevant) ▪ reflectivity statement ▪ signage details (if proposed) ▪ CPTED assessment ▪ security risk assessment (delivered by a suitably qualified and licensed contractor with consideration to the requirements of the NSW Security Industry Act, 1997). ▪ construction management statement addressing how future stages will manage impacts to pedestrians, rail uses, bus services and taxis ▪ pre-submission consultation report.	
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners.	Refer to Section 7 and **Appendix U**

Requirement	Reference
In particular, you must consult with: ▪ City of Sydney Council ▪ Transport for NSW ▪ Sydney Trains ▪ Sydney Metro ▪ Transport Coordination Office ▪ Surrounding residents and businesses including the Waterloo Congregational Church ▪ Relevant community groups The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	

1.7. OTHER APPROVALS

In addition to the approvals noted elsewhere in this document, other approvals will be required in the future to permit the construction of the OSD. These approvals may include, but are not limited to, the following:

- Approvals under the *Roads Act 1993* (including Section 138 approvals) may be required. A consent under section 138 of the *Roads Act 1993* cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent and any *Roads Act 1993* consent must be substantially consistent with the SSD consent.
- An environment protection licence under the *Protection of the Environment Operations Act 1997*. An environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997* cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent and any licence must be substantially consistent with the consent.
- A compliance certificate issued under Section 73 of the *Sydney Water Act 1994*.

2. BACKGROUND

2.1. SYDNEY METRO

Sydney Metro is Australia's biggest public transport project. There are four core components:

Metro North West Line (formerly the 36 kilometre North West Rail Link)

Services started in May 2019 in the city's North West between Rouse Hill and Chatswood, with a metro train every four minutes in the peak. The project was delivered on time and $1 billion under budget.

Sydney Metro City & Southwest

The Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro North West Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney.

Sydney Metro City & Southwest will deliver new metro stations at Barangaroo, Crows Nest, Victoria Cross, Martin Place, Pitt Street, Waterloo and new underground metro platforms at Central Station. In addition it will upgrade and convert all 11 stations between Sydenham and Bankstown to metro standards.

Sydney Metro West

Sydney Metro West is a new underground railway connecting Greater Parramatta and the Sydney CBD. This once-in-a-century infrastructure investment will transform Sydney for generations to come, doubling rail capacity between these two areas, linking new communities to rail services and supporting employment growth and housing supply between the two CBDs.

The locations of seven proposed metro stations have been confirmed at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays.

The NSW Government is assessing an optional station at Pyrmont and further planning is underway to determine the location of a new metro station in the Sydney CBD.

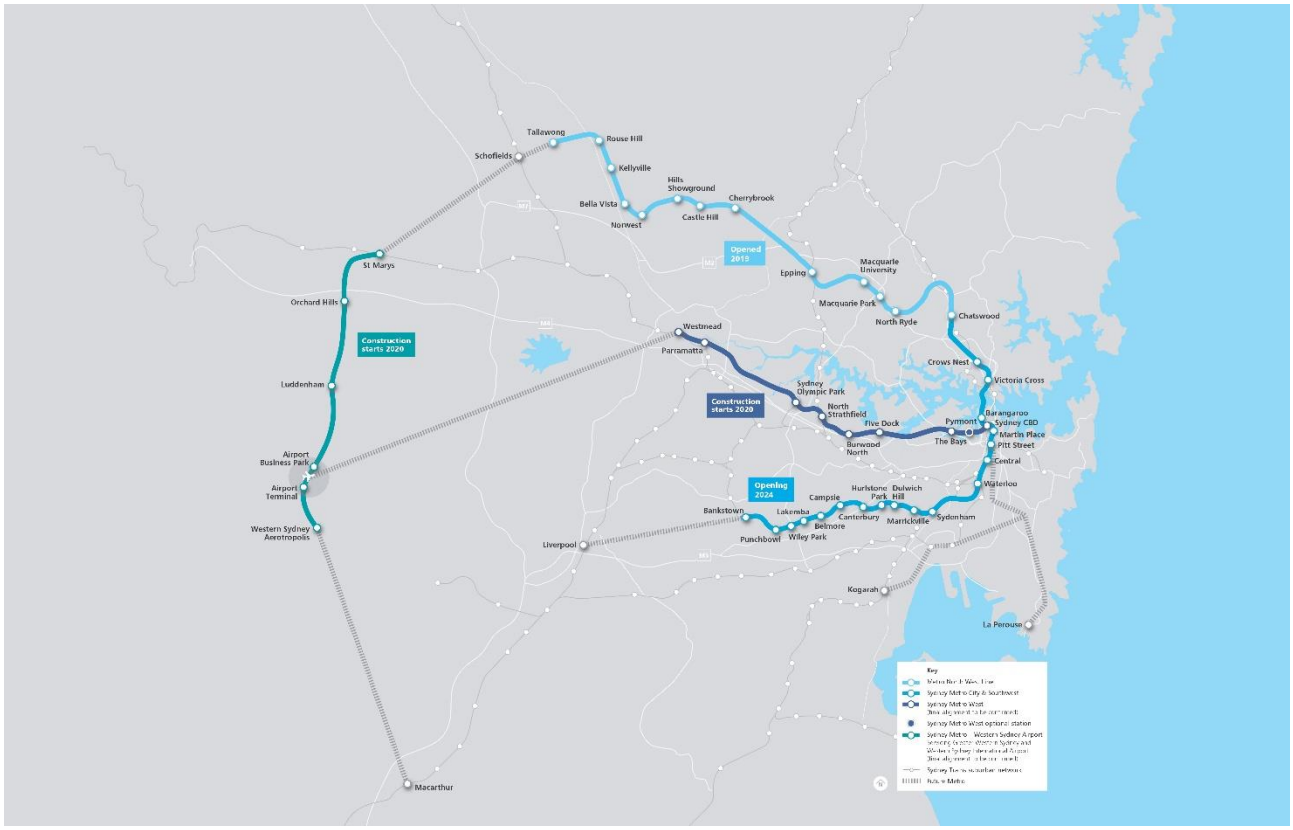
Sydney Metro - Western Sydney Airport

Metro rail will also service Greater Western Sydney and the new Western Sydney International (Nancy Bird Walton) Airport. The new railway line will become the transport spine for the Western Parkland City's growth for generations to come, connecting communities and travellers with the rest of Sydney's public transport system with a fast, safe and easy metro service. Six new stations will be delivered at St Marys, Orchard Hills, Luddenham, Airport Business Park, Airport Terminal and Western Sydney Aerotropolis. The Australian and NSW governments are partners in the delivery of this new railway.

On 9 January 2017, the Minister for Planning approved the Sydney Metro City & Southwest - Chatswood to Sydenham project as a Critical State significant infrastructure project (reference SSI 15_7400) (**CSSI approval**).

The terms of the CSSI approval includes all works required to construct the Sydney Metro Waterloo Station, including the demolition of existing buildings and structures. The CSSI approval also includes construction of below and above ground structures associated with the metro station and structures required to facilitate the construction of OSD.

Figure 6 Sydney Metro Alignment Map



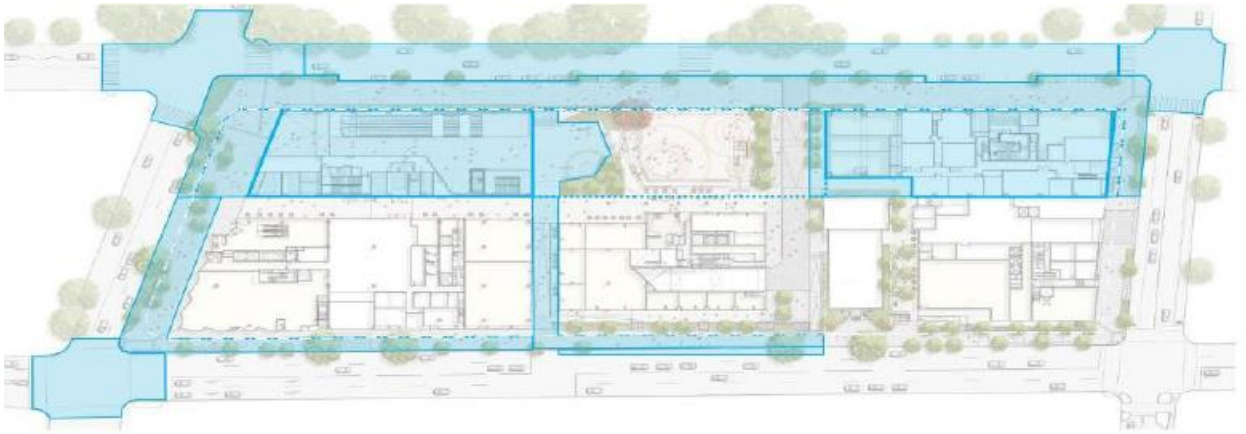
Source: Sydney Metro

2.2. CSSI APPROVAL SYDNEY METRO CITY & SOUTHWEST (SSI 15_7400)

The CSSI approval (CSSI 7400), as it relates to the Waterloo station, includes:

- Demolition of existing buildings within the site.
- Excavation of the rail tunnel, concourse and platforms and therefore the setting of surrounding structural zones, services and accesses.
- Establishment of an aboveground station footprint (station boxes).
- Space provisioning for future lift cores, access, minor associated parking provision, retail and building services for the future OSD.
- Station entry via a Raglan Street, and via the public plaza from Cope Street.
- Public domain works (including to parts of the Raglan Street Plaza and the Cope Street Plaza) (refer to area identified in light blue in the figure below).

Figure 7 CSSI Approval Scope of Works (public domain works)



Source: WL Developer

The CSSI approval included Indicative Interface Drawings for the below and above ground works at Waterloo metro station. Section 2.3 of the Preferred Infrastructure Report (**PIR**) noted that the integration of the OSD elements and the metro station elements would be subject to the design resolution process, noting that the detailed design may vary from the concept design assessed within the planning approval.

Condition E101 of that approval requires that a detailed Station Design and Precinct Plan (**SDPP**) be approved by the Secretary of DPIE prior to the construction of above ground works.

The building design adjacent to the station boxes approved by SSD 9393 will need to be coordinated with the Waterloo SDPP prior to their approval by the Secretary.

2.3. CONCEPT APPROVAL (SSD 9393)

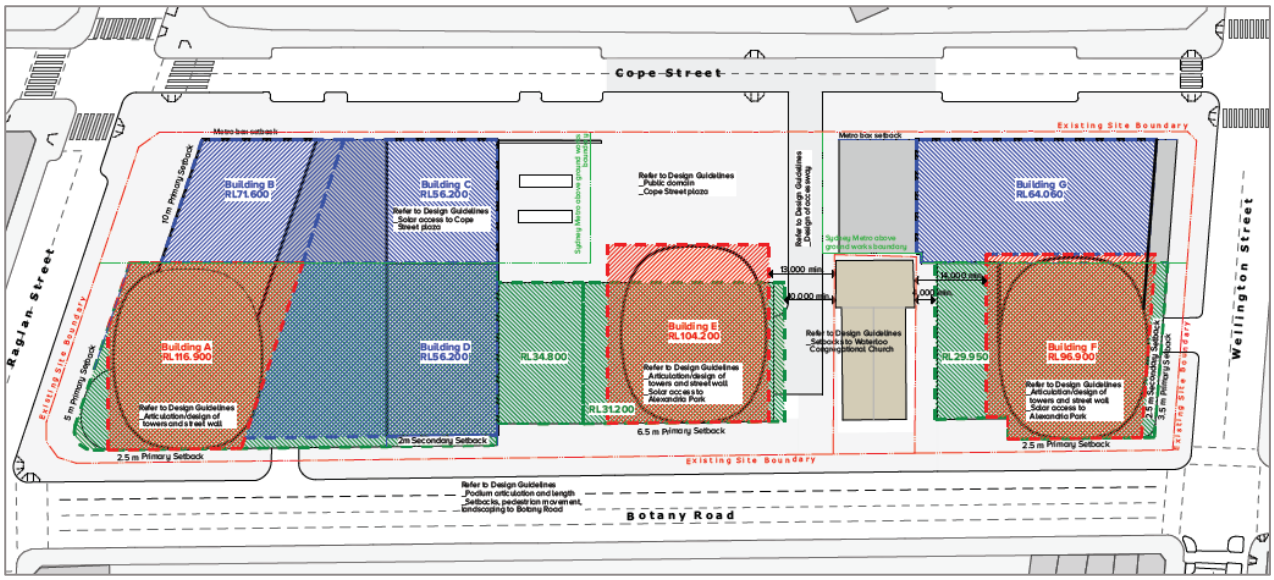
Development consent was granted on 10 December 2019 for the concept SSDA (SSD 9393) for the Waterloo Metro Quarter OSD including:

- A maximum building envelope for podium, mid-rise and tower buildings.
- A maximum gross floor area of 68,750sqm, excluding station floor space.
- Conceptual land use for non-residential and residential floor space.
- Minimum 12,000sqm of non-residential gross floor area including a minimum of 2,000sqm of community facilities.
- Minimum 5% residential gross floor area as affordable housing dwellings.
- 70 social housing dwellings.
- Basement car parking, motorcycle parking, bicycle parking, and service vehicle spaces.

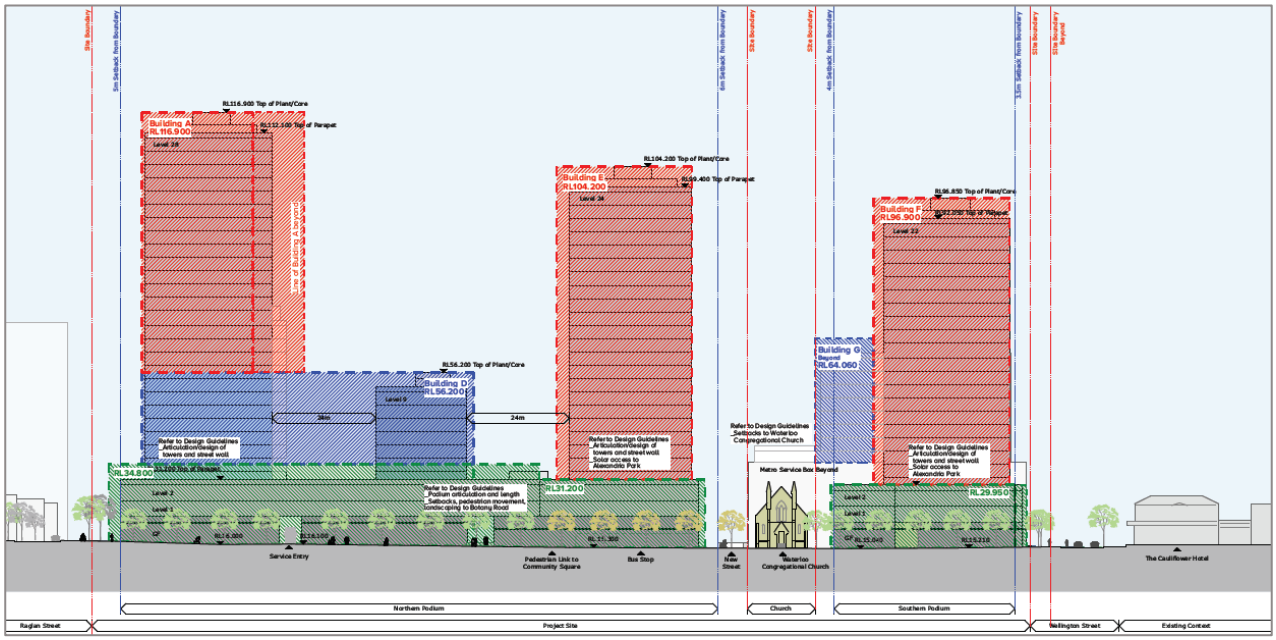
The concept SSDA instrument of approval does not consent to any physical works commencing on site.

The approved concept SSDA building envelopes and layout plan (as modified by Condition B7) are illustrated in **Figure 8**. It is noted that the concept approval did not include any provisions for a basement.

Figure 8 Approved concept SSD DA building envelope plans



Picture 5 Building envelope layout plan



Picture 6 West elevation Botany Road

Source: SSD 9393

Separate detailed SSDA's will be prepared for northern precinct, central precinct and southern precinct of the Waterloo Metro Quarter site.

The development consent for SSD 9393 issued on 10 December 2019 included two components. 'Part A' related to the terms of the consent, whilst 'Part B' included the conditions to be satisfied in future detailed development application(s).

Table 2 below outlines the conditions to be satisfied as identified under Part B of the concept development consent and how they relate to and/or are addressed within this EIS as part of the detailed SSDA.

Table 2 Concept DA SSD 9393 Conditions of Consent to be Satisfied

Condition / Requirement	Document Reference
MAXIMUM BUILDING ENVELOPES	

Condition / Requirement	Document Reference
B1. Future development applications must demonstrate that the buildings are wholly contained within the building envelopes consistent with the plans listed in Condition A2, as modified by the conditions of this consent.	Refer to the Architectural Drawings at **Appendix D**
B2. Building height and gross floor area is to be measured in accordance with the definitions under Sydney Local Environmental Plan 2012	Refer to the GFA Plans at **Appendix D** and discussion at Section 6.11
B3. The maximum achievable gross floor area (GFA) for the non-station related floor space is 68,750sqm and this amount will only be achieved subject to demonstration of: a) being wholly contained within the approved building envelopes b) compliance with the conditions of this concept approval c) demonstration of design excellence d) consistency with the Design Guidelines (as amended by Condition A14)	Refer to the GFA Plans at **Appendix D** and discussion at Section 2.5, Section 6.11, and Section 6.12
B4. The approved podium building envelopes, as identified with green shading in the approved plans in Condition A2, must be used for non-residential uses only.	Not applicable to this development application
BUILT FORM AND URBAN DESIGN	
B5. The detailed development applications shall address compliance with: a) the Design Guidelines as endorsed by the Planning Secretary pursuant to Condition A14 b) the Design Excellence Strategy as endorsed by the Planning Secretary pursuant to Condition A15 c) the conditions of this consent.	Refer Section 6.12 Refer Section 2.5 Refer Table 2
B6. The following elements are not inconsistent with the consent proposal but are subject to further assessment with the relevant detailed development application: a) conceptual land uses, except for the approved minimum non-residential GFA, community facilities GFA, affordable housing rate and number of social housing dwellings approved b) indicative signage zones, following preparation of a Signage Strategy c) subdivision.	Not applicable to this development application
B7. Future development applications shall address the following: a) Botany Road setback of 6.5m is to be extended to the north as identified in Response to Submissions (Figure 10, Page 139). The extended setback is to be incorporated into revised Building Envelope	Not applicable to this development application, however it is noted that this setback has been

Condition / Requirement	Document Reference
Plans to the satisfaction of the Planning Secretary prior to the lodgement of any future development application. b) submission of a Design Integrity Report to the satisfaction of the Planning Secretary that demonstrates how design excellence and design integrity will be achieved in accordance with: i. the design objectives of the Concept Development Application ii. consistency with the approved Design Guidelines as amended by Condition A14 iii. the DEEP's Design Excellence Report iv. the advice of the SDRP (or approved alternative under Condition A15) v. the conditions of this consent. c) the Design Integrity Report (DIR) as required by Condition B7(b) must include a summary of feedback provided by the SDRP (or alternative approved in accordance with Condition A15) and responses by the Applicant to this advice. The DIR shall also include how the process will be implemented through to completion of the approved development.	adhered to in the central precinct application A Design Integrity Report has been prepared and is included at **Appendix Y**
CAR PARKING AND BICYCLE PARKING	
B8. Future development applications shall reduce total car parking provision to reduce private car ownership and promote use of active and public transport. Future development applications must demonstrate compliance with: a) the maximum number of car spaces to be provided for all residential accommodation within the development is limited to 170 spaces, including residents' spaces and residential car share spaces but excluding visitor spaces and service vehicle spaces. b) the allocation of residential car parking spaces, up to the maximum of 170 spaces must not exceed the following maximum rates: i. 0.1 space per studio dwelling ii. 0.3 parking spaces per 1 bedroom dwelling iii. 0.7 parking spaces per2 bedroom dwelling iv. 1 parking space per 3 bedroom or more dwelling v. residential car share parking rate of 1 space per 50 residential car parking spaces provided c) non-residential car parking to be provided in accordance with the following: i. a maximum of 1 space for 435m' of GFA for any commercial uses	Complies. The maximum car parking spaces proposed to support the residential accommodation is 75 spaces, 2 visitor spaces, and 4 car share spaces Refer to Section 8.1.3 for the breakdown of car parking spaces allocated to the various land uses proposed within the Waterloo Metro Quarter

Condition / Requirement	Document Reference
ii. a maximum of 2 spaces for use of the Waterloo Congregational Church iii. non-residential car share parking at rate of 1 space per 30 non-residential car parking spaces.	
B9. Future development applications must include a Car Parking Strategy and Management Plan adopting the maximum residential parking cap and allocation rates above and demonstrating compliance with the following: a) accessible car parking spaces provided as per Sydney DCP 2012 rates b) motorcycle parking spaces provided as per Sydney DCP 2012 rates	Refer Section 8.1.3
B10. Bicycle parking and end-of-trip facilities for the OSD shall be in accordance with the rates specified within the Sydney DCP 2012 for the final land use mix in the future development application.	Refer to Section 8.1.6
CONSULTATION WITH WATERLOO CONGREGATIONAL CHURCH	
B11. Future development applications must demonstrate consultation with the owners and operators of Waterloo Congregational Church and project responses. Consultation is to include consideration of: a) potential for Church gathering space b) wedding and funeral cars c) waste and servicing d) building maintenance e) design of the public domain around and within the Church property including safe access and passive surveillance in the setbacks.	Refer to Section 7
HERITAGE IMPACT ASSESSMENT	
B12. Future development applications for aboveground works shall include a detailed Heritage Impact Statement and a Heritage Interpretation Strategy for the proposed works prepared in consultation with the City of Sydney Council.	Refer to Section 8.4
WIND IMPACT ASSESSMENT	
B13. Future development applications for aboveground works shall be accompanied by a Wind Impact Assessment including computer modelling of detailed building form and demonstrating compliance with the criteria in Pedestrian Wind Environment Study by Windtech dated 26 September 2019	Not applicable to this development application
B14. The Wind Impact Assessment must consider the locations of existing and future pedestrian crossings and apply standing criteria zones to match the width of crossings and the waiting zones for crossings, including on the opposite side of streets.	Not applicable to this development application
TRAFFIC, ACCESS AND PARKING ASSESSMENT	

Condition / Requirement	Document Reference
B15. Future development applications shall be accompanied by a Traffic and Transport Impact Assessment.	Refer to **Appendix I**
B16. Future development applications shall include a Construction Traffic and Pedestrian Management Plan (CTMP) prepared in consultation with the Sydney Coordination Office and City of Sydney, and to the satisfaction of the relevant road authorities. The CTMP shall include, but not be limited to: a) construction car parking strategy b) haulage movement numbers/ routes including contingency routes c) detailed travel management strategy for construction vehicles including staff movements d) maintaining property accesses e) maintaining bus operations including routes and bus stops f) maintaining pedestrian and cyclist links/ routes g) independent road safety audits on construction related traffic measures h) measures to account for any cumulative activities/ work zones operating simultaneously.	Refer to **Appendix J**
B17. Independent road safety audits are to be undertaken for all stages of further design development involving road operations and traffic issues and cognisant of all road users. Any issues identified by the audits will need to be closed out in consultation with Sydney Coordination Office, RMS and/or City of Sydney to the satisfaction of the **relevant roads authorities**.	Refer to **Appendix I**
ENVIRONMENTAL PERFORMANCE / ESD	
B18. Future development applications must demonstrate how the principles of ecologically sustainable development (ESD) have been incorporated into the design, construction and ongoing operation of the proposal. This shall include preparation and implementation of Environmental Sustainability Strategies that incorporate low-carbon, high efficiency targets aimed at reducing emissions, optimising use of water, reducing waste and optimising **parking provision to maximise sustainability and minimise environmental impacts**.	Refer to **Appendix M** and Section 8.3
B19. The minimum performance targets for environmental performance are: (a) Precinct overall: (i) 6 star Green Star Communities Rating Tool (ii) Endorsed under One Living Planet framework (b) Commercial / office uses: (i) 5 Star Green Star Design and As-Built Rating Tool (ii) 5.5 Star NABERS Energy	Refer to **Appendix M** and Section 8.3

Condition / Requirement	Document Reference
(iii) 4.5 Star NABERS Water (iv) 'Gold Certification: Shell and Core' under WELL Building Standard (c) Residential uses: (i) 5 Star Green Star Design and As-Built Rating Tool (ii) more than BASIX 40 Water (iii) BASIX 30 Energy.	
SECURITY AND CRIME ASSESSMENT	
B20. Future development applications shall be accompanied by a Security and Crime Risk Assessment prepared in consultation with NSW Police having regard to Crime Prevention Through Environmental Design (CPTED) Principles and NSW Police publication "Safe Place: Vehicle Management: A comprehensive guide for owners, operators and designers." The future development is to have regard to the recommendations contained within the submission by NSW Police on the Concept SSD.	Refer to **Appendix N** and Section 8.13.1
CONSTRUCTION IMPACT ASSESSMENT	
B21. Future development applications shall provide analysis and assessment of the impacts of construction works and include: a) Construction Traffic and Pedestrian Management Plan, as per Condition B9 b) Community Consultation and Engagement Plan(s) c) Noise and Vibration Impact Assessment d) Construction Waste Management Plan e) Air Quality Management Plan.	Refer to **Appendix J** Refer to **Appendix U** Refer to **Appendix K** Refer to **Appendix Q** Refer to **Appendix W**
B22. The plans above may be prepared as part of a Construction Environmental Management Plan prepared for implementation under the conditions of any consent for future development applications, having regard to the Construction Environmental Management Framework and Construction Noise and Vibration Strategy prepared for the Sydney Metro City & Southwest (CSSI 7400).	Refer to **Appendix Q**
NOSIE AND VIBRATION ASSESSMENT	
B23. Future development applications shall be accompanied by a Noise and Vibration Impact Assessment that demonstrates the following requirements are met: a) vibration from construction activities does not exceed the vibration limits established in British Standard 8S7385-2:1993 Excavation and measurement for vibration in buildings. A guide to damage levels from groundborne vibration. b) vibration testing is conducted before and during vibration generating activities that have the potential to impact on heritage items to identify	Refer to **Appendix K**

Condition / Requirement	Document Reference
minimum working distances to prevent damage. In the event the vibration testing and monitoring shows that the preferred values for vibration are likely to be exceeded, the Applicant must review the construction methodology and, if necessary, propose additional mitigation measures. c) advice of a heritage specialist has been incorporated on methods and locations for installed equipment used for vibration movement and noise monitoring of heritage-listed structures.	
B24. The Noise and Vibration Assessment must provide a quantitative assessment of the main noise generating sources and activities during operation. Details are to be included outlining any mitigating measures necessary to ensure the amenity of future sensitive land uses on the site and neighbouring sites is protected during the operation of the development.	Refer to **Appendix K**
B25. The Noise and Vibration Assessment must address the conclusions and recommendations of the Concept Acoustic Assessment Report, SLR Consulting dated 9 November 2019.	Refer to **Appendix K**
FLOOD AND STORMWATER ASSESSMENT	
B26. Future development applications shall be accompanied by a Flood and Stormwater Impact Assessment. The Assessment must demonstrate the conclusions and recommendations of the Concept Water Quality, Flooding and Stormwater Report dated 31 October 2018 prepared by AECOM.	Refer to **Appendix O**
REFLECTIVITY ASSESSMENT	
B27. Future development applications for aboveground works shall include a Reflectivity Assessment demonstrating that external treatments, materials and finishes of the development do not cause adverse or excessive glare.	Not applicable to the basement SSDA.
ARCHAEOLOGICAL AND ABORIGINAL CULTURAL HERITAGE ASSESSMENT	
B28. Future development applications shall demonstrate the recommendations and mitigation measures of the following Sydney Metro City & Southwest (CSSI 7400) reports are to be incorporated during the construction of the SSD project: a) Artefact 2016, Sydney Metro City & Southwest, Chatswood to Sydenham: Aboriginal Cultural Heritage Assessment b) Artefact 2016, Sydney Metro City & Southwest, Chatswood to Sydenham: Aboriginal Heritage - Archaeological Assessment.	Refer to Section 8.4 and **Appendix H**
B29. Future development applications shall include an Archaeological Research Design (ARD) and subsequent Archaeological Method Statement (AMS), or updated/amended CSSI ARD and AMS that clearly applies to the SSD scope of works, informed by the results of the archaeological works undertaken for the CSSI works. This may include consultation with the Registered Aboriginal Parties for the project and may include further field study. The AMS must:	Refer to **Appendix H**

Condition / Requirement	Document Reference
a) provide an assessment of the findings of the eastern clearance works and reporting (i.e. the CSSI works) b) identify any new research questions, if required c) make recommendations for any revised archaeological mitigation measures, if required d) provide an assessment of benefits of completing archaeological testing, clearance and salvage and/or make a recommendation, if appropriate, that these measures are not required.	
AIRSPACE PROTECTION	
B30. Future detailed development applications for aboveground works must comply with the following requirements: a. (…).	Not applicable to this development application

2.4. AMENDING CONCEPT DA (SSD 10441)

Following Sydney Metro's appointment of WL Developer Pty Ltd as the preferred development partner to deliver the Waterloo Metro Quarter OSD, and ongoing design development, minor modifications to the concept approval are now required to accommodate the detailed design of the northern precinct and provision of additional commercial floor space.

An amending concept DA has been lodged concurrently with this DA in accordance with Section 4.22 of the EP&A Act. It seeks consent to amend the approved building envelopes and description of development for the northern and central precincts of the Waterloo Metro Quarter site approved under SSD 9393.

Specifically, the amending concept DA seeks to modify the approved building envelope for the northern precinct (previously comprising 'Building A', 'Building B', 'Building C' and 'Building D' under SSD 9393) and central precinct through:

- Increasing the maximum building height for the southern portion of the building envelope from RL56.2 to RL72.60.
- Removing the 'tower component' of the northern precinct, reducing the overall height of the tower envelope from RL116.9 to RL90.40, to enable the redistribution of floor space to commercial office floor plates.
- Amending the description of development to refer to a mid-rise (approximately 17 storey) commercial office building, comprising approximately 34,125sqm of commercial office floor space within the northern portion of the site, rather than a third residential tower.
- Minor amendment to the podium design of Building 2 along the cope street plaza eastern façade to accommodate increased community GFA.
- Condition amendments to enable balustrades, pergola, and the like to be located outside of the approved building envelope and provide clarity on minor design items.

The modification to the approved concept SSDA will enable the detailed design of a new commercial building (comprising office and retail premises) to be pursued on the site, significantly increasing the proportion of employment generating floor space on the Waterloo Metro Quarter site. This new commercial building is proposed in replacement of four building envelopes approved under SSD 9393, which comprised one residential tower, and three mid-rise residential buildings.

This proposal will not exceed the permissible building height for the site under the SLEP 2012 or the maximum height approved under SSD 9393. The changes have been illustrated previously in Figure 3.

This proposed detailed SSDA for the basement is consistent with the concept SSDA as proposed to be modified by SSD 10441 and the relevant conditions of consent.

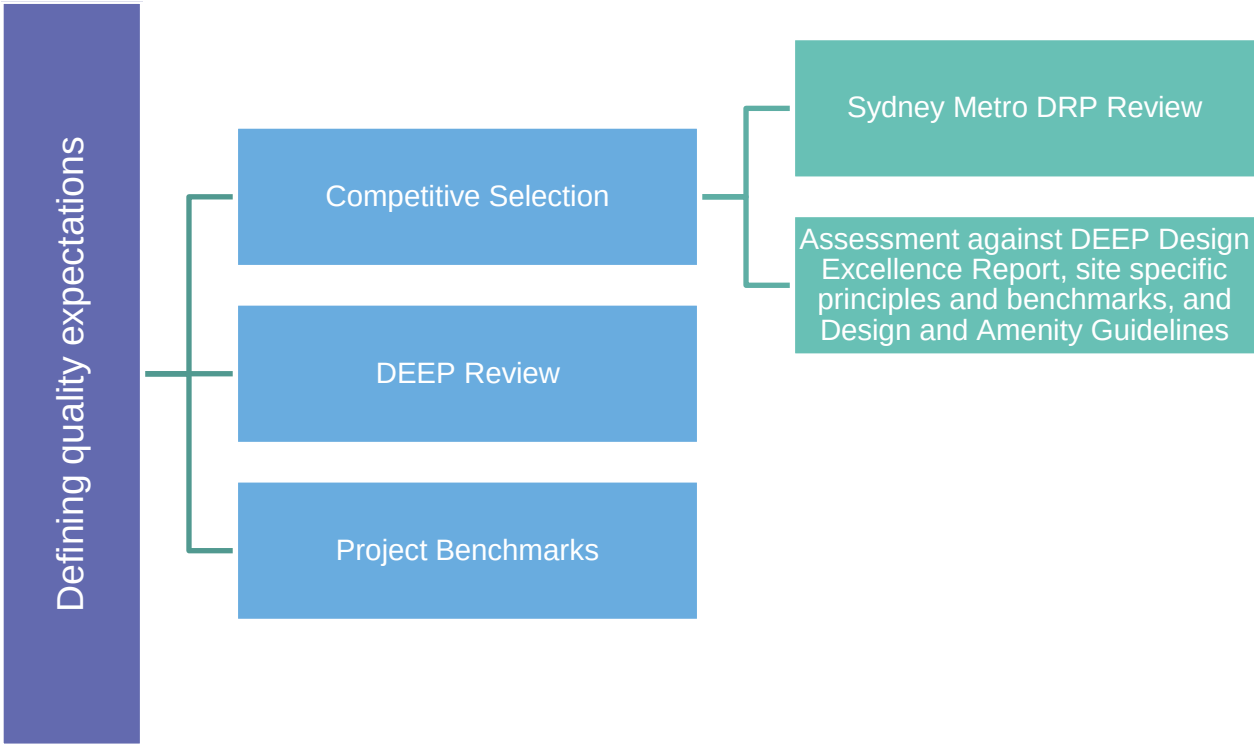
2.5. WATERLOO METRO QUARTER DESIGN EXCELLENCE STRATEGY

The concept approval exercises the discretion available under clause 6.21(6) of *Sydney Local Environmental Plan 2012* (**SLEP 2012**) to waive the requirement for a competitive design process under clause 6.21(5) as the concept design has been subject to the Sydney Metro Waterloo Design Excellence Strategy.

The Design Excellence Strategy includes a set of specific project benchmarks for the Waterloo Station OSD. These documents were established to guide the detailed design of the future OSD and ensure a high quality of design is achieved for the site and other over station developments.

The endorsed Design Excellence Strategy is included at **Appendix G**. The Design Excellence Strategy comprises a multi-phase process including a competitive selection which involved an Expression of Interest (**EOI**) and Request for Tender process, benchmarking studies and continued design review by a Design Excellence Evaluation Panel (**DEEP**) and subsequently the Sydney Metro Design Review Panel (**DRP**). A summary of the design excellence process undertaken is illustrated in **Figure 9.**

Figure 9 Summary of Design Excellence Process



A critical objective of the competitive tendering process was to review alternative approaches to the Waterloo Metro Quarter site and strive for design excellence for the OSD project. Following the approval of the concept proposal and completion of the EOI and Request for Tender process, WL Developer Pty Ltd and its architectural partners were chosen as the successful development partner for the Waterloo Metro Quarter OSD.

The Design Excellence Strategy also requires the Sydney Metro DRP to review and provided feedback on the SSDA's prior to lodgement, including assessment against the site specific principles, benchmarks, design guidelines and the DEEP report.

Since the selection of WL Developer Pty Ltd as the development partner for the Waterloo Station OSD, the applicant has presented to the Sydney Metro DRP 10 times. Throughout this process, the DRP has provided ongoing design review of the proposed Northern, Central and Southern Precinct proposals, along with consideration of the Basement design, to ensure design excellence and integrity have been achieved.

The specific details of the design excellence process is outlined within the Design Excellence Strategy (**Appendix G**) and the proposals compliance with the Waterloo Design and Amenity Guidelines are outlined in **Section 6.12** of this EIS.

3. SITE ANALYSIS

3.1. SITE CONTEXT & LOCATION

The site is located within the City of Sydney Local Government Area (**LGA**). The site is situated approximately 3.3 kilometres south of the Sydney CBD and approximately 7.5 kilometres northeast of the Sydney International Airport within the suburb of Waterloo.

The Waterloo Metro Quarter site comprises land to the west of Cope Street, east of Botany Road, south of Raglan Street and north of Wellington Street (refer to **Figure 10**). The heritage listed Waterloo Congregational Church located at 103–105 Botany Road is within this street block but is not part of the Waterloo Metro Quarter site boundaries.

The Waterloo Metro Quarter site is a rectangular shaped allotment and an overall site area of approximately 1.287 hectares. The basement car park site area is approximately 5,700sqm. The site is reasonably flat with a slight fall to the south.

The boundaries of the Waterloo Metro Quarter site and basement precinct are shown below.

Figure 10 Aerial of the Subject Site

Source: Urbis

The area surrounding the site consists of commercial premises to the north, light industrial and mixed-use development to the south, residential development to the east and predominantly commercial and light industry uses to the west. Botany Road traffic volumes and street block configuration create a significant barrier to the east west movement from and through the site.

To the south west is Alexandria Park, an open space area containing formal and informal recreation areas. The eastern half of the park comprises open space containing grassed areas with walking paths and shade trees for passive recreation. The western half contains a grassed oval and other facilities used for active recreation including cricket, soccer, athletics, tennis and basketball.

There are a range of existing building typologies across Waterloo for residential and non-residential uses, reflecting the dense grain of the area. Waterloo reflects a wide range of building heights from 1 to 30 stories across many residential and non-residential typologies. These building typologies include shops, offices, and hotels which are traditionally found in clusters at corners throughout the locality. The broader context has significant heritage items and conservation zones, as well as a strong social and cultural history. Several heritage items sit adjacent to the Waterloo Metro Quarter site as is discussed further within this EIS.

Figure 11 Location Map of Subject Site

Source: Urbis

3.2. LEGAL DESCRIPTION

The detailed SSDA applies to the basement area (the site) of the Waterloo Metro Quarter site. The basement site has an area of approximately 5,700sqm. The subject site comprises the following allotments and legal description at the date of this report.

- 1368 Raglan Street (Lot 4 DP 215751) (Part);
- 59 Botany Road (Lot 5 DP 215751) (Part);
- 65 Botany Road (Lot 1 DP 814205) (Part);
- 67 Botany Road (Lot 1 DP 228641) (Part);
- 124-128 Cope Street (Lot 2 DP 228641) (Part);
- 69-83 Botany Road (Lot 1, DP 1084919);
- 130-134 Cope Street (Lot 12 DP 399757) (Part);
- 136-144 Cope Street (Lots A-E DP 108312) (Part);
- 85 Botany Road (Lot 1 DP 27454);
- 87 Botany Road (Lot 2 DP 27454);

- 89-91 Botany Road (Lot 1 DP 996765); and
- 93-101 Botany Road (Lot 1 DP 433969 and Lot 1 DP 738891) (Part).

3.3. EXISTING DEVELOPMENT

The site previously included three to five storeys of commercial, light industrial and shop top housing buildings. All previous structures except for an office building at the corner of Botany Road and Wellington Street have been demolished to facilitate construction of the new Sydney Metro Waterloo Station. As such the existing site is predominately vacant and being used as a construction site.

Construction of the Sydney metro is currently underway on site in accordance with the CSSI approval (CSSI 7400). Photographs of the existing site context are provided in the following figures.

Figure 12 Photographs of existing site condition at Waterloo Metro Quarter site (dated 21 July 2020)

Picture 7 South western corner of site, located at the corner of Wellington Street and Botany Road

Source: Urbis

Picture 8 Botany Road street frontage, looking north east

Source: Urbis

Picture 9 North western corner of site, looking north east illustrating station construction vehicular entrance

Source: Urbis

Picture 10 Raglan Street frontage, looking east

Source: Urbis

Picture 11 Cope Street frontage, looking north

Source: Urbis

Picture 12 South eastern corner of site, located at corner of Cope Street and Wellington Street

Source: Urbis

3.4. SURROUNDING DEVELOPMENT

The area surrounding the site consists of a mix of commercial, residential and light industrial uses, civic uses and open space. An overview of development surrounding the Waterloo Metro Quarter site and basement area is provided in the sub-sections below.

3.4.1. Waterloo Estate

The Waterloo Estate located to the east of the site will be redeveloped over the next 15-20 years, and will seek to deliver a mix of social, affordable, and market housing.

The NSW Land and Housing Corporation has submitted a planning proposal to the City of Sydney requesting to redevelop the public and private lands in the southern part of the Waterloo Estate (south) by changing the planning controls that currently apply to the precinct.

The Waterloo Estate (south) includes land bounded by Cope, Raglan, George, Wellington, Gibson, Kellick, Pitt and McEvoy streets, and has an approximate site area of 12.32 hectares (approximately 65% of the total estate). It currently comprises 749 social housing dwellings owned by the NSW Land and Housing Corporation, 125 privately owned dwellings, and some commercial properties on the south-east corner of Cope and Wellington streets.

With up to 3,000 new dwellings proposed, the redevelopment is sought to be delivered in a staged approach and is still the subject of a finalised master planning process. The estate is set to see building heights of up to 30 storeys and will benefit from the delivery of improved public transport from the new metro station and the services provided within the Waterloo Metro Quarter OSD.

3.4.2. North

To the north of the site on the northern side of Raglan Street is a mix of one and two storey commercial buildings with ground floor retail. Further to the north is Redfern train station and town centre which is characterised by a mix of residential, retail and student accommodation uses. Redfern Park is located approximately 500m north-east of the site and is a well-used recreational space with a grassy recreational park, sports fields, grandstand and children's playground.

3.4.3. East

To the east of the site is a mix of one and three storey residential flat buildings and attached dwellings that form part of the Waterloo social housing estate. Further to the east and north east are high density residential dwellings which also form part of the estate.

3.4.4. West

Beyond Botany Road to the west are two and three storey commercial and light industrial buildings, as well as a five-storey mixed use residential flat building. Council recently granted consent for an affordable housing development located at 74-88 Botany Road. The proposal includes ground floor retail fronting Botany Road.

Further to the west is the Alexandria Park Heritage Conservation Area (**HCA**). The HCA comprises a mix of late nineteenth-century houses including one to three storey terraces and cottages. The area also includes corner shop buildings, industrial and warehouse buildings. The Australian Technology Park is a business and technology centre in Eveleigh, located approximately 400m north-west of the site.

3.4.5. South

Land to the south of the site is characterised by a mix of low to mid rise industrial, commercial and residential buildings. Immediately to the south of the site on the opposite side of Wellington Street is the Cauliflower Hotel, a locally listed heritage item. Further to the south along Botany Road are a mix of residential apartments and row of terraces. Alexandria Park, a large area of public open space is located to the south-west of the site.

Green Square train station and Green Square town centre are located approximately 800m south of the site. The town centre comprises a mix of mid to high rise buildings containing retail, commercial, civic and residential uses.

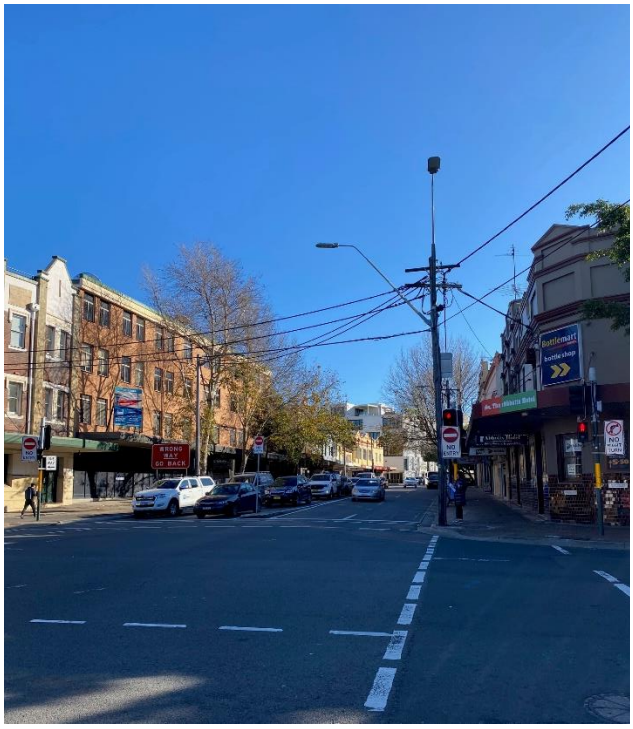
3.4.6. Waterloo Metro Quarter

The basement is located beneath the northern and central precincts of the Waterloo Metro Quarter site. At ground level, Raglan Street is situated to the north, Botany Road is situated to the west and the Waterloo Congregational Church is situated to the south.

Upon completion of the Waterloo Metro Quarter integrated station development, the station infrastructure (metro station box) will be situated immediately to the east. In the future, a mixed-use commercial office building including a through-site link (northern precinct building 1) and a mixed use residential building (central precinct building 2) will be situated above the proposed basement, while buildings 3 and 4 (southern precinct) will be situated to the south. To the east of the basement at ground level will be the Cope Street plaza and the northern metro station entrances

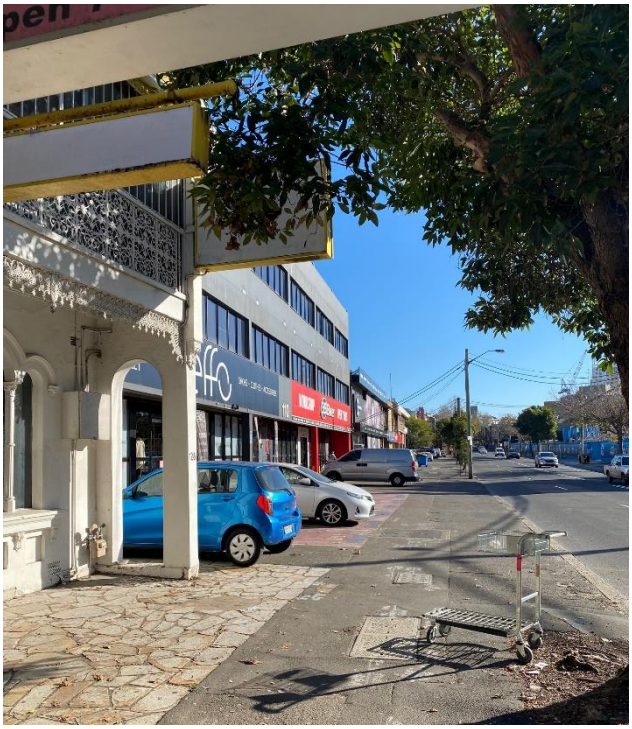
Existing surrounding buildings are shown in the following figure.

Figure 13 Photographs of surrounding site context (dated 21 July 2020)



Picture 13 Botany Road, looking north from the north western corner of the site

Source: Urbis



Picture 14 Botany Road, looking north from south of the site

Source: Urbis

Picture 15 Western side of Botany Road, directly opposite the site looking north

Source: Urbis

Picture 16 Raglan Street, immediately opposite the site to the north looking west

Source: Urbis

Picture 17 Locally heritage listed Cauliflower Hotel, located at 123 Botany Road

Source: Urbis

Picture 18 Alexandria Park, located to the south west of the site

Source: Urbis

Picture 19 Locally heritage listed Waterloo Congregational Church located at 103-105 Botany Road

Source: Urbis

Picture 20 Locally heritage listed Former CBC Bank, including interior located at 60 Botany Road

Source: Urbis

Picture 21 Residential flat buildings on Cope Street, east of the site, looking east

Source: Urbis

Picture 22 Terrace housing on Wellington Street, south of the site, looking south

Source: Urbis

3.5. BUILT HERITAGE

The site is not heritage listed or located within a heritage conservation area under the SLEP 2012. The site is located directly adjacent the Waterloo Congregational Church. The church is listed as a local heritage item.

The site is also proximate to several local heritage items, as illustrated in Figure 14. Local and state heritage items of particular significance to the proposal are detailed in **Table 3**.

Table 3 Heritage Items in proximity to the site

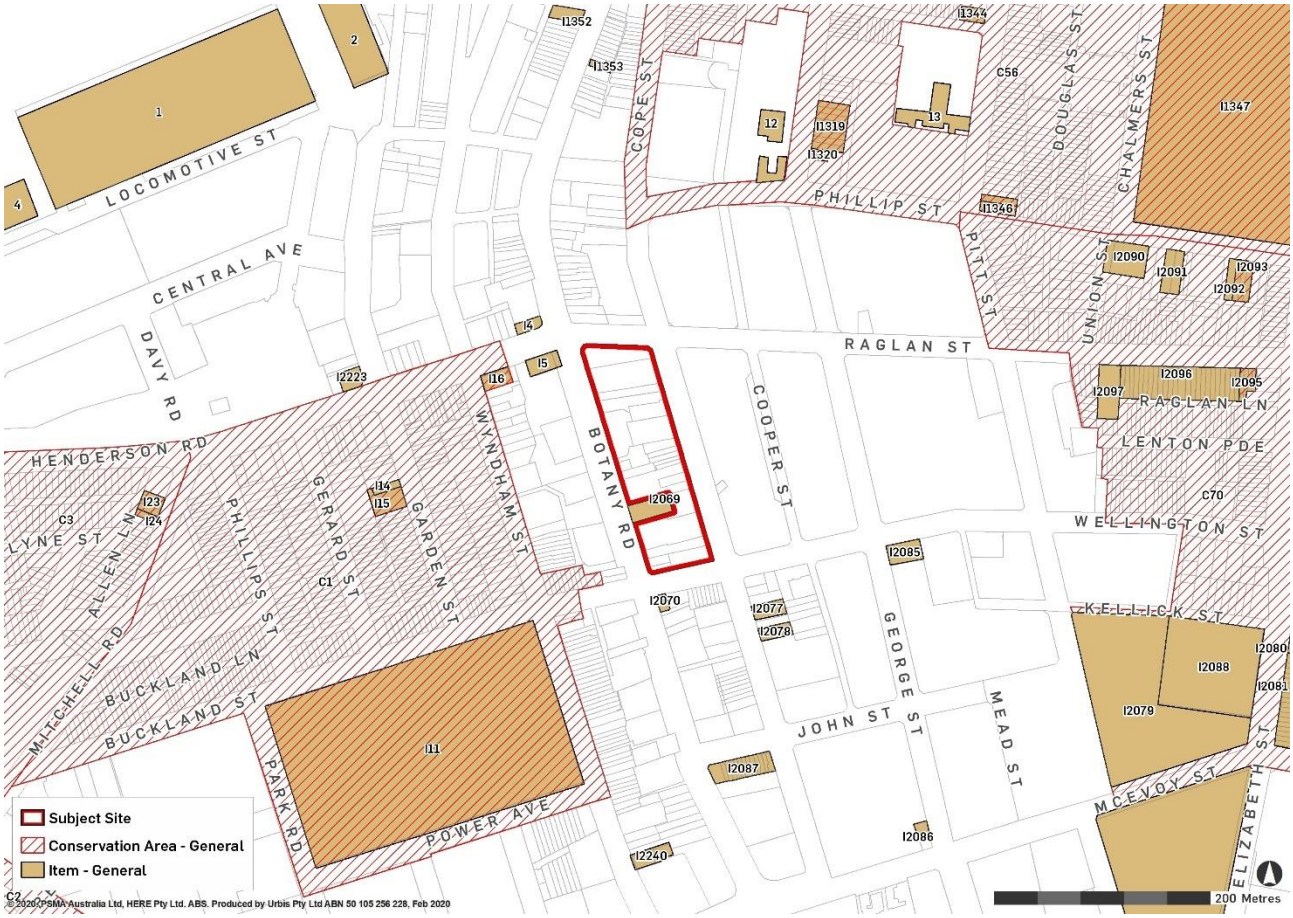
Item	Name and Address	Significance	Statement of Significance
I2069	Waterloo Congregational Church, 103-105 Botany Road	Local	*The Gothic church of rendered brick construction was constructed in 1883 to replace the congregation chapel built in 1865. The symmetrical design of the façade demonstrate high quality architectural traits of the building. It is one of the earliest worship venues in Waterloo.*
I2070	Cauliflower Hotel, 123 Botany Road	Local	*The Cauliflower Hotel is a good example of a mid-Victorian hotel in the Georgian style and was built in c1862 by George Rolfe who was a leaseholder and a market gardener. The hotel was under the ownership and operation by the Rolfe family until 1920s, and later by Tooheys and Tooth & Co. The name "Cauliflower Hotel" is associated with former market gardens on the site which were said to be used for cauliflower growing. The hotel has been continually licensed since its establishment. This Georgian style building and the unique cauliflower sign is the landmark on Botany Road.*
I4	Cricketers Arms Hotel including interior, 56-58 Botany Road	Local	*It represents a good example of its architectural style on a prominent corner site. It makes strong contribution to the streetscape of Botany Rd and Henderson St.*
I5	Former CBC Bank, including Interior, 60 Botany Road	Local	*It represents a good example of the Victorian Italianate style by prominent government architect Mansfield. It is a landmark building on a prominent corner site.*
C3	Alexandria Park Heritage Conservation Area	Local	*The Alexandria Park Conservation Area is significant for its ability to demonstrate the growth of the municipality of Alexandria in the second half of the nineteenth century and the first half of the twentieth century. The area developed in association with the industrial growth of Waterloo and the establishment of the Eveleigh Railway and Goods Yards, providing housing for workers. The housing stock reflects successive subdivisions of the Coopers freeholds and Park View Estate. The industrial development illustrates a later overlay reflecting the growing importance of the area as an*

Item	Name and Address	Significance	Statement of Significance
			industrial centre in the early twentieth century. Alexandria Park provides a focus for the community.

Potential impacts of the proposed basement on the surrounding heritage items have been carefully considered in the detailed design of the proposal to ensure the built form and heritage significance of these items continues to be appreciated and enjoyed.

These potential impacts have been discussed in further detail in **Section 8.4** of this EIS and within the Heritage Impact Assessment in **Appendix H**.

Figure 14 Surrounding Heritage Items



Source: Urbis / SLEP 2012

3.6. TRANSPORT & ACCESSIBILITY

3.6.1. Public Transport

Heavy Rail

The site is located between Redfern Station (located approximately 650m north of the site) and Green Square Station (located approximately 900m south of the Site).

Redfern Station currently services all Sydney Trains lines, excluding the T2 Airport Line, and some NSW Trainlink services. Green Square Station currently services the T2 Airport, Inner West and South Line. This line provides high frequency services between Macarthur and the City via the Sydney International and Domestic Airports.

Waterloo metro station will provide alternative access to the rail network, reducing pressure on Redfern and Green Square Stations to accommodate residential and commercial growth in the area.

Bus

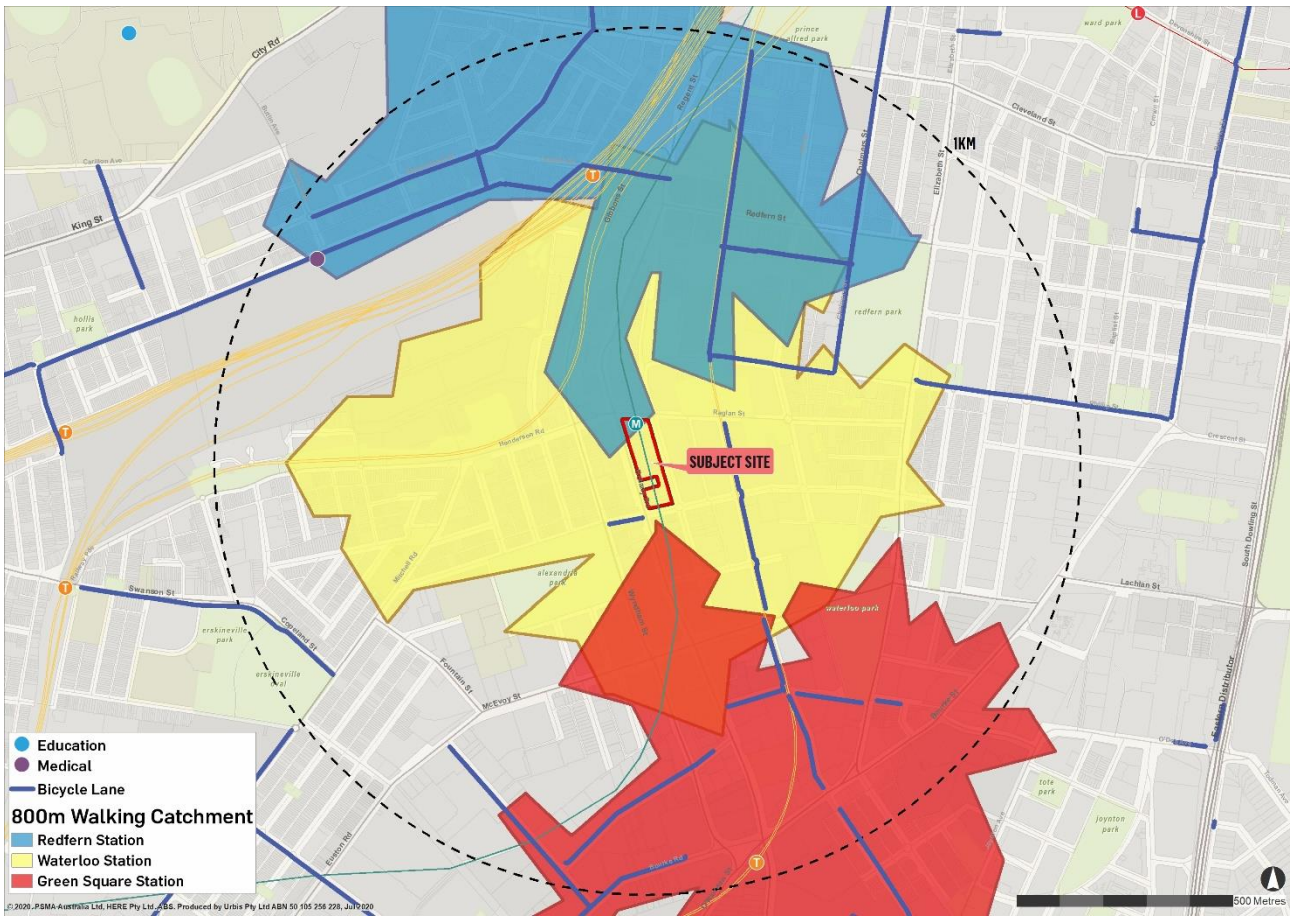
The site is located close to multiple bus stops operating the following State Transit bus services:

- Botany Road
  - Route 309 – Central Station to Banksmeadow via Mascot.
- Raglan Street
  - Route 308 – Redfern to Marrickville Metro via Eveleigh, Surry Hills and Erskineville.
  - Route 301, 302, 303 and 305 – Eastgardens to Redfern via Mascot, Eastgardens to Redfern via Kingsford, Sans Souci to Redfern via Mascot.
- Wellington Street
  - Route 355 – Marrickville Metro to Bondi Junction via Moore Park and Erskineville.

Sydney Metro

The site is located directly adjacent to the future Waterloo Station. Waterloo Station is part of the NSW Government's Sydney Metro: City & Southwest transport project which is the second stage of the Sydney Metro project. The project will extend the Stage 1 Metro Line (Sydney Metro: Northwest) from Chatswood to Bankstown via Sydney CBD. Between Sydenham to Bankstown, the existing T3 line will be converted to metro standards. **Figure 16** illustrates an 800m walking catchment from the Redfern rail station, and Waterloo metro station, in addition to the Green Square rail station to demonstrate the high level of public transport accessibility to the site.

Figure 15 Walking catchment to high frequency public transport



Source: Urbis

3.6.2. Road Network

Arterial roads

The site is well connected by key regional roads. The site has frontage to Botany Road which is identified as a classified State Road. Botany Road is a key corridor connecting the site to Sydney Airport. McEvoy Street and Henderson Road both run east-west, providing links between the inner west and the Sydney CBD or the eastern suburbs.

Cycleways

The site benefits from proximity to several dedicated cycleways. These include a combination of separate dedicated cycleways and bike lanes along Wellington Street, Raglan Street and George Street. There is currently no dedicated cycleway along Botany Road given the high volumes of traffic along this road.

Figure 16 Road network and cycling routes

Source: City of Sydney

3.6.3. Pedestrian Network

Pedestrians can access the site via dedicated footpaths on all street frontages. The surrounding street network comprises a grid pattern which facilitates high pedestrian permeability and activity. Due to the traffic volumes of Botany Road, east-west pedestrian movements from the site to adjoining neighbourhoods are limited.

The site is well located for residents to walk to Green Square Station and Redfern Station as well as various retail, community facilities and public spaces.

3.7. OPEN SPACE & SPECIAL AREAS

The site is located in close proximity to the following public open space areas:

- **Raglan Street Basketball Courts** are located directly to the north of the site on the opposite side of Raglan Street.

- **Waterloo Park** is located approximately 280m south-east of the site. It comprises a playing field, skate park, basketball court and children's playground.
- **Alexandria Park** is located approximately 220m south-west of the site. It comprises a multipurpose sports field, tennis courts, a basketball court and children's playground. The playground is fenced and comprises equipment for children of all ages. Picnic shelters, bubblers and bike storage racks are also located within the park. An off-leash dog area is also located outside the oval, courts and playground.
- **Redfern Park** is located approximately 500m north-east of the site. It is a large, heritage listed park comprising a total of 4.8 hectares. It comprises an oval, grandstand and children's playground. The Park underwent a refurbishment in 2007/08 which included upgrading of all paths, kerbs, lights and furniture and the restoration of the park's historic features.
- **Eveleigh Green** formerly known as the Vice Chancellor's Oval is an active recreational space that provides grassed lawn areas, playground equipment and sports courts. It adjoins Yerrabingin House which is a community building fitted with café, gym and public toilets.
  - The following public parks and recreation facilities are also proposed to be provided:
- **Perry Park and Recreation Centre** – a new multi-purpose sports centre is proposed in Perry Park, Alexandria. The sports centre will comprise two indoor and two outdoor multi-purpose courts for sports such as netball, basketball and futsal.
- **Gunyama Park Aquatic and Recreation Centre** – a new aquatic and recreation centre is proposed on Zetland Avenue, Zetland. It will be the largest pool built in Sydney since the 2000 Olympics. Outdoor recreational space will also be provided in the form of a playground, picnic facilities, a fitness training circuit and a 4,950sqm multipurpose sports field. The aquatic centre is due for completion in 2020.

3.8. TOPOGRAPHY

The site falls approximately 0.8m towards the south with a high point on the northern edge along Raglan Street. The cross-fall on an east-west direction is of approximately 0.1m falling towards Botany Road. The Probable Maximum Flood level (**PMF**) across the site grades down from north to south along the edge of Botany Road.

The surrounding area is also relatively flat, partly due to the existing urbanised nature of the region and partly resulting from the natural state of the area.

3.9. UTILITIES & INFRASTRUCTURE (SERVICES)

The site is located within an established urban area and currently contains all necessary services including electricity, gas, water, communications, drainage and sewerage. Furthermore, future development on the site can be connected to these services when required. **Section 4.7** provides a detailed discussion of the required utility and service infrastructure provisions associated with the detailed design and future use of the basement.

4. PROPOSED DEVELOPMENT

4.1. DESCRIPTION OF THE PROPOSAL

The detailed SSDA seeks approval for the detailed design and construction of two-storey shared basement (including associated excavation) located below the northern and central precincts to service the staff, visitors and residents of the of the Waterloo Metro Quarter site.

The basement comprises vehicle parking for commercial and residential components within the northern precinct and central building, as well as parking allocations for the social housing component (southern precinct), existing Waterloo Congregational Church, Sydney metro and car share services. The basement car park also includes end of trip facilities, motorcycle and bicycle parking, residential storage areas and provision for services.

The design of the proposed basement has considered the future development of the Waterloo Metro Quarter site and its relationship and integration with the northern and central precincts, as well as the public domain elements.

Specifically, this detailed SSDA seeks development consent for the excavation and construction of a:

- Two-level shared basement and associated excavation, comprising:
  - A maximum of 155 car parking spaces to support the operation of the commercial building 1, residential building 2, social housing building 4, car share provisions for the wider Waterloo Metro Quarter site, and spaces to service the Waterloo Congregational Church and Sydney metro users;
  - Ground level slab structure
  - 13 motorcycle parking spaces for commercial and residential users;
  - Commercial and retail end of trip facilities and bicycle storage facilities;
  - Residential storage facilities and bicycle parking;
  - Shared plant and services provisions; and
  - In ground OSD tank south of building 2

The design of the proposed basement has considered the future development of the Waterloo Metro Quarter site and its relationship and integration with the northern precinct and central building.

An amending concept DA has been lodged concurrently with this detailed SSDA for the basement. The amending concept DA will ensure development within the northern precinct is consistent with the concept approval, as modified. Separate SSDA's have also been lodged concurrently for the detailed design and construction across the northern, central and southern precincts.

It is noted that the proposed basement excavation and footprint is reduced from the basement extent considered within the concept SSDA (from five split levels to two levels) reflecting the proposed reduction of parking provision across the site.

4.1.1. Numeric Overview

The key numerical aspects of the proposed basement car park are summarised below in **Table 4**.

Table 4 Basement Car Park Provisions Numerical Overview

Component	Proposal
Basement Site area	5,700sqm (approx.)
Gross floor area	306.3sqm (EOTF and security office)
Car Parking Spaces	

Component	Proposal
Commercial Parking Spaces	63 (incl. 2 accessible spaces)
Residential Parking Spaces	Market housing – 55 spaces (incl. 8 accessible) Social housing – 8 spaces (incl. 2 accessible) Affordable housing – 12 spaces (incl. 1 accessible) Visitor – 2 (incl. 2 accessible) Total = 77 residential spaces
Childcare spaces	1
Waterloo Congregational Church Spaces	2
Sydney Metro Spaces	2
Car Share Spaces	4
Service Vehicles	5
Car Wash	1
Total Car Parking	**155**
Motorcycle Parking Spaces	13 (6 commercial, 7 residential)
Bicycle Parking Spaces (Class 1 and 2)	Commercial – 236 Residential – 65 dedicated, in addition to basement storage cages Retail and Childcare – 14 **Total = 315**
Visitor Bicycle Parking	Provided at-grade or within the Sydney metro EOTF outside the scope of this basement
End of Trip Facility Provisions	
Commercial EOTF	Showers – 30 (incl. 1 accessible) Lockers – 284
Retail EOTF	Showers – 3 (incl. 1 accessible) Lockers – 16
Residential Storage Units	85 storage units

It is noted that the basement accommodates the commercial EOTF, retail EOTF and the security officers' room. These facilities occupy a total of 306.4sqm of gross floor area (**GFA**) which has been measured in accordance with the SLEP 2012. This GFA has been accounted within the maximum site wide provision of 68,750sqm, excluding station floor space.

4.2. RELATIONSHIP BETWEEN BASEMENT (SSD) & STATION (CSSI) COMPONENTS

The concept SSDA (as proposed to be amended) outlines the integration between the proposed OSD building envelopes with the approved Waterloo metro station including associated station infrastructure. It is important to identify the delineation between the two projects, notwithstanding the development has been designed as a fully Integrated Station Development (**ISD**). This section clarifies the scope of works included within the CSSI approval and the components sought for approval under the concept SSDA (as proposed to be amended) and subsequent detailed SSDAs.

The proposed basement is located in the western portion of the Waterloo Metro Quarter site adjacent to the metro station box. The construction of the metro station box, including the below ground station works, metro line, platforms, and concourse level is provided for under the CSSI approval and does not form part of this SSDA.

Further detailed discussion of the relationship between the basement SSD and the CSSI metro station box is provided in the following sections.

4.2.1. Interface Areas

The proposal comprises a two-level basement situated immediately to the west adjacent to the Waterloo metro station box. The Architectural Drawings (**Appendix D**) and Architectural Design Report (**Appendix F**) prepared by Woods Bagot further delineate the integrated elements of the detailed SSDA and CSSI with illustrative references.

A summary of the relationship between this detailed SSDA and the CSSI approval for the Waterloo metro station box is provided below.

CSSI Approval or 'metro station box' (not the subject of this EIS):

- Demolition of existing development including vegetation removal.
- Excavation and remediation of the station box site undertaken in line with a Remediation Action Plan and Earthworks Management Plan.
- Design and construction of north station box above existing ground level up to RL 33.1, including primary station works, structural works (base build), retail/commercial tenancies, structural and service provision for the OSD (e.g. structure, lift cores and mechanical services).
- Design and construction of south station services box above existing ground level up to RL 34.7, including primary station works, structural works (base build), retail/commercial tenancies, structural and service provision for the OSD (e.g. structure, lift cores and mechanical services).
- Station structure including the concourse and platforms.
- Retail spaces within the station building.
- Location of loading dock facilities and services vehicle entrance off Botany Road.
- Public domain and infrastructure improvements.
- Public domain improvements, including the through site link from metro to bus stop adjacent to Building 2 referred to as Grit Lane (physical connection excluding awnings).
- Structural and service elements and relevant space provisioning necessary for the construction of the OSD, such as columns and beams, space for lift cores, plant rooms, access, and building services.

Basement SSDA (the subject of this EIS):

The basement SSDA includes the design, construction (including bulk excavation) and operation of the basement, including provisions for:

- All vehicle parking (commercial, residential, social housing, car share, service and visitor);
- Motorcycle and bicycle parking (commercial, residential);
- End of trip facilities and residential storage facilities;

- Security office;
- All shared plant and services provisions;
- In ground OSD tank located to the south of building 2 outside the basement footprint; and
- Structure to support the construction of building 1 and building 2 above the basement footprint.

It is also noted that the basement accommodates two parking space provisions for the Sydney metro.

To further clarify the above, **Figure 17** provides an illustrative view of the metro station box and the adjacent building 1 and basement components. As can be seen, the metro station box is denoted in purple, whilst the basement SSDA is denoted in grey.

Figure 17 E-W Section view illustrating the relationship of the metro station box and basement

Source: Woods Bagot

4.2.2. Structural Integration

Below ground level the basement car park directly abuts the western wall of the metro station box via a buttress system, however, the basement is structurally separated from the Sydney metro infrastructure. Specifically, the two-level basement car park is to be built adjacent to the west wall of the metro station via a buttress system.

- Building 1 structurally connects with the metro station at one interface point:
  - Top of the station box where Level 4 lands on the metro transfer beam.
- Building 1 abuts, but is not structurally connected to, the metro station at one interface point:
  - Underground basement where buttresses provide support to the west wall of the metro box in the event Building 1 and the Basement Car Park are demolished in the future.

In addition to the above there are close design and operational interfaces between the metro station box and the OSD design, including:

- Direct connection between the ground floor shared loading dock in the northern precinct and the metro station back of house area via Raglan Walk for operational purposes (servicing and waste storage).

- Blast and security measures throughout the precinct.
- Services integration to facilitate power, earthing and bonding.

4.3. BULK EXCAVATION

The horizontal extent of the basement excavation is to the boundary of the metro station box wall on the east, approximately 13m from the Waterloo Congregational Church to the south, Botany Road to the west and approximately 4m perpendicular to Raglan Street to the north.

The depth of the excavation will extend to approximately 8m below the surface of the existing ground level, with the finished surface level of the basement Level 2 slab to be situated at 9.5 metres RL (AHD).

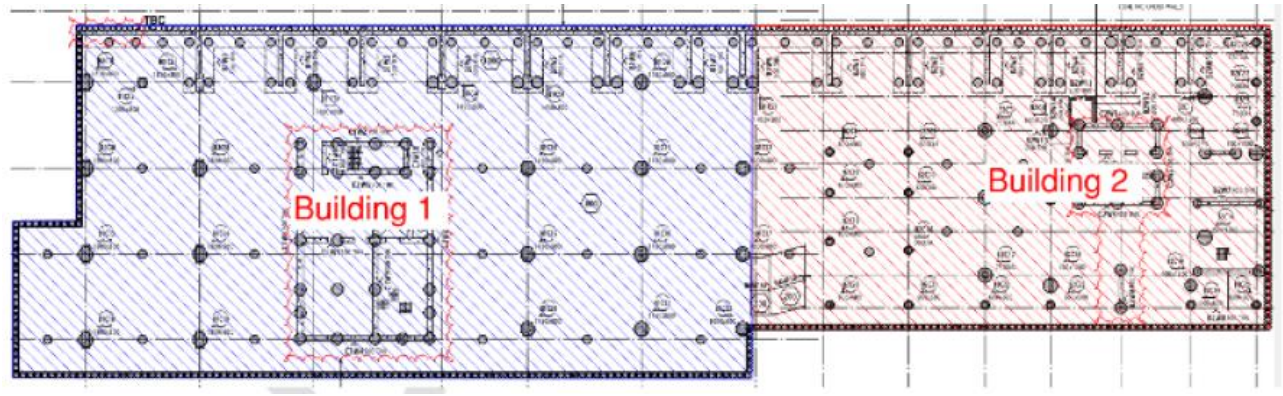
The construction of the basement includes bulk excavation to the basement slab level which includes destressing of temporary anchors used along the station box boundary and installation of ground anchors along the northern, western and southern boundaries. The Architectural Plans indicate that the basement structure will be excavated to approximately RL 8.5 (AHD) where it is likely to be within the fill and Botany Sand layer. Groundwater is expected to be encountered at around RL12 (AHD). Accordingly, conventional earthmoving equipment should be suitable for the bulk excavation and no heavy ripping or rock breaking equipment should be required during excavation.

The potential impacts of the basement excavation and other structural design considerations are discussed further in **Section 8.6**.

4.4. STRUCTURAL DESIGN

The basement will be a concrete structure comprising reinforced concrete walls and columns and post-tensioned suspended slabs. Building 1 will be positioned over the northern extent of the basement structure and building 2 will be positioned over the southern portion of the basement as illustrated in the structural images below.

Figure 18 Basement structural design outline



Source: Robert Bird Group

A secant pile wall will be adopted as the earth retaining structure to the northern, southern and western walls of the proposed basement. The secant pile walls provide temporary support during excavation and will not be designed to form the permanent retaining wall in the future. During construction temporary ground anchors will be required to support the piles. These will be destressed once the basement and ground floor slabs have been completed (included within the scope of this basement DA).

An existing temporary pile wall runs along the western boundary of the metro station box, constructed as part of the CSSI station excavation works. It is noted that this wall will not be relied upon for the construction of the basement and a permanent concrete wall will be constructed abutting the secant pile wall, spanning between floor levels and between the buttress walls in order to support the basement construction.

The basement is expected to be constructed within sand and clay and will extend below the groundwater table. Underlying the clay profile is shale and sandstone bedrock. A drained basement will be constructed whereby seepage into the basement is collected and disposed using a sump and pump drainage system. A cut off wall will be required around the perimeter of the basement and will need to penetrate the underlying rock in order to reduce seepage inflow and potential impacts to surrounding groundwater systems. Detailed investigation and analysis will be required to assess seepage inflow and drawdown associated with a

drained basement in order to determine if this can be constructed without significant impact to surrounding groundwater and properties. The drained basement will need to be referred to and approved by Council, Water NSW and DPIE. Subsequently, a Water Supply Approval and potentially a Water Access License will be issued, subject to predicted inflow volumes. Approval will also be from Council or Sydney Water for disposal into the stormwater or sewer to ensure minimal impacts on groundwater quality. Subject to the detailed analysis and review from relevant authorities, a drained basement is the preferred structural system for construction of the basement.

Footings and Buttress Walls

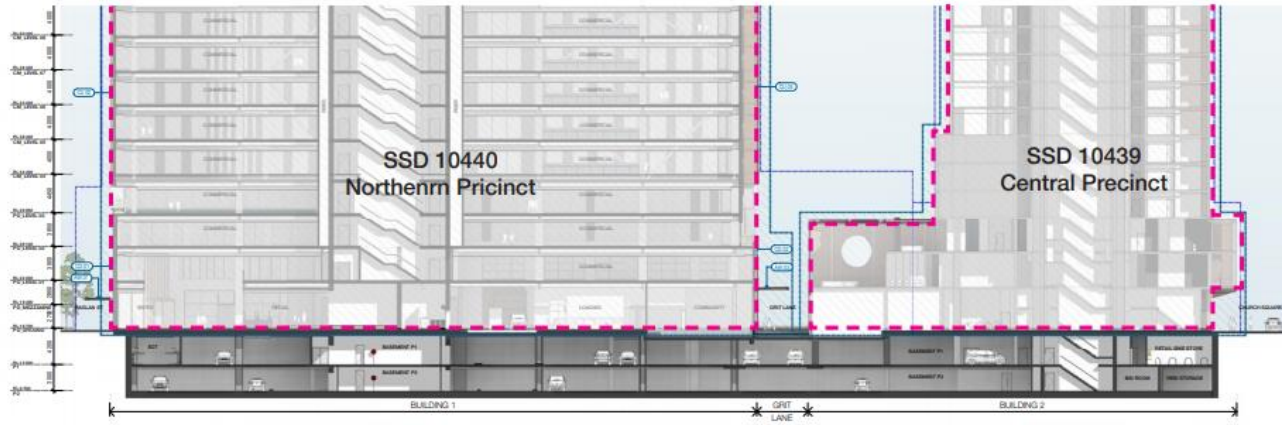
The basement (and buildings 1 and 2 located above the basement) is supported by reinforced concrete bored piers socketed into class 1 or 2 sandstone in accordance with the geotechnical recommendations. Buttress walls will be provided along the eastern boundary of the basement adjacent to the metro station box. The buttresses are designed to prevent the station structure from experiencing out of balance earth pressures if the basement is ever demolished in the future. The buttresses will have a design life equivalent to the station structure (100 years) and it should be noted on the structural drawings that these should not be demolished.

4.5. BASEMENT LOCATION & ACCESS

The basement is integral to the development proposed across the Waterloo Metro Quarter site. It spans from Raglan Street in the north to Church Square in the south and is located under both the commercial and residential buildings proposed under the northern (building 1) and central (building 2) precinct SSDAs. The eastern edge of the basement directly abuts the western wall of the metro station box however is structurally separated from the metro structure.

The location of the basement has been illustrated previously in **Figure 2**. A section view of the basement delineating it from the building 1 and building 2 is shown **Figure 19** below.

Figure 19 Basement location (N-S Section)



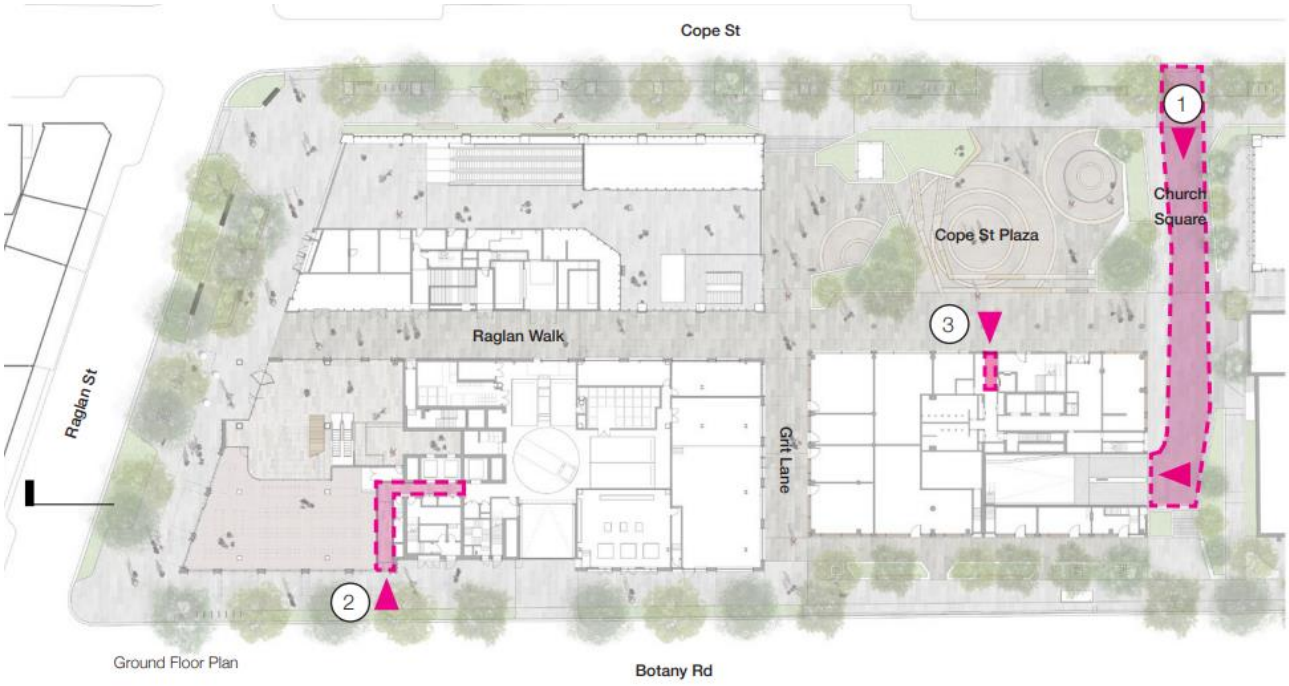
Source: Woods Bagot

Vehicle access to the basement is provided via a shared driveway from Cope Street that runs along the Cope Street Plaza towards Church Square and the designated car park access ramp.

Separated access for cyclists and pedestrians to the commercial end of trip facilities and bicycle parking located in basement level P1 is provided from Botany Road. This access is provided via a dedicated entry from Botany Road at ground level by using two shuttle lifts. In addition, pedestrians can utilise the lifts available in the commercial and residential buildings proposed under the northern and central precinct SSDA's. A third dedicated entrance for authorised residents of building 4 accessing allocated car spaces, car share users and retail employees to the end of trip facilities are provided directly from the Cope Street Plaza.

The three access points to the basement are indicated in **Figure 20** where the shared basement access way is indicated as '1', the commercial end of trip facility entry is indicated as '2', and the Cope Street Plaza entry is indicative as '3'.

Figure 20 Access to the basement at ground level



Source: Woods Bagot

4.6. BASEMENT DESIGN & LAYOUT

The basement layout comprises two levels below ground with the eastern edge abutting the metro station box. The basement footprint and layout of perimeter walls enable adequate deep soil planting provisions within the public domain areas at the ground level above.

The structural design ensures minimal structural transfers and the column arrangements align with the building 1 and 2 structures above the basement. This allows for an efficient car park layout which includes well designed parking bays and aisle widths that enable adequate vehicle manoeuvrability and parking, whilst ensuing the movement of pedestrian and cyclists throughout is not compromised.

4.6.1. Parking and Servicing Provisions

The basement accommodates parking provisions in levels P1 and P2 for the various uses proposed across the Waterloo Metro Quarter site, including, commercial, residential, social and affordable housing, car share, church and Sydney metro uses. Primarily these relate to the developments proposed above the basement in the northern and central precincts, with some provisions for the social housing component situated in the southern precinct. The basement also facilitates space provisions for services vehicle situated on level P1.

The previous **Table 4** provides a detailed breakdown of the vehicular parking provisions which are accommodated for in this basement proposal.

4.6.2. End of Trip Facilities and Residential Storage

The basement also accommodates provisions for commercial and retail EOTF associated with the commercial building 1 (northern precinct), as well as residential storage facilities associated with the mixed-use residential building 2 (central precinct).

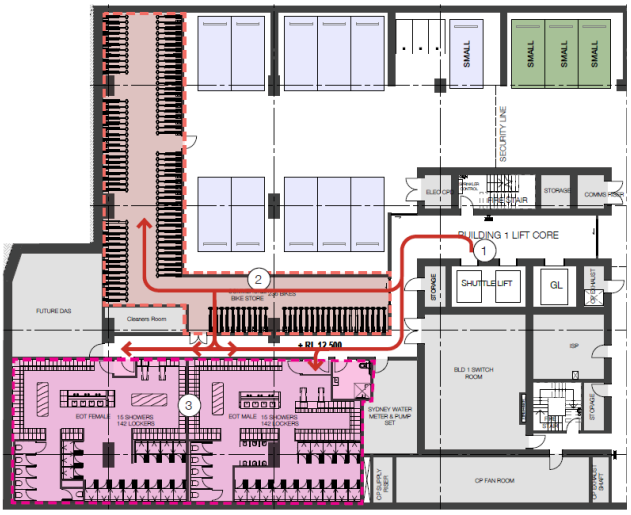
The commercial EOT provides showers, lockers and amenities for use by future workers. Notably, the basement facilitates provisions for 236 commercial bicycle parking spaces, 284 lockers and 31 individual shower cubicles. The retail EOTF also provides three showers, 16 lockers and amenities to serve future retail tenants. The retail EOTF amenities will also be available for use by security and cleaning staff working in the precinct.

The commercial EOTF and bicycle storage areas are located in the northern portion of level P1, directly below building 1. As indicated previously, the commercial EOTF can be accessed via a dedicated entry off

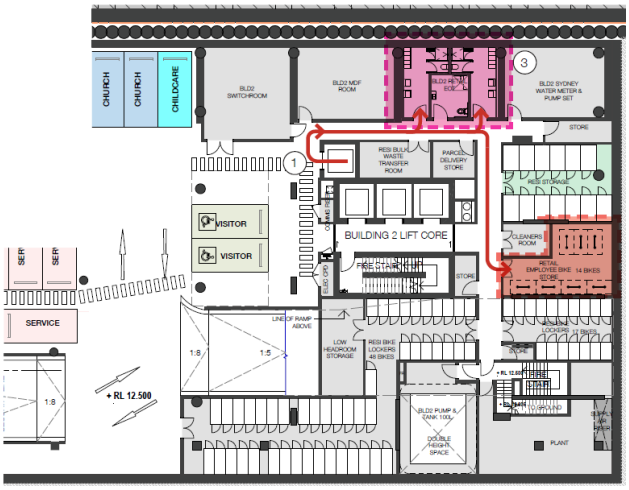
Botany Road at ground level by using two shuttle lifts within building 1 (refer **Figure 20**). Once at basement level P1, commercial workers can access the available commercial EOTF and bike store.

The retail EOTF and bicycle storage areas are situated in the southern portion of level P1 directly below building 2. Retailers can access the EOTF via a dedicated entry from Cope Street Plaza which leads to a shuttle lift on ground level to get to the basement. These access paths are illustrated below.

Figure 21 Commercial and retail EOTF and bicycle storage provisions



Picture 23 Commercial EOTF & Bike Store



Picture 24 Retail EOTF & Bike Store

4.6.3. Access Control Points

The two-storey basement incorporates a series of security lines throughout the car park to segregate commercial and residential parking areas from other parking spaces to ensure safe and secure vehicle parking for future workers and residents.

For the most part, the security lines shown on the Architectural Plans denote roller shutters to ensure secure access to vehicle parking in accordance with the CPTED recommendations. Vehicle movement via the roller shutters will require swipe card access.

For level P1 of the basement, there is one security line proposed in the northern portion which separates the commercial vehicle parking and one proposed in the western portion to separate residential parking (together with a partition wall which closes off the area).

A security line is proposed part way down the ramp to level P2 to ensure secure access to the commercial and residential parking below. An additional security line is proposed in the centre of the level P2 to separate the commercial and residential parking areas (together with a partition wall which closes off the area).

The secure access arrangements, and other Crime Prevention Through Environmental Design (CPTED) initiatives throughout the basement are discussed further in Section 8.13.1.

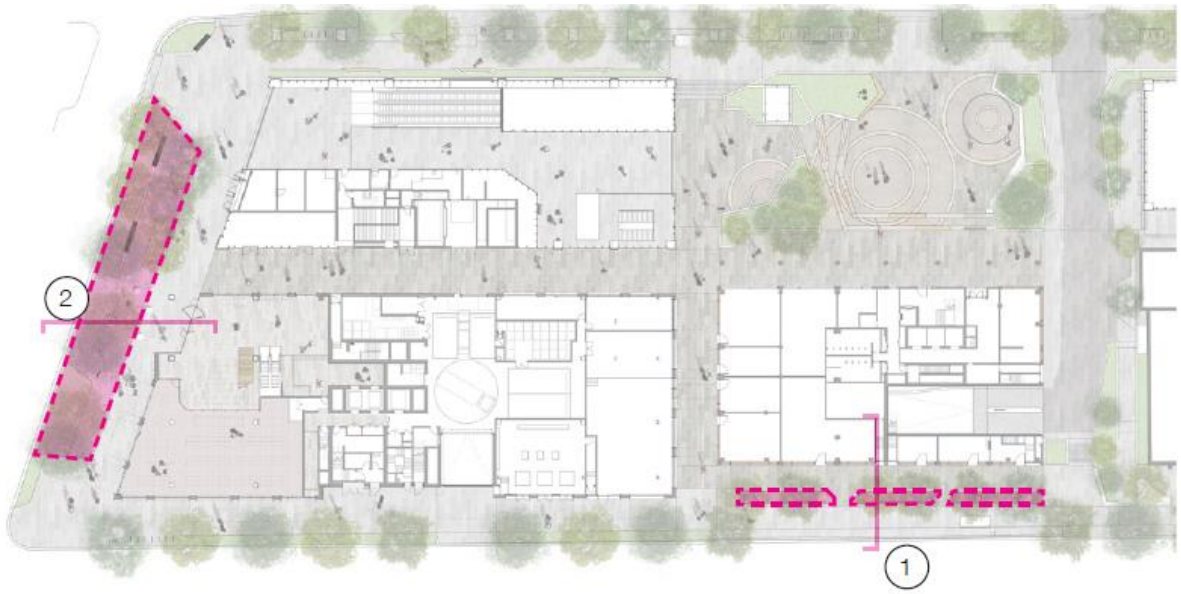
4.6.4. Landscaping & Deep Soil Zone Provisions

The basement layout has been specifically designed to ensure that appropriate landscaping and deep soil provisions can be provided within the public domain areas at ground level along the Botany Road and Raglan Street frontages.

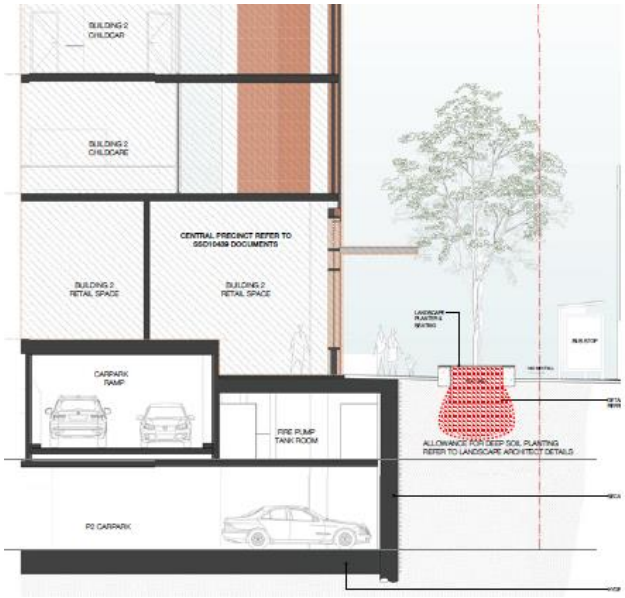
Specifically, the basement footprint has been adequately setback from Raglan Street to the north and Botany Road to the west allowing for deep soil planting which will support mature canopy tree vegetation. This will embellish the public domain areas and provide natural shade canopies, along with mitigating any adverse wind impacts associated with the OSD at the northern and central precincts of the Waterloo Metro Quarter site.

The two respective deep soil zones on Botany Road (“1”) and Raglan Street (“2”) which the basement design enables are illustrated in the figures below.

Figure 22 Deep soil zone locations

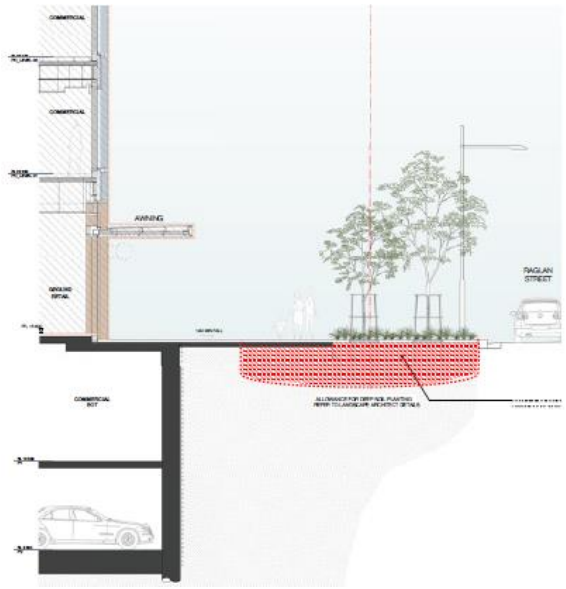


Source: Woods Bagot



Picture 25 Botany Road section (“1”)

Source: Woods Bagot



Picture 26 Raglan Street section (“2”)

Source: Woods Bagot

4.7. SERVICES & UTILITIES

The detailed SSDA design further develops the concept design to establish the capacity and augmentation requirements of the utility provisions for the development. Generally, to support the development, the approach has included measures to avoid, protect, augment or relocate/remove utilities within the surrounding area. Connections into the OSD and station include electrical, communications, fire, gas, potable water and sewer services, utilising existing connections where possible. It is noted that the station services are completely separated from the OSD with the exception of power supplied to the metro retail.

The assessment of the existing infrastructure capabilities and identification of new connections required to be provided as part of the development is provided in the services and infrastructure report prepared by WSP Pty Ltd and WLD Pty Ltd is provided at **Appendix T**.

4.8. SUSTAINABILITY INITIATIVES

The proposed development aims to deliver a development with consistent or improved ecologically sustainable development (**ESD**) targets as approved under SSD 9393. The project's commitment to sustainability is demonstrated by targeting the following ratings outlined below.

The basement will contribute towards achieving national best practice sustainability demonstrated through third party certification of the following rating tools:

- 5 Star rating – Green Star Design and As-Built rating tool
- 5.5 Star rating – NABERS Energy (Base Building) (Northern precinct)
- 4.5 Star rating – NABERS Water (Northern precinct)
- Gold rating – WELL Core (Northern precinct)
- BASIX Energy score of ≥30 (Central precinct)
- BASIX Water score of >40 (Central precinct)

In addition, the broader Waterloo Metro Quarter site will obtain the following site-wide certifications:

- 6 star rating – Green Star Communities rating tool
- One Planet Community – recognition by BioRegional Australia

An ESD Strategy has been prepared by Cundall Johnston and Partners and is included at **Appendix M**. This report provides further detail on the sustainability initiatives and how the overall planning and design has incorporated ESD principles as defined in clause 7(4) Schedule 2 of the Regulations.

Broadly speaking, there are a range of initiatives which aim to maximise the environmental quality outcomes of the proposal and minimise the consumption of resources, especially energy, water and waste. Specific to this proposal, the proposed car parking provisions within the basement are significantly less than what is permitted under the relevant planning controls. This initiative will reduce the reliance on private motor vehicles and minimise the environmental impacts associated with high private vehicle usage. In addition, the basement encourages the use of public transport and active transit modes such as walking and cycling through facilitating the provision of secure end of trip (showers and lockers) and bicycle storage facilities. This will promote sustainable travel and low carbon transport.

4.9. WASTE MANAGEMENT

The storage, management and disposal of waste generated by the operation of the proposed development have been appropriately considered in the Operational Waste Management Plan (**OWMP**) prepared by Elephants Foot at **Appendix L**.

The primary waste stream expected to be generated by the ongoing operation of the proposed basement is associated with the EOTF "washroom facilities" located on level P1 of the basement. This will generate negligible quantities of waste. Each EOTF will be supplied with a waste receptable for paper towels and sanitary bins for female restrooms.

Level P2 of the basement also facilitates the residential waste and recycling chute room for the central precinct development which is located adjacent the building 2 lift core.

The spatial allocation and circulation space for the bin storage area required to service the central precinct, along with other waste management provisions which utilise the basement, are outlined in **Section 8.9** of this EIS and **Appendix L**. Generally, waste will be transferred by the future building managers from the waste areas for the central precinct on level P2 to the shared loading dock provided in the ground level of the northern precinct, accessed off Botany Road.

Management of waste from buildings 1, 3, and 4 are undertaken at ground level, and waste infrastructure to support these buildings is not required within the basement.

4.10. CONSTRUCTION MANAGEMENT & STAGING

4.10.1. Site Establishment

A Construction Environmental Management Plan (**CEMP**) has been prepared by John Holland and provided at **Appendix Q**. Demolition and excavation works associated with the CSSI approval have commenced on site. Hoardings will be installed by John Holland Building Pty Ltd (OSD Contractor) following handover of the basement work areas by the Station Contractor.

The site will be surrounded by both A-Class and B-Class hoardings along the perimeter of the site. These hoardings will be erected along Raglan Street, Cope Street, Wellington Street and Botany Road. No unauthorised access will be permitted. Out of hours security patrols will be utilised strategically during the project.

The project office will be located within one block of the site and will include accommodation for project management staff. Accommodation and amenities such as lunch sheds, office sheds, first aid sheds, change rooms and toilets for the construction workforce will be provided in stages.

Initial site accommodation sheds will be erected on top of the B class hoarding along the surrounding streets (Wellington Street, Botany Road and/or Raglan Street). As the works progress, accommodation will be relocated into the basement and lower floors of the building.

4.10.2. Construction Hours

Construction hours for the site have been established in accordance with the concept DA approval and approved Noise and Vibration report.

It is proposed to retain these hours for the construction of the OSD with the exception of extending Saturday construction hours from 8.00am to 7.30am and 1.00pm to 3.30pm in accordance with City of Sydney standard hours.

- Monday to Friday: 7am – 6pm
- Saturday: 7:30am – 3.30pm
- Sunday: No work

There will be times when out of hours works may be required. An out of hours protocol for the assessment, management and approval of work outside of the standard construction hours will be prepared and submitted as required.

4.10.3. Construction Staging

The basement consists of a single building zone which is supported by two on-street works zones (Botany Road and Raglan Street). A staged delivery approach of the building zone will be implemented in the following sequence.

1. Demolition – scope approved under CSSI approval
2. Contamination / Remediation – scope approved under CSSI approval
3. Archaeological Investigations – scope approved under CSSI approval
4. Excavation and Shoring – commence under the SSDA consent once granted
    - 4.1. Shoring Wall Piling and temporary anchors
    - 4.2. Destress Station Box anchors within OSD basement
    - 4.3. Bulk Excavation
    - 4.4. Detailed Excavation
5. Substructure
    - 5.1. Foundation, Piling, Pile Caps

6. Basement Structures

    6.1. Core structures (lift pits)

    6.2. Basement hydrostatic slab on ground (SOG)

    6.3. Buttress walls and perimeter walls

    6.4. Suspended slabs

    6.5. Walls and ceiling

    6.6. Services, finishes and equipment

    6.7. Commissioning and testing

The construction staging for each of these stages is described further in the CEMP provided at **Appendix Q** and construction related impacts are assessed at **Section 8.10**. The metro station box works are programmed to be occurring during the construction of the basement SSDA. The construction of building 1 and building 2 may occur following completion of the basement structures.

4.11. SUBDIVISION

The SSDA seeks for the staged stratum subdivision of the basement car park area. Preliminary subdivision plans are included at **Appendix Z.**

The CSSI Approval provides consent for the subdivision of the Station allotment (Lot 1) while also creating the amalgamated development (Lot 2). Further subdivision of Lot 2 is to take place through the subsequent SSDA stages, as set out below:

- Southern Subdivision Stage
- Northern Subdivision Stage
- Central Subdivision Stage

It is proposed that the stratum lots be created in a staged manner. The staged subdivision consent is to allow for the sequential creation / registration of allotments to occur as is required to coincide with the construction and occupation program for the Integrated Station Development without the need for separate ongoing subdivision applications.

It is intended that the basement stratum lots will be consolidated into their above ground parent lots, during or at the end of the stage subdivision process, and comprises the following stratum lots:

- Lot 4A – Social Housing Lot Basement Component
- Lot 8A – Building 1 Commercial Basement Component
- Lot 12A – Building 2 Residential Basement Component
- Lot 13A – Building 2 Affordable Housing Basement Component

The sequencing of lot numbers will need to comply with the requirements of the Land Registry Services and as such the final sequencing may vary subject to the staging of subdivisions.

The anticipated titling of the southern, northern and central stages titling relates to land associated with the respective precincts (uses and development) and the air space around the buildings. The residual OSD land will remain within the development allotment (Lot 2).

5. STRATEGIC CONTEXT

The strategic planning policies and design guidelines identified in the SEARs that need to be addressed include:

5.1. NSW STATE PRIORITIES

The proposed development is consistent with the relevant key objectives contained within the plan. Particularly, the broader WMQ development will positively contribute to achieving the 'Greener Public Spaces' priority of the NSW Premier:

> *Increase the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space by 10 per cent by 2023.*

The broader WMQ development will increase housing supply in a location that is within 10 minutes' walk of a number of high-quality green, open and public spaces including Alexandria Park, Waterloo Park and Redfern Park. The proposed development is also consistent with the former goals and objectives set out within the NSW State Priorities. These include:

- **Creating Jobs:** The NSW Government targeted the creation of 150,000 new jobs in NSW by 2019, whilst this jobs target was achieved in May 2016, the NSW Government is continuing to support key initiatives that assist in the creation of jobs, such as attracting large and international companies to base their headquarters in NSW.
  - The proposal will generate approximately 466 jobs during the project's construction phase for the entire WMQ site development (refer to **Appendix AA**).
  - The proposal will deliver a basement which will, in part, support a new commercial office building including retail uses in Sydney's inner city that has the potential to accommodate up to 4000 employees once operational.
  - The delivery of a major construction project across this precinct and the wider Waterloo Metro Quarter site relies on the input of a range of industries, with the economic contribution and benefits extending beyond the direct capital expenditure and employment associated with project goods and services, and jobs on-site.
- **Delivering infrastructure:** The NSW Government has committed to delivering 10 of the largest and most high-profile infrastructure projects on time and on budget, including the Sydney metro, planned to open in 2024.
  - The proposal provides a significant development opportunity for the State in conjunction with the new Sydney metro project. The detailed SSDA supports the delivery of Sydney metro by facilitating employment growth which is coordinated with the new Waterloo metro station. The proposal provides visitor vehicle and bicycle parking facilities that easily accessible and clearly identifiable, providing intuitive wayfinding to the Sydney Metro Waterloo Station entrance on Raglan Street.
  - The proposal will indirectly assist in improving road travel reliability and reducing journey time targets for road users by providing a basement which supports bicycle and end of trip facilities to encourage high commuter use of public transport.

The proposed development is consistent with the goals and objectives set out within the NSW State Priorities.

5.2. GREATER SYDNEY REGION PLAN: A METROPOLIS OF THREE CITIES

A Metropolis of Three Cities is a bold vision for three, integrated and connected cities that will rebalance Greater Sydney – placing housing, jobs, infrastructure and services within greater reach of more residents, no matter where they live. Setting a 40-year vision (to 2056) and establishing a 20-year plan to manage growth and change for Greater Sydney in the context of social, economic and environmental matters.

The vision for the plan is built on these 30-minute cities within Greater Sydney, the Western Parkland City, Central River City and Eastern Harbour City, providing improved access through different modes of transport to various job opportunities, services, entertainment and cultural facilities across the metropolitan area. The

Eastern Harbour City is well-established, well-serviced and highly accessibly by its radial rail network, with half a million jobs and the largest office market in the region.

The proposal responds to the Harbour CBD's focus on innovation and global competitiveness to underpin its continued growth, backed up by the significant Sydney Metro City & Southwest project. In accordance with Objective 18, the proposal aligns explicitly with the regional plan by:

- Providing a basement with provisions for commercial, residential and social housing parking provisions, as well as bicycle, end of trip facilities and residential storage facilities. This maximises opportunities presented by the Waterloo metro station, improving the home and work connections and supporting the 30-minute city by integrating parking and other facilities for a range of uses within proximity to a major public transport node.

The proposal also contributes towards achieving sustainability Objective 33 which seeks to reduce carbon emission and mitigate climate change, as follows:

- The basement accommodates minimal car parking provisions for the Waterloo Metro Quarter site (including maximum car share provisions) which equate to almost half the car space provisions permitted under the relevant planning controls. The lower parking rates and car share facilities proposed reduce the reliance on private vehicle usage, reduce congestion on the surrounding road network and will result in reduced carbon emissions from the site.
- The proposal also supports the co-location of commercial and residential land uses in proximity to public transport infrastructure to increase public transport patronage. The proposed development is also accompanied by an ESD Strategy (**Appendix M**) and a Green Travel Plan (**Appendix I**) which seek the implementation of national best practice sustainability, inclusive of shifting mode share targets to promote sustainable and active transit methods.

5.3. EASTERN CITY DISTRICT PLAN

The Eastern City District Plan covers the LGAs of Sydney, Woollahra, Waverly, Randwick, Bayside, Inner West, Burwood, Strathfield and Canada Bay. Planning Priorities that directly relate to the proposed Basement SSDA include:

E1 - Planning for a city supported by infrastructure

The growth of key employment centres is a key organising element of the urban structure of Greater Sydney and the Waterloo metro station is a key driver for the delivery of the Waterloo Metro Quarter OSD. The proposal will deliver a basement to support commercial floor space, residential dwellings and social housing in a highly accessible location within an emerging centre within Waterloo.

E10 - Delivering integrated land use and transport planning and a 30-minute city

The proposal aligns land use and infrastructure planning and ensures high public transport use through the provision of a basement that includes vehicle and bicycle parking, end of trip facilities and residential storage facilities to support a range of land uses in proximity to the Sydney Metro Waterloo Station. Further, the proposal is considered sustainable as it is likely to result in a high proportion of trips by public transport, walking and cycling trips to reduce emissions and heath.

5.4. TOWARDS OUR GREATER SYDNEY 2056

Towards our Greater Sydney 2056 is a draft amendment to the Greater Sydney Region Plan. The Plan focuses on the regional significance of central and western Sydney and provides a framework that will underpin strategic planning for a more productive, liveable and sustainable city.

The Eastern City is described as an 'economic engine' comprising the established Sydney City as well as economic corridors such as Macquarie Park, Sydney Airport and Port Botany to Kogarah. Opportunities to enhance the Eastern City include the renewal of government-owned land near Sydney City and reducing congestion.

The metropolitan priorities of relevance to the detailed SSDA aim to:

- Increase the range of jobs and services and other opportunities that people can get to within 30 minutes.
- Increase the proportion of people with good access to jobs and prioritise socially disadvantaged areas.

- Improve accessibility to jobs across all districts.
- Improve the ability to walk to local services and amenities.

The basement SSDA is consistent with the above-mentioned priorities for the following reasons:

- The basement supports end of trip facilities together with secure vehicle and bicycle parking to improve accessibility to jobs, services and other opportunities within 30 minutes, whilst encouraging active transit methods and high public transport patronage.
- The basement accommodates vehicle parking for the social housing components (delivered under the southern precinct SSDA) to increase access to jobs, services and amenities for the socially disadvantaged.
- Co-locating commercial, retail and residential floor space supported by the basement in conjunction with the metro station will provide improved accessibility of employment to residents.

5.5. FUTURE TRANSPORT 2056 STRATEGY

The NSW Government's Future Transport Strategy 2056 sets the 40-year vision, directions and outcomes framework for the transport system and customer mobility in NSW, which are divulged for Regional NSW and Greater Sydney. It will guide transport investment over the longer term delivered through a series of services and infrastructure plans and other supporting plans.

The site benefits from being located directly adjacent to the future Waterloo metro station which forms an important cog in the Sydney Metro City & Southwest project. The strategic location of commercial floorspace and residential dwellings delivers economic benefits for Sydney by enhancing connectivity between businesses, housing and people.

The proposal provides an opportunity to boost the city's productivity by providing vehicle and bicycle parking and end of trip facilities for commercial workers which allow people to access jobs faster and more reliably, whilst encourage active and sustainable transport modes.

5.6. STATE INFRASTRUCTURE STRATEGY 2018

The State Infrastructure Strategy 2018-2038 sets out the NSW Government's vision for infrastructure over the next 20 years, focusing on aligning investment with sustainable growth. The Strategy goes beyond the current projects and identifies policies and strategies to provide infrastructure that meets the needs of a growing population and a growing economy. For Metropolitan NSW, the primary goal is to provide residents with access to jobs and services within 30 minutes, known as the '30-minute city' model.

The Strategy sets out six cross-sectoral strategic directions for infrastructure in NSW, of which, the following are relevant:

Better integrating land use and infrastructure planning

The proposal will deliver a safe and secure basement which supports additional dwellings and jobs in coordination with the new Waterloo metro station, so that capital investment keeps pace and aligns with new jobs.

Delivering infrastructure to maximise investment and use of public funds

The proposal directly assists in the timely delivery of the new Waterloo metro station and in achieving the priority to provide infrastructure projects on-time and on-budget. Through the provision of bicycle storage and end of trip facilities, and the provision of minimal necessary car parking, the proposal will assist in promoting the use of the existing walking and cycling networks in the area, as well as encouraging the use of the heavy and light rail metro network.

Optimising asset management

The proposal has been designed with consideration of the life cycle of the asset so that the integrated station and OSD solution is 'futureproofed', and that the life, availability and use of railway infrastructure on the site are appropriately safeguarded.

Making our infrastructure more resilient

The proposal has been designed with regard to flooding and other environmental considerations, thus, ensuring that the development is not vulnerable to natural hazards and human-related threats.

Using innovative service delivery models

The proposal brings together the best skills of the private sector in delivering the Waterloo metro station. It represents an innovative approach that supports the NSW Government in funding the cost of this step-change piece of public transport infrastructure and delivering a range of public benefits.

5.7. SUSTAINABLE SYDNEY 2030

Sustainable Sydney 2030 is a long-term plan prepared by the City of Sydney to achieve a green, global and connected city. The Plan focuses on ten strategic directions, of which the following are relevant and will be by the proposal:

- **A globally competitive and innovative city** – the proposal enhances Sydney's global position and attractiveness as a destination for people, business and investment by delivering high-quality employment generating commercial floor space. The additional commercial floor space will attract new business, investment and global talent, which will help deliver a city economy which is competitive prosperous and inclusive.
- **Integrated transport for a connected city** – the proposal will facilitate the delivery of Sydney metro infrastructure, additional dwellings and jobs in a highly accessible location in proximity to the Green Square-Mascot strategic supporting centre, encouraging walking and cycling through the provision bicycle parking and end of trip facilities.
- **A city for pedestrians and cycling** – the proposal provides secure commercial and highly accessible visitor bicycle parking, and end of trip facilities to support future workers cycling or walking to work.
- **Sustainable development, renewal and design** - The city's renewal areas are best practice and aspired internationally. Waterloo is no exception, with the proposal being required to demonstrate design excellence. The proposal also encourages the use of active transport modes and high public transport patronage of the future metro station.

5.8. DEVELOPMENT NEAR RAIL CORRIDORS & BUSY ROADS – INTERIM GUIDELINE

The Development Near Rail Corridors and Busy Roads guideline assists in the planning, design and assessment of development which is in or adjacent to rail corridors and busy roads. The application of the guideline shares a close relationship with the *State Environmental Planning Policy (Infrastructure) 2007* (**Infrastructure SEPP**), supporting specific rail and road provisions contained within.

The Guideline relates to development impacted by rail corridors and busy roads, in terms of noise and vibration and air quality, as well as the potential impact of adjacent development on roads and railways, with regards to safety and design issues and excavation, earthworks and other construction-related issues.

The basement SSDA supports commercial and residential land uses, thus, capitalising on concentrating jobs and housing within easy walking distance above the future Sydney Metro Waterloo Station. Further, the extensive bicycle parking and end of trip facilities improves access and provides opportunities for increased rail patronage.

With regards to noise and vibration impacts by rail corridors on development and vice versa, this is SSDA is accompanied by an Acoustic and Vibration Impact Assessment, prepared by Stantec (**Appendix K**), which demonstrates that the proposed design is capable of meeting the requirements of the Guideline.

5.9. GUIDE TO TRAFFIC GENERATING DEVELOPMENT

The RMS Guide to Traffic Generating Developments outlines all aspects of traffic generation considerations relating to developments. The Guide establishes the grounds for traffic impact assessment in terms of daily traffic volumes and peak traffic volumes for commercial land uses (office and retail).

This detailed SSDA is accompanied by a Traffic and Transport Impact Assessment (**Appendix I**) which considers the strategic context of this Guideline and the statutory context of the Infrastructure SEPP as the basis for assessment. Traffic generation impacts are also discussed further detail in Section 8.1.2.

5.10. HERITAGE COUNCIL GUIDELINES ON HERITAGE CURTILAGES 1996

The Heritage Impact Statement (**HIS**) (**Appendix H**) and Heritage Interpretation Strategy (**HIS**) (**Appendix CC**), prepared by Urbis, provides a comprehensive assessment of key heritage impacts and establishes the heritage management framework for the development of the basement and entire Waterloo Metro Quarter site. Notably the assessment considered in detail the interface of the building envelopes (approved and proposed to be amended) and the adjacent Waterloo Congregational Church, a locally significant heritage item. Heritage impacts with regards to the proposal are discussed further in **Section 8.4**.

5.11. HERITAGE COUNCIL GUIDELINE, DESIGN IN CONTEXT – GUIDELINES FOR INFILL DEVELOPMENT IN THE HISTORIC ENVIRONMENT, 2005

The assessment of heritage impacts within the Heritage Impact Statement in **Appendix H** and the Heritage Interpretation Strategy in **Appendix CC** prepared by Urbis, provides a comprehensive assessment of key heritage impacts and establishes the heritage management framework for the development of the site. Heritage impacts are further discussed in **Section 8.4**.

5.12. CITY OF SYDNEY'S ENVIRONMENTAL ACTION 2016 – 2021 STRATEGY AND ACTION PLAN

The *City of Sydney's Environmental Action 2016-2021 Strategy and Action Plan* focuses on defining actions to 2021 on the way to achieving 2030 environmental targets. By 2021, the City aims to reduce emissions in its operations by 44 per cent from 2006 levels and move to 50 per cent renewable energy.

An ESD Strategy has been prepared by Cundall Johnston and Partners and is included at **Appendix M**. The report details how ESD principles will be incorporated in the design, construction and operation of the development and includes a framework for how the proposed development will reflect national best practice sustainable building principles.

Notably, the proposal minimises the number of on-site parking spaces to almost half of that permitted under the relevant planning controls, reducing the reliance on private vehicle ownership and contributing towards low-carbon emissions. This is also addressed by the provision of car share facilities which will be utilised in the future by the commercial and residential land uses across the site. This detailed SSDA is accompanied by a Green Travel Plan (refer to Appendix X) which seeks a shift in mode share to more sustainable and active transit modes.

5.13. NSW GOVERNMENT'S CLIMATE CHANGE POLICY FRAMEWORK

The ESD Report provided at **Appendix M** identifies the proposed development will adopt a Sustainability Framework that will inform the design, construction and operation stages of the project. The framework includes specific goals, targets and practical actions centred around a set of categories to manage risks from climate impacts, protect communities and strengthen the resilience of the local economy. As the basement is integrated with development proposed across the northern and central precincts, the targets and initiatives relative to climate risk and adaptation are noted below.

Goals / Targets:

- A Climate Adaptation Plan will inform the design of the project in accordance with international guidelines.

Initiatives:

- Prepare and implement a Climate Adaptation Plan (plan to be prepared during design development) including agreeing on the climate change scenarios to be adopted (2°C and/or 4°C).
- Reduce heat island effect – green roofs, street tree planting, PV panels, hard surfaces with high Solar Reflective Index (SRI).
- Passive design of facades to improve thermal performance and reduce impact of extreme weather days.
- Design cooling system capacity for higher design temperatures to allow for increasing peak temperatures.

- Stormwater systems designed for increased storm frequency and intensity.

For further details please refer to the ESD Strategy at **Appendix M**.

5.14. NSW GOVERNMENT'S DRAFT CLIMATE CHANGE FUND STRATEGIC PLAN AND A PLAN TO SAVE NSW ENERGY AND MONEY

As discussed in the section above, the ESD Report included at **Appendix M** includes specific goals, targets and initiatives regarding climate change that will inform the design, construction and operational stages of the project.

5.15. BETTER PLACED – AN INTEGRATED DESIGN POLICY FOR THE BUILT ENVIRONMENT OF NEW SOUTH WALES

Better Placed (2017) is an integrated design policy for the built environment, prepared by the Government Architect of NSW, to create a transparent approach to ensure good design outcomes are achieved to deliver desired architecture, public places and environments throughout NSW (September 2017). The policy includes seven applicable objectives:

- Better fit – contextual, local and of its place
- Better performance – sustainable, adaptable and durable
- Better for the community – inclusive, connected and diverse
- Better for people – safe, comfortable and liveable
- Better working – functional, efficient and fit for purpose
- Better value-creating and adding value
- Better look and feel – engaging, inviting and attractive.

The detailed design has been subject to an extensive design review that involved a collaborative, cyclical and iterative process. The final design outcome will accommodate a built form that is sustainable, functional, sensitive to its context and visually distinctive as encouraged by objectives of Better Placed, in line with the concept SSDA as proposed to be amended.

5.16. DRAFT CONTAMINATED LAND PLANNING GUIDELINES

The Draft Contaminated Land Planning Guidelines (Planning Guidelines) have been prepared by the DPIE and Environment Protection Authority (**EPA**) to assist planning authorities address land contamination issues and assess development applications for remediation works. The Guidelines are primarily for planning authorities however have been considered as part of this assessment.

All demolition will be completed as part of the Sydney metro station works, and potential site contaminants will be addressed in accordance with the relevant conditions of the CSSI approval. Therefore, the provisions of Guidelines have been wholly addressed through that approval and are not relevant to the basement SSDA.

Notwithstanding, a Contamination Assessment Statement has been prepared by Douglas Partners which outlines the proposed strategy for managing potential contamination at the site. Contamination and remediation matters are discussed further in **Section 6.5.**

5.17. CITY OF SYDNEY DEVELOPMENT CONTRIBUTIONS PLAN 2015

The proposed OSD is subject to the City of Sydney Council's contributions requirements under *the City of Sydney Development Contributions Plan 2015*. The levy aims to assist the funding of public facilities such as facilities, amenities and services required to meet the needs of an increasing workforce and residential population.

As per the terms of the *City of Sydney Development Contributions Plan 2015*, development contributions are not payable for the delivery of social or affordable housing. The balance of the proposed development will be the subject of development contributions payable by either monetary contribution or works provided in kind.

In accordance with the Concept Conditions of Consent and SLEP 2012, public benefits will be delivered to the satisfaction of the Secretary.

5.18. CITY OF SYDNEY LOCAL STRATEGIC PLANNING STATEMENT

City Plan 2036 is the draft Local Strategic Planning Statement (**LSPS**) for the City of Sydney and links the state and local strategic plans with the planning controls to guide future development and the Local Environmental Plan review. It delivers on the 10 strategic directions of our community strategic plan, Sustainable Sydney 2030, and has been informed by the City's other social, environmental, economic and cultural plans and strategies.

The City Plan sets 13 priorities to achieve the City's Green, Global, Connected vision and guide future changes to the City's planning controls, of which the following are notably relevant:

1. Movement for walkable neighbourhoods and a connected city

The proposed development is integrated with the future Sydney metro and will directly facilitate the development of a place-base infrastructure service which encourages active transit methods such as walking and cycling in conjunction with the Sydney Metro Waterloo Station.

By supporting commercial employment floor space, jobs and dwellings (including social housing) above the Sydney Metro Waterloo Station, the proposal contributes to the vision for a 30-minute city. Further, the proposal is considered sustainable as it increases the proportion of trips by public transport, walking and cycling trips to reduce emissions and heath.

2. Align development and growth with supporting infrastructure

The proposal directly assists in the timely delivery of the new Waterloo metro station and in achieving the priority to provide infrastructure projects on-time and on-budget. Through the provision of bicycle storage and end of trip facilities, and the provision of minimal necessary car parking, the proposal will assist in promoting the use of the existing walking and cycling networks in the area, as well as encouraging the use of the heavy and light rail metro network.

8. Developing innovative and diverse business clusters in the City Fringe

The proposal delivers a basement to support a commercial building generating employment floor space and residential buildings providing housing within Sydney's inner-western suburbs with direct access to the Sydney CBD via the future Sydney Metro Waterloo Station. The site is also in proximity to the Green Square-Mascot Strategic Centre.

11. Creating better buildings and places to reduce emissions and waste, and use water efficiency

The sustainability framework for the project implements both the Green Star rating scheme and the NABERS rating. Green Star assesses projects based on their performance in the categories of management, indoor environmental quality, energy, transport, water, materials, land use and ecology, emissions and innovation. The development will reflect leading industry practice for commercial development by incorporating appropriate sustainability measures and initiatives.

Notably, the basement provides minimal vehicle parking to almost half that required under the relevant planning controls, thus, contributing to a reduction in reliance on private car ownership, contributing towards low-carbon emissions. This is coupled with the provision of extensive bicycle parking, EOTF and car share provisions to promote active and sustainable transport modes.

5.19. NSW PLANNING GUIDELINES FOR WALKING AND CYCLING

These guidelines function to improve the consideration of walking and cycling and their role in the creation of sustainable neighbourhoods and cities. The proposed development aligns with these guidelines by improving walkability and cycle access across Waterloo Metro Quarter site through the provision of new pedestrian routes, end-of-trip facilities and wayfinding signage. This will contribute to a high-quality pedestrian and cycling environment, which is conducive to use of active transport options by future OSD employees, residents and visitors.

5.20. SYDNEY'S BUS FUTURE 2013

Sydney's Bus Future 2013 outlines the NSW Government's long-term plan to deliver an integrated bus network which is simpler, faster and better within Sydney to meet current and future customer needs. The overarching aim is to provide an integrated bus network which seamlessly connects to other transport services and opportunities.

The proposal will align with these objectives by locating additional employment floor space within walking distance of key bus routes along Botany Road and Raglan Street.

5.21. SYDNEY'S CYCLING FUTURE 2013

Sydney's Cycling Future 2013 provides a framework for the way cycling is planned and prioritised in Sydney. It aims to grow the number of people cycling for transport by investing in safe, connected networks, making better use of existing infrastructure and fostering the formation of partnerships to develop cycling infrastructure.

Whilst the proposal does not itself alter the existing bicycle network or public domain areas, which are being designed and delivered separately along with the Station entries, it supports the use of cycling as a mode of transport through providing high quality bicycle parking areas and end of trip facilities within the basement located under the northern precinct and central precinct.

5.22. SYDNEY'S WALKING FUTURE 2013

Sydney's Walking Future 2013 aims to promote walking as a means of effective transport within Sydney by encouraging investment in safe, permeable walking networks.

The surrounding road network provides the site and OSD with pedestrian access. Public domain improvements will be included as part of the CSSI approval and will be designed to meet any relevant requirements of that consent and the Waterloo Station Design Guidelines. This will be outlined in the IAP and SDPP.

5.23. CITY OF SYDNEY GUIDELINES FOR WASTE MANAGEMENT IN NEW DEVELOPMENTS

The City of Sydney's *Guidelines for Waste Management in New Developments* promotes the efficient storage, separation, collection and handling of waste in the LGA to maximise resource recovery and provide sage and health spaces for people to live and work in.

The proposed development is accompanied by an Operational Waste Management Plan (OWMP) which has been prepared by Elephants Foot (**Appendix L**). The OWMP discusses the expected negligible waste generation associated with the basement operation, regarding how the waste generated from the operation of the washroom facilities is stored and managed for collection. The plan also assesses the central precinct residential waste room, which is accommodated in the basement level P2, in accordance with the guidelines to minimise odours, deter vermin, protect surrounding areas and ensure safe and user friendly facilities.

5.24. OTHER RELEVANT STRATEGIC POLICIES AND GUIDELINES

Other relevant State and local strategies, policies and guidelines identified in the SEARs have been considered in the development of the Waterloo Metro Quarter OSD including:

- City of Sydney Alternative natural ventilation of apartments in noisy environments- Performance Pathway Guideline
- City of Sydney Interim Guidelines for Public Art in Private Developments
- City of Sydney Landscape Code Volume 2
- City of Sydney Public Domain Manual
- City of Sydney Light Design Code
- City of Sydney Street Tree Masterplan
- City of Sydney Technical Streets Specification and Street Design Code

6. STATUTORY CONTEXT

As outlined in the SEARs, the statutory provisions contained in the planning instruments listed below have been addressed for the detailed SSDA:

- *Environmental Planning and Assessment Act 1979 (EP&A Act)*
- *Biodiversity Conservation Act 2016*
- *State Environmental Planning Policy (State and Regional Development) 2011*
- *State Environmental Planning Policy (Infrastructure) 2007*
- *State Environmental Planning Policy No 55—Remediation of Land (SEPP 55)*
- *State Environmental Planning Policy No.64 – Advertising and Signage (SEPP 64)*
- *State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development and accompanying Apartment Design Guide (SEPP 65)*
- *State Regional Environmental Plan (Sydney Harbour Catchment) 2005 (SREP Sydney Harbour)*
- *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017*
- *Draft State Environmental Planning Policy (Environment)*
- *Draft State Environmental Planning Policy (Remediation of Land)*
- *Sydney Local Environmental Plan 2012 (SLEP)*
- *Sydney Development Control Plan 2012 (SDCP)*

The proposals compliance with the relevant statutory provisions is outlined in the following sections.

6.1. ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Pursuant to clause 4.36(2) of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**):

> *(2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development*

The proposal is classified as SSD as detailed in Section 6.2, below.

In accordance with Section 4.5 of the EP&A Act, the Independent Planning Commission is designated as the consent authority if there is a Council objection to the DA or there are more than 25 submissions, unless otherwise declared by the Minister as a State Significant Infrastructure related development.

Unless otherwise declared, the Minister will be the consent authority for the detailed SSDA (refer clause 8A of the SRD SEPP).

Table 5 below provides an assessment of the proposal against the objectives contained within Section 1.3 of the EP&A Act.

Table 5 Objectives of the EP&A Act

Objectives	**Comment / Response**
To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposal promotes the social and economic welfare of the community and a better environment through the delivery of an integrated transport-oriented development above the Waterloo metro station.
To facilitate ecologically sustainable development by integrating relevant economic, environmental	The ESD commitments are consistent with those included within the concept SSDA. This detailed

Objectives	Comment / Response
and social considerations in decision-making about the environmental planning and assessment.	proposal, in conjunction with other SSDAs for the respective precincts, is committed to achieving high standards of ecologically sustainable development as outlined in the ESD Report at **Appendix M**. Refer to **Section 8.3** for further discussion.
To promote the orderly and economic use and development of land.	The proposal promotes the orderly and economic use and development of land through the delivery of a basement which accommodates secure bicycle parking, end of trip facilities, residential storage provisions and vehicle parking for commercial and residential land uses to support the residential and non-residential land uses proposed across the northern, central and southern precincts of Waterloo Metro Quarter.
To promote the delivery and maintenance of affordable housing.	N/A
To protect the environment, including the conservation of threatened and other species of native animals and plants, ecologically communities and their habitats.	The basement is located within an established urban environment. A BDAR waiver has been issued from the DPIE which determined the proposal will have no impact on threatened species or their habitats (**Appendix V**).
To promote sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	The proposal respects the significance of surrounding built heritage, particularly the Waterloo Congregational Church, as outlined in **Section 8.4** and the Heritage Impact Assessment (**Appendix H**).
To promote good design and amenity of the built environment.	The proposed basement has been well designed to facilitate vehicle parking, adequate service provisions, well located residential storage, bicycle and end of trip facilities and to enable clear and intuitive pedestrian movement. The detailed design of the Waterloo Metro Quarter OSD as a whole exhibits design excellence as demonstrated in the endorsed design excellence strategy attached at **Appendix G**.
To promote proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Construction staging and impact management are discussed in **Section 8.10**. A CEMP is provided at **Appendix Q**.
To promote the sharing of responsibility for environmental planning and assessment between different levels of government in the State.	Relevant Government agencies have been consulted throughout the concept and detailed design processes. It is noted that the Minister for Planning and Public Spaces is the consent authority as the development is considered SSD.

Objectives	Comment / Response
To provide increased opportunity for community participation in environmental planning and assessment.	An inclusive public consultation strategy has been implemented throughout the project design process (refer to **Section 7** and **Appendix U**).

Overall, the proposed development is consistent with the objects and general terms of the EP&A Act.

6.2. BIODIVERSITY CONSERVATION ACT 2016

The purpose of the *Biodiversity Conservation Act 2016* is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and in the future, consistent with the principles of ecologically sustainable development. Clause 2 of Section 7.9 of the *Biodiversity Conservation Act 2016* requires a DA for SSD to be accompanied by a Biodiversity Development Assessment Report (**BDAR**).

As part of the assessment of the concept SSDA, the NSW DPIE granted a waiver under section 7.9(2) of the *Biodiversity Conservation Act 2016*, concluding that:

- The proposed development is not likely to have any significant impact on biodiversity values
- There is no need to submit a BDAR as part of the detailed SSDA.

A request seeking a waiver for the requirement for a BDAR associated with SSD-10438 was submitted to the NSW DPIE on 16 July 2020. This was accompanied by an assessment of the proposed development against the relevant provisions of the *Biodiversity Conservation Act 2016* and the *Biodiversity Conservation Regulation 2017*.

The assessment concludes that the proposal will not have any likely impact on the surrounding natural environment and abundance of species, habitat connectivity, threatened species movement and flight paths of protected animals, nor will it impact upon water quality surrounding the site (sustainability) and the site does not contain abundant vegetation.

Accordingly, a BDAR waiver (**Appendix V**) was issued by the NSW DPIE and OEH on 28 July 2020, and it was determined that a BDAR is not required as part of this detailed SSDA. Based on this assessment by NSW DPIE and OEH, it is considered that clause 2 of Section 7.9 of the *Biodiversity Conservation Act 2016* has been satisfied.

6.3. STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

The *State Environmental Planning Policy (State and Regional Development) 2011* (**SRD SEPP**) has the purpose of identifying development that is SSD, State Significant Infrastructure (**SSI**) (including critical) and regionally significant development.

The concept DA was classified as SSD under Section 4.36 of the EP&A Act as the development has a CIV in excess of $30 million, and is for the purpose of residential accommodation associated with railway infrastructure under clause 8(1)(b) of S*tate Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP).

In accordance with clause 12 of the SRD SEPP, subsequent detailed DAs under the concept DA are considered SSD regardless of CIV, as follows:

> *12 Concept development applications*
>
> *If—*
>
> *a) development is specified in Schedule 1 or 2 to this Policy by reference to a minimum capital investment value, other minimum size or other aspect of the development, and*
>
> *b) development the subject of a concept development application under Part 4 of the Act is development so specified,*

any part of the development that is the subject of a separate development application is development specified in the relevant Schedule (whether or not that part of the development exceeds the minimum value or size or other aspect specified in the Schedule for such development).

Accordingly, all subsequent detailed DAs to be sought for the Waterloo Metro Quarter site are considered SSD. For clarity this includes applications for the following:

7. Concept amending DA – modified building envelope for the Northern Precinct.
8. Southern Precinct – Cope Street Plaza; Social Housing; Student Accommodation; Gym; Retail Premises
9. Central Building – Community Facilities; Affordable Housing; Market Housing; Retail Premises
10. Basement – to support the Waterloo Metro Quarter site (**this application**).
11. Northern Precinct – Commercial Office; Retail Premises

6.4. STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

State Environmental Planning Policy (Infrastructure) 2007 (**ISEPP**) came into force in December 2007 and aims to facilitate the effective delivery of infrastructure across the State. The SEPP identifies matters for consideration in the assessment of types of infrastructure development, including all new development that generates large amounts of traffic in a local area. The following clauses are relevant to this application:

- Excavation in, above, below or adjacent to rail corridors (clause 86 of Division 15 Railways)
- Residential development on land in or adjacent to a rail corridor (clause 87 of Division 15 Railways).
- Development in or adjacent to a rail corridor (clause 88 of Division 15 Railways).
- Major development within the Interim Metro Corridor (clause 88A of Division 15 Railways).
- Development with a frontage to a classified road (clause 101 of Division 17 Roads and Traffic).
- Impact of road noise or vibration on non-road development (clause 102 of Divisions 17 Roads and Traffic).
- Traffic generating development (Schedule 3).

As per clause 85, the consent authority must provide notice to the relevant rail authority within seven days after the application is made for their consideration prior to the determination of the DA. The proposal relates to development located within the Sydney Metro City & South-West corridor and will be referred to Sydney Metro and TfNSW for comment.

Pursuant to clause 104 (Traffic Generating development) and schedule 3 of the ISEPP, the modification application also triggers consultation with the TfNSW (Roads Division), as the proposed development has more than 2,500sqm commercial floor space, a basement with more than 50 car parking spaces, and more than 75 dwellings with access to a road that is less than 90m from a classified road. Traffic impacts associated with the proposed amendment to the concept envelope and land use mix are outlined in detail at Section 8.1.

6.5. STATE ENVIRONMENTAL PLANNING POLICY NO 55—REMEDIATION OF LAND AND DRAFT REMEDIATION OF LAND SEPP

State Environmental Planning Policy No.55 – Remediation of Land (**SEPP 55**) provides a State-wide approach to the remediation of contaminated land, and primarily promotes the remediation of contaminated land for the purpose of reducing the risk of harm to human health.

A Contaminated Sites Strategy has been prepared by Douglas Partners and is included at **Appendix GG** which documents how contamination and remediation across the Waterloo Metro Quarter site, related to both the station works and the OSD will be managed through the construction period.

As all demolition work, and a substantial component of excavation across the Waterloo Metro Quarter site will be completed as part of the Sydney Metro Waterloo Station works, and noting that exposed material may

impact the construction of the metro station, remediation across the site will be managed in accordance with the relevant conditions of the CSSI approval most notably conditions E66-E70 below.

> *E66. A Site Contamination Report, documenting the outcomes of Phase 1 and Phase 2 contamination assessments of land upon which the Critical State Significant Infrastructure is to be carried out, that is suspected to be, or known to be, contaminated must be prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the Contaminated Land Management Act 1997 (NSW).*
>
> *E67. If a Site Contamination Report prepared under Condition E66 finds such land contains contamination, a site audit is required to determine the suitability of a site for a specified use. If a site audit is required, a Site Audit Statement and Site Audit Report must be prepared by a NSW EPA Accredited Site Auditor. Contaminated land must not be used for the purpose approved under the terms of this approval until a Site Audit Statement is obtained that declares the land is suitable for that purpose and any conditions on the Site Audit Statement have been complied with.*
>
> *E68. A copy of the Site Audit Statement and Site Audit Report must be submitted to the Secretary and Council for information no later than one (1) month before the commencement of operation.*
>
> *E69. An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.*
>
> *E70. The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.*

In satisfying the above conditions, a series of site investigations and reporting has been completed for the Waterloo Metro Quarter site. These findings and recommendations are contained within:

- A Site Contamination Report has been prepared for the western portion of the site (GDP, 2019); and
- A Site Audit Report has been prepared for the station box excavation (eastern portion of the site) (Ramboll, 2020).

Further, a combined Phase 1 and Phase 2 Site Contamination Investigation has previously been conducted for the western portion of the Waterloo Metro Quarter site, and is presented in: Golder Douglas *City Metro City South-West, Environmental Site Assessment - Waterloo, Integrated Station Development, Botany Road, Waterloo NSW (GDP, 2019)* included at **Appendix HH**.

It is noted as per the contamination report studies completed for the site there is the potential to encounter the below listed contaminants during the excavation for the proposed basement.

- Asbestos containing material
- Contaminated groundwater
- Various heavy metals, VOC's, PAH's and hydrocarbons
- Per-and poly-fluoroalkyl substances (PFAS)
- Acid Sulphate Soils (ASS)
- Potential Acid Sulphate Soils (PASS)

The following recommendations are noted within the Contaminated Sites Strategy as being required to be completed for the western portion of the site, the subject of this basement SSDA:

- Engage a suitably experienced Contaminated Lands Consultant and NSW EPA Accredited Site Auditor.
- Undertake Supplementary Contamination Investigation and Assessment, with the scope of works to be agreed between the Contaminated Lands Consultant and the Site Auditor.
- Prepare a Remediation Action Plan (RAP), to be reviewed by the Site Auditor who will provide Interim Advice supporting the suitability of the RAP prior to its implementation.
- Prepare an Unexpected Contaminated Land and Asbestos Finds Procedure.
- Implement the RAP, and Unexpected Contaminated Land and Asbestos Finds Procedure.

- Prepare a Validated Assessment Report.
- Prepare a Site Audit Statement and Site Audit Report by the NSW EPA Accredited Site Auditor and submit this to the Secretary and Council for information.
- Undertake Supplementary Contamination Investigation and Assessment.

As such the above reports confirmed that management and remediation of contamination in the western portion of the Waterloo Metro Quarter is required. This management and remediation of contaminated material within the western portion of the Waterloo Metro Quarter site is to be completed as stated above under the terms of the CSSI approval to enable the satisfaction of conditions E66-E70 of CSSI 7400.

The Contaminated Sites Strategy details how the scope of works and remediation process to be completed under the CSSI approval will enable the western portion of the site to be suitable for the proposed development. The Contaminated Sites Strategy also critically notes that a Site Audit Statement/Site Audit Report stating that the site (or nominated portion of the site) is suitable for the proposed development will be issued prior to use of the site.

6.6. STATE ENVIRONMENTAL PLANNING POLICY NO.64 – ADVERTISING AND SIGNAGE

The *State Environmental Planning Policy No.64 – Advertising and Signage* (**SEPP 64**) aims to ensure that signage is compatible with the desired amenity and visual character of an area, provides effective communication in suitable locations, and is of high-quality design and finish.

The basement SSDA does not seek consent for the erection of any signage nor does it seek to nominate any signage zones.

6.7. STATE REGIONAL ENVIRONMENTAL PLAN (SYDNEY HARBOUR CATCHMENT) 2005 (SREP SYDNEY HARBOUR)

The *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005* (**SREP**) is a regional planning instrument that aims to ensure the catchment, foreshores, waterways and islands of Sydney Harbour are recognised, protected, enhanced and maintained as a natural and public asset of national significance.

The site is located within the Sydney Harbour Catchment area but not within the Foreshores and Waterways area. Therefore, clause and 26 of the SREP is relevant to the consideration of the proposed development with regards to the maintenance, protection and enhancement of views. Matters to be taken into consideration in relation to clause 26 include:

- Development should maintain, protect and enhance views (including night views) to and from Sydney Harbour;
- Development should minimise any adverse impacts on views and vistas to and from public places, landmarks and heritage items; and,
- The cumulative impact of development on views should be minimised.

Given the nature of the proposal relates to the excavation and construction to support the basement, the proposal will not have any view or visual impacts above those considered as part of the concept SSDA as it sits below ground level.

6.8. STATE ENVIRONMENTAL PLANNING POLICY (VEGETATION IN NON-RURAL AREAS) 2017

The *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (**Vegetation SEPP**) works together with the *Biodiversity Conservation Act 2016* and the *Local Land Services Amendment Act 2016* to create a framework for the regulation of clearing of native vegetation in NSW. The Vegetation SEPP applies to the Sydney metropolitan areas and land zoned for urban purposes.

The site is within an established urban area and has been cleared of all vegetation, buildings and structures under a separate CSSI approval. As such, no further consideration of the Vegetation SEPP is required.

6.9. DRAFT STATE ENVIRONMENTAL PLANNING POLICY (ENVIRONMENT)

Draft *State Environmental Planning Policy (Environment) 2017* was exhibited in December 2017 and seeks to consolidate and update the key elements of seven current SEPPs. One of these SEPPs is the Sydney Harbour REP.

The Explanation of Intended Effect provided as part of the consultation package, as well as the exhibited maps, demonstrates that the site would continue to be defined within the Sydney Harbour Catchment and continues to not be located in any of the specific zones contemplated by the SREP. On this basis, the previous assessment of the general principles of the SREP remain relevant.

6.10. DRAFT REMEDIATION OF LAND STATE ENVIRONMENTAL PLANNING POLICY

In January 2018, the DPIE exhibited the draft Remediation of Land SEPP, which seeks to provide an updated framework for the management of contaminated land in NSW. It is proposed that the new Remediation of Land SEPP will:

- Provide a state-wide planning framework for the remediation of land;
- Maintain the objectives and reinforce those aspects of the existing framework that have worked well;
- Require planning authorities to consider the potential for land to be contaminated when determining development applications and rezoning land;
- Clearly list the remediation works that require development consent; and,
- Introduce certification and operational requirements for remediation works that can be undertaken without development consent.

Any site remediation for the eastern portion of the site affected by the construction of the Sydney Metro Waterloo Station is assessed and approved in accordance with the CSSI approval. Further consideration of SEPP 55 is therefore only required on the western portion of the site.

As all demolition will be completed as part of the CSSI approved works. [This section to be completed following receipt of final remediation statement which verifies that the site can be made suitable for the proposed use.]

6.11. SYDNEY LOCAL ENVIRONMENTAL PLAN 2012

The *Sydney Local Environmental Plan 2012* (**SLEP 2012**) is the principal local planning instrument applying to the site, establishing the permissible land uses, key development standards, visual impact, views and heritage conservation requirements.

6.11.1. Zoning and Permissibility

The site is zoned as B4 Mixed Use in SLEP 2012. The prominent land use proposed in this SSDA is best defined as 'basement' and 'car park', which are defined in SLEP 2012 as follows:

> ***basement*** *means the space of a building where the floor level of that space is predominantly below ground level (existing) and where the floor level of the storey immediately above is less than 1 metre above ground level (existing).*
>
> ***car park*** *means a building or place primarily used for the purpose of parking motor vehicles, including any manoeuvring space and access thereto, whether operated for gain or not.*

The proposed use of 'basement' and 'car park', are permissible with consent in the B4 Mixed Use zone. The objectives of this zone are:

> *• To provide a mixture of compatible land uses.*
>
> *• To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.*

- *To ensure uses support the viability of centres.*

The basement SSDA is consistent with the zone objectives as it:

- Supports a range of compatible land uses across the Waterloo Metro Quarter site which integrates with and maximises public transport use; and
- Encourages high public transport patronage, walking and cycling through the provision of bicycle (commercial and visitor) and end of trip facilities in proximity to planned infrastructure.

6.11.2. Key Development Standards

The proposed development has been assessed against the relevant development standards contained within the SLEP 2012 and is discussed in Table 6 below.

Table 6 SLEP 2012 Compliance of Development Standards

Clause and Control	Proposal / Compliance
4.3 Height of buildings	**N/A**
4.4 Floor space ratio 6:1 across the site	**Complies** The proposed FSR for the Waterloo Metro Quarter OSD is 5.34:1, including the proposed 306.4sqm GFA within the basement (EOTF and security office) .
5.10 Heritage Conservation A heritage management document may be required to be prepared for land that is within the vicinity of a heritage item. The document is to assess the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item.	A Heritage Impact Statement (HIS) has been prepared by Urbis and is included at **Appendix H**. The HIS outlines that the proposed development (including excavation) will not have any impact on significant views towards the Waterloo Congregational Church, broader vicinity heritage items or impact the existing setting. With regards to potential physical impacts to the Waterloo Congregational Church, the HIS considers the basement excavation works are considered acceptable and will not impact upon the Church subject to the following recommendations: ▪ The Construction Management Plan should include specific construction methodology strategies to ensure that bulk excavation will have no physical impact on the stability of the ground beneath the Church. ▪ A monitoring program should be undertaken during excavation to ensure there are no adverse impacts. ▪ Recommendations for test excavation, investigations, reporting, monitoring and obtaining permits in relation to archaeological potential of the place, should be adopted.

Clause and Control	Proposal / Compliance
	Potential heritage impacts are discussed further in **Section 8.4**.
6.21 Design excellence The Concept Approval exercises the discretion available under clause 6.21(6) of SLEP to waive the requirement for a competitive design process under clause 6.21(5) as the concept design has been subject to the Sydney Metro Waterloo Design Excellence Strategy.	The concept DA exercises the discretion available under clause 6.21(6) of SLEP to waive the requirement for a competitive design process under clause 6.21(5) as the concept design has been subject to the Sydney Metro Waterloo Design Excellence Strategy (included at **Appendix G**). The Design Integrity Report at **Appendix Y** confirms that the detailed SSDA meets the design excellence requirements established for the site in accordance with the Endorsed Design Excellence Strategy at **Appendix G** and has received the feedback from the Design Review Panel.
6.45 Waterloo Metro Quarter - general The consent authority must not consent to development on land at the Waterloo Metro Quarter unless it is satisfied that the development is consistent with the following objectives: ▪ 12,000 sqm of GFA below podium for land uses other than residential accommodation or passenger transport facilities. ▪ 2,000 sqm of GFA for the purpose of community facilities. ▪ 2,200 sqm of land for publicly accessible open space. Further, the consent authority must not consent to the. construction of one or more dwellings on land at the Waterloo Metro Quarter unless: ▪ It is satisfied that at least 5% of the GFA used affordable housing ▪ It is satisfied that no dwelling used for the purposes of affordable housing will have a GFA less than 50 square metres ▪ It is satisfied that land uses other than residential accommodation or passenger transport facilities will be evenly distributed throughout the Waterloo Metro Quarter	In accordance with clause 6.45, a 'whole of precinct' approach has been adopted whereby consideration has been given to the provision of the above land uses across the Northern Precinct, Southern Precinct and Central Precinct. The following precinct wide conclusions have been made: ▪ A total of 12,000sqm of GFA below the podium is used for land uses other than residential accommodation or passenger transport facilities across the Waterloo Metro Quarter site. Building 1 and building 2 will deliver approximately 8,895.7sqm of this floor space at or below the podium level. ▪ A total of 2,219sqm GFA is to be provided for the purposes of community facilities within Building 2. Under the detailed SSDA for Building 2 it is proposed that this community facility will be used for the purposes of not-for-profit, community centre-based childcare. Furthermore it is noted that an additional 630sqm of ground level GFA (currented noted as 'retail premises') is proposed to be used for a variety of community uses including for instance a medical/health centre, enterprise café, Makerspace, community hub etc, however with the specific uses to be determined at a future stages. ▪ A minimum 2,200sqm of publicly accessible open space is proposed to be provided within the boundaries of the Waterloo Metro Quarter site, with additional publicly accessible open space to be delivered outside of the property boundaries

Clause and Control	Proposal / Compliance
	through widened footpaths and the delivery of the full scope of Raglan Street Plaza.
6.46 Waterloo Metro Quarter - State public infrastructure Development consent must not be granted for development for the purposes of residential accommodation (whether as part of a mixed use development or otherwise) on land at the Waterloo Metro Quarter that results in an increase in the number of dwellings on that land, unless the Planning Secretary has certified in writing to the consent authority that satisfactory arrangements have been made to contribute to the provision of designated State public infrastructure in relation to the land.	The proposal does not seek consent for the purposes of residential accommodation.
Clause 7.20 Development requiring or authorising preparation of a development control plan (DCP) Requires the preparation of a DCP for sites outside of Central Sydney if the site area is more than 5,000 sqm or if the development will result in a building with a height greater than 25m above existing ground level. However, this obligation can be satisfied by the approval of a staged development application for the site.	A staged development application has been approved for the site (SSD 9393), therefore clause 7.20 has been satisfied.
7.3 Car parking not to exceed maximum set out in this Division The LEP sets a maximum provision of car parking based on site area. The site is located on Category A land for residential land uses and Category D land for non-residential land uses.	The proposal does not exceed the maximum car parking provisions contained within the SLEP 2012 or SSD 9393. To the contrary, the proposed development has sought to minimise on-site car parking provision to reduce reliance on private vehicle ownership. Furthermore, the student accommodation use proposed for building 3 reduces the overall car parking demand on the site.

6.12. WATERLOO METRO QUARTER DESIGN AND AMENITY GUIDELINES

To reflect condition requirements of the Concept SSDA, Sydney Metro has revised the Waterloo Metro Quarter Design and Amenity Guideline (March 2020) which have guided the detailed design of the proposed residential tower and OSD project.

An assessment of how the proposed development is consistent with the Waterloo Metro Quarter Design and Amenity Guideline is set out in the following table.

Table 7 Waterloo Metro Quarter Design and Amenity Guidelines

Design Criteria	Detailed SSDA design response
3C Public Domain	The proposed development does not undermine the ability of the design criteria outlined in Section 3C to be achieved within the OSD above ground level. Notably, the basement footprint has been setback appropriately from the respective street frontages to Botany Road and Raglan Street, as well as towards Cope Street Plaza, to enable the provision of deep soil planting in the public domain areas delivered under the CSSI approval and the southern precinct SSDA.
3D Streets, lanes and footpaths	
Consultation is to be undertaken with the City of Sydney for any works in, under or over the public footpaths.	The basement SSDA is located wholly below the ground level and within the private property boundaries. As such, it does not impact upon any of the public footpaths managed by the City of Sydney.
Integrate new and relocated utilities underground within the street reservation, with services located underground and in a manner that facilitates tree planting.	As indicated in the Services and Utilities Report provided at **Appendix T**, the augmentation and provision of service utilities will be located underground and will not impact upon the landscaping and public domain works.
Where feasible, incorporate water sensitive urban design techniques such as landscaped swales to improve the quality of groundwater and water entering the waterways and tree bays	The proposed development does not include any specific landscaping or WSUD components given the nature of the development. Stormwater will be managed in accordance with the Stormwater and Flooding Report provided at **Appendix O**, so as to ensure that all stormwater overland flows are treated to ensure there are no impacts on the waterways. there is no stormwater management relevant to the basement proposal as all the stormwater above the basement is collected by the building 1 (northern) and building 2 (central) roofs. The roof and pavement runoff are directed to a stormfilter chamber prior to discharge to Council's stormwater system The northern precinct will be provided with 8 stormwater filter cartridges and the southern precinct will be provided with 6 stormwater filter catridges.

Design Criteria	Detailed SSDA design response
3E Tree canopy cover	
The development must achieve the following minimum tree canopy cover targets: ▪ 23% overall canopy cover ▪ 50% street canopy cover	The basement has been setback from Raglan Street to the north and from Botany Road to the west (particularly in front of the central precinct) to enable deep soil planting and groundwater replenishment. These deep soil pockets will accommodate street tree vegetation which will contribute towards the development across the Waterloo Metro Quarter site achieving the tree canopy targets. Notably, the entire WMQ project will deliver 25.7% overall canopy cover across the site and 55% street canopy cover in accordance with the guidelines.
A secondary alignment of trees are to be provided set further back from Botany Road in front of the central podium near the bus stop.	As indicated in **Section 4.6.4**, the basement has been specifically setback further along the Botany Road frontage below the central precinct (building 2) to enable deep soil provisions and street tree planting.
3F Tree planting specifications	
Overhead power lines and communication cables are to be under-grounded within all streets adjacent to the Metro Quarter.	The Services and Utilities Infrastructure Report outlines that no utility provisions required to service the proposed basement will be located above ground.
If existing trees occur within the planned under grounding routes then the routes shall be modified to avoid incursions into the tree(s) calculated Tree Protection Zones, as defined under Australian Standard 4970 – Protection of Trees on Development Sites. Where this cannot be reasonably accommodated, alternative methods of construction must be used such as under-boring, directional drilling or non-destructive trenching to install the cabling without impact to the trees' health or stability.	The basement has been adequately setback from Raglan Street to the north and Botany Road to the west to ensure there are no adverse impacts on any existing street trees. The majority of the public domain works will be delivered as part of the CSSI approval, including the retention of any existing street trees within the setback areas to the respective street frontages.
Where trees are planted within a potentially constrained soil environment (on-structure), appropriate soil volumes are to be provided.	As previously discussed, the basement has been setback from Raglan Street to the north and from Botany Road to the west (particularly in front of the central precinct) to enable deep soil planting zones which include appropriate soil volumes. Please refer to the Architectural Design Report provided at **Appendix F** for further details.

Design Criteria	Detailed SSDA design response
Consult with the City of Sydney in relation to tree planting in the public domain, comprising the public footpaths around the Metro Quarter	The proposed development does not include any tree planting in the public domain areas.
The following design criteria apply for tree planting around the Metro Quarter: All new street tree planting shall be a minimum of 200L container sizes with this increased to 400L for the key feature trees being preferred. Sizes of >800L should be considered where suitable and quality advanced stock is available.	The basement footprint does not compromise the provision of tree planting across the site in accordance with the specified requirements under this guideline.
3G Wind	Not relevant for the proposed basement.
3H Building uses	The proposed basement accommodates services for a mix of land uses proposed for the Waterloo Metro Quarter site.
3I Street activation	Access to the basement is proposed from multiple locations to ensure activation at ground level from multiple site frontages.
3J Podium and street wall	The proposed development does not undermine the ability of the design criteria outlined in Section 3J to be achieved within the OSD above ground level.
3K Built form above the podium	The proposed development does not undermine the ability of the design criteria outlined in Section 3K to be achieved within the OSD above ground level.
3L Residential amenity	The proposed development does not undermine the ability of the design criteria outlined in Section 3L to be achieved within the OSD above ground level.
3M Solar access and amenity	The proposed development does not undermine the ability of the design criteria outlined in Section 3M to be achieved within the OSD above ground level.
3N Pedestrian and cycle network	The proposed development does not undermine the ability of the design criteria outlined in Section 3N to be achieved within the OSD above ground level.
3O Carparking and access	
1. The maximum number of residential carparking spaces is in accordance with the Category A	The basement provides parking for the residential (building 2) and social housing (building 4)

Design Criteria	Detailed SSDA design response
rate for residential flat buildings under the City of Sydney LEP 2012 as follows: ▪ 0.1 spaces for each studio dwelling ▪ 0.3 spaces for each 1 bedroom dwelling ▪ 0.7 spaces for each 2 bedroom dwelling ▪ 1 space for each 3 or more bedroom dwelling	purposes in accordance with the SLEP 2012 and concept DA (SSD 9393) conditions of consent. In summary, the basement provides 55 residential spaces and 12 affordable housing spaces for building 2 and 8 social housing spaces for building 4. This is considerably lower than the maximum permitted 80 and 36 spaces, respectively.
2. Design basement car parking including depth and setback form property boundaries to ensure adequate soil volume and depth for street tree planting.	As previously discussed, the basement has been setback from Raglan Street to the north and from Botany Road to the west (particularly in front of the central precinct) to enable deep soil planting zones which include appropriate soil volumes. Please refer to the Architectural Design Report provided at **Appendix F** for further details.
3. Vehicular access to the site should be located and designed to minimise potential conflicts with metro customers and pedestrians and disruption to the active frontages.	Vehicle access to the basement is provided off Cope Street via the shared zone. Consolidating basement services in the one basement with a single accessway minimises potential vehicle and pedestrian conflicts and minimises street frontage disruption to maximise active ground floor uses. The shared way off Cope Street has been specifically situated away from the northern and southern metro entrances.
4. Car share parking spaces are to be provided in addition to the maximum number of car parking spaces permitted in the development and be in accordance with the following rates: ▪ 1 per 50 car spaces provided for residential development (i.e. Category A rate). ▪ 1 per 30 car spaces provided for office premises, business premises or retail premises (i.e. Category D rate).	As detailed in the Traffic Impact Assessment prepared by PTC (**Appendix I**), the proposed development provides car share parking for the residential and commercial land uses in accordance with the guidelines and concept DA (SSD 9393) conditions of consent. Notably, the basement incorporates 4 car share parking bays, two each for buildings 1 and 2.
3P Service vehicles and waste collection	
Service vehicles and waste collection design guideline. 1. Service vehicles and garbage trucks must access and egress the site in a forward direction. Mechanical turntables can be provided in the loading areas.	The Traffic Impact Assessment attached at **Appendix I** outlines in detail the consistency of the proposal with the 3P design criteria. In summary, the five service bays provided within the basement have minimum dimensions of 2.4m x 5.4m with a minimum headroom clearance of 2.2 metres, in accordance with relevant Australian Standards.

Design Criteria	Detailed SSDA design response
	It is noted that the primary loading area for the site is provided within the ground floor of the northern precinct and is outside the scope of this SSDA. This area facilitates a mechanical turntable and parking for 2 x SRV and 2 x MRV service vehicles.
2. Separate parking spaces are to be provided for service vehicles and are not to be shared with parking provided for any other purpose.	The five service vehicle parking bays provided in the basement are dedicated solely for this purpose and can accommodate utes and small vans.
3. Waste collection and loading are to be in accordance with the City of Sydney's Guidelines for Waste Management in New Developments.	As indicated previously, the primary loading and waste collection area is provided within the northern precinct and is outside the scope of this proposal. Notwithstanding, the waste storage room for the central precinct is located within the basement and will be constructed and managed in accordance with the City of Sydney's *Guidelines for Waste Management in New Developments*.
4. Waste collection and loading areas are to be accommodated wholly within the development in the following order of preference: ▪ In the building's basement. ▪ At grade within the building in a dedicated collection or loading bay. ▪ At grade and off street within a safe vehicular circulation system where in all cases vehicles will enter and exit the premises in a forward direction.	The primary loading and waste collection area for the site is provided at-grade and off street within the ground floor of building 1, accessed off Botany Road (outside the scope of this SSDA).
5. The waste collection and loading points are to be designed to: ▪ Allow waste collection and loading operations to occur on a level surface away from vehicle ramps. ▪ Provide sufficient side and vertical clearance to allow the lifting arc for automated bin lifters to remain clear of any walls or ceilings and all ducts, pipes and other services.	The loading and waste collection area is provided at-grade on level surface within the ground floor of building 1. This is separated and suitably distance from the basement area and access. The loading and waste collection area is delivered as part of the northern precinct SSDA and is outside the scope of the basement. It is noted that the loading area has been designed and assessed to ensure compliance with the relevant policies.
3Q Integration with the metro station	
1. OSD structural elements, building grids, column loadings, building infrastructure and services to coordinate/interface with the metro station.	The basement abuts the western wall of the metro station box via a buttress wall system, however, it is structurally separated and does not compromise the structural design of the metro station box.

Design Criteria	Detailed SSDA design response
2. Coordinate OSD future lift cores, access, parking and building services with the metro station.	The basement layout and lift cores are integrated with buildings 1 and 2 situated directly above. Building 1 in the northern precinct is integrated with the northern metro station box. The basement facilitates two parking bays for Sydney metro uses and power is reticulated to the retail premises located in the north station box.
3. The station and over station development must have functional autonomy and be designed to ensure that: ▪ All building services required for the OSD's use, operation and maintenance are located entirely within the OSD and must not pass through the station unless specifically required by relevant authorities. ▪ All pathways required for emergency egress and access for the station are located within the station and independent of the development. ▪ All pathways required for maintenance access of the station are located within the station are independent of the development with the exception of shared loading docks. ▪ The utility services for the station must not pass through the OSD.	The basement is structurally separated from the adjacent metro station box. There are no services connections (with the exception of power to the retail premises) or access between the two components, and as such, the basement operates fully independently from the metro station box. The detailed design and layout of the basement does not compromise or disrupt emergency egress and access or maintenance access required for the station.
4. Provide adequate clearance zones to ensure that the location of air intakes and exhaust outlets, including cooling tower discharges, eliminates the potential for cross contamination of air flows for exhaust and smoke discharge (in event of fire).	Adequate clearance zones have been provided for the basements air supply and risers located on the Botany Road frontage, ensuring there is no cross contamination or discharge into the station infrastructure.
3R Sustainability	
1. Comply with the performance targets specified in development consent SSD-9393	As outlined in the ESD Strategy (**Appendix M**) and, the basement is integrated with and supports the northern and central precincts sustainability initiatives. The basement will contribute towards achieving national best practice sustainability outcomes, achieving the targets required under the concept approval (SSD 9393). Please refer to **section 8.3** of this EIS for further discussion.

Design Criteria	Detailed SSDA design response
2. Water sensitive urban design measures are incorporated to improve stormwater quality flowing into waterways.	Given the nature of the development, there are no WSUD components proposed as part of the basement design. Stormwater will be managed as per the Stormwater and Flooding Report provided at **Appendix O**.
3S Stormwater and flooding	
1. Provide a total on-site detention volume of approximately 480m³. On-site detention should be situated above the 100 year ARI flood level to facilitate discharge into potentially fully charged stormwater pipes.	The report recommended the development provide a combined OSD tank volume of 480m^3 however did not clarify why the OSD tank volume increased from the Sydney Water requirement of 208m^3 to 480m^3. The Stormwater and Flooding Report attached at **Appendix O** outlines that a total of 208m3 on-site detention volume is provide across the site above the 100 year ARI flood level in accordance with Sydney Water requirements. The proposed development also includes the on-site detention tank for building 2 which is located outside the basement footprint to the south of building 2.
2. The development should implement measures to achieve the following water quality targets: ▪ Reduction of baseline annual pollutant load for litter and vegetation larger than 5mm by 90%. ▪ Reduction of baseline annual pollutant load for total suspended solids by 85%. ▪ Reduction of baseline annual pollutant load for total phosphorous by 65%. ▪ Reduction of baseline annual pollutant load nitrogen by 45%.	These requirements have been adopted for the northern and central precinct stormwater management strategies as they provide the highest level of water quality treatment and are consistent with the City of Sydney requirements.
3. The building floor levels are to be generally consistent with the flood planning levels below: ▪ Below ground car parking: 100 year ARI flood level + 0.5m of the PMF (whichever is the higher).	As concluded within Stormwater Management Plan and Flood Impact Assessment (**Appendix O**), the hydraulic flood model demonstrated that the proposed development has a negligible impact on the existing flood regime. Notably, the points of ingress to the basement have been protected adopting flood planning levels above the PMF or 100 year ARI + 500 mm (whichever is higher).
3T Waste management	

Design Criteria	Detailed SSDA design response
3T Waste management design criteria. Comply with the City of Sydney's Guidelines for Waste Management in New Developments.	The Operational Waste Management Plan attached at **Appendix L** demonstrates consistency with the guidelines. The residential waste and recycling chute room for the central precinct (building 2) is located on level P2 of the basement and must have a minimum of 35 sqm. The waste and recycling chute room is 42 sqm and has been designed in accordance with the City of Sydney's *'Guidelines for Waste Management in New Developments'*, in order to minimise odours, deter vermin, protect surrounding areas and ensure it is a user-friendly space.
Provide a centralised waste and storage area(s) near the collection point with capacity to store all waste and recycling likely to be generated in the building(s) in the period between normal collection time.	Whilst outside of the basement SSDA scope, a centralised waste storage and collection area for buildings 1 and 2 is provided within the ground floor loading dock of the northern precinct, accessed off Botany Road. The basement provides adequate space provisions for the building 2 manager to transfer waste and recycling bins from the waste and recycling room to the storage / collection area in the northern precinct loading dock.
Provide a separate space (attached to the waste and storage area) for the storage and recycling of bulky waste, textile waste and problem waste for collection.	The centralised waste storage and collection area is provided within the northern precinct and is outside of basement scope of works. Notwithstanding, it is noted that this area provides adequate space for commercial and residential waste storage and a bulky storage area to service buildings 1 and 2.
If a chute system is used, a dual chute system (i.e. one chute for waste and one for recycling) is to be provided for buildings with more than nine storeys.	As indicated in the Operational Waste Management Plan (refer **Appendix L**), the residential waste and recycling chute room provided on basement level P2 incorporates volume handling equipment (automated track systems) with individual chutes for waste and recycling.
3U Culture	
1. Develop measures in response to Transport for NSW's Reconciliation Action Plan 2019-2021 to improve employment, empowerment and economic development opportunities for Aboriginal and Torres Strait Islander peoples.	A Place Story has been developed for the site, to provide strategic guidance to the project team and inform strategies for public art, wayfinding, retail, place naming and activation. The Place Story is

Design Criteria	Detailed SSDA design response
2. Participation of Aboriginal artists, designers and landscapers is encouraged as part of the creative development of place-making and built form to incorporate and reflect Aboriginal cultural values.	summarised by a concise value proposition that is both memorable, and easily communicated. The Place Story describes Waterloo Metro Quarter as a place of 'unconventional potential', an opportunity to bring diverse mindsets together, celebrate difference, and explore a new economic tomorrow. Four "place pillars" describe the unique attributes that the Waterloo ISD can ‘own’ - defined by their evolving stories. These pillars are drawn from an understanding that starts with ‘the First Story, first’. The Waterloo-Redfern area is culturally and historically significant for the Aboriginal people of Sydney, New South Wales and the country. These, and the contemporary narratives that follow, provides a foundation for the place story we are writing today Ongoing collaborations will generate a meaningful sense of ownership and belonging, whilst unlocking community potential.
3V Public art	The proposed development does not undermine the ability of the design criteria outlined in Section 3V to be achieved within the OSD above ground level.

6.13. SYDNEY DEVELOPMENT CONTROL PLAN 2012

In accordance with clause 11 of the State and Regional Development SEPP, the provisions of Sydney Development Control Plan 2012 (**SDCP**) do not apply to this development. Notwithstanding this, the SDCP 2012 has been considered as a reference point for the detailed design of the proposed development. A summary of key SDCP 2012 provisions relevant to the site are discussed in **Table 8**.

Table 8 Consistency of the Proposed Development with Key Provisions of the SDCP 2012

Control	Provision	Proposed/Complies
Section 2: Locality Statements		
2.13.13 Regent Street / Botany Road	The site is located in the Regent Street / Botany Road locality.	The proposal is consistent with the principles of the Regent Street / Botany Road as the development delivers a mix of tall and medium rise building types, provides a range of residential and non-residential uses to create a diversity of form and mass, presents an active edge to Botany Road and Wellington Street and addresses the street at ground level. Residential uses are also encouraged on Cope Street to create an appropriate transition

Control	Provision	Proposed/Complies
		between the adjacent commercial and residential areas.
3.11 Transport and Parking		
3.11.2 Car share scheme parking spaces	Car share parking spaces are to be provided in addition to the maximum number of car parking spaces permitted in the development. Residential development on land in Category A: 1 per 50 car spaces provided. Office premises, business premises or retail premises on land on Category D - 1 per 30 car spaces provided.	As detailed in the Traffic Impact Assessment prepared by PTC (**Appendix I**), the proposed development provides car share parking for the proposed residential and commercial land uses across the site in accordance with the guidelines and concept DA (SSD 9393) conditions of consent. Notably, the basement incorporates 4 car share parking bays, two each for buildings 1 and 2.
3.11.3 Bike parking and associated facilities	Office premises or business premises – 1 per 150sqm GFA – Visitor: 1 per 400sqm GFA	The basement design accommodates a total of 236 commercial bicycle spaces to service the northern precinct in accordance with the SDCP 2012 bicycle parking rates. Commercial visitor bicycle parking is provided at-grade or within the Sydney metro EOTF outside the scope of this basement.
	Shop, restaurant or café – 1 per 250sqm GFA – Visitor: 2 plus 1 per 100sqm over 100sqm GFA	The basement design accommodates 14 retail bicycle spaces (including childcare) to service the uses proposed in buildings 1, 2 and 3. Retail visitor parking is provided at-grade outside the scope of this basement.
	For non-residential uses, the following facilities for bike parking are to be provided at the following rates: (a) 1 personal locker for each bike parking space; (b) 1 shower and change cubicle for up to 10 bike parking spaces; (c) 2 shower and change cubicles for 11 to 20 or more bike parking spaces are provided; (d) 2 additional showers and cubicles for each additional 20 bike parking spaces or part thereof;	The basement design accommodates the following provisions for EOTF in accordance with the SDCP 2012: ▪ Commercial EOTF: – Showers – 30 (incl. 1 accessible) – Lockers – 284 ▪ Retail EOTF: – Showers – 3 (incl. 1 accessible) – Lockers – 16 The commercial EOTF have been provided in level P1 adjacent the commercial bike storage area and building 1 lift core.

Control	Provision	Proposed/Complies
	(e) showers and change facilities may be provided in the form of shower and change cubicles in a unisex area in both female and male change rooms; and (f) locker, change room and shower facilities are to be located close to the bike parking area, entry and exit points and within an area of security camera surveillance where there are such building security systems	The retail EOTF have been provided in level P1 in proximity to the retail bike storage area and building 2 lift core. All EOTF are secured and the basement will include CCTV surveillance as recommended in the CPTED Report (refer **Appendix N**). For further detailed assessment of bicycle storage and EOTF provisions, please refer to **Section 8.1** of this EIS and **Appendix I**.
Schedule 7 – Transport, Parking and Access		
7.8.1 Service vehicles	The following minimum requirements for service vehicle parking apply to new development for: (a) Residential buildings and serviced apartments: (i) 1 space for the first 50 dwellings or serviced apartments; plus (ii) 0.5 spaces for every 50 dwellings/serviced apartments or part thereafter. **Commercial premises:** (i) 1 space per 3,300sqm GFA, or part thereof, for the first 50,000sqm; plus (ii) 1 space per 6,600sqm, or part thereof, for additional floor area over 50,000sqm and under 100,000sqm; plus (iii) 1 space per 13,200sqm, or part thereof, for additional fl oor area over 100,000sqm. **(c) Shops, shopping centres:** (i) 1 space per 350sqm GFA, or part thereof, up to 2,000sqm; then (ii) 1 space per 8,00sqm GFA thereafter.	The basement design provides five service vehicle bays situated in level P1 to service building 1 and 2. These services bays accommodate B99 standard vehicles including utes and vans. The Traffic Impact Assessment (Appendix I) justifies the technical shortfall in service bay provisions. In summary, it is noted that the northern precinct (building 1) incorporates a separate loading and service area within the ground floor which is accessed off Botany Road. The loading dock incorporates two MRV bays and two SRV bays, together with a mechanical turntable. This loading dock will service both the northern and central precincts, however, it is anticipated that the use of the loading and service bays will be shared amongst the whole WMQ site. The service vehicle provisions are considered adequate to service the uses proposed in buildings 1 and 2. The loading dock will be managed in accordance with the Freight and Servicing Management Plan (refer **Appendix I**). Further, there are two courier service bays provided in the basement for exclusive use by Metro for loading and unloading. This will further alleviate any potential loading / servicing pressures.

Control	Provision	Proposed/Complies
	Note. For mixed use developments, the total number of service vehicle spaces is to be calculated on a pro rata basis of spaces required for the relative proportions of different uses within the building.	
	The total requirement may be reduced for developments with > 50,000sqm GFA where it can be demonstrated that: (a) the proposed uses are complementary in terms of servicing demand; and (b) at least one space per tenancy for business owners is provided.	Refer above comments.
7.8.4 Motorcycle parking spaces	1 motorcycle parking space for every 12 car parking spaces	In accordance with the SDCP 2012, the basement accommodates a total of 13 motorcycle parking spaces, six (6) for the commercial and seven (7) residential uses proposed in buildings 1 and 2.
7.8.5 Accessible car parking spaces	1 accessible car parking space for every adaptable residential unit. 1 space for every 20 car parking spaces or part thereof is to be allocated as accessible visitor parking.	The basement accommodates: ▪ Commercial – 63 (incl. 2 accessible spaces) ▪ Private sector housing – 55 spaces (incl. 8 accessible) ▪ Social housing – 8 spaces (incl. 2 accessible) ▪ Affordable housing – 12 spaces (incl. 1 accessible) ▪ Visitor – 2 (incl. 2 accessible) All accessible parking spaces provided are allocated to adaptable apartments or visitor spaces in accordance with the provisions of the SDCP 2012. It is noted that not all adaptable apartments are provided with a car parking space in the development. However, it is noted that the proposal exceeds the minimum required adaptable apartments for the precinct (as there is no specific requirement within the Design and Amenity Guidelines). As such, accessible car parking spaces are provided at the same

Control	Provision	Proposed/Complies
		reduced rate of overall car parking proposed for the residential development. Notably, accessible car parking spaces exceed 15% of all residential car parking proposed, aligning with the rate anticipated by the SDCP 2012 while also balancing a desire to reduce car parking spaces on site. Refer to the DDA Accessibility Assessment at **Appendix I** for more detail.

7. COMMUNITY & STAKEHOLDER ENGAGEMENT

7.1. COMMUNITY CONSULTATION

Community consultation has been undertaken with the relevant community groups, including the local community and surrounding landowners/occupiers. This has occurred throughout all stages of the development approval process from CSSI to concept SSDA, through to the subject detailed SSDA.

The timeframe for engagement coincided with the restrictions imposed to respond to the COVID 19 pandemic. Accordingly, engagement activities were modified to comply with requirements to minimise community exposure and transmission. Whilst opportunities to conduct face to face engagement were limited, the applicant hosted a series of online events for the surrounding community to respond to emerging ideas and designs for the over-station development.

Various strategies were implemented to ensure collaborative community involvement in the project. This included online forums, targeted emails to stakeholders and invitations to contact the Stakeholder Manager to discuss issues and opportunities relating to the design of the Waterloo Integrated Development Site as well as construction impacts. A specific program to engage with Aboriginal stakeholders was also undertaken by Murawin, an Aboriginal placemaking consultancy.

Specific community consultation actions undertaken are summarised in Table 9**.**

Table 9 Summary of community consultation activities

Activity	Content	Date
Aboriginal Yarning Circle	Aboriginal Yarning Circle.	11 May 2020
One on one stakeholder meeting	Meeting with City of Sydney, Community Infrastructure Team.	5 June 2020
One on one stakeholder meeting	Meeting with landowner – Botany Road, Waterloo.	16 June 2020
One on one stakeholder meeting	Meetings with: ▪ Licensee, Cauliflower Hotel. ▪ Custodian, Waterloo Congregational Church. ▪ Waterloo Redevelopment Group (including Inner Sydney Voice). ▪ Body Corporate – Botany Road, Waterloo (opposite site)	17 June 2020
One on one stakeholder meeting	Meeting with REDWatch.	18 June 2020
One on one stakeholder meeting	Meetings with: ▪ Land and Housing Corporation. ▪ Department of Community Justice – Family and Community Services.	19 June 2020
Webinar	General community webinar with Wellington Street residents.	20 June 2020
One on one stakeholder meeting	South Sydney Business Chamber.	23 June 2020.
One on one stakeholder meeting	Ethics Communities Council – Cope Street.	1 July 2020

Activity	Content	Date
One on one stakeholder meeting	Sydney Local Health District	8 July 2020
Webinar	General community webinar.	14, 15 & 18 July 2020 22 & 24 June 2020
Forum	Aboriginal forums	14-15 July 2020

The above events were notified by:

- Emails to approximately 1700 subscribers;
- Flyers distributed to 5000 properties within 500 metres of the site, incorporating residents, landowners, businesses and community groups; and,
- Invitations to community-based groups and organisations.

The community consultation strategy and all content (responses) received throughout the engagement phase are included at **Appendix U**. A summary of the matters raised by the community during the consultation and the proposal's response is included in **Table 10.** It is noted that the below table documents the consultation as it relates to the entire development across the Waterloo Metro Quarter site. Given the nature of the basement proposal, there are few matters which relate specifically to the construction / operation of the basement.

Table 10 Summary of responses to community consultation matters

Matters Raised	Proposals Response / Document Reference
Traffic, Transport and Pedestrian Access	
Suggested that CCTV be placed throughout the precinct.	▪ CCTV will operate within the station and throughout the precinct.
Encouraged a strategic approach to planning for pedestrian movement including the need to: ▪ See detailed modelling for vehicular and pedestrian traffic. ▪ Consider cumulative impacts of the development upon pedestrian flows and traffic flows. ▪ Facilitate pedestrian flows across Botany Road for commuters travelling to and from Eveleigh, Redfern Station and the south via Wellington/Buckland Streets.	▪ Enhanced pedestrian crossings are being created at the intersections of Cope Street and Wellington Street and Cope Street and Raglan Street. ▪ Provision is also made for a potential midblock crossing on Botany Road. ▪ The Waterloo Metro Quarter precinct links directly into the regional cycle network via the bike path on Wellington Street. The Wellington Street bike path is a City of Sydney / TfNSW requirement.
▪ Congestion of surrounding streets particularly Botany Road.	▪ Refer to Transport, Traffic and Parking Assessment at **Appendix I** and **Section 8.1.** ▪ The traffic modelling undertaken demonstrated that the external road network should operate at acceptable levels of service or at a level of service less than the approved concept DA and therefore, the development should not have a detrimental effect on the network operation.

Matters Raised	Proposals Response / Document Reference
Feedback about buses noted that more consideration should be given to planning for: ▪ A layby for northbound buses to accommodate increased numbers of buses queuing along Botany Road between Raglan and Wellington Streets. ▪ Protection and shelter for bus patrons.	▪ Suggestions for improvements to Botany Rd and bus operations will be passed onto TfNSW. ▪ Within the site there are two new bus stops on Raglan and Botany Road. Widened footpaths around the perimeter of the precinct will enable waiting bus passengers to safely queue whilst also allowing pedestrians to pass. ▪ Within the precinct, awnings on Botany Road and Raglan Street will provide weather protection for bus patrons.
▪ More parking should be provided on site. Others felt parking within the new development should be limited.	▪ Carparking is in accordance with City of Sydney requirements. ▪ Bike parking is provided throughout the precinct to promote active transport and discourage reliance on cars with 80 racks on surrounding footpaths and 320 undercover bike spaces within the station.
▪ Concerns regarding loss of carparking along Cope and Wellington streets. Retention of longer stay and disability parking spaces in Cope Street for older people and people with disability who regularly access the services of the Ethnic Communities Council.	▪ The kiss and ride area is an essential part of enabling access to the station and the broader precinct. It was envisaged in the CSSI approval.
▪ When the precinct is operational, implement measures to ensure no commuter, workers or residents park in surrounding streets.	▪ As an integrated station development, public and active transport is the dominant and preferred mode of access to both the station and the development. ▪ On street parking regulation and enforcement is the responsibility of the City of Sydney. This feedback will be passed onto the City.
▪ Requested additional detail regarding how parking for construction workers would be managed.	▪ Refer to Constructional Environmental Management Plan at **Appendix Q.**
Precinct Level Design Considerations	
Reduction in height from concept DA was well received. Others felt the buildings were too tall, would cast shadows, were dominant and would result in loss of amenity, views, and privacy.	▪ Building heights are lower than what is permitted in the approved concept DA.
Some of the responses that were more frequently heard included: ▪ The need for building design that pushes the envelope and is unique to, and reflective of, Waterloo. ▪ Greenery and landscaping to soften the appearance of the buildings and plaza. ▪ The southern buildings do not seem to have the same level of design detail and resolution as the central and northern towers. ▪ The designers should not be afraid of some colour on the buildings.	▪ All buildings have been developed to the same level of design resolution. ▪ Buildings and public domain have benefited from an extensive DRP process and the team has focused on developing highly distinctive buildings while also ensuring the precinct remains cohesive. ▪ A diverse palette of building materials and finishes have been employed to provide visual interest with a focus on highly detailed podium structures.

Matters Raised	Proposals Response / Document Reference
▪ A palette of warmer natural materials was preferable to harder industrial materials and finishes. ▪ Incorporation of public art across the precinct is important to telling the story of this area.	▪ The proponent has also made a significant contribution to public art that will be integrated throughout the precinct. ▪ The public art strategy has been informed by a deep understanding of the area and development of individual works will entail additional community engagement. A Public Art Strategy will be provided as part of the detailed SSDA's for the northern, central and southern precincts.
Concerns about amenity impacts arising from the development included: ▪ Measures to reduce the heat island effect. ▪ Minimising wind impacts within the plaza and around the precinct. ▪ Measures to attenuate noise from servicing and plant for the station. ▪ Overshadowing and loss of sunlight to Wellington Street and the Alexandria heritage area. ▪ Noise from people congregating on balconies. ▪ Loss of privacy and outlook for residents to the north of the site in the Cope Street apartments.	▪ Refer to the Wind Impact Assessments and the Overshadowing Analysis' provided with the northern, central and southern precincts.
The Plaza and Public Domain	
Concerns regarding adequacy of open space provided. Suggested rooftops and podium areas be landscaped to extend the amount of planting and available open space across the precinct. Others noted that green walls would help to provide room for nature.	Provision of open space was addressed in the CSSI and concept DA approval. The plaza is consistent with these approvals. The community facility proposed for the plaza has been removed to increase open space and secure unobstructed access to and from the station.
Supported reduction in height of northern building. Would like more detail on the extent of sunlight to the plaza at different times of the year.	The reduction in height of the commercial building will increase sunlight to the plaza. The amount of sunlight the plaza receives is consistent with City of Sydney requirements.
Other suggestions were: ▪ Minimising hard surfaces, planting trees, making the public spaces safe. ▪ Including areas to sit, managing anti-social behaviour, infrastructure to support events and activation of the plaza. ▪ Introducing water features, considering the final design of the plaza in the context of the park across the road as envisaged in the Waterloo Estate masterplan, using endemic trees and plants as part of the Aboriginal story of the area. ▪ Providing awnings around the perimeter of the precinct and particularly near the bus stop on Botany Road.	▪ Durable hard surfaces are required to withstand the significant foot traffic the plaza will receive. ▪ Visual interest will be provided by an inground artwork that will extend throughout the plaza area. ▪ Extensive plantings and advanced trees will be provided to soften the appearance of the plaza and provide shade. Endemic plants will be featured across the precinct and their significance to Aboriginal people will be interpreted. ▪ Vertical gardens are not proposed due to issues of maintenance and public health. ▪ Additional seating has been incorporated into planter boxes and within the plaza. It is

Matters Raised	Proposals Response / Document Reference
	required to be provided around all street frontages. ▪ CCTV and the utilisation of CPTED principles will assist to address concerns around safety and antisocial behaviour.
Precinct Operation and Governance	
▪ Prohibit drinking of alcohol (outside of licensed areas). ▪ Train management and security to deal with challenging behaviour in a sensitive way. ▪ Security and centre managers will also have to build relationships with local health services and community service providers to assist in difficult situations. ▪ Clear precinct governance about who is responsible for maintaining the area given multiple ownership and that different parts of the precinct would fall under the responsibility of Sydney Metro, Mirvac, City of Sydney, Land and Housing Corporation and a community housing provider. ▪ More information was sought about emergency management. Some were concerned that the “crowded nature” of the site and surrounding streets could make it difficult for services to access the station.	▪ The plaza has been designed as both a gathering place and access way to the station. Design of the public domain is compliant with all requirements for disability access. ▪ Retail uses around the edges of the plaza, at key points along street frontages and residential balconies will provide passive surveillance throughout the day. ▪ The plaza area is publicly accessible private open space and managed by the future commercial strata owner. WL Developer’s intention is to designate the plaza itself an alcohol-free area with exemptions for licensed restaurants and small bars surrounding the plaza and events such as food festivals. ▪ Footpaths around the precinct are under control of the City of Sydney. The applicant will pass on this community feedback for the City to consider. ▪ CCTV will operate within the station and throughout the precinct. ▪ Security within the station and at entrances to the station will be responsibility of Sydney Metro. We will pass on community feedback regarding security for them to consider. ▪ The Place Manager will also build networks with local first responders and mental health services to appropriately manage difficult situations. ▪ Responsibility for maintaining areas within and around the precinct is outlined below. Station area: Sydney Metro Wider precinct: Plaza, Laneways, Interfaces with Buildings: Future commercial strata owner. Footpaths and local streets: the City of Sydney. ▪ A structure will be developed for these different parties to liaise with each other, share information and where required, coordinate response.
Precinct Activation	

Matters Raised	Proposals Response / Document Reference
▪ Support for reducing the number of residential apartments and creating more commercial space. ▪ Programming and events in the plaza, community hub and Makerspace to activate the precinct. ▪ Suggestions included: farmers markets, spaces for affordable retail and social enterprises, opportunities for Aboriginal enterprises and workshops to make and repair things. ▪ The use of the Makerspace for artist studios was not supported as it was felt this would not provide any extended community benefit.	The Plaza has been designed: ▪ As a welcoming and inclusive community gathering space. ▪ For community events appropriate to a space of its size. ▪ To facilitate ready and unencumbered access to the station. ▪ While the station is constructed over the next few years, engagement will occur with community organisations to identify locally relevant activations for publicly accessible areas and facilities when the precinct is operational.
Cultural Heritage	
▪ Some community members noted the significance of Redfern and Waterloo to new Australians who had settled in the area and that diversity is strongly reflected in the social housing community. ▪ The Ethnic Communities Council building in Cope Street was the birthplace of SBS and played a key role in the evolution of multiculturalism as a tenet of civic life within Australia. The ECC noted that this contribution should be celebrated within the precinct and offered to provide details of this history to inform the heritage and cultural strategy.	These points are noted. The Public Art Strategy and Placemaking Strategy has a strong emphasis on recognition and celebration of Aboriginal culture and the multicultural diversity of the area.
Construction Management	
Community members in proximity to the site noted that: ▪ While there have been amenity impacts from works to date these have generally been well managed and complaints have been addressed. ▪ The contractor will need to continue to work with the community and keep them informed. ▪ Night works should be minimised.	These comments are noted. For further detail of how impacts will be managed please refer to the CTMP at **Appendix Q**. A comprehensive community relations program will also be implemented to keep the neighbours informed of the construction program and provide ready channels for receiving feedback and responding to queries.
Aboriginal Perspectives	
Aboriginal stakeholders raised the following concerns: ▪ Waterloo Station should be distinctive and highlight the contemporary Aboriginal culture of Redfern and Waterloo. ▪ The Gadigal language and local heroes of the Aboriginal community should be celebrated. ▪ Support for Murawin's cultural landscapes approach of telling the First People's stories first and using this foundation then tell the stories of colonial and multicultural immigration to the area. ▪ Opportunities for Aboriginal participation should not just be limited to public art. There should also be opportunities for Aboriginal enterprise, procurement, and employment.	These points are noted. The Public Art Strategy and Placemaking Strategy submitted with the Northern and Central SSDA's have a strong emphasis on recognition and celebration of Aboriginal culture, as well as the multicultural and social diversity of the area.

Matters Raised	Proposals Response / Document Reference
Other points included: ▪ The extent of change within the area is displacing Aboriginal people. ▪ A proportion of affordable housing should be targeted to Aboriginal people who are being forced out of the area. ▪ The public plaza and surrounding areas should be welcoming to Aboriginal people. It was also noted that Sydney Metro needs to: ▪ Run programs to recruit, train and employ Aboriginal staff. ▪ Require consultant teams working for them to provide employment for Aboriginal professionals. ▪ Consult Aboriginal people in the early stages of a project rather than when designs are fully developed.	
Waterloo Congregational Church	
Given their proximity within the precinct the Church was a key stakeholder. Discussions with the Church focused upon: ▪ Ensuring access for vehicles for weddings and funerals. ▪ Enabling continued operations throughout construction ▪ Security given no fences are proposed. ▪ Managing changes in levels around the Church. ▪ The Church custodian and the proponent have agreed to meet regularly throughout planning and construction.	An initial meeting was held on the 17 June 2020 with the church custodian. Construction activities will be planned to avoid or minimise disruption of church operations as much as possible. As the existing vehicle zone will be retained on Botany Road, there is no disruption envisaged to the church. The church will have a dedicated relationship manager, who will be the sole point of contact and the interface with the construction team to resolve any issues. The existing dedicated wedding and funeral vehicle zone on Botany Road, immediately outside the church, will be retained. This was presented to the Transport Coordination Office on 25 June 2020 and agreed by all parties present at the session. The public domain has been designed to integrate the church seamlessly into the Waterloo Metro Quarter precinct. Bollards, vehicle mitigation devices and planting is proposed to control movement of vehicles and pedestrians in the vicinity of the church. The landscape design has been integrated with the existing church levels to ensure access via the side doors is retained. The custodian of the Church and the developer have agreed to meet regularly throughout planning and construction.

7.2. GOVERNMENT AGENCIES

The applicant and its consultants have engaged with the relevant Government agencies and City of Sydney Council throughout the preparation of the detailed SSDA's for the Waterloo Metro Quarter site development, as outlined in **Table 11** below. It is noted that there were minimal comments related specifically to the basement proposal. As such, the general consultation and outcomes with government agencies for the wider WMQ development has been provided, highlight key points for the basement, where relevant.

Table 11 Summary of Feedback from Government Agencies and other Stakeholders

Agency / Meeting Details	Matters Raised	Response / Reference
Department of Planning, Industry and Environment 3 February 2020 4 June 2020 23 June 2020 29 July 2020	**3 February 2020** – An initial scoping meeting was held on the 3rd February 2020 to discuss the objectives and overall vision for the WMQ OSD, notably the proposal to increase commercial office floor space on the site. The following matters were discussed: ▪ Splitting the WMQ Precinct into separate multiple detailed applications. ▪ Appropriate planning pathway to amend the concept envelope (i.e. either a Section 4.55 (2) Modification or an Amending DA). The DPIE confirmed an Amending DA would be required.	Separate detailed SSDA's have been lodged for each precinct. An Amending DA has been prepared and is submitted separately, as per the DPIE's recommendation.
	4 June 2020 – The indicative agenda for this meeting was as follows: ▪ Demarcation between the CSSI approval and scope of each detailed SSDA. ▪ The Waterloo Metro Quarter Amenity and Design Guidelines and specifically questions and comments regarding: – Apartment Design Guide – Overshadowing calculations – Traffic and transport ▪ The Amending DA regarding: – Envelope modifications – Deliverables ▪ Structure of reports that apply across the whole site, and clarification of SEARs.	An assessment of the proposal against the Waterloo Metro Quarter Amenity and Design Guidelines is provided in Section 6.12. An Overshadowing Report has been prepared by RWDI and is included at Appendix MM of the Northern and Central SSDA's. The assessment concludes the proposed development complies with the design criteria in the Waterloo Metro Quarter Design and Amenity Guidelines. A Transport, Traffic and Parking Assessment has been prepared by ptc and included at **Appendix I**. Refer to Section 8.1. The traffic modelling undertaken demonstrates that the external road network should operate at acceptable levels of service or at a level of service less than the approved concept DA

Agency / Meeting Details	Matters Raised	Response / Reference
		(SSD 9393) and therefore, the development should not have a detrimental effect on the network operation.
	23 June 2020 – The DPIE provided feedback on the matters presented at the previous meeting held on the 4th June 2020. The discussion focused on the proposed demarcation between the CSSI/SSDA including notably the planning pathway for archaeological studies on the site and remediation.	A Contamination Strategy has been prepared by Douglas Partners (**Appendix GG**). Douglas Partners consider that the proposed Contamination Strategy is suitable to address the requirements of SEPP 55 for the western portion of the site and upon completion of all remediation works, the site will be suitable for the proposed development. The concept SSDA establishes the building envelope and the indicative integration between the proposed basement envelope with the approved CSSI Waterloo metro station. Section 4.2 clearly delineates between the works included within the CSSI approval and the components sought for approval under the detailed SSDA.
	29 July 2020 – A meeting was held on the 29th July 2020 to discuss the progress of the development and strategy for lodging four detailed SSDA's concurrently. The DPIE proposed their preference was to stagger the lodgement of the detailed SSDAs.	To meet Sydney Metro commitments, the proposed detailed SSDA's must be lodged concurrently. This will also enable the community to review all detailed SSDA's concurrently and assist with understanding the total vision for the WMQ precinct and cumulative impacts.
City of Sydney (CoS) 4 March 2020 8 April 2020 28 April 2020 28 April 2020 6 May 2020	**Sustainability** - Matters raised included: ▪ Opportunity with the precinct-wide renewal to achieve carbon neutrality. ▪ BASIX would apply to student housing. ▪ CoS would like to see:	The sustainability strategy was developed over several sessions with City of Sydney. Refer to **Appendix F** - Architectural Design Report, **Appendix L** - Waste Management and **Appendix**

Agency / Meeting Details	Matters Raised	Response / Reference
19 May 2020 26 May 2020 22 July 2020	▪ Separation of organics and use of City of Sydney Guidelines for Waste Management in New Developments. ▪ Initiatives that support the circular economy and local community needs. ▪ Five per cent development energy targets for use of renewables. ▪ Measures to optimise thermal performance and comfort of the student housing building through use of natural ventilation strategies. ▪ Glazing and insulation use. ▪ NABERS for apartments rating and the incorporation of energy metering to facilitate these assessments.	**M** – Ecologically Sustainable Development Report.
	Community Facilities - Requested consideration be given to health services or a Health One facility on site. Cited study saying limited demand for childcare in the area. CoS also noted the importance of working with local organisations to explore: Nature of activities provided within the Makerspace to complement what is already occurring within the area. An ongoing program of community, recreational and cultural events. Works that reference the rich and diverse multicultural nature of the area. Ongoing arts events and productions not just large fixed public artworks. Providing services and amenities that respond to changing demographics and community needs, including affordable retail and particularly fresh food. Engaging with LAHC to work on the specific needs of the social residents. Provide opportunities for social and local procurement beyond Aboriginal Participation in Construction. Any social enterprises should also have a strong local connection. Sought clarification on how the Makerspace for artist studios would provide any extended community benefit.	There will be flexibility within the retail strategy to meet the diverse needs of people within the precinct and the surrounding area. This may include health and medical facilities, Services NSW and other potential operators. There is a commitment to establish a placemaking fund to run events and activations. A place manager will also be employed to coordinate activities on site. As the site is being constructed, the developer will be working with local organisations to explore: The nature of this program. How it would be curated. Opportunities for local creatives. The intention is for retail to support the varied needs of the metro customers, workers and residents within the precinct and surrounding community. In addition to the Aboriginal Participation in Construction program, we will also look at ways to promote Aboriginal enterprise and employment opportunities within the

Agency / Meeting Details	Matters Raised	Response / Reference
		precinct, as part of the retail strategy and the placemaking activation program.
	Traffic and Transport - CoS had minor comments on the traffic and transportation components of the development, presented on 5 May 2020.	The developer confirmed traffic and pedestrian modelling is being undertaken collaboratively across the precinct. For more detail refer to **Appendix I.**
	Public Domain - CoS did not support the use of the Makerspace for artist studios as it was felt this would not provide any extended community benefit.	Refer to Waterloo Congregational Church section. These comments were all considered in the development of the design. For more detail refer to the Landscape and Public Domain Reports submitted with the northern, central and southern SSDA's (*Appendix KK*). No actions or follow-up sessions for public domain were requested.
	Noise, vibration and natural ventilation Minor comments on the noise, vibration and natural ventilation requirements, particularly on the residential dwellings impacted by Botany Road.	The noise attenuation strategy employed on the residential buildings, includes the use of external wall integrated noise attenuators to achieve natural ventilation.
Sydney Trains 4 August 2020	Discussion with Sydney Trains staff on 4 August 2020 focused on the following: ▪ Wayfinding to support ease of movement between Sydney Trains at Redfern Station, buses and the metro. ▪ Positive responses to precinct design, landscaping and public art particularly Aboriginal artwork and cultural elements. ▪ Student housing allocation to respond to changes in demand due to COVID-19.	Wayfinding and signage will be implemented close to completion of the station. Connections to Redfern Station will be highlighted. Student allocation remains unchanged. The Waterloo ISD place manager has committed to regularly updating and liaising with Sydney Trains. Attendees invited to opt in to receive email correspondence, including notifications and newsletters.
Transport Coordination Office (TCO) 17 June 2020 25 June 2020	Consultation with the TCO occurred on 17 and 25 June, and 5 August 2020. Discussions focused primarily on the location and operation of the loading docks in the commercial building (northern precinct) and student	Issues surrounding the loading dock were resolved to the satisfaction of the TCO at the meeting on 25 June 2020.

Agency / Meeting Details	Matters Raised	Response / Reference
5 August 2020	accommodation building (southern precinct) and the capacity of the bus stop on Botany Road to accommodate a higher frequency of services given Waterloo's status as an interchange station.	Other matters discussed did not relate specifically to the basement scope.
NSW Fire 16 April 2020 20 April 2020 13 May 2020	Correspondence and meetings with Fire Rescue NSW occurred as follows: ▪ 16 April 2020 - emails and phone discussion to agree on the content of the Fire Engineering Strategy ▪ 20 April 2020 - emails and phone discussion to agree on the presentation date and attendees for the Fire Engineering Strategy ▪ 13 May 2020 - virtual meeting to present the Fire Engineering Safety Strategy for Waterloo Metro Quarter. Fire Rescue NSW provided general positive feedback.	Refer to the Fire Strategy Report at Appendix EE.
Sydney Water 28 May 2020 29 June 2020	Correspondence and meetings with Sydney Water occurred as follows: ▪ 8 May 2020 - Sydney Water Statements of Flow and Pressure issued and received for Waterloo Metro Quarter water mains ▪ 22 May 2020 - submission of application for Feasibility Notice of Requirements for Waterloo Metro Quarter ▪ 28 May 2020 - emails and phone calls to confirm acceptance of application for Feasibility Notice of Requirements for Waterloo Metro Quarter ▪ 29 June 2020 - virtual meeting to discuss options and status on the Feasibility Notice of Requirements for Waterloo Metro Quarter ▪ 8 July 2020 - emails to follow up on agreements and actions from virtual meeting ▪ 21 July 2020 - emails from Sydney Water providing status on Feasibility Notice of Requirements for Waterloo Metro Quarter ▪ 31 July 2020 - Feasibility Notice of Requirements issued for Waterloo Metro Quarter	Refer to Services and Utilities Infrastructure Report at **Appendix T.**
Ausgrid 22 May 2020 25 May 2020	Correspondence and meetings with Ausgrid occurred as follows:	Refer to Services and Utilities Infrastructure Report at **Appendix T.**

Agency / Meeting Details	Matters Raised	Response / Reference
22 June 2020 8 July 2020 6 July 2020 6 July 2020 9 July 2020	▪ 22 May 2020 - email, confirm and accept application for power for Buildings 3 and 4 mini chambers ▪ 25 May 2020 - email, confirm and accept application for power for Building 1 chamber ▪ 22 June 2020 - virtual meeting, confirm appointment of Ausgrid contestable project coordinator ▪ 8 July 2020 - virtual meeting, discuss AN21263 Building 3 mini substation flood planning and position ▪ 6 July 2020 - email and virtual meeting, AN21263 PDS received ▪ 6 July 2020 - email and virtual meeting, AN21264 PDS received ▪ 9 July 2020 - virtual meeting, Buildings 3 and 4 substation flood planning levels.	
NSW Police 13 July 2020	Correspondence and meetings with NSW Police (South Sydney Police Area Command) occurred as follows: ▪ 13 July 2020 - present the scheme, discuss local crime issues and items of consideration for the Waterloo precinct. ▪ 4 August 2020 - further consultation to understand the operational context and specific security threats. Items raised have been incorporated into the Security Risk Assessments.	Refer to the CPTED Assessment at **Appendix N** and Security Risk Assessment at **Appendix FF.**
Jemena 17 June 2020 18 June 2020 1 July 2020	Correspondence and meetings with Jemena occurred as follows: ▪ 17 June 2020 - email to confirm contact details in Jemena's Network Development Team ▪ 18 June 2020 - email, response to Waterloo Metro Quarter gas connection assessment and request for estimated design load for assessment from the design team ▪ 1 July 2020 - email to confirm Waterloo Metro Quarter gas connection capacity based on the information provided to Jemena as per its previous request.	Refer to Services and Utilities Infrastructure Report at **Appendix T.**
Land and Housing Corporation (LAHC) 19 June 2020	Virtual meeting with LAHC development managers and communications manager.	Car parking is provided below the maximum provisions required by the City of Sydney

Agency / Meeting Details	Matters Raised	Response / Reference
11 August 2020	There have been regular discussions with LAHC department staff and these will continue about the over-station development. During consultation the following was noted: ▪ Significant reduction in basement car parking. ▪ Clarification of height of the commercial building. ▪ Purpose of the pre-DA consultation and what it would achieve. ▪ Interest in the plaza facing the housing estate. ▪ Delivery date of the social housing.	and concept SSDA. Height of the commercial building has been reduced by up to 25 metres below the approved envelope within the concept plan. The plaza faces Cope Street and the park proposed in the latest version of the Waterloo Estate master plan. The social housing building is expected to be completed by late 2023.
Department of Communities and Justice – Family and Community Services 19 June 2020	Virtual meeting with Department of Communities and Justice – Family and Community Services Waterloo housing estate client liaison and assets management representatives. There have been regular discussions with LAHC department staff and these will continue about the over-station development. During consultation the following was noted: ▪ Disability access to the station. ▪ Interest in social housing finishes and external elements. ▪ Concerns about the impact to McEvoy Street and surrounding areas from development of the site. ▪ Interest in over station building design and future community facilities.	Design of the station's public areas complies with all requirements for disability access. Social housing internal and external finishes will be as agreed in the PDA and are outlined in the SSD-10437 Southern Precinct. As an integrated station development, public transport will be the dominant and preferred mode of travel to and from the station precinct. Ample bike parking facilities will also help to encourage cycling as a mode of travel to the station precinct. This will reduce vehicular traffic on local roads, including McEvoy Street. Community facilities are in the Central Precinct, including a childcare centre. Further community uses are envisaged for the Southern Precinct, Central Precinct and Northern Precinct which may include a Makerspace, community hub, and health/medical uses.
Sydney Local Health District 8 July 2020	Not addressed in consultation report.	Not addressed in consultation report.

Under section 4.55(2)(b) of the EP&A Act, the consent authority must consult with the relevant Minister, public authority or approval body in respect of a condition imposed as a requirement of concurrence to the consent. We, therefore, anticipate that the NSW DPIE will further consult with government agencies such as Ausgrid and TfNSW as part of the assessment of the detailed SSDA.

For further discussion of one-on-one stakeholder briefings, please refer to the Pre-Lodgement Consultation Report at **Appendix U.**

7.3. SYDNEY METRO DESIGN REVIEW PANEL

To inform the preparation of the detailed SSDA, the scheme has been presented to the Design Excellence Evaluation Panel (**DEEP**) and Design Review Panel (**DRP**) 10 times since the appointment of WL Developer Pty Ltd as the development partner, to seek feedback and to confirm design integrity.

The matters raised by the DEEP and DRP are summarised in the table below.

Table 12 Summary of DEEP and DRP feedback

Meeting Details	Matters Raised	Response / Reference
Design Excellence Evaluation Panel 29 January 2019 19 February 2019 26 March 2019 7 May 2019	Refer to Design Integrity Report submitted at Appendix Y. Further design resolution was recommended to be considered through the design integrity process, including further consideration to: The approach to flooding, retail levels and the impact on Botany Road interface and public domain needs reconsideration, including setbacks. Expand the public art strategy and embed Aboriginal culture and local community identity into the design of the station, buildings and public realm. More considered response to the local context in the design of the podiums, laneways and facades (e.g. grain, materials and character). Additional technical testing and studies on the resulting wind impact and noise mitigation strategies for all buildings. Any opportunities to improve solar access to public spaces and increase deep soil planting.	Refer to Design Integrity Report submitted at **Appendix Y**. As presented to the DRP, these items were further considered through the design integrity process, including lowering retail floor levels to achieve a more activated streetscape along Botany Road, further development of the public art strategy, and refining the architectural treatment of the podium and towers to respond to the local context. The proposed maximum height of the towers has been reduced to improve solar access to Alexandria Park and the Alexandria Park Heritage Conservation Area. Further, additional technical testing and studies regarding wind and noise mitigation are included within the detailed SSDAs for the detailed design of the proposed development.
Design Review Panel 18 February 2020 17 March 2020 31 March 2020	The refinement of the SSDA also benefitted from an exhaustive Design Review Panel (DRP) process led by the NSW Government Architect. This panel convened ten times to iteratively review and advise on the emerging design that was being developed within the parameters of the 2017 and 2019 approvals. A key focus of the panel's guidance was to	Details of this process and responses to issues raised by the DRP are contained in the Design Integrity Report at **Appendix Y.**

Meeting Details	Matters Raised	Response / Reference
9 April 2020 21 May 2020 4 May 2020 19 May 2020 1 June 2020 12 June 2020 30 July 2020	optimise integration of the station and the public spaces and buildings throughout the precinct.	

8. ENVIRONMENTAL IMPACT ASSESSMENT

The EIS accompanying this detailed SSDA is required to consider and assess impacts from the proposal pertaining to the natural and built environment and the social and economic landscape while determining the suitability of the site and the overall public interest associated with the proposal. These aspects are assessed accordingly in the following components of this EIS.

8.1. TRAFFIC, ACCESS & CAR PARKING

A Traffic Impact Assessment (TIA) has been prepared by ptc. and is submitted at **Appendix I**. The report addresses the traffic and transport impacts associated with the proposed basement as it supports the parking associated with the northern, central and southern precincts. It also specifically responds to the SEARs requirements and the conditions of consent for the concept SSDA (SSD 9393). The report is accompanied by traffic and pedestrian modelling, swept path analysis, a green travel plan (GTP), loading dock management plan and car park management plan.

8.1.1. Mode Share

An assessment of the existing travel to work behaviour within the suburb of Waterloo has been undertaken in relation to Waterloo 'as a place of work' and 'as a place of residence'. The assessment has used 2016 Census Journey to Work data.

Currently, when travelling to Waterloo as a place of work, approximately 59% travel by car and approximately 23% travel via public transport, including train (17.81%), bus (5.96%), ferry (0.05%) and tram (0.02%). Active transit modes (cycling and walking) consist of 7.04%.

When travelling to work from Waterloo, approximately 36% travelled by car, 41% travel to work via public transport and 12% travel by an active mode of transport.

An assessment of the potential future mode shares has been undertaken in consultation with TfNSW and City of Sydney and is based on existing data and the strategic opportunities associated with the Waterloo Metro Quarter development. The future mode share targets agreed for the AM peak for all trip purposes are:

- Train – 40%
- Walk only – 25%
- Car – 20%
- Bus – 10%
- Cycle – 5%

The above targets indicate a significant increase in public transport (metro) and active transit mode shares. This is based on a number of factors, including:

- Proximity to Sydney Metro Waterloo Station, which will provide access to high quality mass transit services on Sydney Metro City & Southwest.
- Densely located land uses, activities and attractors as well as proximity to Sydney CBD and Green Square, enabling shorter trip lengths more conducive to walking and cycling.
- Low existing traffic generation rates in recent high-density developments in Waterloo.
- Enhancements to the bus network to strengthen east-west routes, enabled by Sydney Metro City & Southwest, and improved cycling connections with key surrounding destinations.

A Green Travel Plan (GTP) has also been prepared as part of the northern, central and southern precinct EIS's to encourage a modal shift away from private car usage and to encourage active and public transport. The proposed targets for the Waterloo Metro Quarter project are detailed further in **Section 8.1.7** of this EIS.

8.1.2. Traffic Generation and Road Network Impact

Existing Development – Network Operation

The proposed development is situated on land which is currently vacant given the previous demolition which has occurred as part of the CSSI approval. Therefore, it does not generate any traffic activity. The current traffic volumes were determined based on intersection surveys conducted on 12 March 2020, between 7.30am to 9.30am and 4pm to 7pm. It is note that the traffic surveys were undertaken prior to any restrictions being implemented (22 March 2020) by the Cobvid-19 pandemic.

Utilising SIDRA modelling software, the existing peak hour traffic volumes at the subject intersections were determined and are outlined below.

- Henderson Road and Wyndham Street (4 arm signalised intersection)
  - 7.45am to 8.45 am - 2812 vehicles
  - 5.15pm to 6.15pm - 2995 vehicles
- Botany Road, Henderson Road and Raglan Street (4 arm signalised intersection)
  - 7.45am to 8.45am - 3162 vehicles
  - 5.45pm to 6.45pm - 3272 vehicles
- Raglan Street and Cope Street (4 arm roundabout)
  - 8.15am to 9.15am - 732 vehicles
  - 5.30pm to 6.30pm - 806 vehicles
- Cope Street and Wellington Street (4 arm roundabout)
  - 8.30am to 9.30am - 487 vehicles
  - 5.15pm to 6.15pm - 510 vehicles
- Botany Road, Buckland Street and Wellington Street (4 arm signalised intersection)
  - 7.45am to 8.45am - 2376 vehicles
  - 5.15pm to 6.15pm - 2303 vehicles

Based on the traffic volumes from the traffic surveys, the network AM and PM peak were observed to be 7:45am - 8:45am and 5:15pm - 6:15pm respectively. The majority of intersections above are currently operating at a good capacity with acceptable delays and spare capacity. Henderson Street and Wyndham Street is currently operating near capacity during the AM peak whilst Botany Road and Raglan Street is currently operating at near capacity during the PM peak.

Proposed Development – Network Operation

The proposed developments traffic generation has been projected with reference to the RMS *'Guide to Traffic Generating Developments'* and the rates utilised in the concept approval (SSD 9393), whilst also taking into account the proposed parking provisions for the proposal.

The total peak hour trip generation associated with the proposed development was identified as follows:

- Residential – 8.04
- Social Housing – 0.96
- Commercial uses – 47.38
- **Total – 56.38**

The proposed development is estimated to generate a total of approximately 56.38 vehicle trips per hour during peak periods.

The traffic generation assessment was undertaken utilising SIDRA modelling software for the following two scenarios:

- 2019 Base

- 2036 Proposed Development (taking into account the Metro operation and the proposed developments parking)

The assessment indicated that when taking into account the proposed development, including growth to 2036, the external road network will continue to operate at an acceptable level of service and experiences no change in the level of service associated with the traffic generated purely by the development. Therefore, the proposed development should not have a detrimental effect on the network operation.

Proposed Network Operation – Post Metro Upgrades

Ptc have indicated that as part of the construction of metro station and associated works under the CSSI, upgrades are proposed to both the Raglan Street / Cope Street and Wellington Street / Cope Street intersections.

In order to complete the traffic modelling assessment, analysis is required of the new intersection configurations as part of the network modelling. The modelling and specific details of the road intersections required to be upgraded under the CSSI works will be detailed through the satisfaction of conditions under than approval, and the works would be required to be completed prior to the operation of the Waterloo OSD components.

Conclusion

The traffic modelling undertaken demonstrated that the external road network should operation at acceptable levels of service or at a level of service less than the concept approval (SSD 9393), and therefore, the development is not considered to have a detrimental impact on the operation of the road network.

8.1.3. Car Parking and Access

The proposed basement accommodates parking provisions to support the proposed uses across the Waterloo Metro Quarter site and is subject to the parking requirements stipulated in the concept DA (SSD 9393) conditions of consent B8, B9 and B10. In summary, the parking requirements are as follows:

- the allocation of residential car parking spaces, up to the maximum of 170 spaces must not exceed the following maximum rates:
  - 0.1 space per studio dwelling
  - 0.3 parking spaces per 1-bedroom dwelling
  - 0.7 parking spaces per 2-bedroom dwelling
  - 1 parking space per 3-bedroom or more dwelling
  - residential car share parking rate of 1 space per 50 residential car parking spaces provided
- non-residential car parking to be provided in accordance with the following:
  - a maximum of 1 space for 435sqm of GFA for any commercial uses
  - a maximum of 2 spaces for use of the Waterloo Congregational Church
  - non-residential car share parking at rate of 1 space per 30 non-residential car parking spaces
- accessible car parking spaces provided as per SDCP 2012 rates
- motorcycle parking spaces provided as per SDCP 2012 rates

It is important to note that in accordance with clause 11 of the SRD SEPP, the provisions of SDCP 2012 do not apply to this development, unless specified by the Concept DA Conditions of Consent B9 and B10. Notwithstanding this, the SDCP 2012 has been considered as a reference for other car parking provisions such as for childcare and service bay parking rate.

A summary of the permissible and proposed parking provisions for the basement is summarised in **Table 13**.

Table 13 Car parking provisions summary

Use	Unit / GFA / Spaces	Permissible Spaces (maximum)	Proposed Parking Spaces
Northern precinct (building 1)			
Commercial	33,843m2	78	63
Retail	838m2	2	0
Car Share	63 commercial spaces	2	2
Service Bays	33,842m2	10	5
Motorcycle	63 commercial spaces	6	6
Central precinct (building 2)			
Residential (private and affordable housing)	158 units	77	67
Visitor	N/A	N/A	2
Car Share	67 residential spaces	1	1
Retail	611.6m2	1-2	0
Child Care	146 children	20	1 (long term visitor space)
Service Bays	158 units	2 (min)	4 (2 SRV and 2 MRV provided within the northern precinct loading dock)
Motorcycle	55 spaces	7	7
Southern precinct (building 4)			
Residential (social housing)	70	36	8
Car share (social housing)	8	1	0
Waterloo Congregational Church			
Church	N/A	2	2
Sydney Metro Uses			
Metro	2	2 (required)	2
Car Wash			
Car wash (general)	1	1 (required)	1

The proposal includes the provision of minimal car parking to reduce the reliance on private car ownership and encourage active modes of transport and sustainable modes of transport to maximise public transport patronage.

As can be seen in the table above, the proposal adopts parking which is well below the maximum permissible parking rates for the various uses.

The basement provides accessible parking provisions at one accessible parking space per adaptable residential apartment. Specifically, the basement accommodates 13 residential / adaptable accessible car parking spaces, two of which are allocated to residential accessible spaces for visitors. In accordance with the Access consultant, the accessible car parking rates are provided as an equitable proportion of car parking to be provided for the residential apartments.

The site is highly accessible to high frequency public transport services including buses, trains, light rail and the future Waterloo metro station. As such, the proposed parking provision is considered appropriate and a positive inclusion in the development to support the initiatives of the Green Travel Plan, encouraging the use of active and sustainable transport modes.

Overall, the proposed car parking provisions (including accessible) are less than the maximum parking rates approved under concept DA (SSD 9393), so as to encourage active transit methods and high public transport patronage. The proposed motorcycle parking exceeds the minimum requirements approved under the concept DA (SSD 9393).

Access and Parking Bays

Ptc have undertaken a preliminary assessment of the allocated car, bicycle and servicing bay provisions and the access and circulation arrangements provided within the basement layout based on the current design.

The assessment has been undertaken to confirm that the proposed parking, servicing and access arrangements generally meet the requirements of the relevant Australian Standards and to ensure the design is capable of complying with '*AS2890.2:2018 Off-street Commercial Vehicle Facilities'* and *'AS2890.3:2015 Bicycle Parking'*. The assessment is accompanied by relevant swept path analysis' which are provided within the TIA (refer **Appendix I**).

Overall, the vehicle access and circulation, internal circulation, sight distances, and typical car parking, accessible parking, bicycle parking, motorcycle parking and service vehicle bays have been designed in accordance with the relevant requirements. The following points are noted from the assessment:

- Access to the basement is via a proposed 6.3-metre-wide driveway off the shared zone which complies with AS2890.1.
- The ramps between the basement levels are to be combined two-way ramps with a width of 6 metres and the internal access aisles widths have been provided at a minimum of 5.8 metres, in accordance with the requirements of AS2890.1.
- The proposed design provides compliant parking space widths of 2.4 metres, length of 5.4 metres and aisle widths of 5.8m, which meet the minimum requirement.
- The four car share spaces have been designed to provide compliant space widths of 2.5 metres, length of 5.8 metres and aisle widths of 5.8m, which meet the minimum requirement.
- The accessible parking space dimensions are 2.4 x 5.4 metres with a shared space of 2.4 metres width adjacent to any other space, which meet the minimum requirement.
- The bicycle parking has been provided as a combination of horizontal spaces, vertical spaces and provisions within storage cages which all comply with the relevant requirements.
- Motorcycle parking spaces with dimensions of 1.2 metres x 2.5 metres have been provided in accordance with the minimum standards.
- The five service bays have minimum dimensions of 2.4m x 5.4m with a minimum headroom clearance of 2.2 metres.

8.1.4. Loading and Servicing

The proposed basement includes the provision of five vehicular service bays situated on level P1 immediately adjacent the 5.8 metre wide basement access ramp from the shared zone. The service vehicle

bays have been designed to accommodate B99 standard vehicles including car-derived vans and utes. Specifically, each parking bay will have minimum dimensions of 2.4 metres (wide) by 5.4 metres (long) and a minimum headroom clearance of 2.2 metres.

It is noted that the loading dock facility provided within the ground floor of the northern precinct accommodates larger vehicles as follows:

- 2 x 8.8m Medium Rigid Vehicles (MRV); and
- 2 x 6.4m Small Rigid Vehicles (SRV).

These spaces have been designed to comply with relevant Australian Standards and are in accordance with Council's *'Policy for Waste Minimisation in New Developments'*.

To appropriately manage access to the loading dock facility, a Freight and Servicing Management Plan (FSMP) has been prepared by ptc. The loading dock will be available for use by appointment only. For regular activities and deliveries, a regular time slot should be determined in coordination with the Building Manager. Bookings will be managed by an electronic 'app' based booking management system.

As access to the loading dock and service bays will be managed through this online booking system, which will allocate the times and durations vehicles will be allowed to access the site, any potential queuing onto the external road network will be minimised.

Despite the non-compliance of service vehicle bay provisions with regards to the SDCP 2012, the loading and servicing provisions proposed as part of the basement are considered acceptable to service the development across the Waterloo Metro Quarter site. It is anticipated that the use of the loading and service bays will be shared amongst the whole Waterloo Metro Quarter site, excluding the Metro uses which are provided with two courier service bays in the basement.

The loading dock facility delivered under the northern precinct SSDA will accommodate all larger vehicle loading and servicing requirements (including waste collection), leaving the five service vehicle bays in the basement to service the land uses in buildings 1 and 2 for general use (i.e. residents moving furniture). As previously discussed, a FSMP has been prepared to appropriately manage the northern precinct loading dock, ensuring minimal disruption and delivery / pick up conflicts, and to reduce opportunities for queuing on the surrounding road network.

8.1.5. Pedestrian Access and Movements

Modelling and analysis of the existing and future pedestrian and cyclist movement, connectivity and circulation within the extent of the site and surrounding areas has been undertaken by WSP (refer to Appendix 2 of **Appendix I**). A Pedestrian Modelling Report is attached at **Appendix I.** It considers the following four key components:

- Demand related to the proposed metro station;
- Demand related to the proposed over station development;
- Demand related to existing land uses in the wider area;
- Demand related to the Botany Road bus stops.

The forecast demand has been defined for two design years:

- Initial design year (2026) – the requirement for the capacity to be provided from the start of operations;
- Ultimate design year (2056) – the requirement for the capacity to be safeguarded to allow for long term patronage growth.

The Pedestrian Modelling Report concludes that the pedestrian flows for the Waterloo Metro Quarter precinct has been assessed to confirm the provisions of pedestrian infrastructure within and around the precinct. A summary of the precinct performance and its compliance to project requirements is shown in the table below. Overall, the precinct design is compliant with the project requirements.

Table 14 Waterloo Metro Quarter pedestrian performance summary

Location	Assessment scenarios	
	2056 AM	2056 AM Resilience
Precinct connectivity		
Internal walkways	✓	✓
External footpaths	✓	✓
Queueing at intersections	✓	✓
Botany Street Bus Stop (southbound)		
Bus customers (waiting)	✓	✓
Non-bus customers (those travelling along Botany Road)	✓	✓
Legend ✓ Compliant ✗ Non-compliant		

Pedestrians are provided access to the basement primarily via the building 1 and 2 lobby areas and the respective lift cores which link to the basement area below. Pedestrians can also access the basement from via Cope Street Plaza.

Internally, pedestrian pathways on both levels P1 and P2 provide pedestrians with access and safe movement throughout the car park from the respective building 1 and 2 lift cores to the respective parking zones.

8.1.6. Bicycle Access, Parking and End of Trip Facilities

Bicycle Parking

In accordance with condition B10 of the concept approval (SSD 9393) and the rates specified within the SDCP 2012, the basement accommodates the following bicycle storage:

- Commercial – 236 spaces (Class 2)
- Residential – 65 dedicated spaces, in addition to basement storage cages (Class 1)
- Retail and Childcare – 14 spaces (Class 3)
- Total – 315 spaces

Visitor bicycle parking will be provided at-grade or within the Sydney metro EOTF which is outside the scope of the basement SSDA.

As outlined in the TIA prepared by ptc, the bicycle parking arrangements will be provided by way of Class 1, 2 and 3 type secure bike parking facilities, and will comprise a combination of horizontal spaces, vertical spaces and provisions within storage cages. The respective spaces will be designed as follows:

- Horizontal spaces 1.8m length, 0.5m width, 1.5m wide access aisle
- Vertical spaces 1.2m length, 0.5m width, 1.5m wide access aisle
- Within storage cages 1.8m length, 0.5m width, 2.0m wide access aisle (between storage cages)

An assessment of the bicycle spaces, aisle widths and access arrangements has been undertaken and the bicycle parking provisions proposed comply with the relevant requirements of AS2890.3.

End of Trip Facilities

The basement also accommodates following EOTF in accordance with the SDCP 2012:

- Commercial EOTF:
  - Showers – 31 (incl. 1 accessible)
  - Lockers – 284
- Retail ETOF:
  - Showers – 3 (incl. 1 accessible)
  - Lockers – 16

The commercial and retail EOTF are conveniently located and clearly identifiable to encourage high usage by future workers, and thus, promoting more active and sustainable modes of transport.

Bicycle Parking and EOTF Access

As discussed previously in **Section 4.6.2**, the commercial EOTF and bicycle storage areas are located in the northern portion of level P1, directly below building 1. These can be accessed via a dedicated entry off Botany Road at ground level by using two shuttle lifts. From there, future commercial workers can access the adjacent EOTF and bike storage area.

Similarly, the retail EOTF and bicycle storage areas are situated in the southern portion of level P1 directly below building 2. These areas can be accessed via a dedicated entry in the ground floor of building 2 from Cope Street Plaza which leads to a shuttle lift to the basement

8.1.7. Green Travel Plan

The requirement for a Green Travel Plan (GTP) was requested in the SEARs for the proposed development. A GTP has been prepared for the northern and central precincts which are associated with this basement SSDA (refer to *Appendix* I of SSD-10439 and SSD-10440). The GTP prepared by ptc. included at **Appendix I** provides an assessment of the existing methods of public and active transport links to the site and outlines how the development intends to make travel to and from the site safer and more sustainable.

Based on the above, it is clear that public and active transit modes are currently underutilised. As such, future mode share targets for the AM peak for all trip purposes were developed and are as follows:

- Train – 40%
- Walk only – 25%
- Car – 20%
- Bus – 10%
- Cycle – 5%

Accordingly, a GTP has been developed seeking to achieve the above targets, thus, promoting and reducing the reliance of private car usage and encouraging and supporting active and public transport.

The GTP focuses on promoting four sustainable travel modes, including walking, cycling public transport and carpooling / sharing.

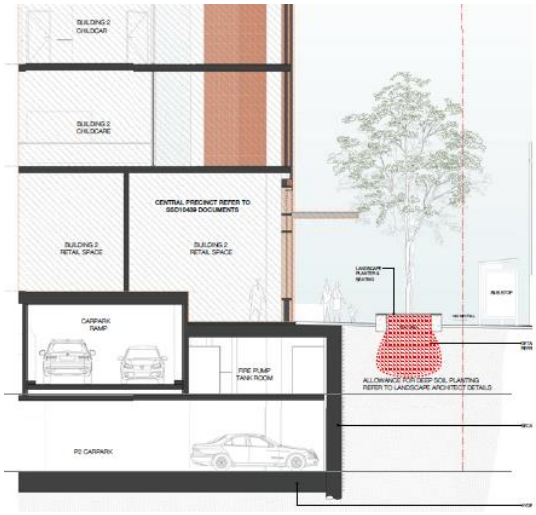
The GTP includes a list of strategies (such as the Transport Access Guide) to encourage employees and visitors to adopt alternative sustainable transport options and contribute towards achieving the future mode share targets. Given the GTP is a live document, the GTP should be monitored and reviewed to understand whether and how the travel plan is having an impact on the mode share. An annual review of the GTP is recommended as a mitigation measure to identify how mode share has changed over time.

8.2. LANDSCAPE & DEEP SOIL ZONES

As previously discussed in **Section 4.6.4**, the basement layout has been adequately setback to enable appropriate landscaping and deep soil provisions within the public domain areas at ground level along the Botany Road and Raglan Street frontages (refer **Figure 23**).

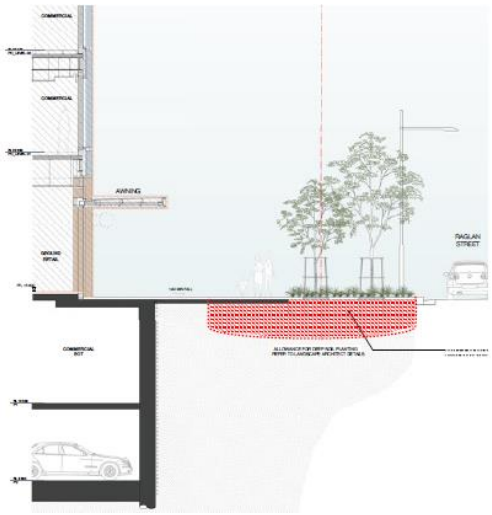
These deep soil zones will enable the public domain areas to provide natural shade canopies and improved amenity, along with mitigating any adverse wind impacts associated with the OSD at the northern and central precincts of the Waterloo Metro Quarter site.

Figure 23 Deep soil zone typical sections



Picture 27 Botany Road section

Source: Woods Bagot



Picture 28 Raglan Street section

Source: Woods Bagot

8.3. ECOLOGICALLY SUSTAINABLE DEVELOPMENT

An Ecologically Sustainable Development (ESD) Strategy has been prepared by Cundall Johnston and Partners in accordance with SEARs Item 8 and the Conditions B18 and B19 of the approved concept SSDA (SSD 9393). This is provided at **Appendix M**.

In accordance with the SEARs, the report provides an analysis of the proposal against the principles of ecologically sustainable development as set out in clause 7(4), Schedule 2 of the EP&A Regulation 2000 and how these will be incorporated into the design, construction and operation of the development.

The report demonstrates that the basement contribute to achieving national best practice sustainability demonstrated through third party certification of the following rating tools for the buildings above the basement in the northern and central precincts:

- 5 Star rating – Green Star Design and As-Built rating tool v1.3
- 5.5 Star rating – NABERS Energy (Base Building) (Northern precinct)
- 4.5 Star rating – NABERS Water (Northern precinct)
- Gold rating – WELL Core (WELL Building Standard v2) (Northern precinct)
- BASIX Energy score of ≥30 (Central precinct)
- BASIX Water score of >40 (Central precinct)

In addition, the Waterloo Metro Quarter site as whole will obtain site-wide certifications which aim to achieve a 6 star Green Star Communities rating v1.1 and recognition under the One Planet Community framework.

The proposal adopts a modified version of the standard One Planet Living categories as the sustainability framework for the project. The framework will inform the design, construction and operational stages of the project. An integrated design approach will be adopted for the incorporation of sustainability measures, with input from the sustainability consultant from early planning through to construction phases. The sustainability framework also aligns with the following various policies, strategies and rating tools:

- Mirvac's This Changes Everything strategy
- John Holland's Approach to Sustainability
- UN Sustainable Development Goals Sustainable Sydney 2030 – Community Strategic Plan 2017-2021
- Secretary's Environmental Assessment Requirements (SEARs) dated 9 April 2020
- Waterloo Metro Quarter Design and Amenity Guidelines – Section 3R sustainability

- Sydney Metro City & Southwest Sustainability Strategy 2017-2024 (June 2019 update)
- Green Star Design and As-Built rating tool
- Green Star Communities rating tool
- WELL Building Standard
- One Planet Community principles
- NABERS Energy and Water
- BASIX

A broad range of initiatives are proposed in order to minimise the consumption of resources, especially energy, water and waste, and ensure deliver of a sustainable development. The proposed development meets or exceeds the condition requirements of the concept approval (SSD 9393). The sustainability framework and the environmental performance targets are consistent with, and in many cases go beyond, national best practice in sustainability for developments of a similar scale and nature.

8.4. HERITAGE IMPACT

A Heritage Impact Statement (HIS) has been prepared by Urbis and is provided at **Appendix H**. The HIS identifies and assesses the potential impacts associated with the detail design of the basement on the significant characteristics and fabric of vicinity heritage items, their context and setting.

The HIS provides a comprehensive assessment of key heritage impacts and establishes the heritage management framework for the development of the site. The assessment of heritage impacts has been prepared in accordance with the condition B12 of the concept SSDA, the SEARs and the relevant provisions of the applicable planning instruments and Waterloo Metro Quarter Design Amenity Guidelines (March 2020).

In particular, the assessment provides an analysis of the potential impacts of the development (particularly excavation) on the nearby Waterloo Congregational Church.

Assessment

As discussed previously in **Section 3.5**, the site is located within the vicinity of a number of locally heritage listed items under the SLEP 2012. The HIS has been prepared in accordance with the Heritage NSW's (former Heritage Office) guidelines 'Assessing Heritage Significance', and 'Statements of Heritage Impact'. The philosophy and process adopted is that guided by the Australia ICOMOS Burra Charter 1999 (revised 2013).

Waterloo Congregational Church

The Waterloo Congregational Church (hereafter referred to as the Church) located adjacent to the south of the basement development and excavation footprint is identified as a local heritage item under SLEP 2012. In addition to the HIS, a Geotechnical report (refer **Appendix HH**) has been prepared by WSP that outlines a series of investigations and recommendations. The HIS indicates that the recommendations for monitoring during excavation should be undertaken to ensure that impacts to the Church building during bulk excavation are avoided and thus the structural integrity of the item is not compromised. The adoption of the monitoring programme, potentially as part of the CEMP, should identify specific mitigation measures to sure up the ground beneath and around the Church.

The HIS determines that there will be no material impacts to the heritage item provided these strategies are in place to prevent any physical impacts to the stability of the ground beneath and around the Church during bulk excavation. There are no physical works or excavation to be undertaken within the Church allotment and no physical works will be undertaken to disrupt any significant heritage fabric.

Further, the proposed bulk excavation works will not impact upon any significant views to and from the Church or its existing setting, considering the top slab will sit at ground level.

Broader Vicinity Heritage Items and Alexandria Park Heritage Conservation Area

The HIS determines that the broader vicinity heritage items located around the Waterloo Metro Quarter site are substantially distanced from the location of proposed excavation and will not be physically or visually impacted by these proposed bulk excavation works. No physical works or excavation will be undertaken

within the lot boundaries of the vicinity heritage items and no physical works will be undertaken to any significant fabric. The proposed excavation works will not impact any significant views towards the heritage items or impact their existing settings.

There are no potential heritage impacts on the significance of the Alexandria Park Heritage Conservation Area as a result of the proposed bulk excavation and basement given its proximity and the nature of the maximum height of the structure sitting approximately at ground level.

Archaeological Findings and Recommendations

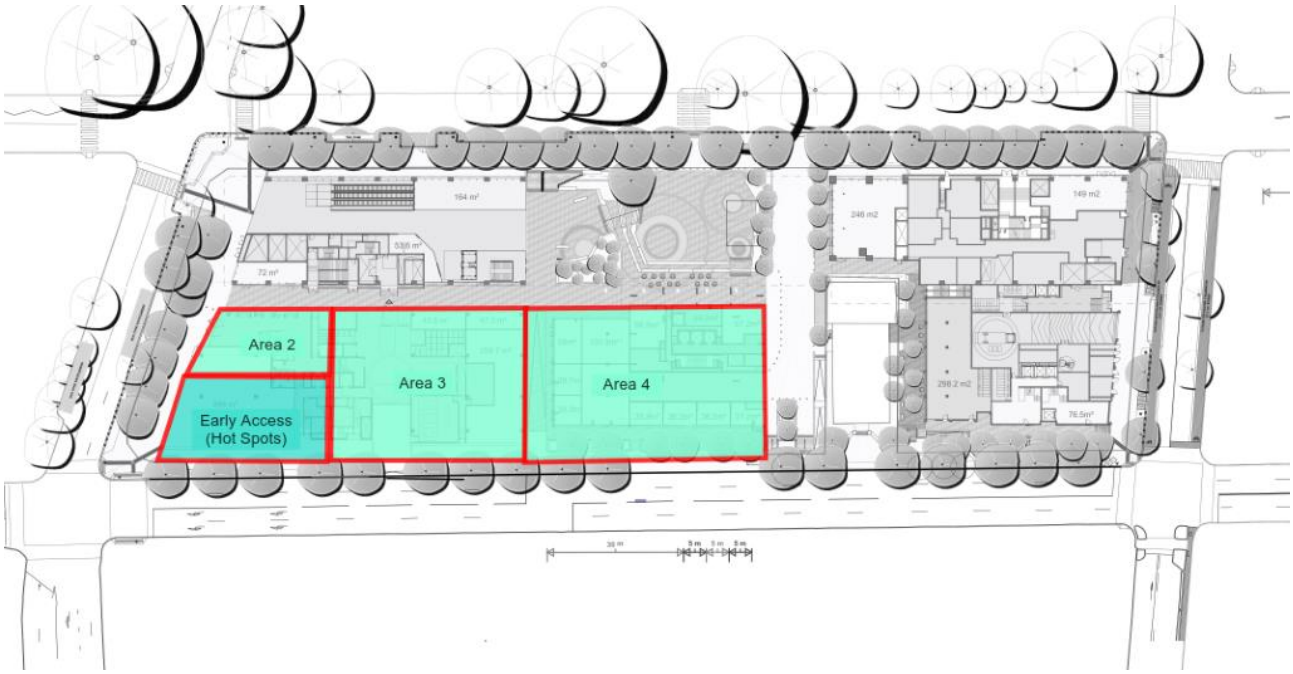
The Waterloo Metro Quarte site has identified potential for relatively intact archaeological resources to be located on site. The Archaeological Method Statement prepared by AMBS (dated July 2020) at **Appendix H** provides an updated assessment of the significance of the archaeological site and potential remains to be located on site since the completion of archaeological investigation works completed under the CSSI Approval.

The updated Archaeological Method Statement applies to the western half of the Waterloo Metro Quarter site, including the proposed basement site. This outlines the proposed excavation methodology for the subject site to manage archaeological significance and impacts.

Specifically, the archaeological management strategy will include the Primary Excavation Director who directed the excavations in the metro station box, attending the site on a daily basis to consult with the Secondary Excavation Director. The Primary Director will provide advice regarding the strategy for the archaeological resource, directing excavations where required. The Secondary Director will manage the day-to-day archaeological excavations in conjunction with the Primary Director. This will ensure that any significant archaeology is managed in accordance with Heritage Council requirements.

The recommendations of the Archaeological Method Statement are to be adhered to under the CSSI approval for the completion of the Waterloo Metro Quarter site, including the site the subject to the basement excavation. As relevant to the basement excavation it is noted that the archaeological investigation works to be undertaken on the site under the CSSI approval will be completed following the site contamination works (also under the CSSI approval) as per the below staging diagram.

Figure 24 – Archaeological Investigation Staging at the Basement Site



Source: CEMP

Mitigation Measures and Conclusion

Overall, the proposed basement excavation works are considered acceptable from a heritage perspective and are recommended for approval, subject to adoption of the following key recommendations:

- The CEMP should include specific construction methodology strategies to ensure that bulk excavation adjacent to the Waterloo Congregational Church will have no physical impact on the stability of the ground beneath this heritage item.
- A monitoring program should be undertaken during excavation to ensure that there are no adverse impacts from the excavation.
- Recommendations for test excavation, investigations, reporting, monitoring and obtaining permits in relation to archaeological potential of the place, should be adopted as outlined in the respective technical reports that apply to the subject site.
- The updated Archaeological Method Statement (AMS) prepared by AMBS (dated July 2020) must be adhered to for the full extent of excavation and construction associated with the basement site. This AMS outlines the proposed excavation methodology for the subject site to manage archaeological significance and impacts.

8.5. NOISE & VIBRATION

Stantec have prepared a Noise and Vibration Impact Assessment which is included at **Appendix K**. The report assesses the impacts of operational and construction noise and vibration on surrounding sensitive receivers. In particular, the assessment addresses the construction impacts on the on the adjacent Waterloo Congregational Church and the operational impacts of the future rail corridor. Consideration has also been given to the recommendations of the Concept Acoustic Assessment Report prepared by SLR Consulting dated 9 November 2019 as it relates to the concept SSD 9393.

Methodology

To assess the noise and vibration impacts to and from the proposal, the assessment adopted the following methodology:

- *Identify and classify the surrounding noise and vibration sensitive receivers surrounding the proposed development;*
- *Identify and classify the noise and vibration sources generated by the proposed development, together with external noise and vibration sources impacting on the proposed development;*
- *Review historical site noise investigations and carry out additional site noise investigations to quantify the background noise levels local to the proposed development;*
- *Determine the project noise and vibration criteria applicable to the proposed development in accordance with the requirements listed in the Secretary's Environmental Assessment Requirements (SEARs), together with the requirements in Appendix B8 of the Station Delivery Deed Schedule C1. This includes criteria for the assessment of operational noise and vibration, as well as construction noise and vibration;*
- *Assess the operational and construction noise and vibration impacts of the noise and vibration sources generated by the proposed development to the surrounding noise-sensitive receivers, together with any impacts on the occupants of the proposed development;* and
- *Provide details of mitigation measures required to alleviate noise and vibration impacts to achieve the project noise and vibration criteria.*

Site noise investigations were conducted to obtain background noise levels at the surrounding noise sensitive receivers together with characteristic noise emissions statistics associated with vehicle movements along Botany Road.

The results of the site noise investigations were acquired from a combination of noise monitoring conducted by Stantec Australia between the 7th and 13th April 2020, and previous noise monitoring conducted by SLR Consulting and presented in their report for the Waterloo Station Development EIS (Appendix N) dated 9 November 2019.

The figure below identifies the site location, measurement positions and surrounding noise and vibration sensitive receivers surrounding the northern precinct. The summary of receivers within the identified Noise Catchment Areas (NCAs) include:

- NCA01 - Mix of commercial and retail receivers
- NCA02 - Residential receivers

- NCA03 - Residential receivers
- SSD-10439 – Central Precinct
- SSD-10437 – Southern Precinct
- SSI-7400 – Integrated Station Development

Figure 25 Surrounding noise sensitive receivers and measurement locations

Source: Stantec Pty Ltd

8.5.1. Operational Noise and Vibration

Cumulative Traffic Noise Generation During Operation

The Noise and Vibration Impact Assessment provides a cumulative traffic noise generation impact assessment associated with the operation of the proposed development. The traffic noise assessment utilises the existing peak hour traffic count and traffic generation for the proposal outlined in the Traffic Impact Assessment prepared by ptc. This data has been used to calculate the expected noise increase due to traffic associated with the development onto Botany Road, Wellington Street, Raglan Street and Cope Street.

The assessment predicts that there will be less than a 1.3dB increase in traffic noise levels. Therefore, the proposed development is expected to comply with the requirements of the NSW Road Noise Policy given the predicted increase is than the 2dB threshold.

Metro Infrastructure Vibration Impact Assessment

Stantec have also conducted a vibration impact assessment to the Structural Damage associated with the project to the nearest affected structure of the development. The source vibration levels have been provided by Sydney Metro in accordance with SWTC Appendix B8 Noise and Vibration 2.3a.

The assessment determines that the predicted vibration levels on the nearest affected structure with the basement are not expected to exceed the criteria established for structural damage. Therefore, the vibration impact on the structure of the proposed development is predicted to comply with the requirements of the Infrastructure SEPP 2007.

8.5.2. Construction Noise and Vibration

Construction Noise

The assessment considered the noise impacts from the associate with the following construction works:

- Civil Works (excavation)
- Construction of basement
- Structure
- Façade
- Fitout, Finishes & Services

The hours of work are expected to occur during the following hours:

- Monday to Friday: 7am to 6pm
- Saturday: 7am to 3.30pm
- Sunday and public holidays: no work
- Safety inspections are permitted from 7am

The equipment noise sources likely to be associated with the abovementioned works have been extracted from relevant Australian Standards to establish the equipment noise and sound power levels.

A qualitative construction noise impact assessment has been conducted to identify the most-affected surrounding noise-sensitive receivers. The noise modelling represents the 'reasonable' worst case periods of construction activities, meaning that all the equipment of each stage is operating simultaneously during a 15-minute observation period.

The prediction modelling was conducted for each of the following construction scenarios:

- Civil works
- Construction of the basement structure

The assessment undertaken by Stantec indicates that the predicted noise levels associated with the civil works and construction of the basement structure will not exceed the established noise management criteria for any of the surrounding sensitive noise receivers. To ameliorate any potential construction noise impacts, the following mitigation measures have been proposed:

- It is recommended that a 2.4m high solid barrier (made from plywood or similar) above the construction equipment is erected around the perimeter of the site. The acoustic barrier could be either Class A or Class B type hoarding.
- No works should be conducted outside standard working hours.
- Where it proves reasonable and feasible, heavy truck movements are recommended to travel along Botany Road to enter the construction site. This will not be possible for significant durations of construction due to other site constraints that must be addressed by travelling along Cope Street and Raglan Street.
- In addition, noise monitoring is recommended to be conducted at the most-affected noise-sensitive receivers in accordance with the monitoring programme.

General noise control measures in accordance with AS 2436 – *2010 "Guide to noise and vibration control on construction, demolition and maintenance sites"* are also proposed to reduce the spread of noise and vibrations to the potential receivers.

Construction Vibration

The vibration associated with construction is dependent on a number of variables including the types of machinery, the proximity to the nearby receivers as well as the ground type. Consideration has been given to the safe working distances for vibration impacts associated with various types of machinery contained within the TfNSW 'Construction Noise Strategy'. This document presents the safe construction working limits for Cosmetic Damage to adjacent structures (in accordance with BS 7385) and Human Comfort (occupational health and safety).

The assessment undertaken indicates concrete vibrators are expected be used in close proximity to the Waterloo Congregational Church when pouring the Ground Level slab. In addition to this, piling and excavating with a hammer attachment may be conducted in close proximity to the Waterloo Congregational Church.

Stantec recommends that prior to the commencement of any civil works, attended vibration measurements will need to be conducted at the nearest point to the adjacent structure of the Waterloo Congregational Church heritage item. These measurement levels will then need to be assessed against BS 7385 to ensure there are no adverse impacts to the structure of the Church.

Conclusion

The assessment concludes that the operational and construction noise and vibration associated with the proposed development is expected to comply with the relevant noise and vibration criteria subject to the implementation of the recommended mitigation measures. In particular, it is noted that the proposed development will not result in any adverse impacts to the structure of the adjacent Waterloo Congregational Church provided the vibration monitoring program is implemented during construction.

8.6. STRUCTURAL ENGINEERING

A Structural Design Report has been prepared by Robert Bird Group and included at **Appendix P**. The report includes an assessment of the stability of the proposed development and coordination of the Metro Services Box and OSD.

Robert Bird Group have identified the structural design is compliant with the relevant design and planning criteria including:

- *AS 1170.0 Structural Design Actions Part 0: General Principles 2002;*
- *AS 1170.1 Structural Design Actions Part 1: Permanent, Imposed and other 2002;*
- *AS1170.2 Structural Design Actions Part 2: Wind Actions 2009;*
- *AS1170.4 Structural Design Actions Part 4: Earthquake Loads 2007;*
- *AS 3600 Concrete Structures 2018;*
- *AS 3700 Masonry Structures 2001; and,*
- *AS 4100 Steel Structures 1998.*

Further design development will be required prior to the issue of a Construction Certificate.

8.7. FLOODING & STORMWATER

WSP have prepared a Stormwater Management Plan and Flood Impact Assessment prepared attached at **Appendix O**, which considers the flood risks and sets out the stormwater management works associated with the detailed design of the basement.

8.7.1. Stormwater

WSP have identified that there is no stormwater management relevant to the basement proposal as all the stormwater above the basement is collected by the building 1 (northern) and building 2 (central) roofs.

Whilst the AECOM report recommended the development provide a combined OSD tank volume of 480m3, the report did not clarify why the OSD tank volume increased from the Sydney Water requirement of 208 m3 to 480m3. As such, 208m3 of On-Site Detention have been provided in the stormwater management plan.

For both the Northern and Central Precinct SSDA's, the stormwater strategy is supported by DRAINS modelling / calculations which demonstrate that the stormwater management strategy meets the Sydney Water requirements for stormwater discharge from the site and On-Site Detention. Key components of the proposed stormwater management strategy for both the northern and central precincts are outlined below:

- The roof and pavement runoff are directed to a stormfilter chamber prior to discharge to Council's stormwater system.
- The main method of treatment within the Northern Precinct is by providing 8 stormfilter cartridges for building 1.
- The main method of treatment within the Central Precinct is by providing 6 Stormfilter cartridges for building 2.
- Additional water quality treatment methods to be provided are as follows:
  - A 10kL rainwater tank is to be installed within the northern precinct;
  - A 10kL rainwater tank is to be installed within the central precinct; and,
  - EnviroPod filters (or similar approved equivalent products) are to be installed within every stormwater inlet pit on the site.

As concluded within both reports, the proposed drainage systems and on-site detention tank indicate that stormwater collected and discharged from the OSD can be managed in accordance with relevant requirements, including the design criteria recommended by Sydney Water as reference in the Concept DA Stormwater Report.

8.7.2. Flooding

Hydraulic modelling has been undertaken by upgrading the Alexandra Canal catchment flood model provided by City of Sydney in April 2020. Two model scenarios were analysed for assessing the flood conditions at the site and surrounding area. The model scenarios included:

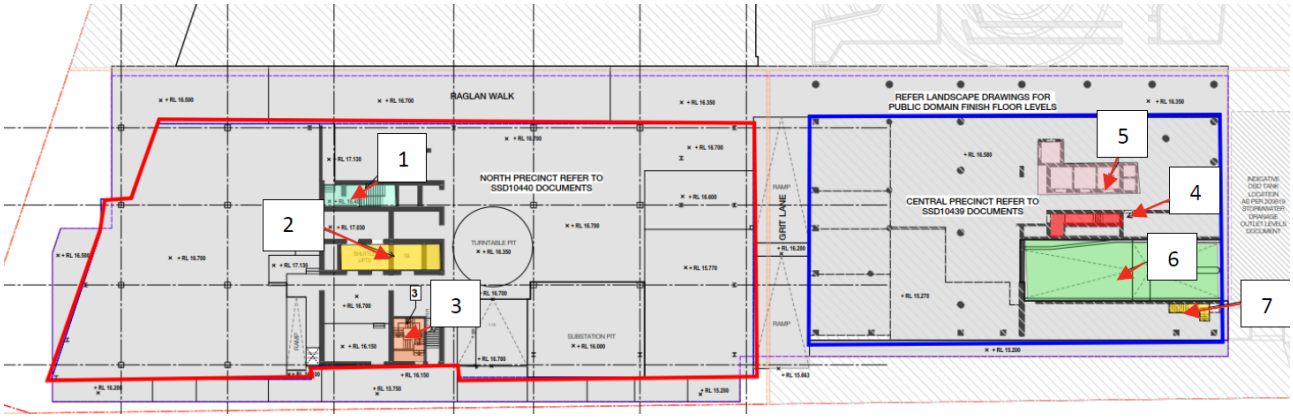
- Baseline scenario which represents the pre-development site conditions; and,
- Proposed scenario which represents the post construction.

The flood impact has been assessed by comparing the baseline and proposed scenario model results (i.e. water level, velocity and flood hazard). The City of Sydney confirmed that the proposed flood impact must demonstrate no increase in water depth to adjacent land. City of Sydney council considered 10mm as acceptable tolerance for the flood impact.

The results of the hydraulic model have been used to inform design solutions for the basement car park and the associated flood planning levels (FPLs). The FPLs for the below ground basement and car park area have been defined as 1% AEP / 100 year ARI + 500mm or the PMF (whichever is higher).

As indicated in the figure below, there are seven points of access to the basement. Three are located at the ground floor of the northern precinct and four are located at ground floor of the central precinct. It is noted that the ground floor structure of the northern and central precincts forms part of the basement SSDA.

Figure 26 Access points to the basement



Source: WSP / Woods Bagot

The basement is protected from potential flooding impacts as the floor levels of the nearest access points are defined with floor levels above the maximum PMF or the 100 year ARI + 500mm water level (whichever is higher). This is illustrated in the table below.

Table 15 Proposed design flood planning floor levels

Area	Requirement	Flood Level as Per Hydraulic Model Results (m AHD)	Proposed Min Flood Planning Level (m AHD)	Above (compliant)
1	PMF or 1 in 100 year + 500 mm (whichever is higher)	PMF= 16.800 100 ARI + 0.5 m= 17.115	17.13	Yes
2	PMF or 1 in 100 year + 500 mm (whichever is higher)	From Raglan Street: PMF= 16.800 100 ARI + 0.5 m= 17.115 From Botany Road: PMF= 16.453 100 ARI + 0.5 m= 16.646	17.130 (protecting flooding from Raglan Street) 16.70 (protecting flooding from Botany Road)	Yes
3	PMF or 1 in 100 year + 500 mm (whichever is higher)	PMF= 16.462 100 ARI +0.5 m = 16.543	16.55	Yes
4	PMF or 1 in 100 year + 500 mm (whichever is higher)	PMF= 16.598 100 ARI +0.5 m = 16.249	16.72	Yes
5	PMF or 1 in 100 year + 500 mm (whichever is higher)	PMF= 16.598 100 ARI +0.5 m = 16.249	16.72	Yes

Area	Requirement	Flood Level as Per Hydraulic Model Results (m AHD)	Proposed Min Flood Planning Level (m AHD)	Above (compliant)
6	PMF or 1 in 100 year + 500 mm (whichever is higher)	PMF= 16.56 100 ARI +0.5 m = 16.249	16.58	Yes
7	PMF or 1 in 100 year + 500 mm (whichever is higher)	PMF= 16.56 100 ARI +0.5 m = 16.249	16.58	Yes

Flood compatible material, such as waterproof material, will be used for the building ground floor area to avoid water infiltration to underground levels or lower areas. The perimetral walls around the ingress points to the basement will be realised to be above FPLs to avoid any water infiltration into the basement during an extreme flood event.

Conclusion

As concluded within Stormwater Management Plan and Flood Impact Assessment (**Appendix O**), the hydraulic flood model demonstrated that the proposed development has a negligible impact on the existing flood regime. Notably, the points of ingress to underground car park have been protected adopting flood planning levels above the PMF or 100 year ARI + 500 mm (whichever is higher). Further, the residual risk related is mitigated by the possibility to access uppers floor in case of a flood emergency.

8.8. BUILDING CODE OF AUSTRALIA (BCA)

McKenzie Group have undertaken an assessment of the proposed basement design against the Deemed-to-Satisfy (**DTS**) provisions of the relevant sections of the Building Code of Australia 2019 (**BCA**) and other applicable building regulations for the purposes of a DA submission (**Appendix R**).

The assessment of the architectural design documentation prepared by Woods Bagot (**Appendix F**) identified a number of matters which depart from the DTS provisions, but are considered capable of achieving compliance through the recommended solutions. The alternative solutions will be assessed against the performance requirements of the BCA at the relevant subsequent Construction Certificate stages of the project.

Overall, the detailed design of the basement is capable of complying with the relevant requirements through a combination of DTS provisions and performance-based solutions. Detailed drawings and associated review will be required as the final design is developed.

Compliance is subject to resolution with the recommendations provided by McKenzie Group and further detailed regulatory reviews, which will be undertaken throughout the design development stage. These matters do not preclude issuing of Construction Certificate as they will be resolved prior to construction.

8.8.1. Accessibility

Morris Goding Access Consulting (MGAC) have assessed the proposed development with regards to the *Disability Discrimination Act 1992 (Cth)* (**DDA**), BCA (part D3, E3 and F2), *Disability (Access to Premises) Standards 2010*, relevant Australian Standards (AS 1428 series, AS 1735 and AS 2890) and the *Sydney Development Control Plan 2012* (SDCP 2012) (refer to **Appendix S**).

The assessment provides advice and strategies to maximise reasonable provisions of access for people with disabilities to ensure the development achieves DDA compliance as part of the detailed design phase. In many instances, the report provides recommendations, indicating the current design is readily available to provide compliance with the relevant DDA requirements subject to ongoing refinement through detailed design development.

Specifically, the assessment aims to ensure that emergency egress and ingress, paths of travel, passenger lifts, sanitary facilities, common circulation areas and accessible car parking provisions comply with the relevant statutory guidelines.

In conclusion, the proposed basement will be capable of complying with the applicable accessibility requirements of the DDA Access to Premises Standards 2010, relevant Australian Standards and requirements of the BCA pertaining to external site linkages, building access, common area access and sanitary facilities. The accessible parking provisions proposed on the Architectural Drawings prepared by Woods Bagot are capable of complying with the relevant Australian Standards with regards to dimensional requirements and associated shared zones.

8.8.2. Fire safety

Omnii (NSW) have undertaken a performance-based review of the *National Construction Code 2019 Volume One* (NCC) DTS non-compliances for the development (refer to **Appendix EE**). The fire engineering assessment addresses the relevant Performance Requirements of the NCC, where performance solutions have been proposed.

The Fire Safety Strategy Report identifies a number of fire safety measures and performance solutions pertaining to fire and smoke resistance, compartmentation and separation, provisions for escape, fire hydrants, hoes reels and extinguishers, fire sprinkler systems, smoke detection system, occupant warning, emergency lighting and exist signs, commissioning and maintenance. The fire engineering assessment will be undertaken to illustrate that the proposed performance solutions will meet the NCC Performance Requirements, subject to the outcomes of the assessment and approval by the relevant authorities.

As concluded within the report, utilising the NCC, an acceptable Compliance Solution is to be achieved by a combination of compliance with the NCC DTS provisions and formulating acceptable performance solutions. This approach is intended to allow the development of an effective performance-based building design, whilst maintaining an acceptable level of Fire and Occupant Life Safety.

8.9. OPERATIONAL WASTE MANAGEMENT

The storage, management and disposal of waste generated by the operation of the basement has been considered in the Operational Waste Management Plan (OWMP) prepared by Elephants Foot at **Appendix L**. The OWMP also considers the design requirements of the proposed basement waste facilities.

Waste Generation

The only facilities located within the basement which will generate negligible quantities of waste are the washroom facilities associated with the commercial and retail EOTF located within level P1. Each washroom will be supplied with a waste receptacle for paper towels and sanitary bins for female restrooms. Waste from paper towel usage will not be disposed of into the recycling system.

Future cleaners will monitor paper towel receptables on a daily basis and transfer waste via the bin hoist to the portable compactor located within the primary loading waste storage area situated on the ground level of the northern precinct development. An appropriate contractor will supply and remove sanitary bins at a pre-arranged schedule.

Waste Facilities

The residential waste and recycling chute room for the residential uses proposed in the central precinct are located within level P2 of the basement. As outlined in the WMP for the Central Precinct, this waste and recycling chute room must have a minimum GFA of 35m2 to accommodate the following:

- 5 x 1100L waste bins;
- 3-Bin linear tracks for waste;
- 5 x 1100L recycling bins; &
- 3-Bin linear tracks for recycling.

The Architectural Plans indicate a residential waste room on level P1 that provides 42 sqm of GFA. The waste room is therefore capable of complying with the minimum standards outlined in the *City of Sydney Council Guidelines for Waste Management in New Developments*, in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

The residential building caretaker will monitor the capacity of the waste and recycling bins on a daily basis and will transfer full bins to the central residential waste room on the ground level of the northern precinct for Council collection.

8.10. SERVICES & UTILITIES

A Services and Utilities Infrastructure Report has been prepared by WSP (**Appendix T**) to identify any potential impacts of the proposed construction and operation on the existing utility infrastructure and service provider assets, and demonstrate how these will be protected, or impacts mitigated.

The report concludes that the proposed development is suitable and warrants approval subject to the implementation of the following mitigation measures:

- Disconnection and demolition of the existing utilities and services to allow the proposed Basement development construction
- Utility diversions, amplifications and modifications of existing authority mains for wastewater, potable water, stormwater and high voltage, is anticipated to commence upon direction and approval of the respective authority accredited designs prior to development approval.
- Proceed with Sydney Water Notice of Requirements application for Northern Precinct and Central Precincts, and associated conditions of consent for connection of Potable Water, Sewer and Stormwater services
- Proceed with Ausgrid contestable works approval process for Northern Precinct (includes Central precinct and Basement), associated submissions and approvals for connection of high voltage power and construction of chamber substation
- Proceed with City of Sydney 'Tap In' application for Northern Precinct and Central Precincts, and associated conditions of consent for connection of Stormwater services
- Proceed with Jemena connection application for Northern Precinct and Central Precincts, and associated conditions of consent for connection of Natural Gas services
- Proceed with Carrier and communication provider applications for connection process for Northern Precinct and Central Precincts, and associated conditions of consent for connection of carrier communication services
- Proceed with NBN application for connection process for Northern Precinct and Central Precincts, and associated conditions of consent for connection of NBN communication services
- Coordinate new utility services to avoid landscape tree planting and structures.
- Coordinate new utility services to consider roads, footpaths and street reservations.
- Coordinate new utility services and metro station retail services requirements to ensure no services pass through the metro station boxes.

Subject to the implementation of the above mitigation measures, the utility service connection provisions for the basement will be completed and commissioned.

8.11. CONSTRUCTION IMPACT ASSESSMENT

A Construction Environmental Management Plan (**CEMP**) has been prepared by John Holland (**Appendix Q**) which details the procedures and processes associated with the construction methodology for the proposed basement. In accordance with the SEARs, the CEMP provides an assessment of potential impacts of the construction on surrounding buildings and the public domain, including air quality and odour impacts, dust emissions, water quality, stormwater runoff, groundwater seepage, soil pollution and construction and demolition waste, and proposed measures to mitigate any impacts.

The assessment also considers the potential cumulative impacts of the proposed development with regards to the works being carried out on site as part of the Sydney Metro Chatswood to Sydenham approval (CSSI 7400) and other developments in proximity to the site during the construction phase.

Station Works Interface

The WL Developer will ensure that effective communication channels are established and maintained through regular correspondence, engagement, meetings, reporting and evaluation on an ongoing basis. The elected interface manager will actively engage with interface parties to ensure that their requirements are proactively sought, managed and delivered by the project team.

With respect to the external interfaces, there are significant Interface Contractor works that run through the development that will create complex interfaces with the proposed works. These interfaces will have to be carefully managed throughout the design and construction phase of the Waterloo OSD project.

The WL Developer will work with the Station Contractor to ensure that the delivery and handover of the Station box is integrated. WL Developer will also identify if any of the site constraints or conditions are different from those identified in the Station Contractors Design and Assurance Documentation for the station handover.

Handover from the Station Contractor will be marked upon transfer of as-built documentation, engineering signoff and access to site is provided. The proposed interface with the Station Contractor will allow for early identification of changes in design so that change can be managed.

Site Establishment

Hoardings will be adjusted and installed following handover of the basement work areas by the Station Contractor. The site perimeter will be surrounded by both A-Class and B-Class hoardings. These hoardings will be erected along the interface with the metro station box, Raglan Street, Cope Street and Botany Road in the stages handed over by the Station Contractor.

The site will be secured at all times with no unauthorised access permitted. Out of hours security patrols will be utilised strategically during the project. with a focus on shutdown periods such as Christmas and Easter when potential for theft and vandalism increases.

Access to the site will be controlled through a secured gate system. Individuals will require personalised identity swipe cards which will ensure a live record of the workers on-site at any given time. The proposed hoardings will delineate between the Station Contractors site and the basement works site to ensure that Station Contractor and the basement workforce cannot access the opposing work areas.

The project office will be located within one block of the site and will include accommodation for project management staff. Accommodation and amenities such as lunch sheds, office sheds, first aid sheds, change rooms and toilets for the construction workforce will be provided in stages.

Initial site accommodation sheds will be erected on top of the B class hoarding along the surrounding streets. As the works are progressed accommodation will be relocated into the basement and lower floors of the building.

Hours of Construction

The following construction hours are proposed:

- Monday to Friday: 7am – 6pm;
- Saturday: 7.30.am –3.30pm;
- Sunday: No work

There will be times when out of hours works may be required. An out of hours protocol for the assessment, management and approval of work outside of the standard construction hours will be prepared and submitted as required.

8.11.1. Construction Pedestrian and Traffic Management Plan (Preliminary CPTMP)

The Preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) prepared by ptc. included at **Appendix J** outlines the construction process associated with the basement and preliminary construction traffic management measures to improve and regulate the safety of pedestrians, motorists and workers within the vicinity of the construction site. The following section has been structured in accordance with Condition B16 of the concept consent (SSD 9393).

Through the preparation of the EIS and the detailed design resolution of the proposed development, the applicant has consulted with the City of Sydney and TfNSW. It is further noted that details of the preliminary CPTMP will forwarded to the Transport Coordination Office (TCO), City of Sydney and TfNSW as a part of the exhibition of the detailed SSDA.

Construction Car Parking Strategy

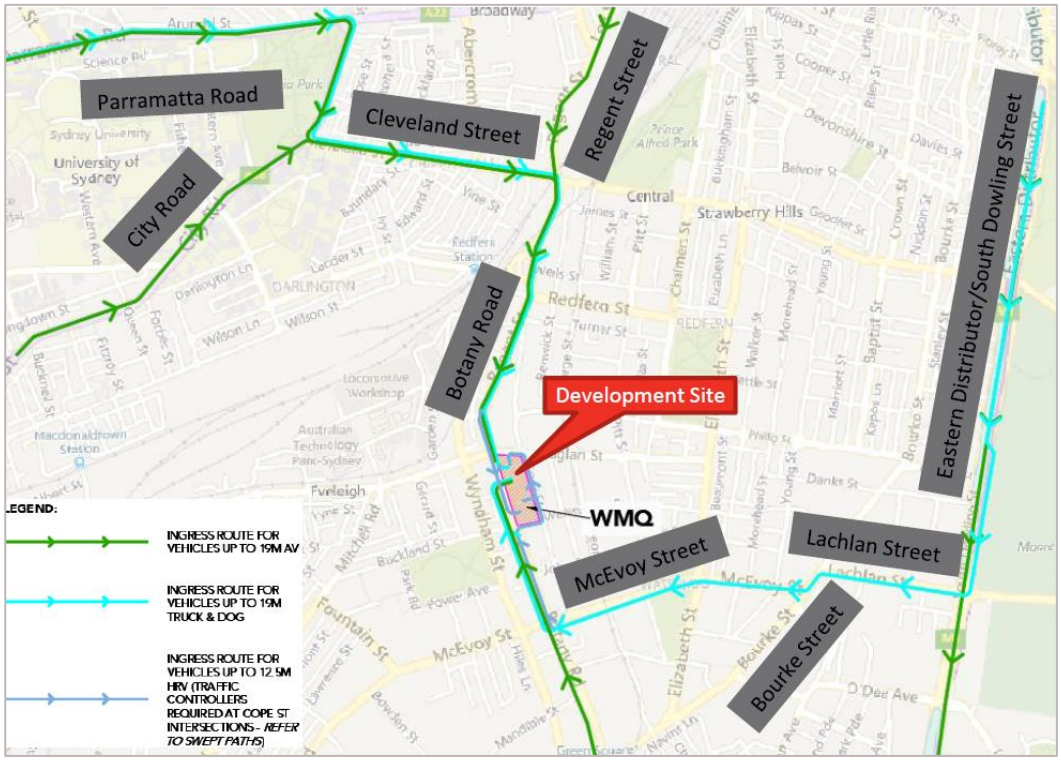
On street parking on roads immediately adjoining the Waterloo Metro Quarter site will need to be temporarily removed to facilitate some access or egress manoeuvres such as construction traffic driveway locations and the proposed works zones. These spaces will need to be converted to 'No Stopping' zones to provide adequate manoeuvring area for construction vehicles. The detailed CPTMP will outline the exact locations and address the specific details of the temporary removal of on-street parking spaces.

Due to site constraints, there will be limited parking available for construction staff. All site personnel are advised to not park on streets within the vicinity of the site. To minimise parking demand, all construction workers and contractors are encouraged to carpool or utilise public transport. Construction works and contractors will be informed of the bus and train services readily available. This is further outlined in the GTP accompany this detailed SSDA.

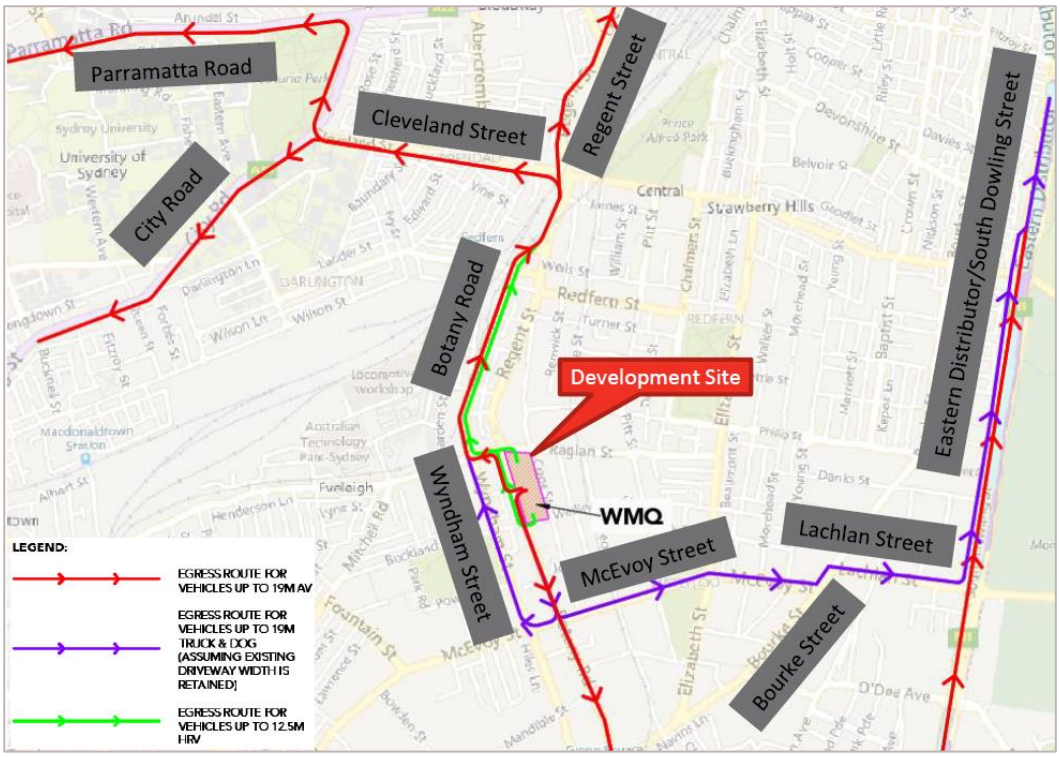
Haulage Movement Numbers and Routes

The construction vehicle access and egress routes are illustrated below. Construction vehicles will access the site via gates situated within the frontages to Botany Road, Raglan Street and Cope Street as shown in **Figure 27**. Ingress/egress driveways are provided on the four frontages on Raglan Street, Botany Road and Cope Street.

Figure 27 Construction vehicle access and egress routes (northbound and southbound)



Picture 29 Vehicle Access



Picture 30 Vehicle Egress

Source: ptc

The delivery of materials to and from the site will result in some generated traffic activity. During the construction stage of the basement, an average of 68 trucks are expected per day (132 across the entire Waterloo Metro Quarter precinct). During the services and finishes stage, an average of 20 trucks to the basement construction site are expected each day (average of 80 across the entire Waterloo Metro Quarter precinct).

Detailed Travel Management Strategy for Construction vehicles including staff movements

A Green Travel Plan has been prepared by ptc. to outline the transport options and arrangements associated with construction workers. It seeks to reduce the use of vehicles travelling to and from the site. The Green Travel Plan indicates that public transport for construction workers is encouraged and details the measures in place to monitor and manage the uptake of sustainable travel options. It is envisaged that this Plan will be reviewed and amended accordingly in the detailed CPTMP to address comments raised during this consultation process.

Maintaining Property Access

Any proposed road closures will require approval from Council and will retain access for emergency vehicles. Appropriate traffic management measures (such as traffic controllers) will be implemented to ensure access is maintained to closed roads in the event of an emergency.

Access to all adjoining properties will be maintained throughout the works. The adjacent landowners will be notified of works via letter box distribution and road signage to advise of anticipated truck movements.

Maintaining bus operations including routes and bus stops

The existing bus stop ‘Botany Road at Wellington Street’ (Stop ID: 201712) will be removed to facilitate signal works for the development of the Waterloo Integrated Station Development. A temporary bus stop replacement will be utilised.

A new permanent bus stop location will follow post OSD construction works. Details will be provided in the detailed CPTMP for the construction stage post consultation with TfNSW and STA and will address timing and identify the temporary bus stop location. No other bus stops will be affected by the proposed works. The CPTMP has assumed this area can be accessible by vehicles during construction.

Maintaining pedestrian and cyclist links / routes

Pedestrian Management

During the construction of the basement, works zones are required on Botany Road and Raglan Street frontages to facilitate loading and unloading of materials for construction vehicles. Partial closures of the footpath and/or diversion of pedestrians will be required.

Traffic control plans will be prepared as part of the detailed CPTMP detailing the mitigation measures and signage to support pedestrian access arrangements. A summary of the proposed works zones and impacts on pedestrians is provided below.

Table 16 Impact of the proposed works zones on pedestrian routes

Impact	Mitigation measure
Botany Road	
Due to the required Works Zones and multiple vehicular access and egress gates, it is proposed to close the footpath between Raglan Street and the Waterloo Congregational Church to eliminate the interaction between heavy vehicles and pedestrians. This will require partial closure of the footpath along the western frontage of the site between Raglan Street and the Waterloo Congregational Church.	Appropriate pedestrian diversion measures will be implemented to safely guide pedestrians across Botany Road to maintain pedestrian safety. Pedestrians will require guidance (via appropriate signage) to the nearest pedestrian crossings. Pedestrians are able to be safely redirected to the footpath on the western side of Botany Road by using the signalised pedestrian crossings. Pedestrians can also utilise the pedestrian facilities on Cope Street.
Pedestrian access to the Waterloo Congregational Chapel and the bus stop will be maintained with the footpath between the chapel and Wellington Street remaining open or locally diverted. As such, no Works Zone will occupy the Botany Road frontage directly outside the Waterloo Congregational Chapel to minimise impacts to parking for the chapel and pedestrian access.	As such, no Works Zone will occupy the Botany Road frontage directly outside the Waterloo Congregational Chapel to minimise impacts to parking for the chapel and pedestrian access.
Raglan Street	
Due to the required Works Zones occupying the footpath and vehicle access/egress gate on the southern side of Raglan Street, it is proposed to close the footpath between Cope Street and Botany Road to eliminate the interaction between heavy vehicle movements, vehicle unloading activities and pedestrians.	Pedestrians will require guidance (via appropriate signage) to the nearest pedestrian crossings. Pedestrians are able to be safely redirected to the footpath on the northern side of Raglan Street by using the signalised pedestrian crossings.
Cope Street	
No Works Zones are required on Cope Street as part of this (Northern) SSDA, however it is recommended for pedestrian diversion measures to be implemented to separate pedestrian and heavy vehicle interactions related to the Southern SSDA (refer to SSD 10437 CTMP for details). This is intended to separate pedestrian	Pedestrians will be diverted to the eastern side of Cope Street via the pedestrian crossings provided at the intersections of Raglan Street/Cope Street and Wellington Street/Cope Street.

Impact	Mitigation measure
movements from the Cope Street frontage of the construction site as a method of eliminating the pedestrian and heavy vehicle interaction at Gate 8.	

Cyclists Management

The existing cycling infrastructure in the vicinity of the site is predominantly in the form of on-road environments (shared with other users) with a partial cycle lane commencing on the southern side of Wellington Street connecting to Buckland Street. A Works Zone is proposed on the northern side of Wellington Street which will occupy the footpath.

As there are no existing cycleways on the northern side, it is anticipated there will be minimal impacts to the existing cycle network in the site vicinity. As such, no closures of any existing cyclist links for the proposed OSD construction works is required.

In the event any closures are required, temporary replacement/diversion facilities will be provided to provide comparable levels of safety and convenience. All staff and subcontractors engaged on site will be required to undergo a site induction, which will include the need to exercise due care with regard for pedestrian and cyclist safety in the site vicinity during site access/egress manoeuvres.

Independent road safety audits

Independent road safety audits will be conducted by a suitably qualified consultant in due course when required in further design development involving road operations and traffic issues, cognisant of all road users.

Cumulative activities and work zones

Cumulative construction activities or Works Zones operating simultaneously between the basement and broader Waterloo Metro Quarter development have been considered. Construction for all four precincts will occur simultaneously at one point (i.e. November 2022) despite differing commencement times. Construction of the basement and southern precinct will commence first, followed by the northern and central precinct construction works.

The peak truck volumes for the Waterloo metro station construction is anticipated to occur in June 2021 which does not coincide with any of the subject OSD construction works. For the worst-case scenario, peak truck movements associated with the Waterloo metro station, basement civil works and Southern Precinct construction (around January 2022) are:

- Waterloo metro station – 542 average daily truck movements
- Civil Works – 20 peak daily truck movements
- Southern Precinct – 66 peak daily truck movements

Based on this, 140 total daily truck movements are anticipated across the three concurrent construction works which equate to approximately 12-13 trucks per hour (or 1 truck per 5 minutes) based on the typical weekly construction hours.

To mitigate any potential cumulative construction impacts, coordination will be undertaken between the concurrent OSD developments to ensure that high construction traffic volume activities (e.g. concrete pours) are undertaken on separate days to reduce the impact on the external road network.

8.11.2. Construction Waste

The Contractor will ensure that the project supply chain is responsible and accountable for maintaining a clean, clear and safe working environment. A detailed Construction Waste Management Plan will be prepared by a separate party appointed by the developer. Waste types will be classified in accordance with the EPA's Waste Classification Guidelines 2014.

Mitigation Measures

The following construction waste mitigation measures will be implemented, where practical:

- Order materials in appropriate quantities and request minimal packaging;
- Give a high priority to using non-hazardous products where practical;
- Investigate packaging takeback schemes with suppliers during the procurement phase;

8.11.3. Noise and Vibration

Noise and vibration generated from construction activities will be managed to minimise adverse impact on neighbouring residents, businesses, and associated building structures. Special consideration will be given to the neighbouring Waterloo Congregational Church during the construction of the substructure and basement levels.

All noise generating activities are proposed to occur during the approved standard construction hours during the week. It is proposed to extend Saturday hours from 7am to 3.30pm, consistent with the City of Sydney standard construction hours. The primary source of noise generated will be associated with vehicle movements, generators, heavy machinery, hand-held machinery and tools.

Mitigation Measures

During construction, the OSD Contractor will utilise existing noise impact assessment data, where required, to determine noise sources and confirm ambient background. An acoustic consultant may be engaged to monitor construction noise level during its activities, routine inspections of plant and equipment will be conducted to ensure performance relative to compliance requirements.

For any construction work that includes potential vibration, all practical efforts to protect vibration sensitive buildings and the amenity of adjoining stakeholders (specifically the Church) will be considered. A practical and economical combination of vibration control measures will be applied to manage vibration impacts, including:

- Substitution by an alternative process
- Restricting times when work is carried out
- Screening or enclosures
- Consultation with affected residents
- Utilisation of temporary supports where deemed necessary

8.11.4. Air Quality

The primary sources of air emissions from the proposed development are associated with traffic movements, excavation / stockpiling and handling of soils on site. The generation of dust, air emissions or odours from the site can be a nuisance to adjacent land users, create unsafe working conditions on site and result in environmental degradation if not managed appropriately.

Management strategies to minimise air borne pollution will be incorporated into the detailed Construction Phase CEMP for the site. Air quality impacts will be minimised or avoided by incorporating appropriate dust and air suppression measures such as sprinklers, misting and stabilised/cover stockpiles. The layout of the construction site and placement of plant will also consider air quality impacts to nearby receivers, pedestrian, commercial receivers, public and road traffic.

8.11.5. Soil and Water Quality Management

Stormwater Runoff

- Before undertaking excavation work, implement all soil and water management controls required to minimise pollution of waters.
- All erosion and sediment controls to be installed in accordance with *NSW Blue Book Volumes 1 and 2D (Landcom, 2004 and DECC, 2008).*

- Minimise soil erosion and mobilisation of sediment during rain events.
- Use suitable sediment retention structures and control measures to filter or retain mobilised sediment generated during rain events over surface disturbances.
- Maximum sediment capture through effective positioning of temporary erosion and sediment control structures;
- Undertake regular inspections and maintenance of all erosion and sediment controls to ensure they are effective.
- Ensure that any road, footpath, shared path or cycleway is at all times kept free of mud, dirt, dust, deleterious material, debris, obstructions and trip hazards.
- Implement site exit controls such as wheel wash facilities to mitigate the risk of any loss of fuels, lubricants, load or other substances.
- Clean any spillage or build-up of such material or debris as soon as practicable.
- Develop an erosion and sediment control plan prior to the commencement of construction. This will be prepared in accordance with the NSW Blue Book requirements. All stormwater will be managed to prevent off site pollution.

Groundwater Seepage

The OSD basement structure has been designed as a drained basement where groundwater seepage is collected and disposed of utilising a sump and pump drainage system. Groundwater inflow is expected to be minimal, as a cut off wall will be constructed around the perimeter of the basement which penetrates into the underlying rock to reduce seepage inflow and reduce impacts to the surrounding groundwater systems. During construction, groundwater seepage will be managed in accordance with the future CEMP, following the detailed analysis and review of the drained basement design by the relevant authorities and subsequent approvals from Sydney Water, Water NSW and Council for dewatering.

Soil

Where soil pollution occurs due to spills or leaks, the impacted soil is to be removed and disposed at an appropriately licenced facility. All known areas of contamination will be managed prior to commencement of the basement and is subject to a separate approval process under the CSSI approval.

8.11.6. Cumulative Impacts

Consideration has been given to the works that are programmed to occur concurrently during the construction of the proposed development. The timing for other external developments such as renewal of the Waterloo social housing estate are not planned to be undertaken concurrently with any of the proposed works. Accordingly, specific impacts have not been able to be assessed.

The CEMP will be further developed prior to commencement of construction and address any further cumulative impacts as a result of other developments in proximity to the northern precinct.

8.11.7. Stakeholder Management

The applicant is committed to respecting and valuing all stakeholders and engaging positively with the community, government, and non-government stakeholders. A stakeholder management plan will be developed prior to project commencement. Community members/stakeholders will be engaged to address the implementation of project specific mitigation and management strategies to minimise the potential for negative impacts on the community in and around the construction site.

The WL Developer is committed to respecting and valuing all stakeholders and engaging positively with the community, government, and non-government stakeholders. To achieve this, the following strategies are proposed:

- Establish and maintain effective and open communication with community members, stakeholders' groups and the WL Developer project partners.
- Be open and accessible to the community and stakeholders.
- Listen and respond to what the community and stakeholders have to say.

- Provide timely, informative communications material that clearly explains the project works and any potential impacts.
- Identify and address key risks, impacts and opportunities.
- Ensure there are “no surprises” for stakeholders, the community and WL Developer partners.
- Conduct ourselves professionally in all that we do.
- Actively look for opportunities to incorporate the community and stakeholder suggestions in the design, construction, and delivery phases of the project.

8.12. SOCIAL & ECONOMIC IMPACTS

8.12.1. Crime, Safety, and Security

A Crime Prevention Through Environmental Design (CPTED) Report has been prepared by Connley Walker (**Appendix N**) to address the potential for anti-social and criminal behaviour within the public domain footprint and more broadly, throughout the entire detailed OSD design. Further, the reports mitigation focus and strategy includes assessing and mitigating crime risks by applying CPTED principles.

The CPTED principle of ‘Maintenance’ is identified as an operational management responsibility. This will be addressed as part of the day to day operational management of the site, including the removal of graffiti and repairs to building damage. Maintenance may also be assisted through the use of anti-graffiti coatings applied to the lower levels of the building exterior.

With regards to surveillance, natural surveillance within the basement area and the associated entry ramp is provided by the security office at the base of the ramp. The security office will be staffed and operational 24 hours, seven days a week. It is expected that CCTV surveillance will be provided throughout the basement.

Territorial reinforcement is expected to be reinforced through the provision of wayfinding signage throughout the basement to ensure workers, residents and visitors know where they are travelling.

Access control will be mitigated throughout the measures outlined in the table below.

Table 17 CPTED Assessment and Mitigation Measures

CPTED Principle	Assessment / Mitigation Measures
Basement Levels P1 and P2	
Access Control	▪ Consider the provision of roller shutters to separate residential and commercial parking areas. ▪ Consider securing access to the goods lifts and bike storage areas adjacent the building 2 lift core (fencing barrier).
General	▪ Provide wayfinding signage painted on roadway to direct pedestrians to authorised areas. ▪ Provide CCTV surveillance throughout the basement.

The CPTED mitigation measures are in line with the Crime prevention and the assessment of development applications Guidelines under section 4.15 of the EP&A Act published by the NSW Department of Urban Affairs and Planning. They are also consistent with the requirements of SDCP 2012 (*Section 3.13.1 Crime prevention through environmental design*).

The proposed basement design has demonstrated consideration and implementation of CPTED principles through:

- Active spaces within the building have been located to maximise casual surveillance from outside the buildings via transparent glazing.

- Toilets are located and designed to maximise casual surveillance to facility entries.
- Blind-corners, recesses and other external areas that have the potential for concealment or entrapment have been minimised.
- Ground floor lobbies and entrances are clearly visible, unobstructed and easily identifiable from the street.
- Lobbies enable surveillance from the public domain to the inside of the building at night.
- Residential accommodation entries have a clearly defined transitional space between public and private areas.
- Signage clearly defines the purpose of areas.
- Appropriate lighting levels.
- Consideration of escape paths to avoid entrapment

In addition to the above, a Security Risk Assessment has been prepared by Connley Walker and is provided at **Appendix FF**. The assessment has been carried out in accordance with the requirements of the Australian Standard for Risk Management AS/NZS ISO 31000. The AS/NZS ISO 3100 methodology is based on assessing risks and mitigating them based on the level of risk. Specifically, it involves the following:

- Establish the context;
- Risk assessment;
  - Risk identification;
  - Risk analysis;
  - Risk evaluation.
- Risk treatment.

To ensure consistency with the adjoining Waterloo Station Development, the Security Risk Assessment has used the methodology for analysing and assessing the risks that is used by Sydney Metro. Consultation with South Sydney Police was conducted to gain an understanding of the operational context and specific security threats.

In addition to the CPTED measures, the following security risk mitigation measures are recommended in conjunction with the South Sydney Police, including, CCTV surveillance of all public spaces, all building entries, lift lobbies, car park, bicycle storage, within all lifts, concierge points, roof access points and plant room entries. Electronic access control is also recommended at all residential lobby entries, lifts, entries to building management areas and non-public entries

The recommendations of the assessment are provided to mitigate against potential security risks and to ensure an appropriate level of security is applied, through sound security principles and standards, for the operation of the basement. The proponent is committed to implementing the recommended mitigation measures to aid the ongoing safe operation.

Further, a separate Blast Vulnerability Assessment (BVA) and Hostile Vehicle Mitigation (HVM) has been prepared to support the proposed development for the northern and central precincts (of which the basement proposal supports).

The BVA provides an overview of the threat context to the northern and central precincts and identifies key protective design recommendations. It outlines the overall HVM Strategy developed to provide protection to public transport users and areas of mass pedestrian and community congregation.

8.12.2. Employment Generation

A Social and Economic Assessment has been prepared by Urbis and is submitted at **Appendix AA**. The assessment estimates the number of jobs to be created by the broader Waterloo Metro Quarter development of the site as outlined in the table below.

Table 18 Job Creation

Stage	Timing	No. and Type of Jobs
During construction	Over 4.5 years	196 direct jobs 270 indirect jobs **Total – 466 jobs**
After construction (operation)	Ongoing	Commercial – 3,384 Child Care – 31 Retail – 137 Gym – 15 Student accommodation – 24 **Total – 3,591 jobs**

Job targets have been projected for the Harbour CBD in the Eastern City District Plan. These targets seek to inform planning authorities and infrastructure agencies of anticipated growth. The lower end of the range of these job targets reflects the baseline of projected job growth, while the upper end is an aspirational higher growth scenario to reflect outcomes in the case of future investment and land use planning. Overall, the Greater Sydney Commission is targeting an additional 165,100 – 235,100 jobs from 2016 to 2036. The proposed Waterloo Metro Quarter OSD is projected to generate around 3,591 jobs, which will help achieve the growth targets.

Overall, the proposed development is supported as it is anticipated to create a vibrant mixed-use precinct on the fringe of the Sydney CBD. The mix of commercial uses from office, housing (diverse mix of market, affordable, social and student housing), retail, food & beverage and gym are supported with the market assessment identifying demand for these uses.

In summary, the development will contribute to the ongoing economic activity of the New South Wales workforce and support employment generation in the local area consistent with the objectives of the Sydney Region Plan and the Eastern District Plan.

8.13. HEALTH IMPACTS

The following key environmental and health issues have been addressed in detail through this EIS:

- Built Form
- Heritage Impact
- View and Visual Impact
- Overshadowing
- Wind Impacts
- Noise and Vibration
- Transportation Air Quality
- Airspace
- Traffic, Access and Car Parking
- Construction Impact(s)

- Utilities and infrastructure
- Flooding and Stormwater
- Reflectivity
- Accessibility
- Fire safety
- Social and Economic Impacts
- Crime and Safety
- Security Risk Assessment

The ESD Report for the proposal includes health and well-being objectives to encourage active, social and meaningful lives. The Waterloo Metro Quarter proposal also seeks to provide buildings, infrastructure and spaces to support good health and wellbeing outcomes for all ages. Notably, the basement supports commercial and retail EOTF to encourage healthy active transport options, whilst reducing automobile dependence and minimising carbon emissions. This is further reinforced through the provision of car parking below the maximum permissible rates and providing maximised bicycle parking.

Construction impacts relating to waste, noise and vibration, air quality and soil and water quality will be managed accordingly throughout the construction phase in line with the CEMP (refer **Appendix Q**). a Stormwater Management Strategy and Flood Impact Assessment has been prepared to ensure appropriate treatment of stormwater runoff to surrounding water catchments and mitigate potential flood impacts (**Appendix O**).

The proposal is accompanied by a Transportation Air Quality Management Plan which indicates that compliance is achieved at the kerb of Botany Road for carbon monoxide (CO), nitrogen dioxide (NO2), and inhalable particulate matter (PM10) under the proposed peak hour traffic volume at mid-block on Botany Road (**Appendix W**).

The design has considered CPTED principles and security risks to mitigate potential health risks associated with anti-social and criminal behaviour.

Overall, the proposal will not result in any unacceptable local and regional health impacts. The following Chapter 9 undertakes risk assessment and provide a summary list of mitigation measures to further mitigate environmental impact and ensure that health risks of the proposal are at acceptable levels.

8.14. SUITABILITY OF THE SITE

The proposed basement is designed to support the detailed design of a permitted development on the site that is the subject of a concept SSDA As outlined in Section 2.3 the proposed development is consistent with the terms of the approved concept SSDA for the site as proposed to be amended by SSD 10441.

As outlined within Section 6.11 the proposed development, and the OSD that it is designed to support, is permitted with consent on the land under the SLEP 2012. As such the site is suitable to support the proposed development.

8.15. PUBLIC INTEREST

The detailed SSDA proposal is considered to be in the public interest for the following reasons:

- The project supports the concept of the ‘30 minute’ city envisioned within State and Regional strategic planning policy by delivering a basement which supports the provision of commercial and retail EOTF and bicycle parking, as well as residential storage facilities (inclusive of bike storage), in conjunction with commercial and residential land uses across the Waterloo Metro Quarter site.
- The proposed development encourages active modes of transport and high levels of public transport patronage by co-locating services in proximity to a metro station.
- The proposed development includes a basement which provides necessary vehicular and bicycle parking to support the commercial, private residential, social housing and affordable housing uses proposed across the Waterloo Metro Quarter site. This will also contribute towards reducing on-street vehicular parking in the surrounding neighbourhood.

- The proposal maintains solar access to Alexandria Park, Cope Street Plaza and the surrounding significant public domain.
- The proposal includes high sustainability initiatives, including the provision of highly limited car parking spaces, extensive bicycle parking areas and EOTF. The basement is also integrated with the development proposed across the northern and central precincts which will achieve national best practice sustainability outcomes.
- The proposed development includes the provision of minimal vehicle parking reducing the reliance on private car usage and thus, improving congestion on the surrounding road network.
- The proposal consolidates all basement functions into one consolidated basement for the Waterloo Metro Quarter site. The basement is accessed via a single crossover and dive structure which minimises the impact on the street frontages to maximise the provision of active uses.
- The construction and operation of the basement will not compromise the structural integrity of the adjacent Waterloo Congregational Church and metro station box.
- The proposal would result in the delivery of approximately 466 jobs during the construction phase. Additional economic benefits would be provided by future residents using surrounding services following the completion of the development.

The proposal is in the public interest as it provides significant public benefits for the local and wider community primarily by supporting the commercial and residential land uses proposed across the Waterloo Metro Quarter site.

9. ENVIRONMENTAL RISK ASSESSMENT

9.1. RISK ASSESSMENT

The SEARs require an environmental risk analysis to identify potential environmental impacts associated with the proposal.

This analysis comprises a qualitative assessment consistent with the methodology used for the concept SSDA and the *Australian Standard AS4369:1999 Risk Management and Environmental Risk Tools*. The level of risk was assessed by considering the potential impacts of the proposed development prior to application of any mitigation or management measures.

The significance of impact is assigned a value between 1 and 5 based on:

- The sensitivity of the environment receiving the impact
- The level of understanding of the type and extent of impact
- The likely response to the environmental consequence of the project.

The manageability of the impact is assigned a value between 1 and 5 based on:

- The complexity of mitigation measures
- The known level of performance of the mitigation measures proposed
- The opportunity for adaptive management

The sum of the significance and manageability values provides an indicative ranking (between 1 and 10) of the potential residual impacts after the mitigation measures are implemented. The risk levels for likely and potential impacts were therefore derived using the following risk matrix.

Table 19 Risk Matrix

		MANAGEABILITY OF IMPACT				
		A – COMPLEX	B – SUBSTANTIAL	C – ELEMENTARY	D – STANDARD	E – SIMPLE
SIGNIFICANCE	5	High	High	Medium	Low	Very Low
	4	High	High	Medium	Low	Very Low
	3	Medium	Medium	Medium	Low	Very Low
	2	Low	Low	Low	Low	Very Low
	1	Very Low	Very Low	Very Low	Very Low	Very Low

The results of the environmental risk assessment for the detailed SSDA, are presented in **Table 20**.

Following the application of each of the mitigation measures, only two (2) residual risks are identified that have a risk profile of ‘medium’ or greater including:

- Structural interface with Metro Station and Infrastructure
- Structural impact on Waterloo Congregational Church

These risks can be appropriately managed through the minimisation and mitigation measures which are proposed as part of this application.

Table 20 Risk Assessment

Aspect	Potential Impact	Significance	Manageability	Risk Level
Aboriginal Heritage	Potential impacts on Aboriginal places of significance (Construction).	3	D	Low
Non-Aboriginal Heritage	Impact on the significance of heritage items in the vicinity notably Waterloo Congregational Church.	2	D	Low
Environmental Performance / ESD	Irreversible increase in energy usage	3	D	Low
Noise and Vibration	Adverse noise conditions within the basement from Sydney Metro infrastructure.	1	D	Very Low
	Adverse external noise conditions to surrounding development (Construction and Operation).	3	D	Low
Traffic and Transport	Increased traffic on local roads (Operational).	3	D	Low
	Increased traffic on local roads (Construction).	2	D	Low
	Additional demand for on-street car parking spaces (Operational and Construction)	3	D	Low
Pedestrian Management	Conflict with pedestrian and cycle/vehicle operations (Operational).	2	C	Low
	Conflict with pedestrian and cycle/vehicle operations (Construction).	3	D	Low
	Pedestrian volumes and footpath/public domain capacity.	2	C	Low
Waste	Waste production (operation & construction).	2	D	Low
	Insufficient waste storage	3	D	Low
Air Quality, Odour and Dust	Air quality, odour and dust emissions (construction)	2	C	Low
Construction	Impacts associated with public safety, visual amenity, noise, waste and traffic management in the locality during construction	3	D	Low

Aspect	Potential Impact	Significance	Manageability	Risk Level
Soil and Water	Impact on water table	2	D	Low
Infrastructure provision	Adequate connection to infrastructure and utilities and adequate infrastructure capacity	2	D	Low
Structure	Structural interface with Metro Station and Infrastructure	3	C	Medium
	Structural impact on Waterloo Congregational Church	3	C	Medium
Landscaping	Deep soil planting provisions	2	D	Low
Flooding	Potential flooding of the basement.	2	B	Low
	Potential flooding of aspects of the CSSI ‘Sydney Metro box’ including the public domain.	2	B	Low
Stormwater	Adverse impact on the quality of stormwater runoff (Operation).	2	D	Low
	Adverse impact on the quality of stormwater runoff (Construction).	3	D	Low
Contamination	Exposure of contamination or hazardous materials during construction and operation.	2	D	Low
Building Standards	Adequate access for people with a disability.	3	D	Low
	Adherence to Building Code of Australia	2	D	Low
Safety and Security	Antisocial and criminal behaviour.	2	D	Low
Social Impact	General disruption to community associated with large scale construction.	3	D	Low
Cumulative Impacts	Cumulative impacts (traffic, noise, dust, etc.) associated with concurrent construction of station and OSD, and other development in the area.	3	D	Low
	Cumulative impacts (traffic, noise emissions, etc.) during concurrent operation of station and OSD, and other development in the area.	3	D	Low

9.2. MITIGATION MEASURES

The measures identified to mitigate the potential environmental impacts of the proposed development are described in detail throughout **Section 8** of the EIS where relevant.

A consolidated set of mitigation measures required for each of the environmental and social impacts is summarised in the table below.

Table 21 Proposed Mitigation Measures

Item	Potential Impact	Mitigation Measure
Aboriginal Heritage	Potential impacts on Aboriginal places of significance (Construction).	The updated Archaeological Method Statement (AMS) prepared by AMBS (dated July 2020) must be adhered to for the full extent of excavation and construction associated with the basement. This AMS outlines the proposed excavation methodology for the subject site to manage archaeological significance and impacts.
Non-Aboriginal Heritage	Impact on the significance of heritage items in the vicinity notably Waterloo Congregational Church.	Adopt the recommendations of the Heritage Impact Statement prepared by Urbis, dated 7 August 2020, with regard to maintaining the proposed building setbacks and ensuring no physical works or excavation are undertaken within the Church allotment.
Environmental Performance / ESD	Irreversible increase in energy usage.	Adhere to recommendations within the ESD Report prepared by Cundall Johnson, dated 24 July 2020. It is noted that the basement accommodates commercial and retail EOTF to encourage the use sustainable modes of transport such as walking, cycling and public transport. A Green Travel Plan (GTP) has been development for the associated northern and central precincts. The GTP will be reviewed annually to measure and identify how mode share has changed over time.
Noise and Vibration	Adverse conditions within the basement from Sydney Metro infrastructure.	Monitor the nearest affected basement structures to ensure vibration does not exceed criteria established for potential structural damage.
	Adverse external noise conditions to surrounding development (Operation).	Comply with the requirements of the NSW Road Noise Policy given the predicted increase is less than the 2dB threshold.
	Adverse external noise and vibration conditions to surrounding development (Construction).	<u>Noise:</u> ▪ Install a 2.4m high solid barrier around perimeter of the site.

Item	Potential Impact	Mitigation Measure
		▪ No works outside approved construction hours. ▪ Engage an acoustic consultant to monitor construction noise level during activities and routine inspections of plant and equipment. <u>Vibration:</u> Apply vibration control measures including: ▪ Substitution by an alternative process ▪ Restricting times when work is carried out ▪ Screening or enclosures ▪ Consultation with affected residents ▪ Utilisation of temporary supports where deemed necessary
Traffic and Transport	Increased traffic on local roads (Operational).	The provision of commercial, retail and residential vehicle parking below the maximum permissible rates. In addition, provide ample EOTF to encourage active public transport usage.
	Increased traffic on local roads (Construction).	The provision of zero parking spaces on site during construction for workers. Implementation of a Green Travel Plan.
	Additional demand for on-street car parking spaces (Operational and Construction)	Implementation of a Green Travel Plan. A Green Travel Plan has been submitted for the associated Northern Precinct SSDA (SSD-10440) and Southern Precinct SSDA (SSD-10439) (refer to the respective Traffic Impact Assessments at **Appendix I**).
Pedestrian Management	Conflict with pedestrian and cycle/vehicle operations (Operational).	The provision of minimal resident car parking spaces on the site. Implementation of a loading dock management plan to schedule services and deliveries to mitigate traffic movements from and to the site.
	Conflict with pedestrian and cycle/vehicle operations (Construction).	Maintain consistency with the Construction Traffic and Pedestrian Management Plan prepared by ptc, dated 31 July 2020.
	Pedestrian volumes and footpath/public domain capacity.	Maintain safe and legible footpaths design and delivered in accordance with the Waterloo Metro Quarter Design and Amenity Guidelines and supporting architectural documentation.

Item	Potential Impact	Mitigation Measure
Waste	Waste production (Operation & Construction).	Implementation of the Operational Waste Management Plan prepared by Elephants Foot, dated 29 July 2020. Preparation and implementation of a detailed Construction Waste Management Plan
	Insufficient waste storage	Provide the minimum waste storage room for the central precinct outlined in the Operational Waste Management Plan prepared by Elephants Foot, dated 29 July 2020 (refer to Appendix L of SSD-10439).
Air Quality, Odour and Dust	Air quality, odour and dust emissions (construction)	Maintain compliance with AS1668.2.
Construction	Impacts associated with public safety, visual amenity, noise, waste and traffic management in the locality during construction	Ensure the construction is carried out in accordance with the Construction Environmental Management Plan (CEMP) prepared by John Holland included at **Appendix Q**.
Soil and Water		Adhere to erosion and sediment control measures identified in Stormwater Management Strategy and Flood Impact Assessment prepared for the northern and central precincts.
Infrastructure provision	Adequate connection to infrastructure and utilities and adequate infrastructure capacity	Adhere to mitigation measures identified in the Services and Utilities Infrastructure Report prepared by WSP and Waterloo Developer (dated 23 July 2020), provided at **Appendix T**.
Structure	Structural interface with Metro Station and Infrastructure	Comply with: ▪ AS 1170.0 Structural Design Actions Part 0: General Principles 2002; ▪ AS 1170.1 Structural Design Actions Part 1: Permanent, Imposed and other 2002; ▪ AS1170.2 Structural Design Actions Part 2: Wind Actions 2009; ▪ AS1170.4 Structural Design Actions Part 4: Earthquake Loads 2007; ▪ AS 3600 Concrete Structures 2018; ▪ AS 3700 Masonry Structures 2001; and, ▪ AS 4100 Steel Structures 1998. Prior to the commencement of any civil works, attended vibration measurements will need to be

Item	Potential Impact	Mitigation Measure
		conducted at the nearest point to the adjacent the metro station structure. These measurement levels will then need to be assessed against BS 7385 to ensure there are no adverse impacts to the metro station structure.
	Structural impact on Waterloo Congregational Church	Prior to the commencement of any civil works, attended vibration measurements will need to be conducted at the nearest point to the adjacent structure of the Waterloo Congregational Church heritage item. These measurement levels will then need to be assessed against BS 7385 to ensure there are no adverse impacts to the structure of the Church. Adoption of monitoring programme during excavation should be undertaken to ensure that impacts to the Church building during bulk excavation are avoided and thus the structural integrity of the item is not compromised.
Landscaping	Deep soil planting provisions	Setback the basement footprint in accordance with the Waterloo Metro Quarter Design and Amenity Guidelines to enable adequate deep soil pockets.
Flooding	Potential flooding of the basement.	Design the basement access points with floor levels above the maximum PMF or 100-year ARI (+500mm) water level.
Stormwater	Adverse impact on the quality of stormwater runoff (Operation).	Stormwater runoff to be treated within the stormfilter cartridges for building 1 (northern) and building 2 (central).
	Adverse impact on the quality of stormwater runoff (Construction).	Adhere to erosion and sediment control measures identified in Construction Environmental Management Plan prepared by Waterloo Developer, dated 23 July 2020.
Contamination	Exposure of contamination or hazardous materials during construction and operation.	Adopt the recommendations of the Contamination Strategy prepared by Douglas Partners, dated 24 July 2020.
Building Standards	Adequate access for people with a disability.	Provide accessible parking spaces (with shared zones) designed in accordance with relevant Australian Standards and provide egress / paths of travel in accordance with the Accessibility Report (**Appendix S**) and Transport Impact Assessment (**Appendix I**).

Item	Potential Impact	Mitigation Measure
	Adherence to Building Code of Australia	Compliance with the recommendations of the BCA Report, DDA Assessment and Fire Safety Strategy Report. Compliance is subject to resolution of the recommendations and further detailed regulatory reviews prior to the issuing of Construction Certificates.
Safety and Security	Antisocial and criminal behaviour.	Detailed design to include additional surveillance devices, mechanised access controls, and clear way-finding signage. Design consideration should be given to preventing hostile vehicle penetration. Implementation of camera surveillance, public domain furniture design, anti-graffiti façade protections and the location of a high visibility security room
Social Impact	General disruption to community associated with large scale construction.	Consistency with the recommendations of the Construction Environmental Management Plan, prepared by Waterloo Developer dated 23 July 2020, including notably ongoing engagement and ongoing consultation with the surrounding land owners and occupants during the construction period, including a complaints register.
Cumulative Impacts	Cumulative impacts (traffic, noise, dust, etc.) associated with concurrent construction and operation of the station OSD, and other development in the area.	Implementation and finalisation of the Draft Construction Pedestrian and Traffic Management Plan and the Construction Environmental Management Plan. A detailed Construction Management Plan to be prepared at CC stage, which should detail how screening, hoarding and construction zones should be coordinated to ensure public safety and amenity.

10. CONCLUSION & JUSTIFICATION

This EIS has been prepared to accompany a detailed SSDA for excavation and the design, construction and operation of a basement located below the northern and central precincts of the Waterloo Metro Quarter site. The proposed two-level shared basement accommodates vehicle parking, service vehicle, car share and car wash spaces, bicycle parking and end of trip facilities, and residential storage facilities.

The basement car park will primarily support the proposed commercial office building (Building 1) at the northern precinct of the Waterloo Metro Quarter site, and the mixed-use central building (Building 2). The basement also includes eight car parking spaces for use of the social housing tenants of Building 4, two spaces for the Waterloo Congregational Church, and two spaces for the use of Sydney metro.

This EIS has comprehensively addressed the general and key issues relating to the proposed development and has included the plan and document requirements identified in the SEARs and in Schedule 2 of the EP&A Regulation. This EIS is submitted to the NSW DPIE pursuant to Part 4 of the EP&A Act. The Minister for Planning and Public Spaces, or their delegate, is the consent authority for the detailed SSDA.

The detailed design of the proposed basement has been the subject of design development and testing and ongoing review from various government and independent parties to ensure that it achieves the highest standard in architectural design, while ensuring a functional interface is delivered with the Sydney metro. The detailed design of the basement is consistent with the conditions of the concept SSDA as proposed to be modified by the amending concept DA (SSD 10441).

The proposed development sought within the detailed SSDA is considered appropriate for the site and warrants approval from the Minister for Planning and Public Spaces for the following reasons:

- The proposed basement accommodates car parking, storage, and services to support a mixed-use development on the Waterloo Metro Quarter site.
- The proposed car parking within the basement is less than the maximum car parking provision permitted under the conditions of SSD 9393 and the SLEP 2012, supporting a reduction in the reliance of private vehicle ownership across the Waterloo Metro Quarter site.
- The proposed basement accommodates bicycle parking and storage for the proposed residential accommodation within Building 2 proposed under a separate detailed SSDA in accordance with the rates and provisions specified in the Apartment Design Guide and SDCP 2012.
- The proposed basement accommodates bicycle parking and EOTF for the commercial and retail tenants in accordance with the rates prescribed within the SDCP 2012.
- The early excavation and construction of the basement will facilitate the efficient staged construction of the Waterloo Metro Quarter ISD, reducing the overall construction programme and ensuring that critical components of the ISD will be completed concurrently with the operation of the new metro station in 2024.
- The proposed development (including excavation) will not have any impact on significant views towards the Waterloo Congregational Church, broader vicinity heritage items or impact the existing setting.
- All above ground access points to the basement have been adequately protected from the Probable Maximum Flood event and associated stormwater and flood waters.
- The dimensions of the proposed basement have been designed to ensure that adequate soil depths can be accommodated within the public domain including to street trees and planting along Botany Road and Raglan Street, including the Raglan Street Plaza.

In view of the above, we submit that the proposal is in the public interest and that the detailed SSDA should be approved subject to appropriate conditions.

DISCLAIMER

This report is dated 26 October 2020 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of WL DEVELOPER PTY LTD **(Instructing Party)** for the purpose of State Significant Development Development Application **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

In preparing this report, Urbis may rely on or refer to documents in a language other than English, which Urbis may arrange to be translated. Urbis is not responsible for the accuracy or completeness of such translations and disclaims any liability for any statement or opinion made in this report being inaccurate or incomplete arising from such translations.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.