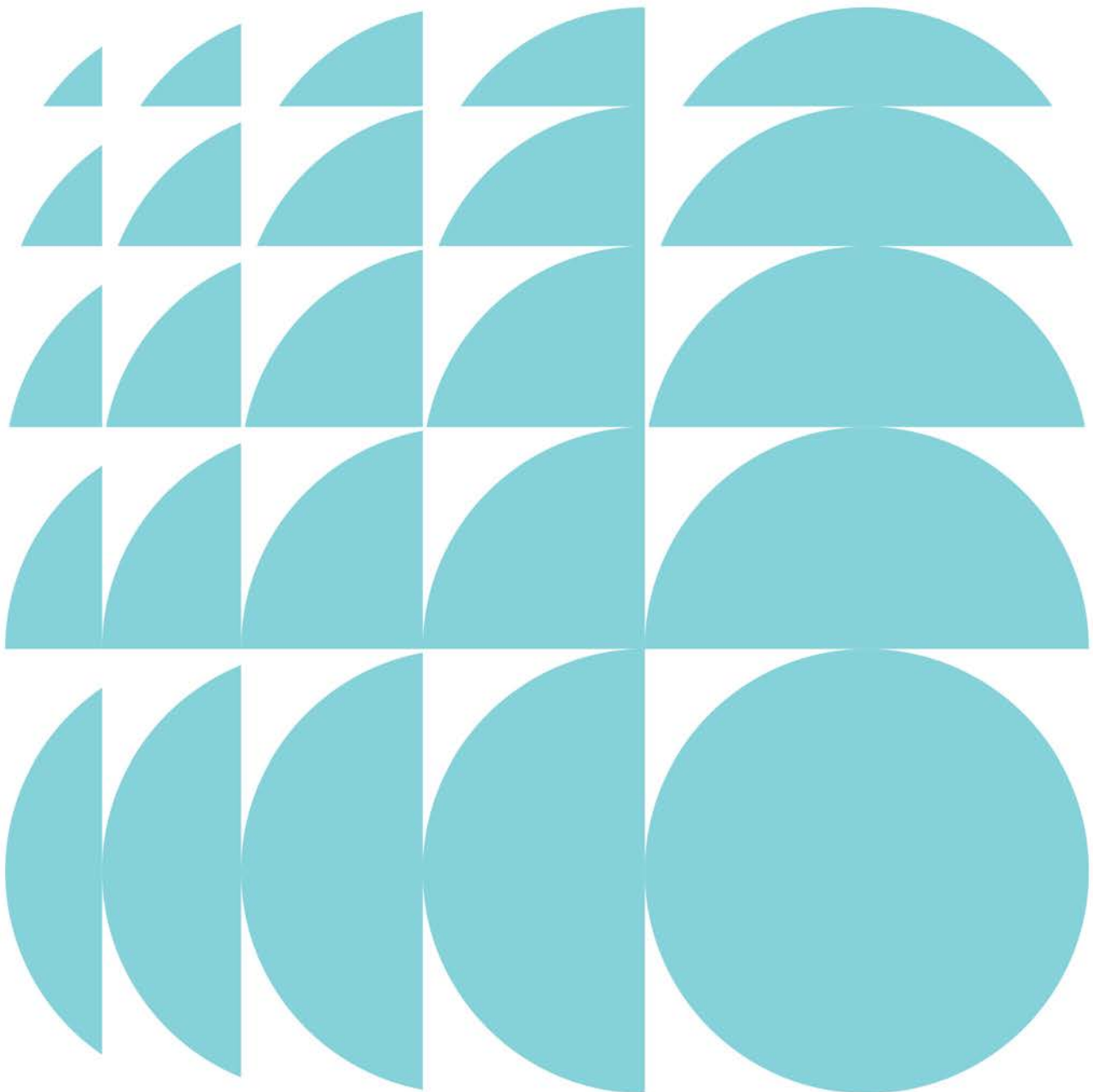




CONTACT

Michael Rowe	Director	mrowe@ethosurban.com.au	9956 6962
--------------	----------	-------------------------	-----------

Reproduction of this document or any part thereof is not permitted without prior written permission of ACN 615 087 931 Pty Ltd.

This document has been prepared by:

This document has been reviewed by:



FRANCES MEHRTENS

1 November 2017

SAMANTHA MILLER

1 November 2017

MICHAEL ROWE

1 November 2017

Reproduction of this document or any part thereof is not permitted without prior written permission of Ethos Urban Pty Ltd. Ethos Urban operates under a Quality Management System. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

Ethos Urban
ACN 615 087 931 Pty Ltd.
www.ethosurban.com
173 Sussex Street, Sydney
NSW 2000 t 61 2 9956 6952

Statement of Validity	i
Executive Summary	ii
1.0 Introduction	5
1.1 Background	5
1.2 Objectives of the Development	10
1.3 Summary of Approval Sought	10
1.4 Analysis of Alternatives	11
1.5 Secretary's Environmental Assessment Requirements	12
2.0 Site Analysis	22
2.1 Location and Context	22
2.2 Site Description	23
2.3 Land Ownership and Description	23
2.4 Existing Development and Structures	24
2.5 Traffic and Transport	27
2.6 Physical Characteristics	28
2.7 Surrounding Development	30
3.0 Description of the Development	32
3.1 Overview	32
3.2 Design	34
3.3 Commercial Building C1 Use	34
3.4 Materials and Finishes	34
3.5 Retail Shopfronts and Awnings	34
3.6 Signage	35
3.7 Interpretation Zone	35
3.8 Building Services and Infrastructure	35
3.9 Basement Facilities	37
3.10 Ground Plane Publicly Accessible Areas	37
3.11 Modification of Basement Structures	37
3.12 Construction Hours	39
3.13 Construction Hoardings	39
4.0 Consultation	40
5.0 Environmental Assessment	42
5.1 Relevant EPIs, Policies and Guidelines	42
5.2 Barangaroo Concept Plan	47
5.3 Land Use and GFA	53
5.4 Design Excellence	55
5.5 Overshadowing	57
5.6 Visual Impact and Views	57
5.7 Public Domain and Public Access	63
5.8 Transport and Accessibility Impacts	63
5.9 Heritage	65
5.10 Wind	65

5.11	Reflectivity	66
5.12	Water, Drainage, Stormwater and Groundwater	66
5.13	Air Quality	66
5.14	Noise Impacts	67
5.15	Contamination	68
5.16	Ecologically Sustainable Development	68
5.17	Building Infrastructure Provision	69
5.18	Building Code of Australia	69
5.19	Environmental, Construction and Site Management Plan	69
5.20	Sea Level Rise and Climate Change	69
6.0	Environmental Risk Assessment	71
7.0	Mitigation Measures	1
8.0	Justification of the Proposal	2
8.1	Social and Economic	2
8.2	Biophysical	2
8.3	Ecologically Sustainable Development	3
9.0	Conclusion	5

Figures

Figure 1 – Map of Barangaroo South (C1 development plot outlined in red)	7
Figure 2 – Location plan	22
Figure 3 – Stage 1A of Barangaroo South	23
Figure 4 – Existing conditions of the C1 site area	25
Figure 5 – Photomontages of Commercial Building C1	33
Figure 6 – Ground floor plan showing relocated basement elements	38
Figure 7 – Proposed basement alterations – Basement 2	38
Figure 8 – Proposed basement alterations – Basement 1	39
Figure 9 – Commercial Building C1 viewed from the north on Hickson Road	58
Figure 10 – Commercial Building C1 viewed from the south on Hickson Road	59
Figure 11 – View of Commercial Building C1 from Napoleon Bridge	60
Figure 12 – Commercial Building C1 viewed from Scotch Row (Commercial Building C2 in the foreground)	61
Figure 13 – Commercial Building C1 viewed from Watermans Quay	62
Figure 14 – Pedestrian and bicycle network in the vicinity of the site	64
Figure 15 – Risk Assessment Matrix	71

Tables

Table 1 - Secretary's Environmental Assessment Requirements	12
Table 2 - Commercial Building C1 Numeric Description	32
Table 3 - Consultation and stakeholder engagement	40
Table 4 - Consistency with EPIs, policies and guidelines	42
Table 5- Consistency with Concept Plan GFA controls	47
Table 6 - Consistency with Concept Plan Height Control	47
Table 7 - Consistency with Barangaroo South Built Form and Urban Design Guidelines	48
Table 8 - Summary of proposed building areas	53
Table 9 - Summary of approved/proposed GFA by Concept Plan Block for Barangaroo South	54
Table 10 - Commercial Building C1 Environmental Risk Assessment	72
Table 11 - Mitigation Measures	1

Appendices

A	Secretary's Environmental Assessment Requirements	<i>Department of Planning and Environment</i>
B	Architectural Drawings	<i>Tzannes and Associates</i>
C	Design Excellence Report	<i>Tzannes</i>
D	Survey Plan	<i>CMS Surveyors</i>
E	Signage Strategy	<i>Urbanite</i>
F	Design Excellence Strategy	<i>Ethos Urban</i>
G	Independent Peer Review Statement	<i>Ken Maher</i>
H	Design Competition Waiver Request	<i>Ethos Urban</i>
I	Contamination Assessment	<i>AECOM</i>

J Utilities and Services Statements

Various

K Environmental, Construction and Site Management Plan

Lendlease

L Community Consultation Strategy

Lendlease

M Statement of Heritage Impact

TKD Architects

N Services Design Statement

Lendlease

O Sustainability Report

Lendlease

P Transport Assessment

Arup

Q Wind Assessment

Cermak Peterka Petersen

R Reflectivity Assessment

Inhabit

S Water and Stormwater Design Statement

Cardno

T Air Quality Assessment

AECOM

U Noise Impact Assessment

Wilkinson Murray

V BCA Statement

McKenzie Group

W Fire Statement

Delfire

X Barangaroo Delivery Authority Design Review Panel Feedback and Response

Tzannes Associates

Statement of Validity

Development Application Details

Applicant name	Lend Lease (Millers Point) Pty Ltd
Applicant address	Level 14, Tower Three, International Towers Sydney Exchange Place, 300 Barangaroo Avenue, Barangaroo NSW 2000
Land to be developed	51A Hickson Road, Barangaroo
Proposed development	Commercial Building C1 within Barangaroo South as described in Section 3.0 of this Environmental Impact Statement

Prepared by

Name	Samantha Miller
Qualifications	BPlan (Hons 1), MEnvMgmt
Address	173 Sussex Street, Sydney
In respect of	State Significant Development - Development Application

Certification

I certify that I have prepared the content of this EIS and to the best of my knowledge:

it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000;

all available information that is relevant to the environmental assessment of the development to which the statement relates; and

the information contained in the statement is neither false nor misleading.

Signature



Name	Samantha Miller
Date	1/11/2017

Executive Summary

Purpose of this Report

This submission on behalf of Lend Lease (Millers Point) Pty Ltd (Lendlease) to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to Commercial Building C1 at Barangaroo South.

The proposed Commercial Building C1 is located entirely within the Barangaroo site, which is identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). Development at Barangaroo with a capital investment value of more than \$10 million is State Significant Development (SSD) for the purposes of the EP&A Act. As the proposed development will have a capital investment value of \$53.3 million, it is SSD for the purposes of the EP&A Act.

The Secretary's Environmental Assessment Requirements (SEARs) were issued on 23 June 2017 under SSD 8529. The SEARs were issued for Commercial Building C1 and this submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs. The EIS has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) in relation to the requirements for an EIS.

Overview of the Development

This application seeks approval for:

- Construction and use of a seven storey, timber framed, commercial building comprising 11,748m² of GFA within Block 3 of Barangaroo South, known as Commercial Building C1, providing:
 - Four ground floor retail tenancies, including outdoor seating licence areas at ground level;
 - Colonnade to Hickson Road;
 - Six levels of office floor space, including an outdoor terrace at Level 6;
 - Roof top solar PV installation; and
 - Business and building identification signage zones.
- Allocation of 18 car spaces within the Stage 1A basement and provision of end of trip facilities;
- Treatment to publicly accessible areas to match the existing Stage 1A public domain works within the C1 site; and
- Minor alterations to the existing basement structures.

The Site

Barangaroo is located on the north western edge of the Sydney Central Business District (CBD), bounded by Sydney Harbour to the west and north, the historic precinct of Millers Point, The Rocks and the Sydney Harbour Bridge approach to the east and a range of new development dominated by large CBD commercial tenants to the south.

The Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – Barangaroo Reserve, Central Barangaroo and Barangaroo South – and has been subject to multiple investigations that detail the physical and natural characteristics of the site.

The development proposed in this application is located within Barangaroo South, on land identified as Block 3 by the Barangaroo Concept Plan (MP06_0162 MOD 8).

At the time of the initial Concept Plan Approval, the Barangaroo site comprised an open concrete/bitumen apron, largely reclaimed over water. A significant amount of construction has now been completed on the Barangaroo South site, including the Stage 1A basement, Stage 1A Public Domain, International Towers 1, 2 and 3, Residential Buildings R8 and R9, Building R7 and Building C2. Building R1 is currently under construction, development consent has been issued for Residential Buildings R4A and R4B, and Residential Building R5 and Stage 1B Public Domain SSDAs are currently under assessment.

Planning Context

This application is made pursuant to Division 4.1 of the EP&A Act, setting out the framework for the assessment of State Significant Development. This EIS has been prepared in accordance with the SEARs issued on the 23 June 2017 and Schedule 2 of the Regulation.

Section 5.1 of the EIS considers all applicable legislation in detail. The development is consistent with all the relevant strategic policies, environmental planning instruments, plans and guidelines, and is consistent with the Barangaroo Concept Plan (MOD 8).

Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the development in accordance with the SEARs and sets out the undertakings made by Lendlease to manage and minimise potential impacts arising from the development. It demonstrates that the proposed development is satisfactory in relation to:

- Land use and GFA;
- Urban design and built form;
- Public domain and public access;
- Transport and accessibility;
- Heritage;
- Contamination;
- Ecologically sustainable development (ESD);
- Infrastructure provision;
- Noise;
- Air and odour;
- Water, drainage, stormwater and groundwater;
- The Building Code of Australia;
- Environmental, construction and site management;
- Staging; and

- Consultation.

All measures that have been recommended as part of the detailed technical studies to mitigate potential environmental impacts have been incorporated into the proposed development, or are included in the Mitigation Measures at Section 6.0.

Conclusion and Justification

In considering biophysical, economic and social impacts, including the principles of ecologically sustainable development, the carrying out of the development is justified for the following reasons:

- There is a strategic need to provide Commercial Building C1 within Barangaroo South as it:
 - Integrates and provides an appropriate transition between the Sydney CBD and Barangaroo, and assists in creating the Hickson Road grand boulevard;
 - Creates an inviting environment for both the large number of future visitors and workers to the wider Barangaroo South Precinct and the proposed building; and
 - Assists in activating Hickson Road, Scotch Row and providing an address to the Barangaroo South Precinct.
 - Provides additional commercial and retail floor space, and employment opportunities in Central Sydney.
- The development complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines and Concept Plan (MOD 8).
- The development is considered to exhibit architectural and urban design excellence.
- The development will have a wide range of positive social and economic impacts.
- There are no adverse environmental impacts that cannot be appropriately managed by the mitigation measures set out in this EIS.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment (the Department) in support of a State Significant Development (SSD) Application for Commercial Building C1 at Barangaroo South (the site), made pursuant to Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The proposed Commercial Building C1 is located entirely within the Barangaroo site, which is identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). Development at Barangaroo with a capital investment value of more than \$10 million is SSD in accordance with the EP&A Act. As the proposed development will have a capital investment value of approximately \$53.3 million it is SSD in accordance with the EP&A Act.

This EIS has been prepared by Ethos Urban on behalf of Lend Lease (Millers Point) Pty Ltd (Lendlease) and is based on the architectural drawings prepared by Tzannes Associates (**Appendix B**) and other supporting technical information (refer to Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of the EIS (refer to SEARs for SSD 8529, which are attached at **Appendix A**). This EIS should be read in conjunction with the supporting information and plans appended to this report.

1.1 Background

1.1.1 Approved Concept Plan

The Barangaroo Concept Plan (MP06_0162) was approved in February 2007. The Concept Plan covers urban design and policy initiatives, and is the statutory planning approval that guides the development of Barangaroo. The approved Concept Plan has been modified seven times since it was approved and the Statement of Commitments has been revised accordingly. The most recent modification is Concept Plan (MOD 8) and was approved on 28 June 2016.

The Concept Plan (as modified) provides for:

- A mixed use development with a maximum of 594,354m² gross floor area (GFA), including:
 - A maximum of 183,031m² of residential GFA, of which a maximum of 154,000m² will be in Barangaroo South;
 - A maximum of 76,000m² of GFA for tourist uses of which a maximum of 59,000m² will be in Barangaroo South;
 - A maximum of 34,000m² of GFA for retail uses of which a maximum of 30,000m² will be in Barangaroo South;
 - A maximum of 5,000m² of GFA for active uses in the public recreation, of which 3,500m² will be in Barangaroo South; and
 - A minimum of 12,000m² GFA for community uses;

- Approximately 11 hectares of new public open space and public domain, with a range of formal and informal open spaces serving separate recreational functions and including a 2.2 kilometre public foreshore promenade;
- Built form principles, maximum building heights and GFA for each development block within the mixed use zone;
- Public domain landscape concept, including parks, streets and pedestrian connections;
- Alteration of the existing seawalls and creation of a portion of new shoreline to the harbour; and
- Construction, operation and maintenance of a concrete batching plant to supply concrete for construction of future development under this Concept Plan at Barangaroo South.

As part of the MOD 8 determination, the Planning Assessment Commission made modifications to the proposed Concept Plan Modification. Most notably, the Commission extended the northern boundary of Hickson Park, which previously stopped at the northern extent of Barangaroo South, into part of Block 5 within Central Barangaroo and added approximately 14 metres of Darling Harbour in front of the Crown Hotel Resort site. The MOD 8 approval did not substantially adjust the C1 development plot.

To facilitate the redevelopment of the Barangaroo site under the Concept Plan, the site was listed in Part 12 of Schedule 3 of *State Environmental Planning Policy (State Significant Precincts) 2005* (SSP SEPP). The SSP SEPP zones the Barangaroo site part B4 Mixed Use and part RE1 Public Recreation. It also establishes maximum building heights and GFA restrictions for the nominated development blocks within the B4 Mixed Use zone.

1.1.2 Stage 1 Tender and Bid Process

The 22 hectare Barangaroo site has been divided into three distinct redevelopment areas (from north to south) – the Barangaroo Reserve, Barangaroo Stage 2 (referred to herein as Central Barangaroo) and Barangaroo Stage 1 (herein referred to as Barangaroo South).

Lendlease was successfully appointed as the preferred proponent to develop Barangaroo South on 20 December 2009. This application forms one of a series of individual applications Lendlease has submitted to deliver Barangaroo South.

1.1.3 Barangaroo South

A site plan of Barangaroo South is provided at **Figure 1**. For the purposes of construction, Barangaroo South has been divided into the three areas of Stage 1A, 1B and 1C.

Figure 1 – Map of Barangaroo South (C1 development plot outlined in red)

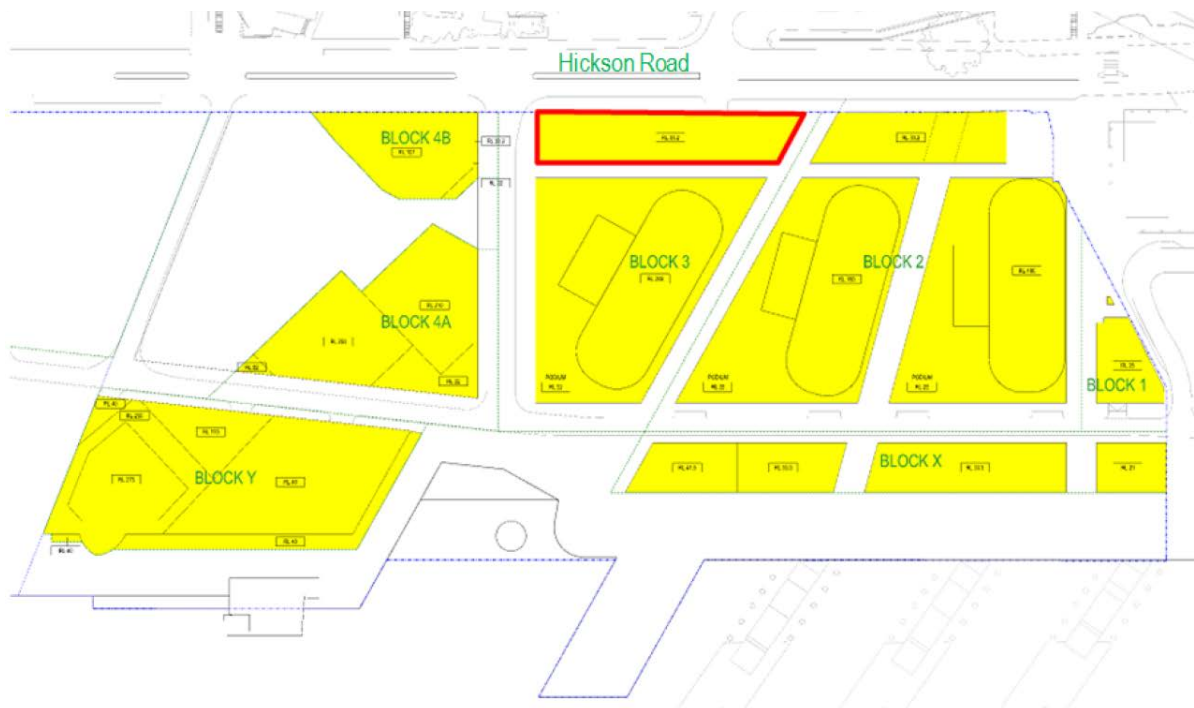


Figure 1 – Map of Barangaroo South (C1 development plot outlined in red)

Source: Barangaroo Master Plan MOD 8, Rogers Stirk Harbour + Partners

Stage 1A

Stage 1A refers to the portion of the Barangaroo South site south of Watermans Quay (formerly Globe Street). Within Stage 1A, approval has been granted for the shared Stage 1A Basement and Public Domain, four commercial buildings known as Building C2 and International Towers 1, 2 and 3, two residential buildings (R8 and R9), one mixed use commercial / retail building known as R7 and one retail building known as R1. The Basement, Public Domain, Towers 1, 2 and 3, R7, R8, R9 and C2 have all been completed and are now occupied. Building R1 is under construction and close to completion.

The site has also been subject to a number of minor DAs submitted to the City of Sydney for public art, signage, retail uses and associated outdoor seating.

Stage 1B

Stage 1B refers to the portion of the Barangaroo South site north of the existing Stage 1A, with the exception of the area being developed by Crown Resorts, which is referred to as Stage 1C. Stage 1B will comprise three residential towers, public domain and the future northern park (known as Hickson Park) above a shared basement. Separate but concurrent SSD DAs have been prepared for these works and include:

- Stage 1B Basement (SSD 6960): The Stage 1B basement will service the Stage 1B residential buildings and provide ground level slab and trunk services to the public domain above. SSD 6960 also includes interim public domain and landscaping works and the provision of part of Barangaroo Avenue. This application was approved on 7 March 2017.
- Building R4A (SSD 6964): Building R4A will be a residential tower of 72 storeys with retail at ground level. Building R4A was recommended for approval on 9 August 2017.
- Building R4B (SSD 6965): Building R4B will be a residential tower of 60 storeys with retail at ground level. Building R4B was recommended for approval on 9 August 2017.

- Building R5: Building R5 will be a residential tower, comprising approximately 29 storeys. An SSD application for Building R5 (6966) was lodged concurrently with R4A and R4B, but is currently under review and is yet to be determined.
- Public Domain Works (SSD 7944): The public domain works seeks consent for all public domain works within Stage 1B and Hickson Park, including the construction of Watermans Cove, expansion of Wulugul Walk, a public pier, completion of the Barangaroo street network and other typical public domain features. The application is currently under final assessment.

A separate development consent (SSD 5897) has been granted for remediation of the Stage 1B Basement site. This existing approval also grants consent for the construction of groundwater retention walls, bulk excavation within the groundwater retention walls, diversion and augmentation of stormwater infrastructure, tree removal and management and demolition of existing structures on the site.

Stage 1C

Stage 1C relates to the hotel building known as the Crown Sydney Hotel Resort within Block Y of the Concept Plan. The building and associated site preparation and basement works are being developed by Crown Resorts. An SSD DA (SSD 6957) was approved by the Planning Assessment Commission on 28 June 2016 for the Crown Sydney Hotel Resort and is currently under construction.

Hickson Road Review of Environmental Factors

A Review of Environmental Factors (REF) has been determined for works in the vicinity of Hickson Road and Sussex Street to upgrade the existing stormwater system, regrade the road pavement and install new landscaping. The extent of these works interfaces with the Commercial Building C1 plot, particularly the regraded footpath and proposed landscaping. The proposed Commercial Building C1 will not impact on or alter these works.

1.1.4 Bulk Excavation and Basement Car Park

A Project Application for Bulk Excavation and Basement Car Park (MP10_0023) was approved by the Minister for Planning on 2 November 2010 (the Basement Car Park Approval). Areas of the Bulk Excavation and Car Park approval followed the approval of a project for the demolition of existing structures at Barangaroo (MP07_0077).

The site of the Bulk Excavation and Basement Car Park application encompasses the Commercial Building C1 site. The application assessed a number of environmental impacts relating to the proposed excavation and basement works and proposed appropriate mitigation measures. In particular, environmental impacts relating to the physical characteristics and contamination of the C1 site have been assessed and mitigated as a result of the approved works.

Following the initial approval of the Bulk Excavation and Basement Car Park project, a further seven Section 75W Modification Applications to modify that project have been approved.

In summary the approval comprises:

- demolition of existing structures and footings, part of an underground caisson wall, hardstand areas, removal of piles, and removal of existing vegetation within Blocks 1, 2, 3 (in part), 4A (in part) and X and within the adjacent public domain area, which have not been previously approved to be demolished or removed under MP 07_0077 Demolition Works;

- site establishment, including provision of concrete crushing infrastructure, environmental protection structures, de-watering infrastructure, and groundwater treatment;
- bulk earthworks for the purposes of excavating for the basement within Blocks 1, 2, 3 (in part), 4A (in part) and X and the adjacent public domain area;
- on-site treatment and remediation of contaminated soils;
- temporary stockpiling of excavated material across the Barangaroo site as required;
- transportation and disposal of material off site, where required;
- structural works, comprising the construction of:
 - foundations (piling, caps and footings);
 - basement levels;
 - perimeter retention system to basement walls; and
 - all associated elements and structures;
- car parking spaces required to support GFA as envisaged by the approved Concept Plan (as modified) for Blocks 1, 2, 3 (in part), 4A (in part) and X in accordance with the car parking rates approved under the Concept Plan;
- indicative parking layout, loading, plant location, bicycle parking and associated amenities;
- road works;
- construction of temporary vehicular access from Hickson Road and permanent vehicular access from Lime Street;
- associated utilities and infrastructure works including decommissioning and/or relocation of services;
- temporary use of the basement for construction related storage and activity;
- construction of the above ground basement risers, car park fire stairs, access lifts, and bicycle entry and exit ramps that will eventually be integrated into the design of the future peripheral buildings C1, C2, C6, R7 and R1; and
- temporary ground floor treatments and public domain within the footprint of the future peripheral buildings C1, C2, C6, R7 and R1.

1.1.5 Barangaroo Delivery Authority

The Barangaroo Delivery Authority was established on 30 March 2009 under the *Barangaroo Delivery Authority Act 2009* (NSW) to manage the redevelopment of Barangaroo and to deliver world class benchmarks in urban design, public domain and sustainability.

The creation of the Barangaroo Delivery Authority reinforces the NSW Government's commitment to the delivery of Barangaroo in a coordinated and financially responsible manner. The Barangaroo Delivery Authority is subject to the control and direction of the NSW Premier. The objects of the *Barangaroo Delivery Authority Act 2009* are:

- To encourage the development of Barangaroo as an active, vibrant and sustainable community and as a location for national and global business.

- To create a high quality commercial and mixed use precinct connected to and supporting the economic development of Sydney.
- To facilitate the establishment of Barangaroo Headland Park and public domain land.
- To promote the orderly and sustainable development of Barangaroo balancing social, economic and environmental outcomes.
- To create in Barangaroo an opportunity for design excellence outcomes in architecture and public domain design.

Under the Barangaroo Delivery Authority Act 2009 (NSW), Barangaroo is defined as the land identified on the Barangaroo Delivery Authority Operational Area Map. The Barangaroo Delivery Authority is the registered landowner of most of the Barangaroo site, including the development application site. It is noted that small portions of the Barangaroo site are owned by other Government agencies including the Marine Ministerial Holding Corporation, the Roads and Maritime Services and the Crown.

1.2 Objectives of the Development

The objectives of the Commercial Building C1 SSDA are to:

- Provide a building that achieves design excellence and is consistent with the Concept Plan.
- Provide a building that will facilitate the creation of employment opportunities within the Barangaroo precinct.
- Provide a building that has an appropriate scale and form that will support the creation of a boulevard along Hickson Road, consistent with the Concept Plan.
- Activate the public domain along Scotch Row, Shipwright Walk and Watermans Quay.
- Create an iconic entrance to the Barangaroo South precinct, on the Hickson Road address.
- Ensure that any environmental impacts associated with the construction and operation of the building are appropriately mitigated.

1.3 Summary of Approval Sought

Construction of Commercial Building C1

This application seeks approval for the construction and use of a building to a maximum height of RL 33.2 known as Commercial Building C1, comprising 11,748m² of gross floor area within Block 3 of Barangaroo South. The building is intended to accommodate a mix of commercial and retail development, with retail provided at ground level and commercial on Levels 1 - 6 above. The proposed development will integrate with the basement riser and bicycle access on the site that was approved as part of the Excavation and Basement Car Parking Application (MP10_0023).

Other Proposed Elements

In addition to the above, the application also seeks approval for:

- Operation and use of the basement car park to accommodate 18 car spaces and end-of-trip facilities.

- Treatment of publicly accessible areas within the Commercial Building C1 site and integration works with the existing public domain treatment.
- Commercial signage zones for business identification signage for future tenancies.
- A strategy to guide retail and ground level signage (Signage Strategy).
- Interpretation zone addressing Hickson Road, comprising static graphics to communicate the history of Barangaroo South with future installation to be subject to a separate approval.

1.4 Analysis of Alternatives

Strategic need for the proposal

As detailed in Section 1.1, the redevelopment of the Barangaroo site is the result of a long term strategic planning process which culminated in February 2007 when the NSW Minister for Planning approved a concept plan to guide the urban renewal of Barangaroo.

Barangaroo South is the southern 7.5 hectares of the Barangaroo site, which is planned to become an advanced financial district and the first large-scale carbon neutral precinct in Australia. With a mix of uses, including commercial, residential, retail and dining along with a landmark hotel, it will be home to around 1,200 residents, 23,000 office workers and more than 2.9 hectares of public space.

The success of Barangaroo relies heavily on the comprehensive delivery of a new urban form and land uses as envisaged under the Concept Plan. Commercial Building C1 is located at the south eastern entry to the Barangaroo site as envisaged by the Concept Plan. Specifically, the Commercial Building C1 site has the important strategic role under the Concept Plan of:

- Defining the eastern edge of the Barangaroo precinct and integrating the Precinct with the CBD.
- Creating a defined and active street edge to facilitate the use of Hickson Road as a boulevard.
- Delivering commercial floorspace for increased employment opportunities at Barangaroo South.
- Providing a building that exhibits design quality and excellence to further strengthen the reputation of Barangaroo South and the wider Central Sydney as a global city.

Alternative Options

Three options are available to Lendlease in responding to the identified need for Commercial Building C1 within Barangaroo South.

Option 1: The Proposal

Option 1 involves providing a building as proposed in this SSD DA (as described in Section 3). The proposal will ensure that a high quality development is provided on the C1 site that responds to the strategic needs identified above.

Option 2: Do Nothing

Not providing the proposed building on the C1 site would result in an inappropriate urban design outcome. Leaving an unformed space between Hickson Road, the completed International Towers and the basement riser and bicycle access (completed as part of the Excavation and Basement Car Park approval) would not achieve the objectives of the Barangaroo Concept Plan. The Concept Plan (as modified) envisages a building in the subject location that will provide a clear entry into the Barangaroo precinct and provide an active street edge to Hickson Road.

Option 3: Alternative Designs

A number of design options for Commercial Building C1 have been considered. The proposed design is a refined evolution of the original indicative envelope scheme shown in the Concept Plan. The Design Excellence Report at **Appendix C** provides further detailed information on the design expression for Commercial Building C1, including the design excellence process.

Option 4: Alternative Uses

A number of design feasibility options for the C1 plot have been tested providing an alternative land use mix. Analysis found that the site was better suited to commercial uses above ground level retail uses.

1.5 Secretary's Environmental Assessment Requirements

In accordance with section 89G of the EP&A Act, the Secretary of the Department of Planning and Environment issued the environmental assessment requirements for the preparation of the EIS on 23 June 2017 under SSD 8529. A copy of the SEARs is included at **Appendix A**.

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 - Secretary's Environmental Assessment Requirements

Requirement	Location in EIS
General Requirements	
The Environmental Impact Statement (EIS) must address the <i>Environmental Planning and Assessment Act 1979</i> and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> .	This document including appendices.
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 6.0
Where relevant, the assessment of the key issues below, and any other significant issues identified in the assessment, must include: • Adequate baseline data; • Justification of impacts; • Measures to avoid, minimise, and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment; and	Sections 5.0-8.0 Section 7.0 Under separate cover

[illegible]

Requirement	Location in EIS
- Sydney's Walking Future; - Sydney's Cycling Future; and - Barangaroo Integrated Transport Plan. • Demonstrate consistency with the terms of approval of the Barangaroo Concept Plan MP 06_0162 (as modified), including the Statement of Commitments (Schedule 3).	Section 5.2
Land Use and GFA • Provision of a table identifying the building's different land uses*, including a floor by floor breakdown of Gross Floor Area (GFA), total GFA and site coverage. * Retail uses must be separately defined as per the Standard Instrument. • If the proposed uses include pubs, bars or the like, detailed Plans of Management must be prepared in accordance with the City of Sydney Development Control Plan 2012.	Section 3.1 Appendix B No pubs, bars or the like are proposed as part of this application. Detailed use of retail tenancies will be subject to future separate development consent.
Built Form and Urban Design • Demonstrate design excellence through a design excellence strategy. The design excellence strategy must include an independent peer review and prior to its implementation, the strategy must be endorsed in writing by the Department. • Demonstrate design excellence with specific consideration of the site's character, suitability, layout, setbacks, architectural design, materials and finishes, articulation and detailing, amenity, views and vistas, open spaces and public domain, connectivity and street activation. • Address the height, bulk and scale of the proposal development within the context of the locality and its surrounds. • Address retail tenancy fit-outs (if proposed), shopfront design and signage.	Appendix C Appendix F Appendix G Section 5.4 Section 5.6 Section 5.7 Appendix C Section 5.2 Section 3.5
Amenity • Outline and address the proposed development's impacts in terms of sunlight,	Section 5.0

Requirement	Location in EIS
natural ventilation, wind, reflectivity, visual and acoustic privacy, and safety and security. - The EIS must include: - a shadow diagrams report; and - wind effects report	Appendix B Appendix Q
Visual Impact and Views A visual impact assessment is to be provided of the proposed building and other significant structures, when viewed from key vantage points. Photomontage images are to be prepared to demonstrate the impact of the proposed works.	Section 5.6
Public Domain and Public Access - Identify proposed open space, public domain and linkages with and between other public domain spaces, including Hickson Road, other streets and lanes (e.g. Watermans Quay and Shipwright Walk), and the Harbour foreshore. - Details on the interface between the proposed uses and the public domain including any measures to improve and activate the public domain. - Address pedestrian impacts and public accessibility through the site. - Outline specific design features of the public domain (if applicable) such as footpaths, pavements, street furniture, outdoor seating etc.	Section 3.9 and 5.7 Section 3.9 and 5.7 Section 5.8 Section 3.9 and 5.7
Transport and Accessibility - The EIS must include a Traffic Impact Assessment (TIA) for construction and operation that provides, but is not limited to, the following: - accurate details of the current and proposed daily and peak hour vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the road network located adjacent to the proposed development assessment of road safety at key intersections and locations;	Appendix P Section 5.8

Requirement	Location in EIS
– details of on-street parking, loading zones, bicycle and pedestrian facilities including pedestrian crossings, bicycle parking, taxi facilities including taxi ranks proposed in the public domain and compliance with relevant Standards; – location of pedestrian and bicycle parking facilities in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance; – details of pedestrian and cycling connections/circulation and required upgrades to meet the likely future demand within Barangaroo and connections to the external network; and – address provision of bicycle parking and changing facilities in accordance with the relevant guidelines and documents. • Demonstrate the proposed development would not adversely impact on the Sydney Metro rail corridor and associated station at Barangaroo station. • The EIS shall include an updated Transport Management and Accessibility Plan. • In relation to construction traffic: – details of anticipated peak hour and daily truck movements to and from the site; – assessment of cumulative traffic impacts associated with all other construction activities within the vicinity of the site, including construction of all other developments at the Barangaroo site, the Sydney Metro and the Sydney Light Rail project; – assessment of road safety at key intersections and locations subject to heavy vehicle movements and high pedestrian activity; – details of access arrangements for workers to/from the site,	Appendix P Update not required. Refer to Appendix P Section 5.8 Appendix P

Requirement	Location in EIS
– emergency vehicles and service vehicle movements; – details of temporary pedestrian and cyclist access arrangements during construction, including measures to mitigate any associated pedestrian, cycleway, public transport or traffic impacts; – details of proposed construction vehicle access arrangements at all stages of construction; and – preparation of a Construction Pedestrian and Traffic Management Plan which includes vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures for all demolition/construction activities.	
Water Management • Prepare a Stormwater and Drainage Assessment to assess the impacts of the proposal on surface and groundwater hydrology and quality. • Identify appropriate water quality management measures focussing on the management of the impacts from the proposed works on Sydney Harbour. • Prepare an Integrated Water Management Plan. This should include stormwater and wastewater management, including any re-use and disposal requirements, demonstration of water sensitive urban design and any water conservation measures. • The applicant shall provide information on the required water and waste water services and any augmentation of Sydney Water infrastructure that may be required for the proposed development.	Appendix S Section 5.12 and Appendix R Appendix R Appendix R and Section 5.12
Air Quality • The application must include an Air Quality Impact Assessment prepared in accordance with the relevant Environment Protection	Appendix T and Section 5.13

Requirement	Location in EIS
Authority guidelines. This assessment must consider any potential air (including odour) impacts on nearby sensitive receivers and outline proposed mitigation and monitoring measures.	
Noise and Vibration The application must include a Noise and Vibration Impact Assessment of construction, operation, traffic and cumulative noise impacts prepared in accordance with the relevant Environment Protection Authority guidelines. This assessment must consider any potential impacts on nearby sensitive receivers and outline proposed mitigation and monitoring measures.	Appendix U and Section 5.14
Heritage An assessment of the likely impacts of the proposal on any heritage and archaeological items and details of any mitigation and conservation measures.	Appendix M and Section 5.9
Utilities - Address the existing capacity and any augmentation requirements of the development for the provision of utilities, including staging of infrastructure and additional licence/approval requirements in consultation with relevant agencies. - Identify any potential impacts of the proposed construction and operation on existing utility infrastructure and service provider assets, and demonstrate how these will be protected or impacts mitigated.	Section 3.8 Appendix J Appendix J
Ecologically Sustainable Development Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>) will be incorporated in the design, construction and ongoing operation phases of the development.	Appendix O and Section 5.16

Requirement	Location in EIS
- Describe the measures to be implemented to minimise consumption of resources, energy and water, including details of alternative energy and water supplies, rainwater harvesting, proposed end uses of potable and non-potable water, demonstration of water sensitive urban design and any water conservation measures. - Demonstrate that the environmental performance of the proposed development has been assessed against a suitably accredited rating scheme to meet industry best practice.	Appendix O and Section 5.16 Appendix O and Section 5.16
Contamination - Identify any contaminated material on site and demonstrate compliance with the requirements of SEPP 55. - If remediation works are required, the EIS must include a Remedial Action Plan (RAP) accompanied by a Site B audit statement prepared by an EPA accredited site auditor. The RAP must be prepared in accordance with the contaminated land planning guidelines under section 145C of the <i>Environmental Planning and Assessment Act 1979</i> and relevant guidelines produced or approved under section 105 of the <i>Contaminated Land Management Act 1997</i>.	Appendix I and Section 5.15
Building Code of Australia Prepare a report demonstrating compliance with the Building Code of Australia, including fire safety and accessibility provisions.	Appendix V and Section 5.20
Environmental, Construction and Site Management Plan - The EIS shall provide an Environmental and Construction Management Plan for the proposed works, and is to include: - community consultation, notification and complaints handling;	Appendix K and Section 5.21

Requirement	Location in EIS
– impacts of construction on adjoining development and proposed measures to mitigate construction impacts; – noise and vibration impacts on and off site; – air quality impacts on the neighbourhood including dust controls; – odour impacts; – erosion and sediment controls in accordance with the relevant guidelines; – water quality management for the site; and – construction waste classification, transportation and management methods in accordance with the EPA's Know Your Responsibilities: Managing Waste from Construction Sites Guideline.	
Sea Level Rise and Climate Change • An assessment of the risks associated with sea level rise and climate change on the proposal in accordance with the relevant guidelines and policies.	Appendix S and Section 5.17
Consultation • Undertake an appropriate level of consultation with local and State government agencies. • Provide details on the Community Engagement Framework to guide the public consultation process. 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. In particular, you must consult with: • City of Sydney Council; • Environmental Protection Authority; • Office of Heritage and Environment; • Sydney Water; • Transport for NSW;	Section 4

Requirement	Location in EIS
• Roads and Maritime Services; • NSW Police; • Department of Primary Industries; • Fire and Rescue NSW; • Local Aboriginal Land Council and stakeholders, if relevant. • Local heritage groups, if relevant. • 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.	

2.0 Site Analysis

2.1 Location and Context

Barangaroo is located on the north western edge of the Sydney CBD, bounded by Sydney Harbour to the west and north, the historic precinct of Millers Point, The Rocks and the Sydney Harbour Bridge approach to the east and a range of new development dominated by large CBD commercial tenants to the south.

The 22 hectare Barangaroo site is generally rectangular in shape and has a 1.4 kilometre harbour foreshore frontage, with an eastern street frontage to Hickson Road. The Barangaroo site has been divided into three distinct redevelopment areas (from north to south), comprising Barangaroo Reserve, Central Barangaroo and Barangaroo South (refer to **Figure 2**), and has been subject to multiple investigations that detail the physical and natural characteristics of the site.

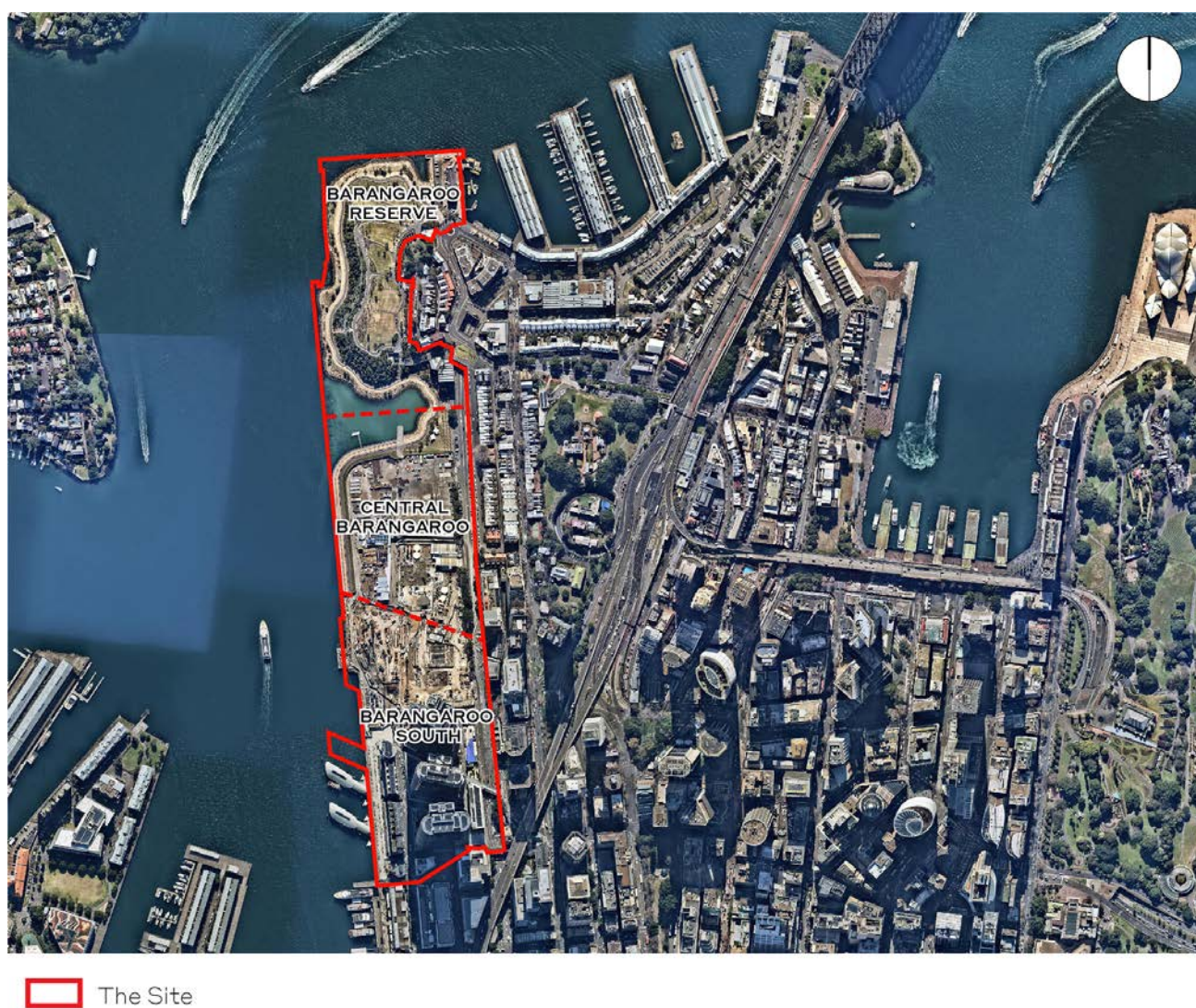


Figure 2 – Location plan

2.2 Site Description

The Commercial Building C1 site is located within Stage 1A Precinct of Barangaroo South. Stage 1A is generally known and identified in the Concept Plan (MOD 8) as Blocks 1, 2, 3 and X and the area of the foreshore between Block X and Darling Harbour. The proposed development is located in Block 3, which comprises the International Towers Sydney, Tower 1 (Commercial Building C3) and the C1 plot.

A site plan showing the Commercial Building C1 site in relation to Stage 1A is shown at **Figure 3**.

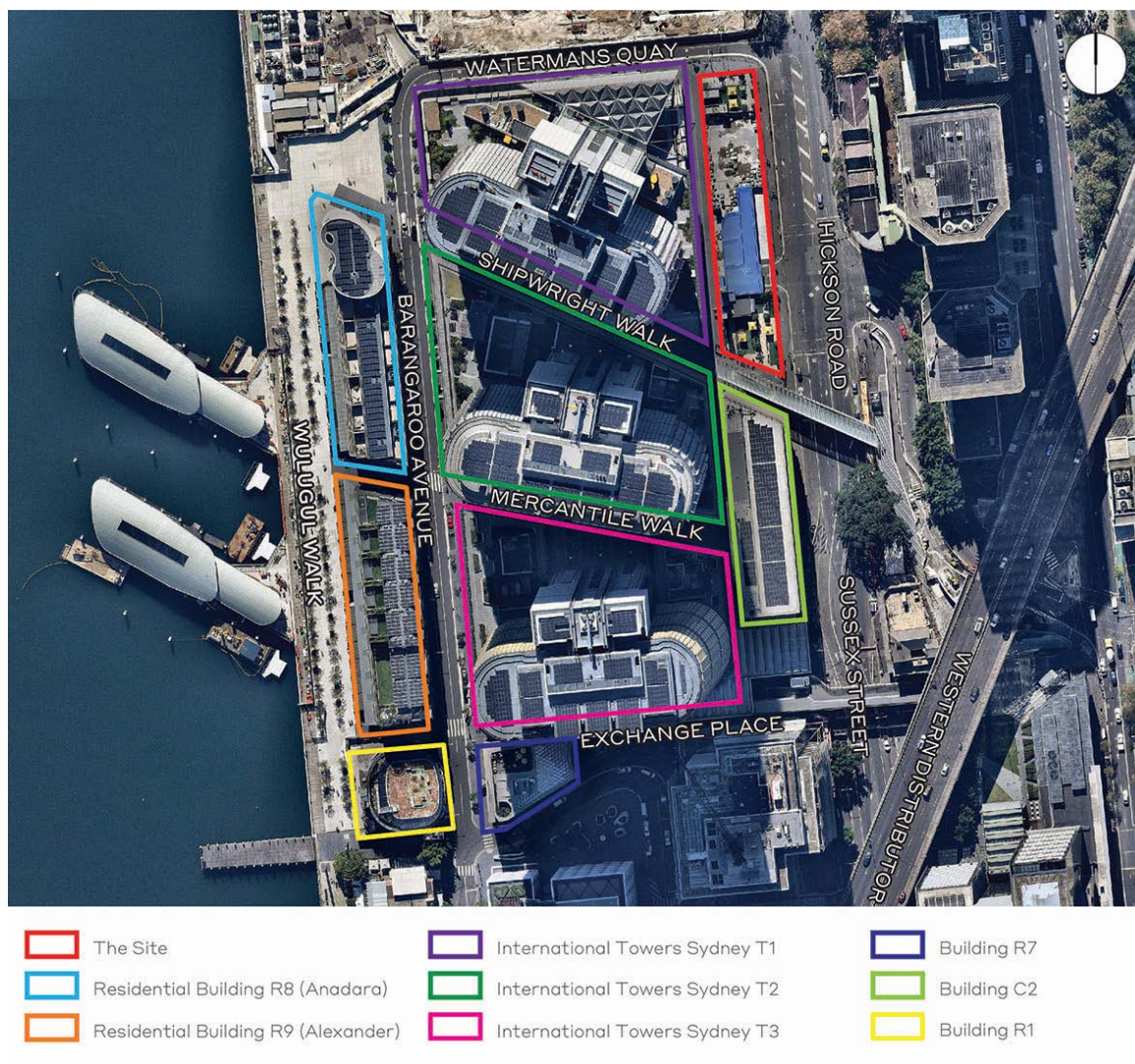


Figure 3 – Stage 1A of Barangaroo South

2.3 Land Ownership and Description

The Commercial Building C1 site comprises part of Lot 214 DP 1221076 and part of Lot 205 DP 1204948. The latter lot contains the bicycle access and amenities within the Commercial Building C1 site. A site survey plan is attached at **Appendix D**.

The Barangaroo Delivery Authority is the owner of the site. The Barangaroo Delivery Authority has issued landowner's consent for the submission of this SSD DA, which has been provided under separate cover.

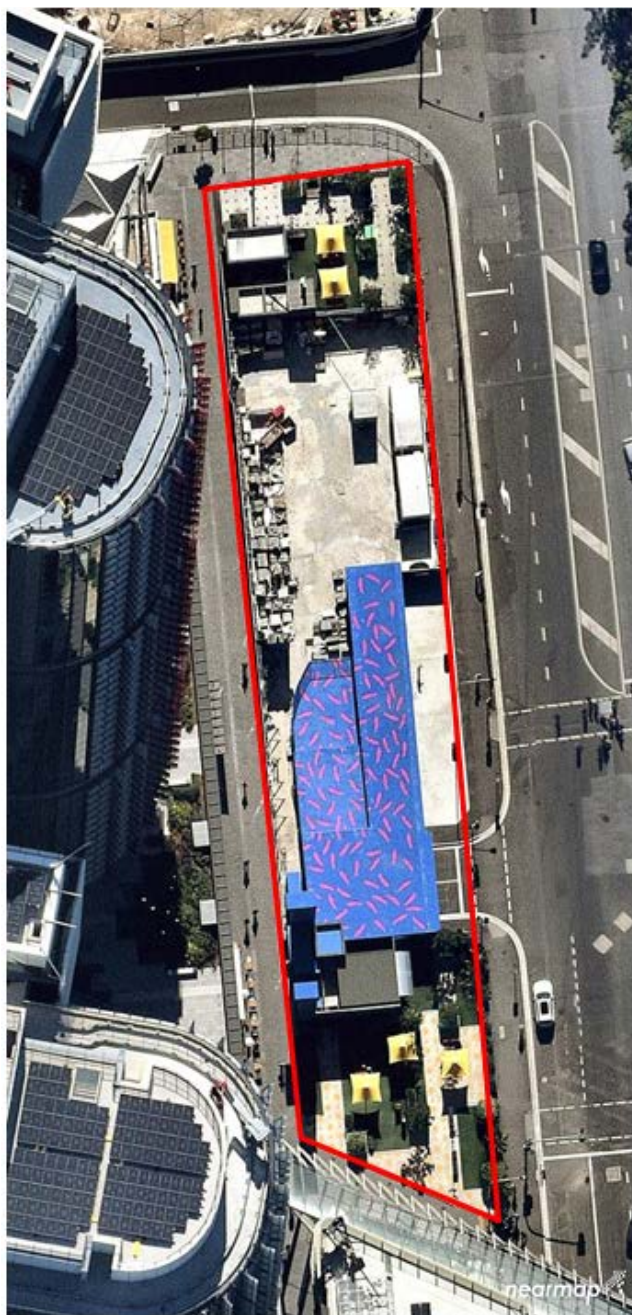
2.4 Existing Development and Structures

2.4.1 Built Form

At the time of the initial Concept Plan approval in 2007, the Barangaroo site comprised an open concrete apron largely reclaimed over water.

As identified at Section 1.1.4, the Bulk Excavation and Basement Car Park Application granted consent for the demolition of any existing structures and footings, part of an underground cassion wall, hardstand areas, removal of piles and removal of existing vegetation within Blocks 1, 2, 3 (in part), 4A (in part) and X of Barangaroo and within the public domain area. These works have not previously been approved to be demolished or removed under the approval for Demolition Works (MP07_0077).

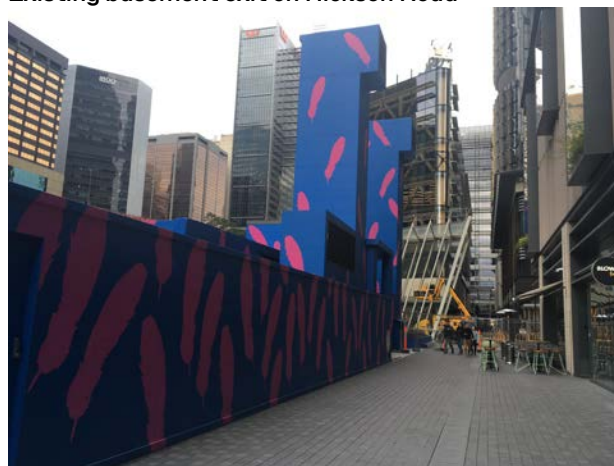
The C1 site currently accommodates built elements approved as part of the Bulk Excavation and Basement Car Park application, as well as temporary landscape structures that have been provided for activation and place making throughout the development of the precinct. This is shown at **Figure 4** below.



Temporary landscaping at southern end of C1 plot



Existing basement exit on Hickson Road



Existing basement elements facing Scotch Row

Figure 4 – Existing conditions of the C1 site area

2.4.2 Infrastructure and Services

Stormwater

Diversion of the existing stormwater assets traversing the Barangaroo South site have been considered and constructed as part of the Excavation and Basement Car Parking Application. Deviation of existing Sydney Water assets were approved by Sydney Water in consultation with the BDA, Transport for NSW and RMS.

The diversion as approved includes a permanent diversion to the south of the development and generally along the line of the existing Shelley Street discharging to Darling Harbour.

Within Stage 1A of Barangaroo South, the stormwater network has been designed to provide:

- Low flow stormwater drainage through tree pits and associated water quality measures.
- Internal site piped drainage for major storm event flows (100 year ARI) with 50% blockage on all sag pits.
- Safe overland flow paths in the event of failure of the 100 year ARI system.

Water

The existing water supplies to the Barangaroo site are supplied from a 300mm diameter Sydney Water main in Hickson Road. Trunk water supply infrastructure will be provided to the C1 site as part of the new main which is being installed with the Hickson Road REF works. The future Commercial Building C1 will connect to the Barangaroo South precinct Recycled Water Treatment Plant, which is sized to treat all captured volumes from the Barangaroo South precinct plus provide an additional 295,000 L/day sewer mining for export to effectively zero the potable water consumption of the precinct.

Sewer

There is an existing sewer trunk main in Hickson Road near the western kerb line, which drains to an existing Sydney Water sewage pumping station outside the Barangaroo site. Trunk sewer infrastructure will be provided into the C1 site as part of the works approved under the Excavation and Basement Car Parking application.

Electricity

The Barangaroo South site was serviced by 5 KV high voltage feeders entering the Barangaroo site at the southern end of Hickson Road and terminating in an Ausgrid HV switch room. The HV supply and private HV reticulation were decommissioned and the private substations demolished as part of demolition works in 2010/2011.

Electricity to the site is now provided by connection supplied by Ausgrid. The Barangaroo South precinct has a private, embeded network which is fed by Ausgrid. Commercial Building C1 will connect to this embeded network.

Telecommunications

NBN Co. will supply communication infrastructure to the Barangaroo South site via a flexible communications fibre optic backbone.

Natural Gas

There is an existing gas supply at the intersection of Napoleon Street and Hickson Road, as well as at the end of Lime Street near the south-west corner of the Barangaroo South site.

2.5 Traffic and Transport

2.5.1 Vehicular Access

Hickson Road connects into Sussex Street south of Napoleon Street and is the north-south access road for Barangaroo South. Local road access to the Barangaroo site is provided:

- Via Napoleon Street and Margaret Street from the eastern CBD from Millers Point via Dalgety Road.
- Via George Street from the north east.
- Via Harbour Street, Wheat Road (through King Street Wharf) to Shelley Street from the south via Sussex Street/Kent Street/Napoleon Street from the southern CBD.

The primary vehicular access point to the Commercial Building C1 site is from Watermans Quay Road, with egress to Hickson Road.

2.5.2 Public Transport

The Barangaroo site is served by the following public transport modes:

- **Rail:** Wynyard, Martin Place, Town Hall and Circular Quay railway stations are within walking distance of the Barangaroo site and provide frequent services throughout the day. Wynyard Walk and Napoleon Bridge provide direct access to rail services at Wynyard station. In June 2015 the NSW Government announced a new underground railway station at Barangaroo will be part of the plans for the new Sydney Metro. The new station, is expected to open in 2024 and will be located at Central Barangaroo, within walking distance to Commercial Building C1. The timing for the delivery of the new station is yet to be confirmed.
- **Bus:** There is a major bus interchange located at Wynyard Station for buses servicing the Hills District, Northern Beaches and the North Shore areas. These services all utilise the bus lane on the Harbour Bridge to access Wynyard. Stops for services to other locations are provided through the CBD including along George, Park, Elizabeth and Castlereagh Streets. A number of other bus routes terminate in the vicinity of the Barangaroo site, King Street Wharf and Circular Quay.
- **Ferry:** Commuter ferry services arrive and depart from both Barangaroo Wharf, which is located immediately east via Shipwright Walk and Mercantile Walk, and Circular Quay.

2.5.3 Pedestrians and Cyclists

Pedestrian Access

The NSW Government has finalised construction on Wynyard Walk, a direct pedestrian link between the new Barangaroo development and Wynyard Station and transport interchange. Wynyard Walk, now fully operational, provides a high level of access to public transport for the growing western corridor of the CBD, including Barangaroo Wharf. This pedestrian connection assists in accommodating the additional commuters who are expected to use this route to access the

Barangaroo site. Lendlease has also provided a second pedestrian bridge, known as Napoleon Bridge, which connects Wynyard Walk near Kent Street to the site between Buildings C1 and C2. Pedestrian access to Barangaroo is available along local roads, all of which are footpath lined.

Pedestrians are able to access Commercial Building C1 from Hickson Road, Watermans Quay, Scotch Row or Shipwright Walk. These pedestrian thoroughfares connect to Barangaroo Avenue and Wulugul Walk.

Bicycle Access

A marked bicycle lane exists along part of Hickson Road and forms part of a cycle way between Circular Quay and Napoleon Street which is utilised by both commuter and recreational cyclists. Cycling connections to the site have been improved through the construction of separated cycle ways along King Street and Kent Street by City of Sydney Council (Council). A separated bicycle lane has been installed for eastbound riders (uphill), with a mixed traffic environment in the westbound direction. The Sydney City Centre Access Strategy outlines the future city centre cycleway network to encourage growth in cycling and reduce pressure on the public transport system. The Strategy's strategic cycleway network map indicates future cycleway connections into Barangaroo to be via the Pyrmont Bridge cycleway and the Harbour Bridge cycleway. These new links are yet to be determined. Bicycle parking facilities are available throughout the Barangaroo South precinct the public domain.

2.6 Physical Characteristics

2.6.1 Geology and Geomorphology

Investigation reports prepared previously by AECOM and others provide a detailed analysis of the geological and geomorphological characteristics of the Commercial Building C1 site and Barangaroo site generally.

The Sydney Geological Map Scale 1:100,000 and the Sydney Geological Map Scale 1:250,000 indicate that the Barangaroo site is underlain by Hawkesbury Sandstone. Quaternary sediments and man-made fill overlay the Hawkesbury Sandstone.

These findings are confirmed by previous Geotechnical Reports, which covered the Barangaroo site and also indicate that the site is underlain by man-made fill, marine sediment and Hawkesbury Sandstone. The fill material is up to 21 metres deep and comprises a mix of silt clay, coarse gravel and fragments of concrete, brick, steel, glass and ash. Excavation works on the Commercial Building C1 site have been approved and completed in accordance with the Excavation and Basement Car Parking approval. No further excavation works are proposed as part of this development.

2.6.2 Site Contamination

A number of site history studies and environmental site investigations have been undertaken to assess the extent and nature of contaminants within the Barangaroo site as a whole, as well as within the Barangaroo South area which includes the site. Investigations have revealed that both the soil and water is contaminated and that the extent of contaminated materials varies across the Barangaroo site.

Works approved in the Excavation and Basement Car Parking Approval (as modified) include the remediation of the Stage 1A basement area in accordance with the relevant Remediation Action Plans and Site Audit Statement.

These works have been completed to ensure that the existing C1 site area has been remediated and is suitable for the proposed development (refer to **Appendix I**).

No part of the Commercial Building C1 site is located within the DECCW Declaration Area, which is located further north.

2.6.3 Groundwater and Hydrogeology

The groundwater profile beneath the Barangaroo site is likely to be influenced by the groundwater flow from the east beneath the CBD and tidal fluctuations associated with Sydney Harbour.

Data collected in July 2006 indicates the depth of groundwater ranged between 1.7 metres and 2.5 metres below ground level. Short term variations in groundwater levels were reported particularly close to the sea wall.

As identified at 1.1.3, the Excavation and Basement Car Parking approval (as modified) covers site establishment works within Blocks 1 – 3 and X, which includes the Commercial Building C1 site. These site establishment works include de-watering infrastructure and groundwater treatment and the on-site treatment and remediation of contaminated soils.

2.6.4 Soil Landscapes

This SSD DA is informed by the detailed soil assessments undertaken as part of the Excavation and Basement Car Parking approval. The 1:100,000 Sydney Soil Landscape Map indicate the Stage 1A site is underlain by disturbed soils.

An Acid Sulfate Soils Management Plan prepared by AECOM in relation to the Excavation and Basement Car Parking application has identified Potential Acid Sulfate Soils (PASS) to be potentially present at depths ranging from -10.58 to 15.36 metres AHD across the site (refer to Acid Sulfate Soils Report prepared by AECOM at Appendix I of the EAR prepared by JBA dated June 2010 in support of the Excavation and Basement Car Parking application). This plan provided strategies for dealing with those PASS.

As identified at Section 1, the Excavation and Basement Car Parking approval included bulk excavation works below the footprint of Commercial Building C1 and these works are now complete.

2.6.5 Vegetation

The site is devoid of existing vegetation. Temporary landscape works approved through the Excavation and Basement Car Parking application is provided on the site, which includes some vegetation in planters.

2.6.6 Heritage and Archaeology

Heritage

The approved Concept Plan and Demolition Project Application comprehensively addressed the heritage significance of the Barangaroo site. The Heritage Impact Statement prepared for the site by City Plan Heritage in 2007 (refer to Demolition Project Application MP07_0077) confirms the Barangaroo South site is not of heritage significance and does not exhibit heritage values (including existing buildings and structures).

The Statement of Commitments for the Concept Plan required an Interpretation Strategy to be prepared prior to any works commencing that involve surface disturbance. Accordingly, an Outline Interpretation Plan was prepared by Tanner Architects and was submitted to the Department of Planning and Environment as part of the EAR for the Excavation and Basement Car Parking application. The Outline Interpretation Plan relates to the whole of the Barangaroo South area, including the Commercial Building C1 site. A Statement of Heritage Impact to assess has been prepared to support the Commercial Building C1 application (refer to **Appendix M**) and is discussed at Section 5.9.

Indigenous and Non-Indigenous Archaeology

A non-Indigenous Archaeological Assessment undertaken by Casey and Lowe for the Barangaroo South area and for land within the vicinity of the broader Barangaroo site was submitted with the Excavation and Basement Car Parking application. The Assessment indicated that there was a moderate to high level of non-indigenous archaeological potential across most of the Barangaroo site. The Barangaroo site contains a mixture of archaeological remains associated with maritime infrastructure, shipbuilding and industrial land uses.

A search of OEH's Aboriginal Heritage Information Management System (AHIMS) indicates that no known Aboriginal sites have been previously recorded within or in the vicinity of the Barangaroo site or the broader Barangaroo site.

An Aboriginal Archaeological and Cultural Heritage Assessment was prepared by Comber Consultants for the entire Barangaroo site and was submitted with the Excavation and Basement Car Parking application. The Assessment indicates that, notwithstanding the above, subsurface archaeological deposits containing artefact scatters and/or middens may be located within the eastern portion of the Barangaroo South area, including land particularly near the original shoreline.

During 2011 and 2012, Casey and Lowe and Comber Consultants undertook a 10 month archaeological program of excavation and recording. Following completion of the program, there are considered to be no surviving significant archaeological remains within the site. No archaeological issues were identified in the area to west of the eastern 40 metres of Barangaroo South. The Commercial Building C1 site is considered to have no archaeological potential or significance. As set out above, Commercial Building C1 has been excavated as part of the Bulk Excavation and Basement Car Park application.

2.7 Surrounding Development

2.7.1 Existing Development

North: Immediately to the north of the site is Watermans Quay, which adjoins Stage 1B of Barangaroo South where remediation works are currently being undertaken. Further north is the Barangaroo Central parcel and the completed Barangaroo Reserve.

West: Scotch Row adjoins the western boundary of the site, with International Tower 1 and 2 located on the other side of Scotch Row. Beyond the International Towers Sydney is Residential Building R8, the waterfront promenade and Barangaroo Wharf.

South: Shipwright Walk adjoins the southern boundary of the site, with Building C2, International House Sydney further to the south. International Tower 2, Building R9, R7 and R1 are also located to the south and south-west of the site, with King Street Wharf and Sussex Street further south.

East: Hickson Road separates the site from Millers Point on the eastern boundary, with the Sydney CBD further to the east. Upgrade works to Hickson Road are due to commence in the second half of 2017, including regrading of levels and provision of public domain. Napoleon Bridge crosses Hickson Road to the south east.

2.7.2 Future Development

The next stage of development as set out in the approved Concept Plan will take place as part of Stage 1B, comprising public domain works and the establishment of Hickson Park and remaining public domain Residential Buildings R4A, R4B and R5 and the Crown Resort Sydney (which is under construction).

3.0 Description of the Development

This chapter of the report provides a detailed description of the proposed development. Architectural Drawings at **Appendix B** and Design Excellence Report at **Appendix C** prepared by Tzannes Associates.

3.1 Overview

This application seeks approval for:

- Construction and use of a seven storey, timber framed, commercial building comprising 11,748m² of GFA within Block 3 of Barangaroo South, providing:
 - Four ground floor retail tenancies, including ground level areas for future outdoor dining seating;
 - Colonnade to Hickson Road;
 - Six levels of office floor space, including an outdoor terrace at Level 6;
 - Roof top solar PV installation;
 - Commercial building identification signage zones for future tenants.
 - Signage Strategy for ground level retail and building identification signage.
- Retail shopfront design options (including awnings).
- Allocation of 18 car spaces and 35 bicycle spaces within the Stage 1A basement and provision of end of trip facilities for 96 lockers;
- Treatment of publicly accessible areas to match the existing Stage 1A public domain adjoining the C1 site; and
- Minor alterations to the existing basement structures to improve integration with the proposed building.

A numerical summary of Commercial Building C1 is provided at **Table 2**. A photomontage of Commercial Building C1 is presented at **Figure 5**.

Table 2 – Commercial Building C1 Numeric Description

Development Element	Proposal
Gross Floor Area	- Retail: 726m² - Commercial: 11,022m² - Total: 11,748m²
Maximum Building Height	- Top of Parapet: RL 33.2 - BMU (temporary use only): RL 33.2
Car Parking Spaces	- 18
Bicycle Parking	- 35 bike parking space
End of trip facilities	- 96 lockers



Figure 5 – Photomontages of Commercial Building C1

Source: Tzannes Associates/Virtual Ideas

3.2 Design

As detailed in the Design Excellence Report at **Appendix C**, the design of intent for Commercial Building C1 has been guided by the approved Barangaroo Concept Plan, the Barangaroo South Built Form Principles and Urban Design Controls, an endorsed Design Excellence Strategy (refer to **Appendix F**), the existing built form at Barangaroo South and surrounding context.

In particular, Commercial Building C1 seeks to:

- Create a distinctive architectural element within the city that forms part of a family of buildings at the Barangaroo site.
- Define the street wall and continue the 4m wide colonnade along the western edge of Hickson Road, to create a pedestrian scale.
- Provide a transition in scale from the towers to the west.
- Activate the ground plane and integrate with the surrounding public domain.
- Respond to the built form of the International Tower 1 podium and views to Sydney Harbour through modulation of the northern facade.
- Utilise renewable and sustainable materials that relate to the maritime history of the site.

3.3 Commercial Building C1 Use

At ground floor, four retail tenancies will be established with a total GFA of 726m². The ground level will also incorporate the office lobby and integrate the existing Stage 1A bicycle and car park egress points and other Stage 1A Basement elements.

Levels 1 to 6 will be office premises, with a total commercial uses GFA of 11,022m². The street address and main entry to the offices will be from Hickson Road and is defined by a setback at the lower levels. Secondary access to Commercial Building C1 is available from Scotch Row.

3.4 Materials and Finishes

Materials and finishes for Commercial Building C1 are detailed in the Architectural Drawings at and Design Excellence Report at **Appendix C**. The primary structure is made of engineered timber from Level 1 to the roof and all external timber elements will be made from recycled hardwood.

Commercial Building C1 will also incorporate:

- Concrete slab and columns providing colonnade.
- Charcoal face bricks at ground level.
- Glass curtain wall façade and spandrels.
- Aluminium framed glazing at ground level.

3.5 Retail Shopfronts and Awnings

There are three retail zones at the ground level of Commercial Building C1, as delineated on the Architectural Drawings at **Appendix B**. The ground plane drawing at **Appendix B** shows the awning zones, whilst the Shopfront Modules also at **Appendix B** provides for the type of awnings and where they may be located, and options for retail shopfront design. Shopfronts will include a combination

of fixed and operable elements and will provide flexibility to future tenants, whilst ensuring that shopfront designs and awnings are complementary to the architecture of Commercial Building C1.

It is requested that a condition be imposed on the consent that requires the specific shopfront and awning details to be consistent with the options provided in the Architectural Plans at **Appendix B**, with the final design to be submitted to the PCA for approval and submitted to the Secretary for their records. This approach is consistent with existing approvals within the Barangaroo precinct such as Building C2.

3.6 Signage

Business identification signage zones are proposed on the north elevation and the east elevation at the top of the building. Two signage zones are proposed on each elevation, however a maximum of one sign per elevation will be permitted. A street numbering/address signage zone is also proposed on the eastern façade, facing Hickson Road.

It is proposed that the detailed design of the primary business/building identification signage will be submitted for the approval of the Secretary, prior to the issue of the relevant Construction Certificate.

Approval is also sought for the retail Signage Strategy for Commercial Building C1, which has been prepared by Urbanite and submitted at **Appendix E**. The proposed Signage Strategy provides a comprehensive framework for retail signage, as well as ground level building identification signage and street numbering. Shopfront and projecting horizontal signs are also proposed on the ground floor. These will be integrated into the façade and subject to design development prior to construction. It is requested that a condition be imposed that the details of proposed retail business identification signage, where consistent with the Signage Strategy be submitted to the PCA and approved in association with the shop front details of each tenancy.

It is requested that a condition be imposed that the details of building identification and/or street numbering signage in accordance with the Signage Strategy be provided to and approved by the Secretary prior to the issue of the relevant Construction Certificate.

3.7 Interpretation Zone

There is the opportunity to provide an interpretive element/s along the colonnade. The interpretation zone will be located on the eastern façade, addressing Hickson Road. The interpretation zone will be used to display static graphics to communicate the site history or sustainability achievements of Barangaroo South and will not be used for advertising. In addition, in the creation of this element/s there is the opportunity to partner and collaborate with a variety of creatives in order to create the most active and engaging experience.

3.8 Building Services and Infrastructure

Approval for Stage 1A site preparation works, including delivery of utilities and services infrastructure to service the wider Barangaroo precinct was obtained as part of the approved Excavation and Basement Car Parking Project Application (MP10_0023) the Stage 1A Public Domain SSDA (SSDA6303) and Hickson Road REF.

This proposal seeks to connect the C1 site to existing utilities and services infrastructure in proximity to the site. A utilities and infrastructure statements are provided with this application at

Appendix J. A Building Services Design Statement, prepared by Lendlease is provided at **Appendix N.**

The section below provides a summary of the utility services and infrastructure in the locality with the capacity to service the development.

Communications

An integrated Communication Network (ICN) is proposed for Commercial Building C1, consisting of a common fibre back bone supporting all telecommunication services. The building is designed to include two separate communication risers as well as a dedicated base building riser. The ICN will be connected to the precinct wide telecommunication rooms.

Electrical

Electrical supply will originate from the basement substation and switch room, which will serve a dedicated main switchboard for Commercial Building C1. The switchboard will be located in a main switch room within the basement. Solar PV cells to supply Commercial Building C1 are located at roof level. Commercial Building C1 will connect to the Barangaroo South embeded network.

Lifts

The building is designed to be serviced by a single lift core with four lifts that will connect the basement levels, ground level and all upper levels of the building. An existing separate lift provides access from ground level to the end of trip facilities at Commercial Building C1 basement level 2.

Hydraulics

The site is currently connected to the Sydney Water Corporation's water main fronting the site at Hickson Road. This connection will serve as the main domestic water supply (generally for all water and fire services) which is in accordance with Sydney Water Corporation requirements.

The proposal also integrates a rainwater capture system whereby rainwater runoffs from approximately 100m² area of building's roof will be redirected and stored in a 4000 L rainwater tank for on-site irrigation purposes.

Commercial Building C1 will connect to the Barangaroo South Water Recycling and Treatment Plant, which incorporates sewer mining to offset potable water use within the precinct for irrigation, wash-down and toilet flushing. This will further reduce the consumption of water within the building.

Sewer

The sewer drainage for Commercial Building C1 will discharge into the existing Barangaroo infrastructure systems.

Gas

The natural gas for Commercial Building C1 will connect to the existing natural gas main also located on Hickson Road.

Mechanical

Building cooling will be provided by a centralised District Cooling Plant (DCP) which serves the entire Barangaroo Development. An energy transfer station is located in the existing basement and will reticulate chilled water from the central plant to Commercial Building C1.

Heating is provided by a heating water plant located in the ground level/mezzanine plant room.

The building ventilation system will comprise:

- Toilet exhaust systems.
- General exhaust systems.
- Kitchen exhaust systems.
- Outside air systems.

The fans will be located on the roof and will reticulate to typical floors via service risers.

Retail tenancy kitchen ventilation will be provided from roof mounted fans to the retail tenancy via dedicated fire rated riser.

3.9 Basement Facilities

The application also seeks approval for the operation and use of the basement car park to accommodate 18 car spaces, 1 space for retail and 17 spaces for commercial uses, and use of plant within the basement as shown in on the basement drawings at **Appendix B**. These car spaces will be available to all tenants of the relevant land use within the buildings of Stage 1A (International Towers, C2, R7 and R1).

The proposed Commercial Building C1 will utilise existing bicycle parking spaces provided within the Stage 1A basement. Additional end of trip facilities are proposed to be located at Basement 2 of Commercial Building C1 and will comprise locker, change and shower facilities for males and females. It is estimated that 96 lockers would be provided, with approximately 52 for males and approximately 44 for females.

3.10 Ground Plane Publicly Accessible Areas

The proposed development includes the treatment of the ground plane within the C1 development boundary, which includes the northern and southern undercroft and colonnade areas. The ground plane treatment will match the adjoining public domain areas completed as part of the Stage 1A Public Domain. No changes are proposed to the existing basement exit ramp to Hickson Road within the C1 site.

3.11 Modification of Basement Structures

The site is currently occupied by a range of structures associated with the Stage 1A Basement. In some cases, these existing structures will prevent the optimum design outcome. Accordingly, it is proposed to demolish and relocate the structures within the Commercial Building C1 site. These changes are detailed on the Architectural Plans at **Appendix B** and shown in **Figure 6-8** below include:

- Relocation of the shared service riser.
- Relocation of the lifts and lift overrun from the northern end of the plot to the centre.
- Relocation of the fire stair at the northern end of the plot.
- Replace six unallocated car park spaces with end-of-trip facilities.
- Demolition of valet waiting room to provide two car parking spaces.

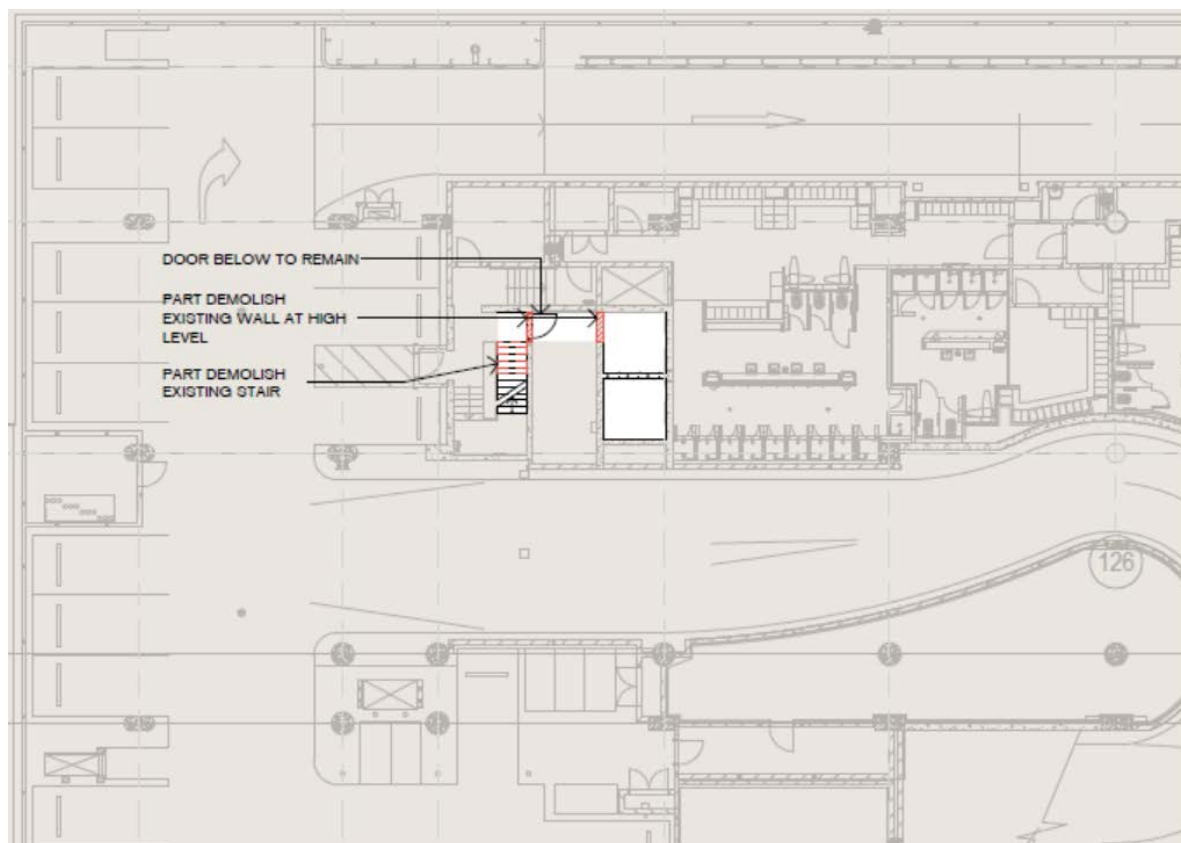


Figure 8 – Proposed basement alterations – Basement 1

3.12 Construction Hours

In accordance with the Environmental, Construction and Site Management Plan prepared by Lendlease at **Appendix K** construction works are proposed to be undertaken between the hours of 7.00am and 7.00pm Monday-Friday and between 7.00am and 5.00pm on Saturdays. Occasional night works, and occasional works on Sundays or public holidays are also proposed when dictated by authority requirements or for worker or public safety (such as the use of cranes for works around Hickson Road). The potential impacts of construction during these hours have been assessed in this EIS.

3.13 Construction Hoardings

The construction site will be secured by hoardings around the perimeter of the site. Vehicle gates for site access and entry is proposed towards the northern end of the Commercial Building C1 site at Waterman Quay for easy access to and from the site for construction vehicles. Painted hoardings will extend along the length of Hickson Road Work Zone and along Shipwright Walk, Scotch Row and Watermans Quay. It is noted that existing basement vehicle egress will be maintained during construction.

4.0 Consultation

In accordance with the SEARs, Lendlease has undertaken pre-lodgement consultation with relevant stakeholders and landowners to inform the design and project details. Results of the consultation activities and the response undertaken are detailed in **Table 3**.

Further, the EIS will be placed on public exhibition for 30 days, inviting further comment and feedback.

Lendlease has prepared a Community Consultation Strategy to establish a single framework for how Lendlease will consult and engage with the community about the construction of Commercial Building C1. This strategy is submitted accordingly at **Appendix L** and includes the following objectives:

- Open, transparent and two-way communication with stakeholders and the community;
- Proactive and continued engagement with stakeholders and the community to understand their issues, drivers and aspirations; making every effort to ensure they are accurately informed and involved where practical; and
- Developing and implementing a process of measurement, review and reflection which delivers continuous improvement in the way we collaborate and engage with stakeholders and the community.

Table 3 – Consultation and stakeholder engagement

Agency	Correspondence and Comments
City of Sydney Council	Lendlease have met with the City of Sydney on 7 September 2017 to discuss the proposed development. The City of Sydney did not raise any concern with the application and requested some clarification about design elements, including basement access (shown on drawings at Appendix B), shopfronts (included in kit of parts at Appendix B) and the signage strategy (provided at Appendix E).
Environmental Protection Authority	Lendlease have discussed the proposed development of Commercial Building C1 with the EPA including the location, building type, and construction methods. The EPA confirmed that they do not require any further pre-lodgement information and will review the EIS when it is placed on public exhibition.
Office of Environment and Heritage	It is noted that the site does not contain any items of heritage significance. Heritage impact have been considered and addressed through the Concept Plan and the built form controls that form part of that approval. Nonetheless, a Statement of Heritage Impact has been prepared to address heritage items located within the vicinity of the site and is attached at Appendix M . This

Agency	Correspondence and Comments
	assessment addresses the relevant matters of the Office of Environment and Heritage.
Sydney Water	Sydney Water confirmed that the Commercial Building C1 was included in the Site Servicing Strategy Barangaroo South dated March 2013. Appropriate applications for connections and servicing will be required in accordance with standard conditions of consent.
Transport for NSW	Transport for NSW has confirmed that the information required by the SEARs will be reviewed when the EIS is lodged and placed on exhibition. Further, Lendlease will continue to consult the TfNSW CBD Coordination Authority regarding the appropriate construction traffic management measures to be adopted on the site prior to the commencement of construction works.
Roads and Maritime Services	RMS confirmed that there are no outstanding issues from previous stages of Barangaroo South that need to be addressed with this development and that no further consultation is required prior to lodgement. RMS will review the EIS when it is placed on public exhibition.
NSW Police	NSW Police were contacted for feedback on 2 August 2017. NSW Police have confirmed that they have no pre-lodgement comments and may respond when the EIS is placed on public exhibition. NSW Police confirmed that retail future fit out DAs that include a liquor licence would generally be referred to NSW Police for comment during the assessment of these future applications.
Department of Primary Industries	The Department of Primary Industries were provided with a preliminary issue of the Architectural Plans on 1 August 2017 and have confirmed that they have no comment on the proposal.
Fire and Rescue NSW	Fire and Rescue NSW were provided with a preliminary issue of the Architectural Plans on 1 August 2017. Acknowledgement of receipt of the information has been received, however no specific feedback from Fire and Rescue NSW was provided.

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed development. It addresses the matters for consideration set out in the SEARs (refer to **Section 1.5**).

The mitigation measures at **Section 7** complement the findings of this section.

As detailed at **Section 1.1.3** of this EIS, the lodgement of the Commercial Building C1 application follows the establishment of the C1 plot under the Concept Plan approval and is informed by the approval and commencement of works under the Excavation and Basement Car Parking application relating to Blocks 1, 2, 3 (in part), 4A (in part) and X of Barangaroo South.

The Excavation and Basement Car Park approval enabled demolition works, tree removal, site establishment, bulk earthworks, onsite treatment and remediation of contaminated soils and construction of a basement car park and associated services and infrastructure to support Commercial Building C1.

The EAR and PPR and subsequent modifications accompanying the Excavation and Basement Car Parking application provide detailed information and environmental assessment of a number of planning and environment issues, including the following as relevant to Commercial Building C1:

- Demolition, part excavation and tree removal.
- Validation and remediation of contaminated material.
- Non-Indigenous archaeology.
- Indigenous archaeology.
- Geotechnical impacts.
- Acid sulphate soils.
- De-watering, groundwater treatment and water quality.

This SSD DA is informed by the detailed assessments included in the Excavation and Basement Car Parking approval and the Stage 1A Public Domain approval to the extent that they are relevant to the proposed development.

5.1 Relevant EPIs, Policies and Guidelines

Table 4 demonstrates that the proposed development will comply with and is consistent with the relevant strategies, environmental planning instruments and Concept Plan as determined in the SEARs.

Table 4 – Consistency with EPIs, policies and guidelines

Instrument/Strategy	Consistency
Strategic Plans	
NSW 2021 – Premier's Priorities	The NSW <i>Premier's Priorities</i> represent 12 of the 30 key policy priorities for the NSW State Government and replaces the former NSW 2021 plan. The proposed Commercial Building C1 is consistent with the objectives identified in the plan as it will contribute to achieving the goal of "creating jobs." Specifically, the proposal will:

Instrument/Strategy	Consistency
	• Provide increased employment opportunities in one of Sydney's new employment centres and in close proximity to public transport, public recreation areas and retail centres. • Support the Barangaroo South precinct by providing space for future retail and dining tenancies, as well as accommodating workers within the commercial floors. This will provide mutual benefits, as existing businesses at Barangaroo South will benefit from increased workers whilst future workers will benefit from the amenity provided within the precinct.
A Plan for Growing Sydney	The proposal is consistent with A Plan for Growing Sydney as it will deliver commercial and retail floor space in a building that exhibits design excellence, consistent with Direction 1.1 'Grow a more internationally competitive Sydney CBD'. The delivery of the proposed commercial building at the Barangaroo South precinct will further contribute to the Sydney CBD's reputation as a global city and assists in delivering the NSW Government's vision for Sydney Harbour, which includes Barangaroo as identified at Action 1.1.4.
Towards our Greater Sydney 2056	Towards Our Greater Sydney 2056 is a draft amendment to update A Plan for Growing Sydney and was released in November 2016. The primary aim of the amendment is to reconceptualise Greater Sydney as a metropolis of three cities, with the Sydney CBD identified as the Eastern City. The draft amendment is focussed on three key priorities of "A Productive Sydney", "A Liveable Sydney" and "A Sustainable Sydney." Commercial Building C1 contributes to the broader target of generating 817,000 additional jobs by 2036, improves accessibility to employment opportunities in the Eastern City and also contributes to sustainability priorities through the efficient use of energy and resources by incorporating sustainable design initiatives.
Draft Central District Plan	The Draft District Plans were released by the Greater Sydney Commission on 21 November 2016 and are due to be finalised in late 2017. The site is located within the Central District and identifies a number of key objectives and priorities focussed on: • A productive city. • A liveable city. • A sustainable city. The Sydney CBD is identified as a strategic centre of the Central district and is a key location due to its concentration of knowledge and professional services jobs in close proximity to a range of public transport options. Relevant to Commercial Building C1, the following priorities are identified for the Central District: • Enhancing the CBD's role as a global leader. • Growing economic activity in centres. • Improving 30 minute access to jobs and services. The draft district plan also identifies job targets, being 662,000 – 732,000 in the District by 2036. As noted above, the proposed Commercial Building C1 will provide employment opportunities to assist with meeting job targets, which will in turn assist with the key priorities identified above.

Instrument/Strategy	Consistency
NSW Long Term Transport Master Plan	The proposal is consistent with NSW Long Term Transport Master Plan as it will: • Encourage walking and cycling through the provision of end-of-trip facilities, active uses at ground level and commercial offices in close proximity to other amenities, services and recreation spaces. • Provide commercial and retail development in a location that benefits from connections to public transport. • Will not impact on the ability of Transport for NSW to protect critical strategic growth corridors.
Sydney City Centre Access Strategy	The proposal is consistent with the Sydney City Centre Access Strategy, as it encourages the use of existing and future public transport linkages in close proximity to the site, is well connected to an established pedestrian network and facilitates cycling as a mode of transport by providing end-of-trip facilities. The Strategy seeks to connect Barangaroo to the city centre and Sydney transport network through the following infrastructure: • Wynyard Walk, which provides a direct, accessible pedestrian connection between Barangaroo and the Wynyard Station transport hub. • New bus routes servicing Barangaroo and Walsh Bay. • A new Barangaroo ferry hub and new routes to provide more opportunities to access Barangaroo and the mid-town precinct by public transport. The proposal will not impact on the ability for the Government to deliver the planned infrastructure and service upgrades as part of the Strategy.
Sydney's Walking Future	Sydney's Walking Future was released in December 2013 and seeks to make walking the transport choice for trips under two kilometres and to promote access to public transport. Given the location of the C1 site within the Sydney CBD, existing and planned pedestrian connections throughout Barangaroo South and the wider area as well as public transport services, the proposal will support the proposed actions contained in the Plan.
Sydney's Cycling Future	Sydney's Cycling Future was released in December 2013 and outlines the intent to create a safer and easier bicycle riding experience for the people of Sydney. The proposed Commercial Building C1 includes end-of-trip facilities to encourage cycling as a mode of transport and bicycle facilities are provided throughout Barangaroo South to complement this.
Barangaroo Integrated Transport Plan	The Barangaroo Integrated Transport Plan addresses a range of transport modes and recommends actions in the areas of walking, cycling, traffic and taxi access, Wynyard Station and Bus Interchange, ferry services, light rail and bus services and rail capacity. The proposal is consistent with the mode share targets that were established under the Concept Plan and that are reinforced in the Integrated Transport Plan. Commercial Building C1 will benefit from Wynyard Walk and Napoleon Bridge that have been established in accordance with the Transport Plan and will provide end-of-trip facilities to encourage cycling, as well as connections to Barangaroo Ferry Wharf, Wynyard Station and other public transport services.
State Environmental Planning Policies	

Instrument/Strategy	Consistency	
State Environmental Planning Policy – 55	The development satisfies the requirements under Clause 7(1), 7 (2) and 17(1) of SEPP 55. Refer to Section 5.15 .	
State Environmental Planning Policy – 64	SEPP 64 applies to all signage that under an environmental planning instrument can be displayed with or without development consent and is visible from any public place or public reserve. The architectural drawings at Appendix B identify zones for signage which illustrate the indicative location and size of future signage. The development also seeks approval for the retail Signage Strategy at Appendix E. Under Clause 8 of SEPP 64, a consent authority must not grant consent for any signage application unless the consent authority is satisfied that the proposal is consistent with the objectives of the SEPP and with the assessment criteria which are contained in Schedule 1. The proposed signage is consistent with the objectives of SEPP 64 and satisfies the criteria specified in Schedule 1 of the SEPP as follows: • The provision of signage is consistent with the desired future character for new buildings within the Barangaroo site, as signage associated with commercial buildings is typical in a CBD environment. • The proposed signage zones are within the building envelope and will not dominate the skyline or reduce the quality of vistas. • The proposed signage zones have been located in the most architecturally appropriate locations to assist in place identification and way finding. • All illumination of future signage will be fully integrated with the building structure.	
State Environmental Planning Policy (State Significant Precincts) 2005	The Barangaroo site is listed as a State Significant site under Part 12 of Schedule 3 of the State Significant Precincts SEPP.	
	Clause 8 – Zone B4 Mixed Use	The application seeks approval for retail and office premises uses, both of which are permissible within the B4 Mixed Use zone.
	Clause 17 – Height of Buildings (Maximum RL 209)	Commercial Building C1 has a maximum height of RL 33.2 and therefore complies with the maximum building height of RL 209.
	Clause 18 – Gross Floor Area Restrictions – Maximum 129,934m ² (Block 3)	Commercial Building C1 has a GFA of 11,748m ² which when added to the as-built GFA of the other building in Block 3 (International Tower 1 118,146m ²) results in a total GFA of 129,894m ² and therefore complies with the maximum GFA of 129,934m ² .
	Clause 19 – Design Excellence	Refer to Section 5.3 .
State Environmental Planning Policy (State and Regional Development) 2011	Development that has a capital investment value (CIV) of more than \$10 million on land identified as being within a State Significant Development site is State Significant Development under Schedule 2 of State Environmental Planning Policy (State and Regional Development) 2011. Accordingly, with a CIV of \$53.3 million this development is State Significant Development.	

Instrument/Strategy	Consistency	
State Environmental Planning Policy (Infrastructure) 2007	The proposed development does not involve any piling or excavation within land identified on the interim rail corridor map and will have no impact on the future Metro	
Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005	Clause 20 – General	The matters referred to in Division 2 are addressed below
	Clause 21 – Biodiversity, ecology and environment protection	The proposed mitigation measures set out in Section 6 will ensure the development will not have any impact on Sydney Harbour's biodiversity, ecology or environment.
	Clause 22 – Public access to, and use of foreshores and waterways	The development is consistent with the Concept Plan, which provides a ground plane that improves pedestrian access within Barangaroo and to the foreshore and is therefore considered entirely consistent with Clause 22.
	Clause 23 – Maintenance of a working harbour	The proposed development forms part of the redevelopment of the wider Barangaroo site for mixed uses that was assessed as part of the Concept Plan for the site and will have minimal impact on the operations of the harbour.
	Clause 24 – Interrelationship of water and foreshore uses	The proposed development will not have any adverse impacts on the use of waterway for maritime functions. The development is located away from the foreshore on Hickson Road.
	Clause 25 – Foreshore and waterways scenic quality	This application seeks to provide a high quality new building that will contribute to the scenic quality of the waterway.
	Clause 26 – Maintenance, protection and enhancement of views	The proposed development will not adversely impact any views and vistas, preserving key views through the site down Shipwright Walk and Watermans Quay to the Harbour.
	Clause 27 – Boat storage facilities	No boat storage facilities are proposed.
Foreshores and Waterways DCP	The Foreshores and Waterways DCP does not apply to the Barangaroo site, however is generally consistent with the controls of the DCP which seek to protect ecological and landscape values of Sydney Harbour. Previous project applications for Barangaroo South, including the Stage 1A and Stage 1B Public Domain applications have demonstrated that development at Barangaroo South will have minimal impact on any ecological communities or landscape values.	
Local Environmental Planning Instruments		
Sydney Local Environmental Plan 2012	This plan does not apply to the Barangaroo site and therefore does not contain any provisions relevant to Commercial Building C1.	

5.2 Barangaroo Concept Plan

This SSD DA seeks approval for the construction of Commercial Building C1, as described in **Section 3** of this report. Commercial Building C1 is located within Block 3 of Barangaroo as identified under the approved Concept Plan (MP06_0162) (MOD 8) and has been designed to be consistent with the approved Concept Plan, as detailed below.

The Barangaroo Concept Plan identifies maximum GFA and height controls for each development block within Barangaroo South. In addition, the Concept Plan requires future applications to demonstrate consistency with the Built Form and Urban Design Guidelines in accordance with Condition B5 of the Concept Plan approval (MOD 8). The proposed Commercial Building C1 is consistent with the Concept Plan planning controls and guidelines. Commercial Building C1 rises to a height of seven storeys (retail at ground level and six storeys of commercial above) and incorporates a colonnade along Hickson Road, consistent with the Concept Plan and Barangaroo South Built Form and Urban Design Guidelines. Retail uses at ground level and commercial uses at the upper six levels are contained within the C1 plot.

Compliance with the conditions of consent, and consideration of the Built Form Principles and Urban Design Controls was imposed by the Minister for Planning to ensure that the bulk and scale of future buildings on the development blocks achieves an appropriate relation with the surrounding land uses.

Numeric Concept Plan Controls

Tables 5 and 6 provide an assessment of Commercial Building C1 against the Concept Plan numeric controls.

Table 5- Consistency with Concept Plan GFA controls

Block 3 Concept Plan (MOD 8) Control	International Tower 1 (Commercial Tower C3)	Commercial Building C1	Cumulative Total	Compliance
Maximum GFA 129,934m ²	118,146m ²	11,748m ²	129,894m ²	✓

Table 6 – Consistency with Concept Plan Height Control

Block 3 Concept Plan (MOD 8) Control	Commercial Building C1	Compliance
Maximum Height RL 33.2	RL 33.2	✓

The total allowable GFA at Barangaroo under the Concept Plan (MOD 8) is 594,354m². The proposed GFA of Commercial Building C1 results in a cumulative total GFA across all blocks in Barangaroo South of 512,268m². Therefore, the proposal is consistent with the Concept Plan. Refer to **Section 5.3** for further detail.

Barangaroo South Built Form Principles and Urban Design Controls

Under Condition B5 of the Concept Plan (MOD 8), applications in Barangaroo South are also required to demonstrate consistency with the Built Form Principles and Urban Design Controls. As demonstrated in the Design Excellence Report at **Appendix C**, Commercial Building C1 is generally compliant with the Barangaroo South Built Form and Urban Design Guidelines as it will:

- Provide a building consistent with the envelope defined by the Built Form and Urban Design Controls;
- Promote the scale of Hickson Road as a grand boulevard, providing consistent street wall definition;
- Define the public space of the street and adjoining public domain; and
- Provide for pedestrian permeability through Block 3.

Table 7 provides a detailed assessment against the Barangaroo South Built Form and Urban Design Guidelines for Block 3 and as relevant to Commercial Building C1.

Table 7 - Consistency with Barangaroo South Built Form and Urban Design Guidelines

Standard	Compliance
Building Mass and Location	
Hickson Road Buildings are to be a maximum height of RL 33.2	The maximum height of the proposed building is RL 33.2 inclusive of all building services and lift overrun.
Street Wall Establishment	
To establish a colonnade along Hickson Road. The width and height of the colonnade along Hickson Road shall be appropriate to encourage its use, and be integrated into the proportions of the buildings of which it is a part.	A colonnade is provided along Hickson Road, continuing the pattern of the colonnade on Building C2. The colonnades provide direct north-south access along Hickson Road and has been designed to provide a sheltered pedestrian thoroughfare whilst integrating into the built form of Commercial Building C1. The colonnade varies in height from 8.7 metres to accentuate the northern and southern ends of the building along with the building entrance, and 5.8m in height between these locations, with active uses at ground level providing a vibrant frontage to Hickson Road.
Building form to create a Street Wall with a one storey minimum height for most of the public accessible ground floor façade.	Commercial Building C1 reinforces the street wall established by Building C2 with a seven storey mass and form consistent with the maximum height under the Concept Plan to all street frontages, including Shipwright Walk and Hickson Road. The street wall is modulated on the northern elevation (Watermans Quay) to respond to the scale of the International Towers Sydney Tower 1 podium, continuing the street wall along Watermans Quay to the intersection with Hickson Road. Similar height facades and expressions are carried through from Building C2 to the proposed Commercial Building C1, continuing the street wall to Hickson Road, Shipwright Walk and Scotch Row and creating a grand boulevard character along the southern area of Hickson Road.
Building mass to define a Street Wall on Barangaroo Avenue, Shipwright Walk and Hickson Road.	
Scotch Row to be a minimum of 6m in width with a defined eastern edge parallel to Hickson Road at ground level.	The proposal will not impact on the width of Scotch Row. The building will further define the eastern edge of the Row parallel to Hickson Road by providing active retail frontages and awnings, consistent with Commercial Building C2 to the south.

Standard	Compliance
Building Articulation	
The building envelope and floor plates are to be articulated and modulated, using a range of architectural components such as prows, corner redents, vertical villages, expressed lift cores, bay windows and other structural expression.	Articulation of Commercial Building C1 is achieved through the façade design allowing for the exposure of the engineered timber structure behind a glass curtain wall. The lift core expression behind the curtain wall adds further interest and articulation in the building façade. This technique creates a visually interesting building when viewed from the public domain, and allowing for a public understanding of the innovative building structure. Modulation is further achieved through the alternating height of the colonnade to Hickson Road. The stepped form colonnade accentuates key features of the building including the main building entrance. The separation of the floors above the lower levels are made visually distinct by incorporating vertical timber blades on Level 1. Both the northern and southern elevation present a rounded built form to provide architectural emphasis. The expression of the northern elevation provides a distinct entry to mark an entry point to the Barangaroo South precinct
Building Legibility	
The separate primary components of the building will be expressed.	A distinguishing component of Commercial Building C1 is the timber structure, which is complemented by a simple glass façade to allow the timber structure to be celebrated. The building envelope for Commercial Building C1 has been conceptualised in two parts, comprising a two-storey base that creates a scale appropriate for the pedestrian environment and an upper five storey form that is simply designed to allow the interior timber elements to be visible from the surrounding area. These two components are clearly defined by the continuous band of horizontal timber boards, which match the colonnade column material. Consistent with Commercial Building C2, the intent of the façade is to minimise visual interruption to allow the timber structure to be visible.
Ground Floor Permeability and Accessibility of Public Realm	
Public access around the Block is to be maintained on all edges.	Public access around Commercial Building C1 and throughout Block 3 is maintained on all edges, with dedicated pedestrian access available through the site on Hickson Road, Watermans Quay, Scotch Row and Shipwright Walk. Further to this, Commercial Building C1 will provide a secondary connection between Hickson Road and Scotch Row, which will be open during base weekday operating hours. Outside of these hours, the through site link will be closed to public access and access to the commercial lobby will be by way of electronic swipe card only.
Provide two north south primary connections, including the Hickson Road Colonnade and two east west primary connections (Shipwright Walk and Barangaroo Avenue).	North south primary connections are provided and maintained along Hickson Road through the colonnade and along Barangaroo Avenue. Primary east west connections

Standard	Compliance
	are provided along Shipwright Walk and Watermans Quay. The provision of retail uses at the ground level will activate these public corridors.
Provide one north south secondary public access route through the block.	Secondary public access through Block 3 is provided by Scotch Row. Active retail shop fronts will open on to Scotch Row, consistent with the character established by Building C2 and the International Towers Sydney. Commercial Building C1 also enables public access through the building between Hickson Road and Scotch Row.
Scotch Row must be not less than 50% open to the sky.	Commercial Building C1 maintains the openness of Scotch Row and it will not be less than 50% open to the sky. Awnings for retail shopfronts will be provided in accordance with the Shopfront Modules at Appendix A , which have been carefully designed to ensure that Scotch Row remains open to the sky.
For security purposes, the secondary routes may be closed at certain times.	The link through Commercial Building C1 between Hickson Road and Scotch Row would be closed overnight for security purposes.
Ensuring Quality of Rooftops	
Roof forms to incorporate architectural elements.	The roof layout of Commercial Building C1 provides an uncluttered and ordered layout with the provision of approximately 700 square metres of photovoltaic panels. The extension of the glass façade over the roof line provides an attractive finish and limits the visibility of building services and equipment from ground level. Lift overruns and service equipment like fans and ducts, will be shrouded with perforated metal sheeting painted a recessive colour to disguise the equipment to view from surrounding higher buildings.
Lift shafts, overruns and control rooms are to be extruded above the roof line and used to provide architectural articulation to the roof.	The orderly arrangement of photovoltaic panels will present an articulated roof layout when viewed from above. The architectural expression of the Commercial Building C1 roofline when viewed from ground level presents as clear lines with mechanical elements visible behind the extended glass façade.
Exposed mechanical equipment is to be avoided.	Mechanical equipment is located on the roof and is concealed with perforated metal sheeting painted in a recessive colour to disguise the equipment when viewed from above. The screening height does not exceed RL 33.200.
The architectural treatment of the roof and its form is to be designed, coordinated and remain sympathetic to adjacent context.	The architectural treatment of the roof responds to the adjoining International Towers Sydney, Tower 1 and Commercial Building C2, incorporating solar panels arranged geometrically, lift overruns, plant and a building maintenance unit. The roofline of Commercial Building C1 presents as a continuation of that established by Building C2 so that the two buildings present as a coherent family and a consistent built form to Hickson Road.

Standard	Compliance
Good quality materials (i.e. durable, hardwearing, sustainable) to be used.	Materials such as timber, bricks, glass and aluminium have been deliberately selected for durability and sustainability.
Roof Design is to integrate sustainable features.	Approximately 700 square metres of photovoltaic panels are proposed to be installed on the rooftop of Commercial Building C1, providing an expected 105kW array which will contribute to meeting the building's energy demands.
Facades	
Depth and layering of facades is to be achieved through relief and protrusions. Mirrored facades should be avoided.	As noted earlier, a key feature of the façade design of Commercial Building C1 is the visual expression of the engineered timber frame of the building behind a glass curtain wall. The façade incorporates significant variation through the use of contrasting materials and modulation, including timber vertical blades, horizontal louvres and shading devices as well as the lift core on the eastern façade running the full length of the building. A range of materials have been selected that will be complementary to each other whilst providing visual interest, as noted in the Architectural Drawings and Design Excellence Report at Appendix A. The Reflectivity Report at Appendix Q confirms that the proposed façade is compliant with a specular reflectance of 20% to the whole façade (100% glazed) without causing adverse discomfort glare to the surrounding roads.
The choice of appropriate materiality for longevity, durability and flexibility. Materials such as steel, glass, concrete, timber and aluminium.	Materials have been carefully selected for durability and weathering and provide high environmental performance. The internal timber structure is wrapped in a clean glass curtain wall skin. All external timber elements, including columns, column struts, and soffit linings, are proposed to be constructed from recycled hardwood for durability and weathering. Ground level charcoal face bricks provide a durable finish with a tactile unit scale.
Environmentally sustainable design is to be incorporated on all facades.	Materials have been selected to achieve a high degree of environmental performance, as detailed in the Sustainability Report at Appendix O . In particular, the façade incorporates shading devices appropriate to the solar load they receive to support low energy usage. All areas of the façade will be double glazed to reduce heat loss and conserve energy.
Façade components such as external shading shall be used to provide light and shade to the building and to consider and reinforce Control 2 + 3.	The Commercial Building C1 façade responds to existing solar access conditions on the site and allows for appropriate modulation of light and shade to the building. External shading devices are provided on all facades in accordance with the amount of solar load they receive. For example, the northern façade experiences the highest solar load and will have three layers of sunshades. Further detail is provided in the Design Excellence Report at Appendix A .

Standard	Compliance
Facades longer than 60m are to be modulated above podium level by distinctive and significant architectural elements e.g. as vertical villages, cores or external staircases, in the vertical plane.	The lift core modulates the façade on Scotch Row in the vertical plane, providing relief and visual interest. Along Hickson Road, the alternating height of the colonnade coupled with the use of exposed timber columns breaks up the building length and creates visual interest in the building.
Active Street Fronts	
At least 60% of the Ground Level is to be active on the primary Street Wall facades.	Active retail uses and an interpretation zone are provided at ground level on all edges, equating to a minimum of 60% active frontages.
Building entrances to internal areas such as office lobbies, exit ways and service areas or loading docks shall not count to 60% requirement.	Building entrances are not considered to constitute part of the active frontages.
Building service areas, parking entrances and loading docks will be located on Watermans Quay.	Building services are located within the basement and at mezzanine and roof level and will be concealed from view. The exit to the basement car parking, loading dock and service areas is located on Hickson Road, in accordance with approved Excavation and Basement Car Parking application. The Hickson Road exit reduces the need for vehicles to enter the Barangaroo South precinct and allows the Watermans Quay façade to present an active retail frontage to the benefit of future development in Stage 1B, including Hickson Park.
The width of driveways shall be minimised.	The width of the driveway is 9m and has been approved in accordance with the approved Excavation and Basement Car Parking application.
Signage	
High level signage is limited to a maximum of 2 separate faces per building.	High level business identification signage zones are proposed on the northern and eastern elevation of the building. Two zones are proposed per elevation, however only one sign will be permitted per elevation, with details of the signage to be provided to the Secretary for approval prior to the issue of the relevant construction certificate.
Signage is not to exceed 60sqm per sign.	The proposed signage zones do not exceed 60sqm per sign. The signage zones on the northern façade have a maximum area of 10m ² and the signage zones on the eastern façade have a maximum area of 20m ² .
Identity signage only to be incorporated within the building facades/structure.	The signage zones proposed will allow for the integration of future business signage within the façade of Commercial Building C1. Whilst two building identification signage zones are shown, only one sign will be provided per elevation. Ground level business identification signs have been considered as part of the design of the retail shop front options. Although separate consent will be sought for these signs, the Signage Strategy at Appendix E demonstrates that the future signage will be incorporated

Standard	Compliance
	into the shop front design and the overall building structure. Ground level building identification signage is also proposed as part of the Signage Strategy at Appendix E. It is proposed that the installation of such signage is signed off by the certifier, with a copy provided to the Secretary for records.
Details of signage to be considered as part of the overall design of the building for the purposes of Design Excellence.	The proposed high level signage zones have been considered throughout the design development process, including the design excellence process and independent peer review. This demonstrates that the signage zones are appropriately integrated with the overall building design. As noted above, whilst two building identification signage zones are shown, only one sign will be provided per elevation. A Signage Strategy has been prepared by Urbanite (and submitted at Appendix E) to detail how future retail business identification and building identification will integrate with the ground level. The Strategy has been reviewed by Tzannes, and demonstrates that such future ground level signage will be sympathetic to Commercial Building C1 and the existing signage within the Barangaroo South precinct.
Signage shall not be greater than 1 building storey high between floor slabs.	The proposed signage zones do not exceed one storey. Future ground level retail business identification and building identification signage will not exceed one storey.

Statement of Commitments

There are no commitments related to the approved Concept Plan that specifically relate to Commercial Building C1.

5.3 Land Use and GFA

This application seeks approval for retail uses within the ground floor of Commercial Building C1 and commercial uses on Levels 1 – 6. Further applications (DA or CDC as required) will be made for the fit-out and use of the tenancies, once tenants have been confirmed.

The impacts of the future use will be assessed as part of those applications, as relevant. Depending on the final use, if required, a future DA will provide Plans of Management and Security Management Plans.

Commercial Building C1 constitutes a total GFA of 11,748m², of which 726m² is retail GFA and 11,022m² is commercial GFA.

A summary of the Commercial Building C1 areas, including a floor by floor breakdown of GFA, is provided in **Table 8**. A summary of the total/approved GFAs by Concept Plan block for Barangaroo South are provided in **Table 9**.

Table 8 – Summary of proposed building areas

Level	Use	Commercial Building C1 GFA (m ²)
Basement 2	End of trip facilities and car park*	103m ²
Ground	Commercial	137m ²
	Retail	726m ²
Level 1	Commercial	1,606m ²
Level 2	Commercial	1,845m ²
Level 3 – 5	Commercial	1,851m ²
Level 6	Commercial	1,778m ²
Total GFA	-	11,748m ²

* Not included as GFA

Table 9 – Summary of approved/proposed GFA by Concept Plan Block for Barangaroo South

Block	Building	Approved/Proposed GFA (m ²)	Max Allowable GFA (m ²) under the Concept Plan (MOD 8)	Residual GFA
Block 1	Building R7	1,927	1,927	0
Block 2	Building C2	7,945	197,280	133
	Building C4	99,097		
	Building C5	90,105		
	Total	197,147		
Block 3	Building C3	118,146	129,934	40
	Commercial Building C1	11,748		
	Total	129,894		
Block 4A	Residential Building R4A	48,004	86,979	79
	Residential Building R4B	38,896		
	Total	86,900		
Block 4B	Residential Building R5	19,158	19,158	0
Block X	Residential Building R8	9,694	18,908	

Block	Building	Approved/Proposed GFA (m ²)	Max Allowable GFA (m ²) under the Concept Plan (MOD 8)	Residual GFA
	Residential Building R9	8,410		
	Building RI	804		
	Total	18,908		
Block Y	Crown Hotel Resort	77,500	77,500	0
Total GFA Allowable under the Concept Plan for Barangaroo South	-	531,434	531,686	252

5.4 Design Excellence

Schedule 3, Clause 19(3) of the SSP SEPP requires a design competition to be held for development that will be greater than RL 57 or where the erection of a new building is proposed on a site of greater than 1,500 square metres. In addition, Condition C2 – Design Excellence of the approved Concept Plan (as modified) requires a design excellence competition to be held by the Secretary and convention of a design review panel for development that exceeds 55 metres in height, or is on land exceeding 1,500 square metres in area. Whilst the proposed development is less than 55m the site area exceeds 1,500 square metres and therefore a competition is technically required.

However, clause 19(4) provides that the requirement for a design competition can be waived by the Secretary where the Secretary is satisfied that:

- The architect responsible for the proposed design has an outstanding reputation in architecture; and
- Necessary arrangements have been made to ensure that the proposed design is carried through to the completion of the development concerned.

A formal request to the Secretary to waive the requirement for a design competition is submitted with this EIS at **Appendix H**. Further, in accordance with the SEARs, a design excellence strategy was prepared and endorsed by the Secretary to establish a framework to ensure that Commercial Building C1 achieves design excellence, notwithstanding a design competition not being conducted (refer to **Appendix F**). This design excellence strategy identifies five primary mechanisms to ensure that design excellence is achieved:

- **Selection of the Architect:** Lendlease appointed Alec Tzannes and Jonathan Evans of Tzannes Associates as the architect, the same architect which designed the adjacent Building C2. It is noted that Building C2 was recently awarded the 2017 Athenaeum and European Centre for Design Award for International Architecture. Tzannes Associates is a world renowned, award winning practice with demonstrated experience in both urban design and architecture. The appointment of a well renowned, high calibre architect with demonstrated experience in delivering design excellence at Barangaroo South and other areas, will contribute to ensuring design excellence is achieved on Commercial Building C1. Appointment of Tzannes Associates has also been supported by the Barangaroo Delivery Authority.

- **Barangaroo Delivery Authority Design Review Panel:** The design of Commercial Building C1 has included a design review process by the Barangaroo Delivery Authority Design Review Panel, prior to lodgement of this EIS with feedback integrated into the final design. This collaborative approach has ensured that the design of Commercial Building C1 is reflective of the intended built form outcome for Barangaroo South and the broader Barangaroo precinct. A summary of the matters raised by the BDA and how the final design has responded to these matters is included at **Appendix X**.
- **Independent Peer Expert Design Review:** Ken Maher was appointed as the independent peer design expert. He has reviewed the design for Commercial Building C1, and provided peer advice and commentary during the process of the design with respect to satisfying the principles and the objectives set out in the Design Excellence Strategy. Documentation of this review and how design advice has been incorporated is detailed in the Peer Review Statement provided at **Appendix G**.
- **Design Excellence Statement:** A design excellence statement has been prepared by Tzannes Associates and included in the Design Excellence Report at **Appendix C**. This statement outlines the design intent and philosophy and how Commercial Building C1 will demonstrate design excellence consistent with the objectives of the Design Excellence Strategy.
- **Design Integrity:** To ensure that design integrity is maintained throughout the delivery of Commercial Building C1, Tzannes Associates will be retained throughout the design process and retain a lead role over design decisions. Tzannes Associates will conduct monthly site inspections during the construction phase and assist with the necessary documentation for the Occupational Certificate.

Clause 19(2) of Part 12, Schedule 3 of the SSP SEPP sets out the matters that the consent authority must have regard for when determining whether a building exhibits design excellence. In addition, Condition C2(4) of the Barangaroo Concept Plan (as modified) sets out further matters that would apply in the case of a design competition. Notwithstanding that a design competition has not been undertaken in relation to Commercial Building C1, the proposed development demonstrates design excellence in accordance with clause 19(2) and Condition C2(4) as follows:

- The proposed Commercial Building C1 is an Engineered Timber Building, representing a unique and innovative design solution that provides an enhanced environmental performance;
- Commercial Building C1 has been designed to complement the existing Building C2, also designed by Tzannes Associates as a Timber Engineered Building and the two buildings will frame the eastern edge of the Barangaroo South site and provide an attractive gateway to the Precinct from Hickson Road;
- The architecture proposed will create a distinctive element within the Sydney CBD, forming part of the built form edge of the Barangaroo precinct to Hickson Road;
- The materials and finishes of Commercial Building C1 are detailed in the Architectural Design Excellence Report submitted at **Appendix C** and discussed at **Section 3.4**. The composition of these create an internal timber frame, wrapped in a glass curtain wall with spandrels of insulated clear glass skin encapsulating horizontal natural wood grilles between the panes of glass, visible externally, and an insulated back pan further reinforcing the celebration of the timber structure;

- The materiality of Commercial Building C1 provides a high environmental and acoustic performance while allowing the tenants to enjoy natural light and views.
- The design of Commercial Building C1 responds to the public domain environment by continuing the colonnade of Building C2 along the Western side of Hickson Road, from Exchange Place on the south to Barangaroo Reserve to the north, creating an active and connected undercover edge to the eastern edge of Barangaroo;
- The View Analysis at **Section 5.6** demonstrates that the design of Commercial Building C1 maintains key view corridors within the Barangaroo South precinct and promotes a sharing of both public and private views;
- Commercial Building C1 is consistent with the Barangaroo South Built Form and Urban Design Controls as discussed at **Section 5.2** and the Design Excellence Report at **Appendix C**; and
- Commercial Building C1 has been designed to achieve a 6-star Green Star rating and achieves the sustainability objectives set out in the design excellence strategy and detailed in the ESD Report submitted at **Appendix O**.

5.5 Overshadowing

As illustrated in the Shadow Studies at **Appendix B**, the low scale nature of Commercial Building C1 results in minor overshadowing. The impact of the shadow cast by Commercial Building C1 were assessed and approved under the Concept Plan. The impacts that would be created by the proposal are considered to be minor and acceptable. The shadows of the proposed buildings will fall generally within the shadow of the approved and future buildings within Barangaroo South and will not cast any additional shadows on key public places.

5.6 Visual Impact and Views

Commercial Building C1 marks the entrance to the Barangaroo South precinct on Hickson Road and is one of the first buildings encountered when approaching the site from the north or from the Napoleon Bridge. Photomontages from key vantage points have been prepared by Virtual Ideas to assist a visual impact assessment, in accordance with the SEARs. View analysis has been undertaken from the following key vantage points:

- Hickson Road.
- Napoleon Bridge.
- Scotch Row.
- Watermans Quay.

View from Hickson Road

The view from Hickson Road is important as Commercial Building C1, coupled with Commercial Building C2, defines the eastern edge of the Barangaroo South precinct and will create the grand boulevard along Hickson Road. These views from Hickson Road form part of the first view of the Barangaroo South precinct when approaching the site from the north (refer to **Figure 9**) and from the south (refer to **Figure 10**). As demonstrated in the photomontages below, the ground plane design of Commercial Building C1 helps to create a sense of place. This is achieved through the undercroft area at the northern and southern ends of the building framed by the timber colonnades,

which creates a sense of openness to the surrounding public domain and will be activated by future retail tenancies.

The photomontages below also demonstrate that the scale of Commercial Building C1 provides an appropriate transition from the established character of the surrounding area through to the International Towers Sydney.

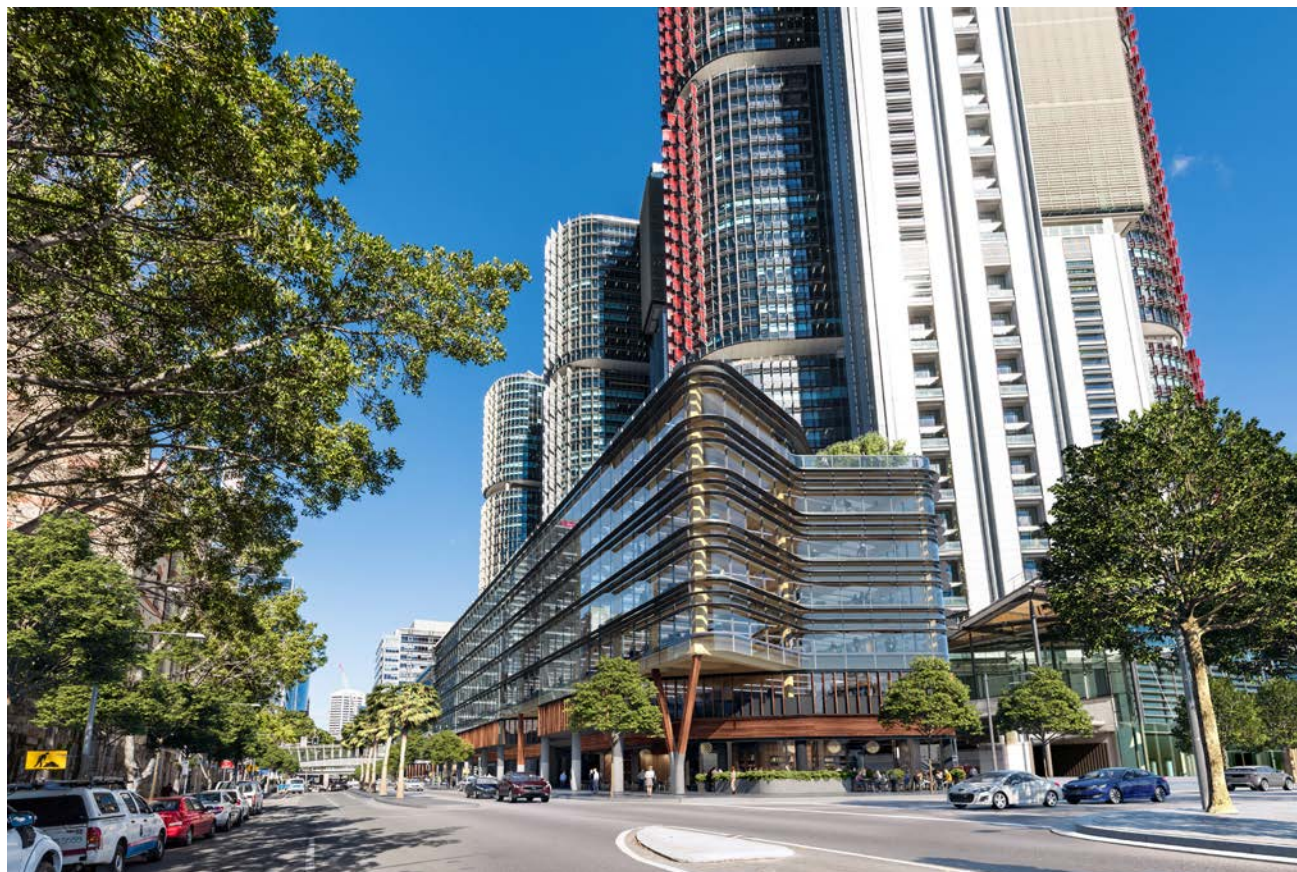


Figure 9 – Commercial Building C1 viewed from the north on Hickson Road



Figure 10 – Commercial Building C1 viewed from the south on Hickson Road

View from Napoleon Bridge

When viewed from the Napoleon Bridge, Commercial Building C1 makes a positive contribution to the existing character of the area, defining the street wall along Hickson Road. The curved form of the southern end of the building responds to the proximity of the bridge and allows pedestrians to view the internal timber structure, as demonstrated at **Figure 11**. The view from Napoleon Bridge also demonstrates that a clear view to Sydney Harbour is maintained along Shipwright Walk.

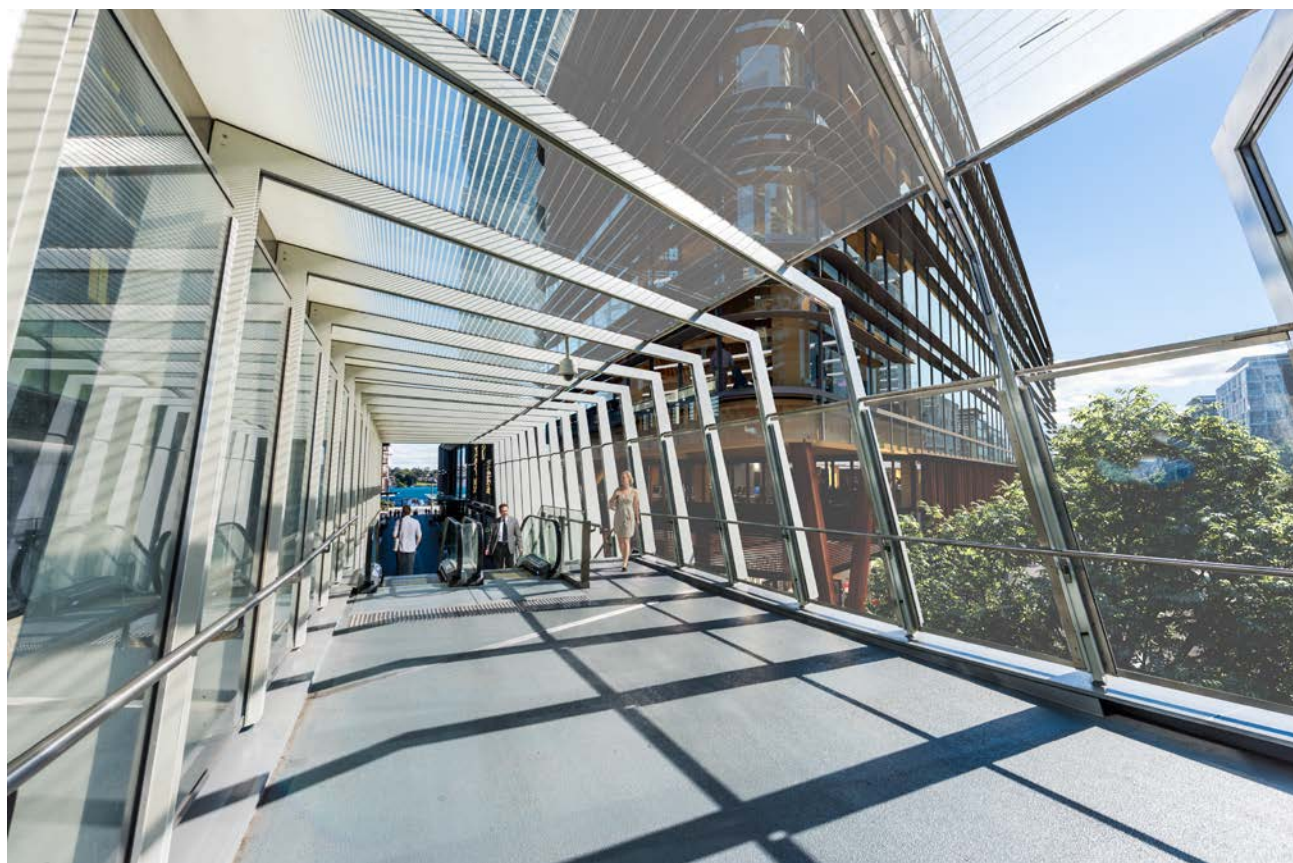


Figure 11 – View of Commercial Building C1 from Napoleon Bridge

View from Scotch Row

Scotch Row operates as a secondary north-south connection through the site and the visual impact of Commercial Building C1 assists in defining this thoroughfare. **Figure 12** below demonstrates that the proposed building maintains the character of the area established by Commercial Building C2 and the International Towers Sydney. In particular, the photomontage below demonstrates that Scotch Row continues to benefit from open access to the sky.

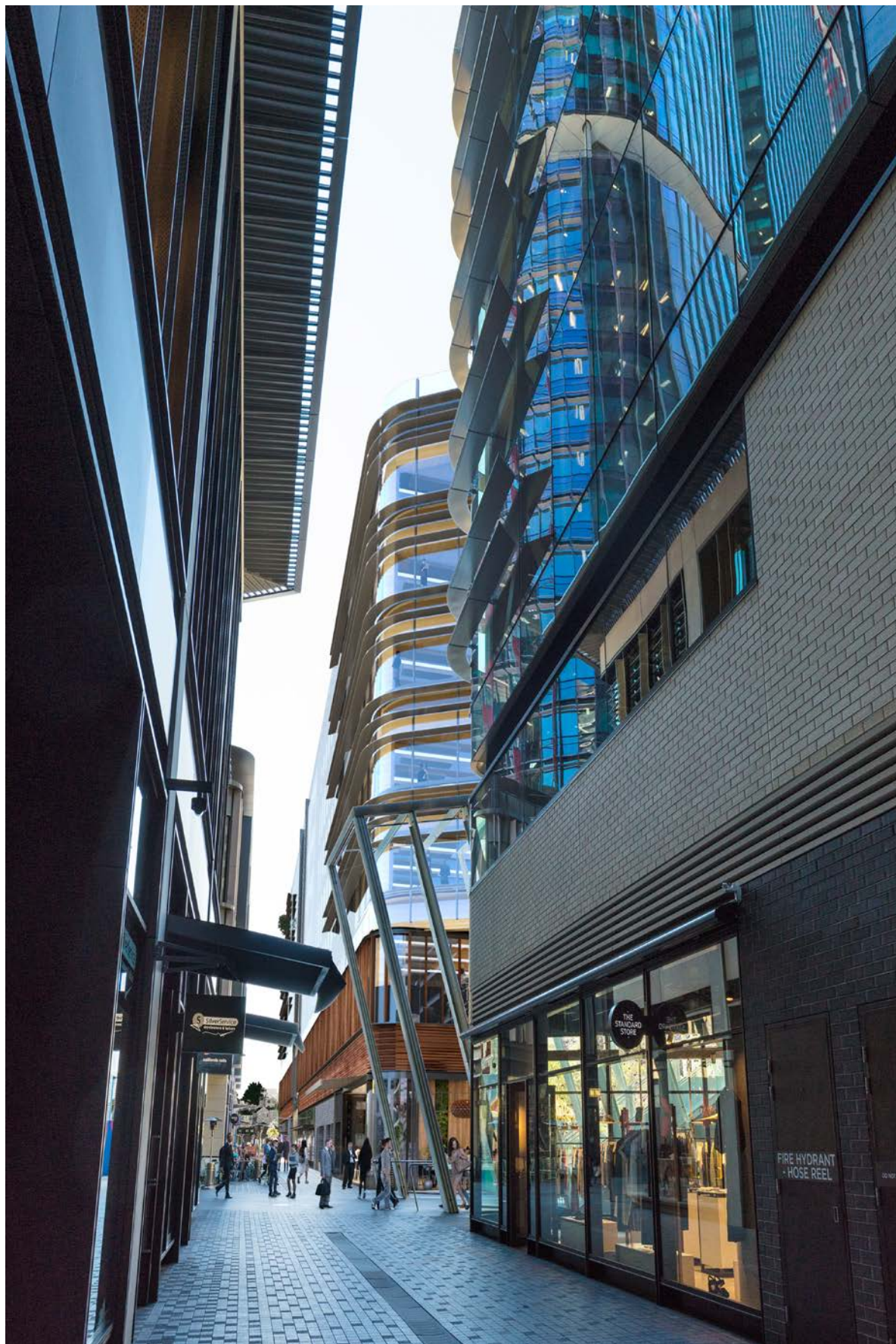


Figure 12 – Commercial Building C1 viewed from Scotch Row (Commercial Building C2 in the foreground)

View from Watermans Quay

Watermans Quay is one of the key vehicle entries into the Barangaroo South precinct, and will also form one of the key access points to the future residential buildings in Stage 1B and Hickson Park. The northern elevation of Commercial Building C1 has been carefully designed to present an open interface to Watermans Quay. The curve of the northern elevation and height of the undercroft area ensure that views are maintained through the public domain, whilst the articulation of the lower two levels creates visual interest through architectural timber elements and allowing for retail activation, as demonstrated in **Figure 13**. The photomontage below also demonstrates that Commercial Building C1 will further define Scotch Row, resulting in a positive visual impact for users of the precinct.



Figure 13 – Commercial Building C1 viewed from Watermans Quay

Overall View and Visual Impact

As demonstrated above, the proposal is considered to result in an overall positive visual impact that is complementary to the existing built form at Barangaroo South. In particular, the proposal further reinforces the street wall on Hickson Road, creating a grand boulevard that is consistent with

the vision set by the Concept Plan. The proposal further reinforces the character of Scotch Row, creating a pedestrian scale environment and maintaining openness to the sky. Commercial Building C1 will not impact on any significant view corridors, and maintains established view corridors along Watermans Quay and Shipwright Walk. As a result, Commercial Building C1 will make a positive visual contribution to the area and will not impact on any significant views.

5.7 Public Domain and Public Access

Ground floor retail uses, including outdoor seating areas will provide activation in the pedestrian environment at Scotch Row, Hickson Road, Watermans Quay and Shipwright Walk. Publicly accessible areas are provided at the northern and southern end of the building, with the treatment of the ground plane to match the existing public domain. These publicly accessible areas will be available for outdoor dining for future retail tenancies, subject to tenant requirements.

The Commercial Building C1 site benefits from a direct connection to Hickson Road, Watermans Quay, Scotch Row and Shipwright Walk. These thoroughfares form part of the pedestrian network that has been established at Barangaroo South, and allows pedestrians easy and direct access to the Harbour foreshore, Barangaroo Avenue and Barangaroo Reserve and the future Hickson Park.

5.8 Transport and Accessibility Impacts

A Transport Assessment has been prepared by ARUP and is included at **Appendix P**. A summary of the assessment and proposed mitigation measures are provided below.

5.8.1 Vehicle and Bicycle Parking

The proposed development includes the allocation of a total of 18 car spaces located within the existing Stage 1A Basement. The location of these spaces are detailed on the Architectural Plans at **Appendix B**. This provision is compliant with the maximum car parking rates specified in Condition C4 of the Barangaroo Concept Plan, as detailed in the Transport Statement prepared by Arup and submitted at **Appendix P**.

All loading and servicing for Commercial Building C1 will be provided within the existing loading dock of the Stage 1A Basement. The dock is managed to ensure there is sufficient capacity to accommodate loading requirements of the various buildings and tenants. No on-street loading, including taxi ranks, or parking areas are proposed as part of this application.

The proposed development seeks consent for the allocation of 35 existing bicycle parking spaces within the Stage 1A basement. The proposed development includes the provision of additional end of trip facilities, allowing for 96 lockers with showers and toilets in the proposed basement modifications. These facilities will be utilised by the future commercial tenants of Commercial Building C1 and are provided consistent with the required provision to achieve the 6-star Green Star rating.

5.8.2 Pedestrian, Bicycle and Public Transport Access

The highly connected nature of the Barangaroo precinct, coupled with the pedestrian and bicycle networks detailed above, will contribute to a high proportion of workers utilising active transport modes to access the site as set out in the Travel Demand Management Plan included in the Traffic Assessment at **Appendix O**.

The Barangaroo South precinct has been designed to address the needs of pedestrians and provide a safe and active pedestrian environment. Commercial Building C1 will contribute to this by continuing the colonnade pedestrian access on the western footpath of Hickson Road, providing undercover pedestrian access (refer to **Figure 14**). Commercial Building C1 is also well serviced by public transport as outlined in **Section 2.5.2** and the Transport Assessment at **Appendix P**.

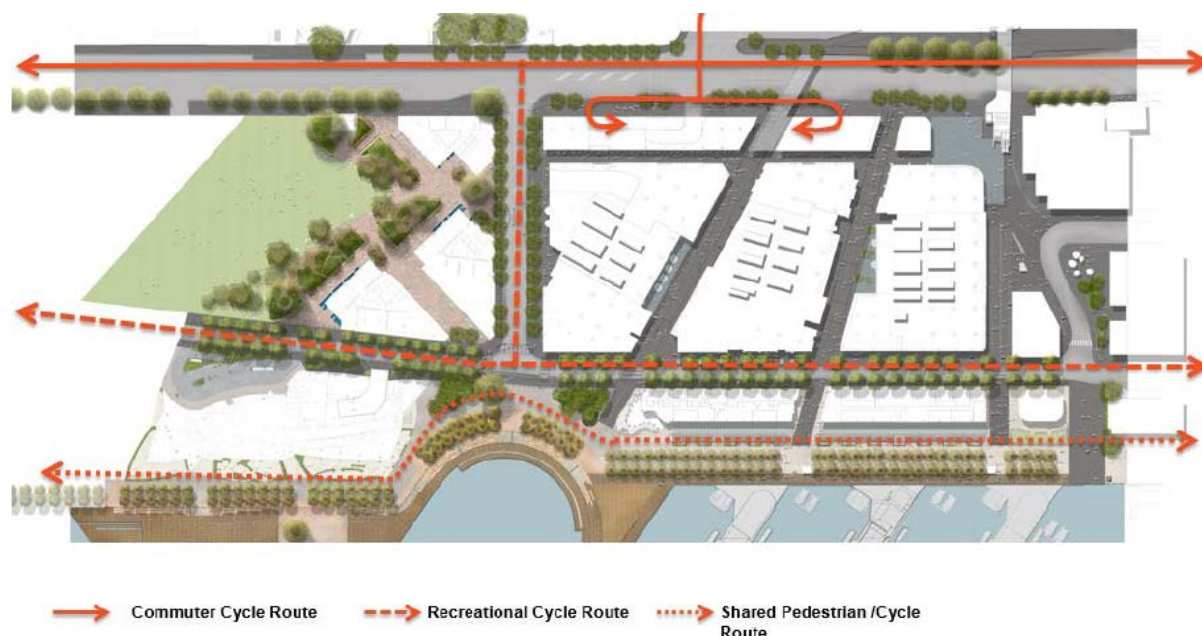


Figure 14 – Pedestrian and bicycle network in the vicinity of the site

5.8.3 Traffic

Operational Traffic

The Transport Assessment presents detailed traffic generation modellings and confirms that operational traffic impact for the proposed Commercial Building C1 is nominal in light of the limited car parking spaces provided as part of the proposal. Predicted vehicle trip rates at peak hour is 0.40 vehicles/retail car space and 0.26 vehicles/commercial car space. The resulting traffic generated equates to 5 additional cars during peak hours. This is considered to have an overall negligible traffic impact.

A full assessment of future road network operations following the full development of the Barangaroo precinct was provided in the Barangaroo Concept Plan (as modified) and included the consideration of Commercial Building C1. The results of the modelling undertaken for this study forecast minimal changes in the operation of key intersections surrounding the site as a result of the concept plan modification (including Commercial Building C1), compared with that forecast (and subsequently approved) in the Barangaroo TMAP Stage 1 published by the NSW Government in September 2008.

Construction Traffic

The Transport Assessment report assesses potential traffic impacts of the proposed development during its construction phase. As part of the assessment, existing traffic conditions were surveyed to identify congested routes and predominant construction vehicle travel routes were mapped to

identify potential impact of construction traffic on the existing road network. Cumulative assessment of construction traffic impacts is considered by forecasting predicted traffic volumes up to 2022. The predicted traffic volumes consider the construction traffic impacts of C1 development together with other development projects in Barangaroo precinct.

To ameliorate any potential traffic impacts during the construction phase, the assessment includes a construction vehicle management plan that seeks to coordinate construction vehicles during the construction phase. Through hours of operation and construction vehicle restriction routes, cumulative construction traffic impacts can be appropriately managed. Several recommendations are also provided as part of the assessment to further mitigate traffic impacts. These include:

- *Coordinate and stage construction trucks to avoid trucks circulating CBD streets awaiting site access;*
- *Limit trucks to utilise major arterial roads to access Sydney CBD including M4 and M5 motorways;*
- *The size of trucks proposed to access the site will be in accordance with Clause 300-3 of the Australian Road Rules in terms of lengthy vehicle restrictions;*
- *The vehicular traffic movements at each of the site entry or exit gates for traffic to and from Hickson Road will potentially need to be controlled by a flagman to ensure no potential traffic safety conflicts occur between the site truck traffic and pedestrians on the adjacent footpath;*
- *Personnel will not be permitted to use stop/slow signage in Hickson Road or Sussex Street on weekdays between 7am and 9am and 4pm to 7pm. However, personnel using stop/slow signage will be permitted on Hickson Road, north of the intersection of Hickson Road and Napoleon Street, when it is required to ensure safe truck access at designated site access points, provided that vehicles queue lengths generated as a result of the traffic control do not exceed more than six vehicles in either direction; and*
- *Any activity likely to impact the operational efficiency of the state road network and/or for works within 100m of traffic lights would be the subject of an application to the Transport Management Centre for a road occupancy licence.*

5.9 Heritage

A Statement of Heritage Impact (SoHI) has been prepared by TKD Architects (**Appendix M**) to assess the likely impacts of the proposal on any heritage and archaeological items and details of any mitigation and conservation measures. The SoHI assesses the potential impact of the proposal on the surrounding heritage items, including the Millers Point Conservation Special Area, Observatory Hill and Walsh Bay. The assessment finds that the proposed development will have minimal impact on the views to and from the majority of heritage items in the vicinity of the site and any visual impacts are considered acceptable.

5.10 Wind

A Wind Assessment was carried out by Cermak Peterka Pertersen to determine potential wind impacts of the proposed scheme on the surrounding environment (refer to **Appendix Q**). The assessment found that the proximity of the site to taller buildings ameliorate wind conditions

around the C1 site. The built form and massing of the proposed scheme were also tested and not found to result in adverse wind conditions.

The findings of the assessment confirmed that wind conditions at all points of the building's edge and the public realm satisfy the pedestrian comfort criteria and are suitable for both pedestrian sitting and standing. Therefore the future use of these ground level areas for outdoor dining is acceptable.

Wind conditions at the Level 6 terrace are stronger than that at ground level. An increased balustrade height of 1.6 metres, incorporated into the proposed design, ensures that the expected conditions on the terrace are suitable for pedestrian standing, consistent with the intended use of this space. No further mitigation measures are required.

5.11 Reflectivity

The Reflectivity Assessment prepared by Inhabit (**Appendix R**) assesses impacts on road users and pedestrians in the vicinity of the site. The assessment finds that all facades are capable of achieving compliance with the appropriate level of specular reflectance. The façades with an aspect ratio of 80°, 230° and 260° (approximately East, South-West and West facing) need to reduce the specular reflectance of the façade to 15%, in some instances, dependent upon the proportion of the façade that is specularly. The remainder of the façades are compliant with a specular reflectance of 20% to the whole façade (70% glazed) without causing adverse discomfort glare to the surrounding roads. A more detailed study will be undertaken during detailed design to ensure the material specified results in a compliant solution and that glare risk is remediated.

5.12 Water, Drainage, Stormwater and Groundwater

An Infrastructure, Water and Drainage Assessment has been prepared by Cardno and is included at **Appendix S**. All trunk infrastructure, including stormwater drainage required to service the proposed Commercial Building C1, has been provided as part of the approved Excavation and Car Parking application, the Stage 1A Public Domain application and Hickson Road REF.

The assessment finds that the existing trunk drainage network has capacity for the proposed building and there will be no physical impact on the operation of the existing infrastructure as a result of the development.

5.13 Air Quality

An Air Quality Impact Assessment Statement, prepared by AECOM, is provided at **Appendix T**. The assessment findings confirm that the proposed construction works will not result in air emissions that exceed the NSW EPA air quality criteria when considered either in isolation or cumulatively in relation with concurrent development works carried out in proximity to the C1 site.

Air emission levels associated with the development are expected to be relatively low given that construction works will not involve any excavation or demolition works.

AECOM has noted the following concurrent construction activities in proximity to the site including a small number of Stage 1A works, remediation of the declaration area just north of the Commercial Building C1 construction area within the Stage 1B area, and the remediation and construction of the Crown Hotel Resort and Residential Buildings R4A and R4B. However, the relatively nominal contribution of air emissions under this proposal will ensure cumulative impacts do not detract air quality beyond relevant air quality criteria.

5.14 Noise Impacts

A Construction and Operational Noise Impact Assessment, prepared by Wilkinson Murray, is appended with this application at **Appendix U**. The assessment is carried out in accordance with the relevant noise Policies and Guidelines as well as other requirements raised under the SEARs.

Construction Noise

Construction Noise Levels generally comply with applicable noise management levels for all adjoining noise sensitive residential receivers in proximity to the C1 site apart from Hickson Road residences where noise levels are predicted to marginally exceed levels by 3dBA on Saturdays. The exceedance is only predicted during the building's façade construction phase. Noise levels during the structural construction phase will comply with noise management levels.

Noise sensitive commercial receivers in proximity to the site include Tower 1, 30 Hickson Road, Shelly Hotel and the Sussex Hotel. With the exception of Tower 1 and potentially Building C2 (when the occupation commences), construction noise levels satisfy the noise management levels to this surrounding site. In this instance, minor exceedance in noise levels are expected given the proximity of Tower 1 and Building C2. However, the façade of these two buildings is expected to ameliorate noise levels by approximately 25dBA. As such, internal noise levels during the more intensive period of construction is expected to marginally exceed internal noise levels by 5dBA along points of the adjoining building that are closest to the site (eastern and northern elevation of Tower 1 and Building C2).

A child care centre is also located at the podium of Tower 1. The external areas of the child care centre are not currently in use and are not expected to be in use prior to the completion of construction of Commercial Building C1, due to the excavation occurring in Stage 1B. Predicted Internal noise levels for the child care centre exceed noise management levels by over 5dBA.

Construction Traffic Noise

As noted in the Arup Transport Assessment Report at **Appendix P**, proposed traffic associated with construction of Commercial Building C1 is approximately three additional trucks per hour. This is consistent with projected and approved traffic movement noise levels for Commercial Building C1. Contribution of construction traffic noise levels to existing levels 0.1 dBA and is not considered to significantly affect cumulative traffic noise levels.

Cumulative Construction Noise

Other development projects are also noted in proximity to the site within South Barangaroo precinct. As such, cumulative construction noise impacts to surrounding residential receivers are also assessed using noise levels predicted in each of their relevant applications.

Commercial Building C1 construction noise levels are significantly lower (by approximately 10dBA) than the predicted construction noise levels of other developments within the precinct. The Noise assessment concludes that the Commercial Building C1 will not compound to the cumulative construction noise impacts to surrounding residential receivers.

Predicted noise levels identified under the Construction and Operational Noise Impact Assessment precludes construction and noise management measures as set out under the Environmental, Construction, and Site Management Plan (refer to **Appendix K**) and the Noise & Vibration Management Sub-Plan which will further ameliorate and mitigate noise impacts.

Operational Noise

Ongoing operational noise for Commercial Building C1 is expected to be limited to the rooftop mechanical plant and the noise generated from use of the retail tenancies at ground level (subject to a separate future retail tenancy applications, in accordance with the approved Barangaroo South Acoustic Masterplan).

Given that specifications of the mechanical services equipment are not known at this stage, it is proposed that detailed operational noise assessment of the proposal be undertaken at detailed design stage by way of a conditional requirement to the development.

Location and acoustic treatment measures of building's plant equipment will take into consideration proximity of nearest sensitive noise receivers.

5.15 Contamination

A Contamination Assessment Statement, prepared by AECOM, is provided with this application at **Appendix I**. The assessment concludes that the proposed development:

- Is consistent with the approved high density residential and commercial uses envisaged for development area (south), which includes the Commercial Building C1 site, under the approved site specific Remediation Action Plan (ORWS RAP);
- Remediation works for the Commercial Building C1 site was undertaken at the time of constructing works in accordance with the Excavation and Basement Car Parking application;
- Sits entirely above the existing Commercial Building C1 basement level and within the extent of its footprint;
- Does not include any works involving further excavation of the ground soil; and
- Thereby satisfies the requirements under Clause 7(1), 7 (2) and 17(1) of the State Environmental Planning Policy 55- Remediation of Land.

5.16 Ecologically Sustainable Development

A range of significant sustainability targets have been established for Barangaroo South that will be delivered progressively throughout the development phase. Commercial Building C1 specific initiatives will further assist in achieving these precinct targets. Proposed initiatives include:

- Careful consideration of site setting and microclimate to ascertain glazing treatment and insulation requirements.
- Materials, sealants and adhesives will be chosen responsibly to be consistent with Green Star to minimise VOCs and formaldehyde.
- Incorporation of rooftop solar photovoltaic.
- Low energy design incorporating external shading, external planting to enhance micro-climates, mixed mode design, low energy LED lighting and connection to precinct district cooling plant.
- Connection to non-potable water supply from Recycled Water Treatment Plant for flushing, use of low flow fittings to minimise water use, stormwater management by collection of rainwater for irrigation purposes.

- Connection to the Barangaroo South District Cooling Plant (DCP) via a heat exchanger in the basement, reducing annual energy consumption and lowering peak electrical events, supporting the broader electrical network.

The Sustainability Report prepared by Lendlease included at **Appendix O** demonstrates that the proposed development supports the site wide aspirations through the use of renewable energy, water sensitive urban design and selection of environmentally responsible materials.

An analysis of the proposal against the principles of ecologically sustainable development set out in the EP&A Regulation is provided in **Section 7.3**.

5.17 Building Infrastructure Provision

Much of the on-site stormwater infrastructure has already been delivered as part of the Excavation and Basement Car Parking Project Application (MP10_0023) and the Stage 1A Public Domain SSDA (SSDA6303) approvals.

Cardno has prepared an Infrastructure Provision and Stormwater Statement (refer to **Appendix S**) outlining the existing infrastructure provided in the Barangaroo South locality. The statement also confirms that the area's existing trunk stormwater infrastructure, provided as part of the SSDA 6303, has the capacity to service the proposed development.

5.18 Building Code of Australia

A Building Code of Australia (BCA) Assessment has been prepared by McKenzie Group Consulting and is included at **Appendix V**. The assessment identifies the areas of the development including fire resistance, egress, fire services and equipment, ventilation, lift services, sanitary facilities, access and energy efficiency that either comply with the BCA requirements or are to be the subject of a performance based alternative access solutions.

Due to the size and nature of the building, it is anticipated that the building would feature alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA. The alternate solutions will be resolved at detailed design stage and will be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.

5.19 Environmental, Construction and Site Management Plan

An Environmental Construction and Site Management Plan (ECSMP) has been prepared by Lendlease (**Appendix K**) to address environmental issues associated with the construction of Commercial Building C1 including the specific items as required by the SEARs.

5.20 Sea Level Rise and Climate Change

A detailed Climate Change and Sea Level Rise report was prepared by Arup and submitted as part of the Stage 1A Public Domain application (SSD 6303). This assessment was prepared in accordance with the *NSW Coastal Planning Guideline: Adapting to Sea Level Rise*. The assessment determines that there is a risk that a 0.9 metre sea level rise could result in inundation of parts of the Barangaroo South site by either direct coastal inundation or by a failure of the stormwater system where the discharge point to the Harbour would become submerged during extreme storm surge events. This assessment found that any risks associated with sea level rise within Stage 1A of Barangaroo South are manageable by utilising industry standard and proven design and construction techniques. Cardno has prepared additional assessment of climate change and sea

level rise in specific relation to Commercial Building C1 (refer to **Appendix S**), noting that the existing local drainage systems in the surrounding area may reduce in capacity and effectiveness as outlets to the harbour become increasingly submerged. These risks have been addressed through:

- Locating site based stormwater discharge points at a high level within the new sea wall to allow gravity flow of the run-off to the harbour.
- Design of stormwater transport systems to incorporate partial inundation from tide flows.
- Specification of materials to marine grade to prevent accelerated degradation.
- Use of tidal flaps on stormwater discharge points.
- Provision of local overland flow paths within the development site should the discharge point become obstructed.

As a result of these mitigation measures and the strategy outlined by Arup, it is considered that any risks associated with climate change and sea level rise can be appropriately mitigated for Commercial Building C1.

6.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the development has been adapted from *Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools*.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- The adequacy of baseline data.
- The potential cumulative impacts arising from other developments in the vicinity of the site.
- Measures to avoid, minimise and offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 15 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- The receiving environment.
- The level of understanding of the type and extent of the impacts.
- The likely community response to the environmental consequence of the project.

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- The complexity of mitigation measures.
- The known level of performance of the safeguards proposed.
- The opportunity for adaptive management.

The sum of the value assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 15 – Risk Assessment Matrix

Table 10 – Commercial Building C1 Environmental Risk Assessment

Potential Environmental Impact			Risk Assessment			
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and/or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Key: C = Construction, O = Operation						
Reflectivity	O	Reflectivity and glare impacts on pedestrians and vehicles	A more detailed study will be undertaken during detailed design to ensure the material specified results in a compliant solution and that glare risk is remediated.	2	1	3 (Low)
Infrastructure	C	Impact on existing infrastructure	Lendlease and Cardno have confirmed that no existing infrastructure is impacted as a result of the proposed Commercial Building C1 and there is adequate infrastructure to service the building.	1	1	2 (Low)
Air Quality and Odour	C	- Diminished air quality levels - Increased odours during construction	Implement proactive air quality management practices, including material handling and equipment usage practices. Implementation of these practices will ensure that adverse effects on local air quality are not expected to occur.	2	2	4 (Low/Medium)
Noise	C	- Increase in noise and vibration levels during construction activities - Increase in noise levels during operation	- Location of acoustically significant plant adjacent to the Tower 1 podium should be avoided where possible. - Procedures and management measures in the existing side-wide environmental management plan should continue to be applied during the construction of Commercial Building C1.	2	3	5 (Low/Medium)
Water, Drainage, Stormwater and Groundwater	C+O	- Altered overland flow patterns causing flooding - Increased sediment and erosion runoff	All water, drainage, stormwater and groundwater considerations have been resolved under the Excavation and Basement	2	2	4 (Low/Medium)

Potential Environmental Impact			Risk Assessment			
		Diminished water quality levels	Car Parking and Stage 1A Public Domain applications.			
Traffic	C+O	- Increased construction traffic - Increased traffic delay times - Diminished level of service on surrounding road network	Construction traffic will not impact on the overall operation of the local road network and the level of construction traffic is anticipated to be low. Traffic generated during operation of Commercial Building C1 will have a negligible impact in the context of CBD traffic volumes and there will be minimal changes in the operation of key intersections surrounding the site. Implement travel demand management measures in accordance with Transport Assessment prepared by Arup.	2	2	4(Low/Medium)

7.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 11** below. These measures have been derived from the previous assessment in **Section 5** and those detailed in appended technical reports.

Table 11 – Mitigation Measures

Mitigation Measures
Air and Odour
Implement proactive air quality management practices in accordance with existing environmental management plans, including material handling and equipment usage practices.
Reflectivity
A more detailed study will be undertaken during detailed design to ensure the material specified results in a compliant solution and that glare risk is remediated.
Noise
• Location of acoustically significant plant adjacent to the Tower 1 podium should be avoided where possible. • Procedures and management measures in the existing side-wide environmental management plan should continue to be applied during the construction of Commercial Building C1.
Traffic
Implement travel demand management measures in accordance with Transport Assessment prepared by Arup.
Building Code of Australia
Alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA should be considered. The alternate solutions should be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.
Environmental, Construction and Site Management Plan
The ECSMP and associated sub-plans should be implemented during the construction phase of the development.

8.0 Justification of the Proposal

In general, investments in major projects are justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits. The EP&A Act specifies that such a justification must be made having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development.

The proposed development involves provision of Commercial Building C1 at Barangaroo South. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

Various components of the biophysical, social and economic environments have been examined in this EIS and are summarised below.

8.1 Social and Economic

Barangaroo South is the southern 7.5 hectares of the Barangaroo site, which accommodates commercial floor space for employment opportunities, residential dwellings and retail development to encourage activity along the previously inaccessible Sydney Harbour foreshore and will also be the first carbon neutral precinct in Australia. The precinct comprises a mix of land uses and will be home to approximately 1,200 residents, 23,000 workers and approximately 11 hectares of public space. The social and economic success of Barangaroo relies on the delivery of buildings in accordance with the Concept Plan to support these uses.

The proposed development will complete Stage 1A of Barangaroo South and will have a significant positive social and economic impact for the large number of future visitors, residents and workers at Barangaroo South. Specifically, Commercial Building C1 will:

- Provide a use that services residents, workers and visitors to Barangaroo, supporting the surrounding users on the site and the wider Sydney CBD;
- Creates a uniquely tactile wooden-frame building to match Building C2 and that relates to the pedestrian scale on Hickson Road and Scotch Row; and
- Provides a range of employment opportunities during construction and operation.

There are no adverse social or economic impacts as a result of the proposed development.

8.2 Biophysical

Section 5.0 of this EIS contains a thorough assessment of the likely biophysical impacts of the proposed development. The environmental risk assessment contained at **Section 6.0** demonstrates that the proposed development will not result in any significant environmental impacts that cannot be appropriately addressed through standard conditions of consent or the current mitigation measures included at **Section 7.0**.

The environmental impact assessment of the proposed development has demonstrated that:

- Water management measures will be implemented to ensure that there are no adverse water, drainage, stormwater or groundwater impacts;
- Responsive measures will ensure that air quality impacts are managed during the construction phase;
- No specific noise or vibration management measures are required for the proposal; and

- Construction and operational traffic can be appropriately managed.

8.3 Ecologically Sustainable Development

The EP&A Regulation lists four principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of resources.

An analysis of these principles follows.

Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any uncertain or serious threat of irreversible damage to the environment.

Intergenerational Equity

Intergenerational equity is concerned with ensuring that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- Enhancing the experience of visitors to the precinct by providing a building that exhibits design excellence at the entrance to the precinct and contributing to the built form of Barangaroo South;
- Providing a new building to contribute to the activation of the public domain around Barangaroo South;
- Providing a building that exceeds industry best practice in environmental performance by achieving a 6-star Green Star rating to contribute to the overall environmental performance of the precinct; and
- Implementing safeguards and management measures to protect environmental values.

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications, such as climate change, will be avoided and/or minimised by design and through the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

This EIS has demonstrated that the proposal will not have any significant effect on the biological diversity and ecological integrity of the site and surrounding area. The potential impacts associated with development identified in the expert consultant reports (see **Section 5.0**), particularly those associated with constructed, have been incorporated into the mitigation measures at **Section 7.0** of this EIS.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

9.0 Conclusion

This EIS has been prepared to consider the environmental, social and economic impacts of the proposed Commercial Building C1 at Barangaroo South. Commercial Building C1 is comprised of a seven storey, timber frame, commercial building, designed by Tzannes Associates in accordance with a design excellence process to complement the existing development of Building C2. Together these buildings will frame and address the Barangaroo South precinct to Hickson Road.

Building C1 will provide a total of 11,017m² of commercial office space as well as 731m² of retail floor space provided at the ground floor to activate Scotch Row, Watermans Quay, Hickson Road and Shipwright Walk. The detailed fit out of these spaces will be subject to further approval (CDC or DA as required).

The proposal has been developed through an endorsed design excellence process and is considered to exhibit a high degree of both design quality and amenity, providing positive urban design outcomes for Barangaroo South and the wider central Sydney. This EIS has addressed the issues outlined in the SEAR's and accords with Schedule 2 of the EP&A Regulation with regards to requirements for an environmental impact statement. Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- Commercial Building C1 will continue the appropriate transition between the wider Barangaroo South site and Hickson Road, and establishes a gateway to the precinct;
- The building will provide for an inviting and attractive environment for future visitors and workers;
- The building has been developed through a design excellence process and is considered to exhibit a high degree of design quality and amenity, providing both positive urban design and architectural outcomes;
- The proposal is consistent with and complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines, including Concept Plan (Mod 8);
- The proposal will have a wide range of positive social and economic impacts.
- There are no adverse environmental impacts that cannot be appropriately managed by the mitigation measures set out in this EIS.

Given the merits described above it is requested that the application be approved.