ENVIRONMENTAL IMPACT STATEMENT

F23 SITE

Administration building

SSD_7055

May 2016

urbis

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

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Job Code	SA5787
Report Number	Final Report for DPE submission 24 May 2016

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Glossary

Council	City of Sydney Council
CLM Act	*Contaminated Land Management Act 1997*
CLEP	City of Sydney Local Environmental Plan 2012
SEARs	Secretary's Environmental Assessment Requirements
P&E	NSW Planning and Environment
EEC	Ecologically Endangered Community
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Commonwealth Environment Protection Biodiversity Conservation Act 1999*
ESD	Ecologically Sustainable Development
LGA	Local Government Area
NSW Government	State government for NSW
Public Land	Open space, public reserve and road dedication lots
ISEPP	*State Environmental Planning Policy (Infrastructure) 2007*
SEPP (BASIX)	*State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004*
SEPP 55	*State Environmental Planning Policy 55 (Remediation of Land)*
SEPP 64	*State Environmental Planning Policy 64 (Advertising and Signage)*
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SSD	State Significant Development
SSS	State Significant Site
TOD	Transit Oriented Development
TSC Act	*NSW Threatened Species Conservation Act 1997*
WSUD	Water Sensitive Urban Design
WIK	Work In Kind
VMP	Vegetation Management Plan
VPA	Voluntary Planning Agreement

Signed Declaration

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

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

Environmental Assessment prepared by:

	Prepared by	**Peer Reviewed by**
Name:	Rachael Snape (Senior Consultant): Bachelor Urban and Regional Planning, University of New England	Peter Strudwick (Director, Planning) Bachelor Town Planning, University of New South Wales
Address:	Urbis Pty Ltd Level 23, Darling Park Tower 2, 201 Sussex Street Sydney NSW 2000	Urbis Pty Ltd Level 23, Darling Park Tower 2, 201 Sussex Street Sydney NSW 2000
In respect of:	F23 Administration Building	

Applicant and Land Details:

Applicant:	University of Sydney
Applicant Address:	Services Building G12 22 Codrington Street DARLINGTON NSW 2008
Land to be Redeveloped:	Land bound to the north by the existing Madsen Building and the south City Road, Camperdown.
Lot and DP:	Part Lot 11 DP 1171806 & Part Lot 1 in DP 1171804
Project:	F23 Administration Building

Declaration:

I certify that the contents of the Environmental Impact Assessment to the best of my knowledge, has been prepared:

- In accordance with the requirements of the Schedule 2 of *Environmental Planning and Assessment Regulation 2000*; and *State Environmental Planning Policy (State and Regional Development) 2011*.
- On the basis of all information made available to the writers
- The information contained in this statement is true in all material particulars and is not misleading.

Name	Peter Strudwick, Director	Rachael Snape, Senior Consultant
Signature:		
Date:	24/05/2016	24/05/2016

Executive Summary

OVERVIEW

This Environmental Impact Statement (EIS) has been prepared in support of a Development Application for State Significant Development pursuant to Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This application seeks project approval for demolition of an existing car park to allow for construction of a new five (5) storey administration building above two (2) levels of basement car parking. The building will consolidate existing administration functions including executive University staff such as the Chancellor, Vice-Chancellor and Pro-Vice Chancellors. Combined with executive offices the development provides an opportunity to collocate general administrative functions and offer meeting rooms and associated small scale retail that support and are consistent with the broader educational establishment use.

The project will include site preparation, civil and public domain works on land legally known as part Lot 11 DP 1171806 and part Lot 1 in DP 1171804. The building site is located to the south of the existing Madsen Building and north of City Road within the University of Sydney, Camperdown Campus. The project is known as the F23 Administration Building.

Secretary Environmental Assessment Requirements (SEARSs) for the project (SSD_7055) were issued on 28 May 2015. A copy of the SEARs is included at **Appendix A.**

PROJECT OBJECTIVES

The key objectives of the proposal are to:

- Relocate and consolidate existing executive staff offices and general administration functions into a single building located in a prominent location within the University grounds;
- Continue to deliver upgraded facilities in line with the broader Campus Improvement Program to support the achievement and delivery of a world class educational establishment

The proposed development is focused on consolidating administration functions and does not seek to increase floor space for the purpose of increasing student or staff capacity.

PROPOSAL

In summary, development consent is sought for under Section 83(1) of the EP&A Act:

- Demolition of the existing car park, including removal of 17 trees 63 car parking spaces; and
- Construction of a new five (5) storey administration building with ground level ancillary cafe, above two (2) levels of basement car parking for 96 cars, 76 bicycles and 21 motor cycles;
- Ancillary works to include modified vehicle access and road layout, stormwater management works, public domain and landscaping works; and
- Building and business identification signage.

KEY ISSUES

The proposed development involves the construction and use of an administration building that will allow for the consolidation of various existing administration functions across the Camperdown Campus. The consolidation will permit improved functionality and operation of the campus for staff and students alike.

The key potential environmental impacts that have been identified as part of the proposed development are as follows:

- Statutory and Strategic Context.
- Policies.
- Built Form and Urban Design.
- Environmental Amenity.
- Transport and Accessibility.
- Ecological Sustainable Development.
- Noise and Vibration.
- Biodiversity.
- Non-Aboriginal and Aboriginal Heritage.
- Construction impacts related to noise, air quality, water quality, soil and erosion, groundwater, waste and traffic.
- Contamination.
- Utilities.
- Contributions.
- Drainage and Flooding.
- Waste.

These issues align with the SEARs. The potential environmental impacts are considered to be either positive or able to be mitigated through the adoption of appropriate management measures.

A summary of environmental impact assessment recommendations and the adopted response is given in **section 9**.

CONCLUSION

This EIS has been prepared to assess the proposed erection and use of a new administration building as part of the Camperdown Campus of the University of Sydney. It is justified to proceed with this proposal for the following reasons:

- The proposal demonstrates consistency with the relevant environmental planning instruments including strategic planning policy, State and local planning legislation, regulation and policies. The proposal also fully addresses the issues identified in the SEARs.
- The proposal will result in minimal environmental impacts, all of which can be mitigated through the recommendations detailed in **section 9** of this report.

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1 Introduction

1.1 OVERVIEW

This Environmental Impact Statement (EIS) has been prepared in support of a Development Application for State Significant Development pursuant to Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The application seeks consent for a Project Approval involving the construction of a new five(5) storey building to facilitate the consolidation of existing executive staff and administrative functions presently fragmented across the Sydney University Campus to central and prominent location on the, Camperdown Campus. The new building works will be supported by associated public domain improvements.

The development site is located at the southern edge of the Camperdown Campus to the north of City Road, west of Eastern Avenue and the existing pedestrian bridge and east of Fisher Road on land presently used for the purpose of at grade car parking. The site does not form part of the Concept Approval for the Campus Improvement Program (CIP) approved by the Minister for Planning and Environment on 15 February 2015 (SSD13_6123).

The proposal is not inconsistent with the terms of the CIP and is one of several "stand alone" development sites that were intentionally excluded due to their isolation from the "precinct based approach". This methodology was discussed and generally agreed with the Department of Planning and Environment (DPE). Notwithstanding this, the relevant built form aspects of the CIP have been considered in the design development of the project to ensure an integrated and complimentary design and planning approach. The works will not compromise the delivery of the CIP and are not inconsistent with the terms of the Concept Approval.

In summary, the Development Application for State Significant Development (SSD_7054) seeks consent for project approval involving construction and use of a new administration facility. The proposed development will generally include the following:

- A building mass of 8,632m^2 Gross Floor Area (GFA) and Height of Building 26.28 metres;
- Public domain works within Eastern Avenue;
- Tree removal and tree protection works; and
- Utilities and services infrastructure.

The proposal has been informed through an extensive site planning and urban design process, including a competitive design process held by the University of Sydney to guide development on the site and the proposed works. An Urban Design Report has prepared been prepared by University of Sydney and provided in **Appendix D** which:

- Identifies the proposed building footprint, public domain areas and pedestrian/cycle linkages
- Forms the basis of the proposed building mass and heights
- Informs the basis for resolving this important entry point to the Camperdown Campus and its relationship with City Road and Eastern Avenue

This EIS has been prepared by Urbis on behalf of the proponent, the University of Sydney. The Secretary's Environmental Requirements (SEARs) for the project were issued on 28 May 2015 which identifies issues to be addressed in the preparation of the EIS.

This EIS has been prepared in accordance with Schedule 2 of the *State Environmental Planning Policy (State and Regional Development) 2011* and the SEARs. The EIS provides the following sections:

- **The Site:** Provides a description of the F23 Administration Building Site, the University of Sydney Camperdown Campus and the local and wider regional context. This section also outlines the constraints and opportunities identified for development of the site.

- **The Proposal:** Provides the project objectives and a description of the proposed works.

- **Justification and Assessment of Alternatives:** Details the justification for the proposed works which will facilitate the future development of the site and consideration of alternatives.

- **Consultation:** Details the consultation process undertaken to date and the specific consultation undertaken as a part of this application.

- **Planning Framework Assessment:** Provides a detailed review of the proposal against the commonwealth, state and local planning framework including an assessment of statutory and strategic planning considerations.

- **Environmental Assessment:** Details an in-depth assessment of the existing environment and the potential impacts for each of the key criteria in the SEARs.

- **Construction Environmental Management:** Details the specific considerations for the development of a Construction Environmental Management Plan.

- **Recommendations and Mitigation Measures:** Provides a consolidated list of recommendations and mitigation measures based on the technical studies undertaken as part of this application.

- **Conclusion:** Provides a summary of the impact assessment with concluding comments.

The proposal is supported by specialist consultant reports provided in the appendices of this report, together with plans detailing the proposed works. These technical studies were undertaken to assess specific potential environmental impacts. This submission consists of this EIS and supporting documentation (**Appendices A to X**).

1.2 BACKGROUND

The University is recognised as Sydney's oldest and principal University specialising in tertiary educational and research pedagogy. In 2014 the University attracted some 50,000 enrolments, employed over 7,500 permanent staff, and generated over 5,000 jobs in the areas of construction, facilities, maintenance and services. The University is a significant employment node and destination, as well as a future employment provider through its qualified students.

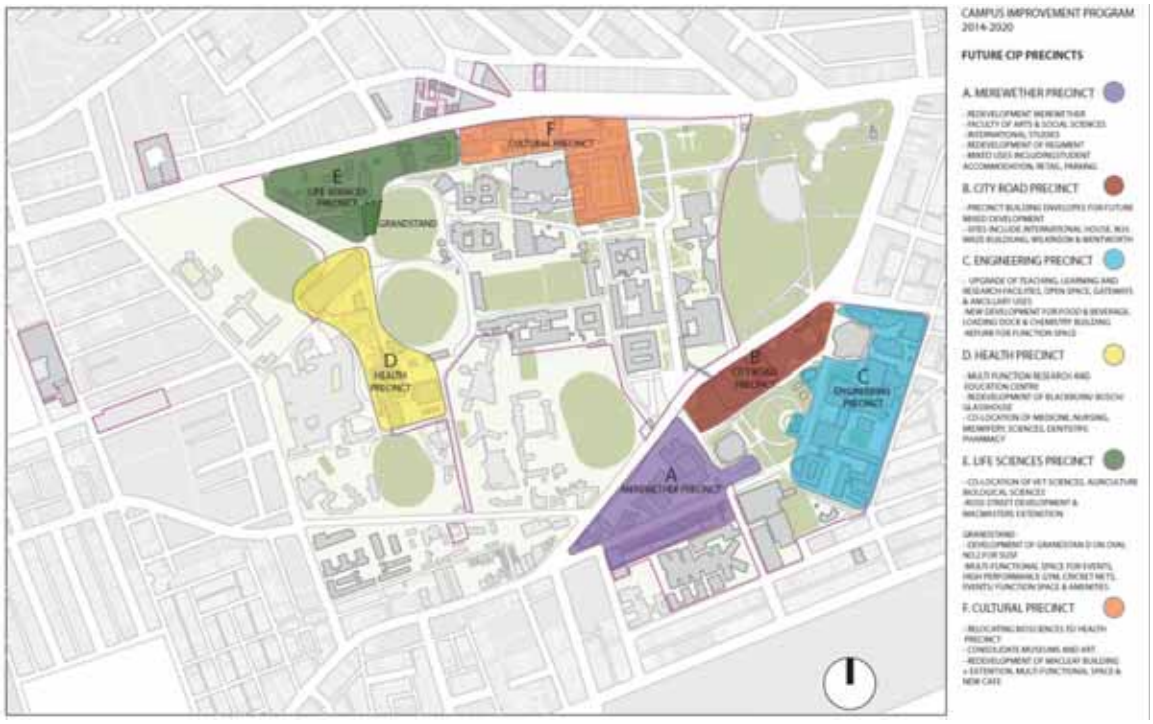
The University's Camperdown-Darlington campus is located within the Global Sydney 'city shaper' and the Sydney Education & Health precinct of the DPE's *Vision for Sydney in 2031*. The University makes a significant contribution to this precinct through high volume of domestic and international student enrolments, academic/ other staff employment and construction activity.

1.2.1 CAMPUS IMPROVEMENT PROGRAM

The University has adopted a Campus Improvement Program (CIP), a Stage 1 implementation strategy of development and infrastructure for the Camperdown-Darlington campus. The CIP, as a State Significant Development, was approved by the Minister for Planning and Environment (SSD 13_6123) on 15 February 2015.

The CIP divides the University into a total of six (6) campus precincts, as shown in **Figure 1**. The scale, form and mass reflected in each of the building envelopes adopted for each precinct was designed to respond to their respective and individual contexts. Approved land uses for a range of "*educational establishment"* University-related land uses, as well allowing for transport and access arrangements, landscape concepts, heritage and design principles for the University's campus.

FIGURE 1 –SYDNEY UNIVERSITY CAMPUS IMPROVEMENT PROGRAM (CIP) PRECINCTS



1.2.2 SYDNEY UNIVERSITY DESIGN COMPETITION

The University has conducted and completed a Concept Design Competition for the proposed development, which is detailed at **Appendix D**. Grimshaw was ultimately the successful architect and they have been engaged by the University of Sydney to design the proposed new building.

1.3 PROJECT OBJECTIVES

The objective of the development is to consolidate existing administration and business services from around the Camperdown and Darlington Campus' within a single building. The colocation of services will provide for improve operational efficiencies for the University as well as establishing a recognisable and prominent visual entry to the site.

Furthermore, the building location has been selected as a visible and prominent position within the Campus to promote and reinforce the Universities ideal of "Visible Leadership" an ethos that has also translated into the design and materials selection of the F23 Building, that allows for visible transparency through the use of light weight and visually permeable materials combined with an open and flowing floor plan to promote and enhance movement through and around.

The F23 Administration Building project will reinforce, define Eastern Avenue's pedestrian axis, adopting a massing that mediates between the existing orthogonal grid of the campus and the City Road alignment.

The proposal explores the potential for the architecture of the project to respond to the primary character of its key interfaces responding to the speed, visibility and momentum of City Road on the one hand; while simultaneously developing a more complex, human scaled response to the slow speed, public realm of Eastern Avenue.

Key design objectives include improving pedestrian amenity, and providing shade and shelter at the campus entry. Careful integration of the buildings with the public domain will add to the life of the campus and provide display and presentation of the internal life and activity of each building. The building is to provide visibility and transparency to the activity within and recognise that the sites provide a significant opportunity for the University to address the City and wider community.

1.4 REPORT STRUCTURE

The EIS provides the following sections:

- **Section 2 Site and Contextual Analysis:** Provides a description of the site, the regional and local context.
- **Section 3 The Proposal:** Provides a description of the proposed works and details separate works that TCSA is currently undertaking.
- **Section 4 Justification and Assessment of Alternatives:** Details the justification for the proposed works and consideration of alternatives.
- **Section 5 Consultation:** Describes the consultation undertaken with the relevant agencies and service providers.
- **Section 6 Legislative and Policy Framework:** Provides a detailed review of the proposal against the State and local planning framework.
- **Section 7 Environmental Assessment:** Provides an in-depth assessment of the existing environment, the potential impacts, and the mitigation measures for each of the key criteria in the SEARs.
- **Section 8 Section 79C Assessment:** Provides an assessment of the proposal against the matters of consideration listed in Section 79C of *the Environmental Planning and Assessment Act* 1979*.*
- **Section 9 Recommendations and Mitigation Measures:** Provides a consolidated list of recommendations and mitigation measures based on the technical studies undertaken as part of this application.
- **Section 10 Conclusion.**

1.5 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The SEARs were issued on 28 May 2015. A copy of the SEARs is included at **Appendix A**. **Table 1** below summarises the requirements and identifies where responses to each of the SEARs are addressed in this report.

TABLE 1 – SSD_7055 SECRETARY ENVIRONMENTAL ASSESSMENT REQUIREMENTS

REQUIREMENTS	REFERENCE
General Requirements	
The Environmental Impact Statement (EIS) must meet the minimum requirements in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, specifically form specifications in clause 6 and content specifications in clause 7.	Section 6.4.1
1. An Environmental Risk Assessment The EIS as well as addressing the key issues specified in the SEARs must also identify the potential environmental impacts associated with the development. Where relevant the assessment to identify the potential environmental impacts associated with the development. Where relevant the assessment of the key issues, and any other significant issues identified in the risk assessment, must include: ▪ Adequate baseline data;	

REQUIREMENTS	REFERENCE
▪ Consideration of potential cumulative impacts due to the other development in the vicinity; and ▪ Measures to avoid, minimise and, if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	
2. Capital investment value Provide a report from a quantity surveyor identifying the capital investment value for the proposal, providing: ▪ a detailed calculation of the Capital Investment Value (CIV) (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; ▪ an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and ▪ certification that the information provided is accurate at the date of preparation.	Appendix M.
Key Issues: The EIS must address the key issues set out in I to 13 below	
1. Statutory and Strategic Context The EIS is to address the statutory provisions applying to the concept proposal contained in all relevant environmental planning instruments, including: ▪ State Environmental Planning Policy (State & Regional Development) 2011; ▪ State Environmental Planning Policy (Infrastructure) 2007; ▪ State Environmental Planning Policy No 33—Hazardous and Offensive Development; ▪ State Environmental Planning Policy No.55 – Remediation of Land; and ▪ Sydney Local Environmental Plan 2012. *Permissibility* Detail the nature and extent of any prohibitions that apply to the development. *Development Standards* Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards. *Campus Improvement Program 2014 – 2020* In accordance with section 83D(3) of the *Environmental Planning and Assessment Act 1979,* demonstrate that the proposal is not inconsistent with the development consent granted for The University of Sydney Campus Improvement Program concept proposal (SSD 6123).	Section 6.1 -6.5
2. Policies Address the relevant planning provisions, goals and strategic planning objectives in the following: ▪ NSW 2021; ▪ Rebuilding NSW – State Infrastructure Strategy 2014 ▪ A Plan for Growing Sydney; ▪ NSW Long Term Transport Master Plan 2012; ▪ Sydney's Cycling Future 2013; ▪ Sydney's Walking Future 2013; and ▪ Healthy Urban Development Checklist, NSW Health.	Section 6.6

REQUIREMENTS	REFERENCE
3. Built Form and Urban Design ▪ Address the height, density, bulk and scale, and setbacks of the proposal in relation to the locality and the surrounding development (including SSD 6123 Campus Improvement Program building envelopes), topography and streetscape, having particular regard to the site's City Road gateway location, alignment of existing built form along Eastern Avenue, and existing significant trees fronting City Road. ▪ Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours, landscaping (having regard to The University of Sydney Concept Landscape Plan) and Crime Prevention Through Environmental Design Principles. ▪ Demonstrate design excellence, including details of any design competition, project briefs and how the design responds to comments and recommendations made by the evaluation committee. ▪ Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	Section 7.2
4. Environmental Amenity Detail amenity impacts including: ▪ Solar access; ▪ Acoustic impacts; ▪ Visual privacy; ▪ View loss; ▪ Overshadowing; ▪ Lighting impacts; and ▪ Wind impacts. A high level of environmental amenity for any immediately adjacent residential land uses must be demonstrated.	Sections 7.3 & 7.6
5. Transport and accessibility Include a transport and accessibility assessment that provides, but is not limited to, the following: ▪ the existing and proposed pedestrian and cycle movements within the vicinity of the site; ▪ an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and cycle trips; ▪ the adequacy of public transport to meet the likely future demand of the proposed development; ▪ measures to promote travel choices for students, staff and visitors that support the achievement of State targets, such as a location-specific sustainable travel plan, development of way-finding strategies and end of trip facilities for pedestrians and bicycle riders; ▪ the daily and peak vehicle movements impact on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works (if required);	Section 7.4

REQUIREMENTS	REFERENCE
▪ the proposed access arrangements and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks, including the existing City Road Footbridge; ▪ proposed car and bicycle parking provision, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards; ▪ proposed location of pedestrian and bicycle facilities in secure convenient, accessible areas close to main entrances that incorporate lighting and passive surveillance; ▪ service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); and ▪ an assessment of traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact. This plan shall include details of vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures for all demolition/construction activities. → *Relevant Policies and Guidelines:* ▪ *Guide to Traffic Generating Developments (Roads and Maritime Services)* ▪ *EIS Guidelines – Road and Related Facilities (DoPI)* ▪ *NSW Planning Guidelines for Walking and Cycling* ▪ *Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development*	
6. Ecological Sustainable Development ▪ Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development. ▪ Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice. ▪ Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.	Section 7.5
7. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. → *Relevant Policies and Guidelines:* ▪ *NSW Industrial Noise Policy (EPA)* ▪ *Interim Construction Noise Guideline (DECC)* ▪ *Assessing Vibration: A Technical Guideline 2006*	Section 7.6
8. Biodiversity Biodiversity impacts related to the proposed development are to be assessed and documented in accordance with the Framework for Biodiversity Assessment (FBA) (OEH 2014), unless otherwise agreed by OEH, by a person accredited in accordance with s.142B(1)(c) of the *Threatened Species Conservation Act 1995*. Note: In accordance with s.5.1.1.3 of the FBA, areas that are not native vegetation do not require further assessment in the FBA except where it is assessed as habitat for threatened species according to Section 6.4.	Section 7.7

REQUIREMENTS	REFERENCE
9. Heritage ▪ Include a statement of heritage impact prepared in accordance with the guidelines in the NSW Heritage Manual and include a statement of significance of The University of Sydney and its conservation area (C8), St Paul's College (I52) and Victoria Park (I39) and consider the accumulative material effect of the proposed development and proposed F23 Building (SSD 7055) on significance. ▪ Provide a landscape heritage assessment, including consideration of the cultural landscape of The University of Sydney and Victoria Park. ▪ The assessment shall address any archaeological potential and significance on the site and the impacts the development may have on this significance.	Section 7.8
10. Aboriginal Heritage ▪ All Aboriginal cultural heritage values that exist within the development site shall be identified, described and documented. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the *Guide to investigating, assessing and reporting Aboriginal Cultural Heritage in NSW* (DECCW, 2011) and in consultation with OEH officers. ▪ Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented. ▪ Where relevant, impacts on Aboriginal cultural heritage values are to be assessed and documented. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.	Section 7.8
11. Sediment, Erosion and Dust Controls (Construction and Excavation) Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles. → *Relevant Policies and Guidelines:* ▪ *Managing Urban Stormwater – Soils & Construction Volume 1 2004c(Landcom)* ▪ *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)*	Section 7.9
12. Contamination Demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. → *Relevant Policies and Guidelines:* ▪ *Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP)*	Section 7.10
13. Utilities ▪ Preparation of an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure.	Section 7.11

REQUIREMENTS	REFERENCE
▪ Preparation of an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	
14. Contribution Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement.	Section 7.12
15. Drainage and Flooding ▪ Detail drainage associated with the proposal, including stormwater and drainage infrastructure. ▪ Assess any potential flooding impacts associated with the development and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and increase in rainfall intensity.	Section 7.13
16. Waste Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 7.14
Plans and Documents	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: ▪ Architectural drawings (dimensioned and including RLs); ▪ A physical 3D model and 3D CAD model; ▪ Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and boundaries; ▪ Site Analysis Plan; ▪ Stormwater Concept Plan; ▪ Sediment and Erosion Control Plan; ▪ Shadow Diagrams; ▪ View Analysis / Photomontages; ▪ Landscape Plan (identifying any trees to be removed and trees to be retained or transplanted); ▪ Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan; ▪ Geotechnical and Structural Report; ▪ Arborist Report; ▪ Acid Sulphate Soils Management Plan (if required); and ▪ Schedule of materials and finishes.	Appendices A - X

REQUIREMENTS	REFERENCE
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: ▪ City of Sydney Council; ▪ Transport for NSW; ▪ Roads and Maritime Services; and ▪ Heritage Council of New South Wales. 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	Section 5

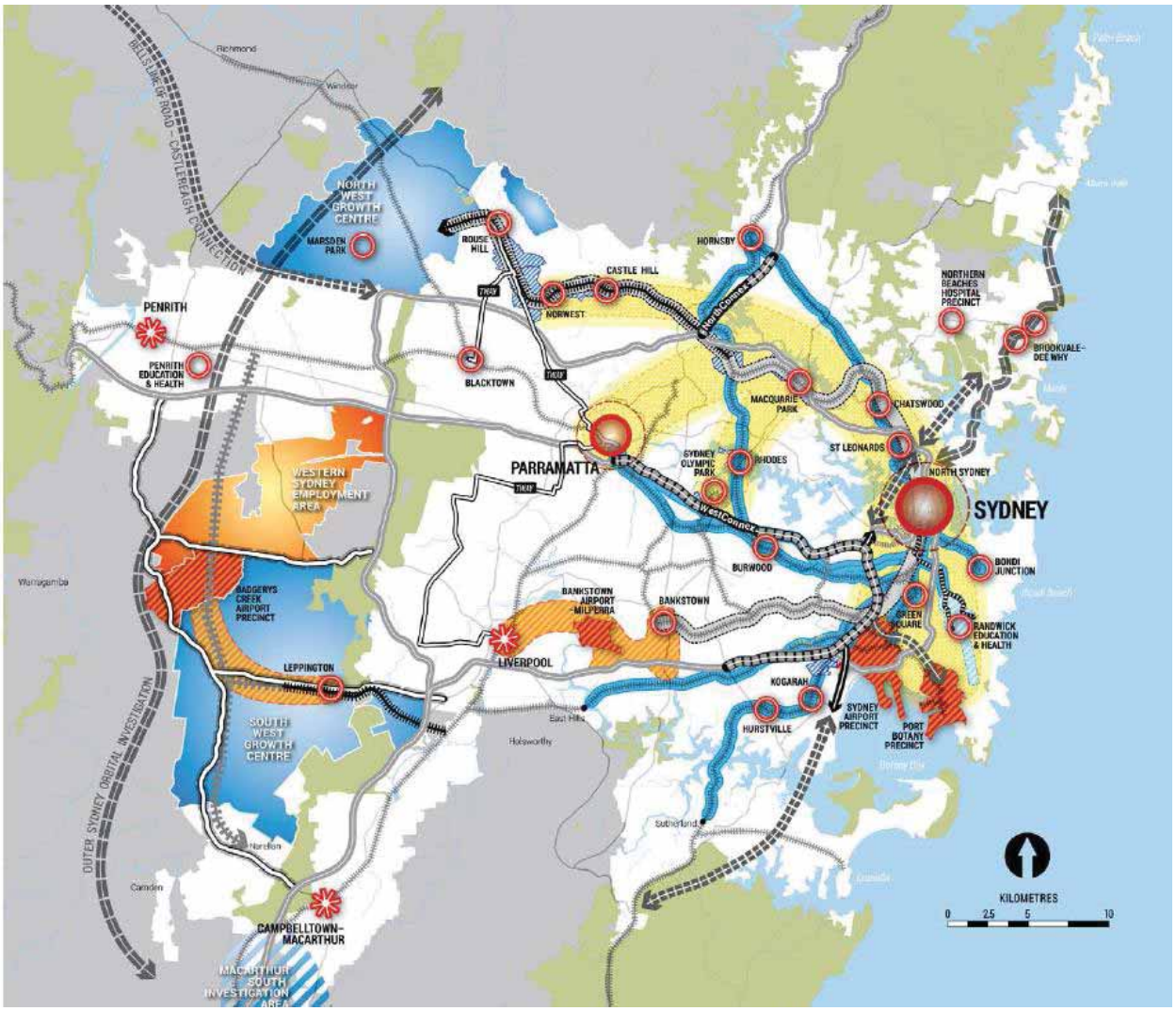
2 Context and the Site

2.1 REGIONAL CONTEXT

The University's Camperdown Darlington Campus is an inner-Sydney campus surrounded by arterial roads, rail infrastructure, and growing residential and business communities. Founded in 1850, the University is recognised as Australia's oldest and one of the leading Group of Eight (Go8) Universities as well as the nation's principal University specialising in tertiary educational and research pedagogy.

The University of Sydney is identified within NSW planning strategies as one of the key "Knowledge Assets" of NSW and is a major activity precinct for education, research and technology based jobs. Further, the University of Sydney forms part of the Local Government Area of Sydney City of Sydney and forms part of the "Central Business District" (CBD) within the Central Subregion as defined by the metropolitan plan "A Plan for Growing Sydney" (refer to **Figure 2**).

FIGURE 2 – A PLAN FOR GROWING SYDNEY (Source: www.planning.nsw.gov.au)

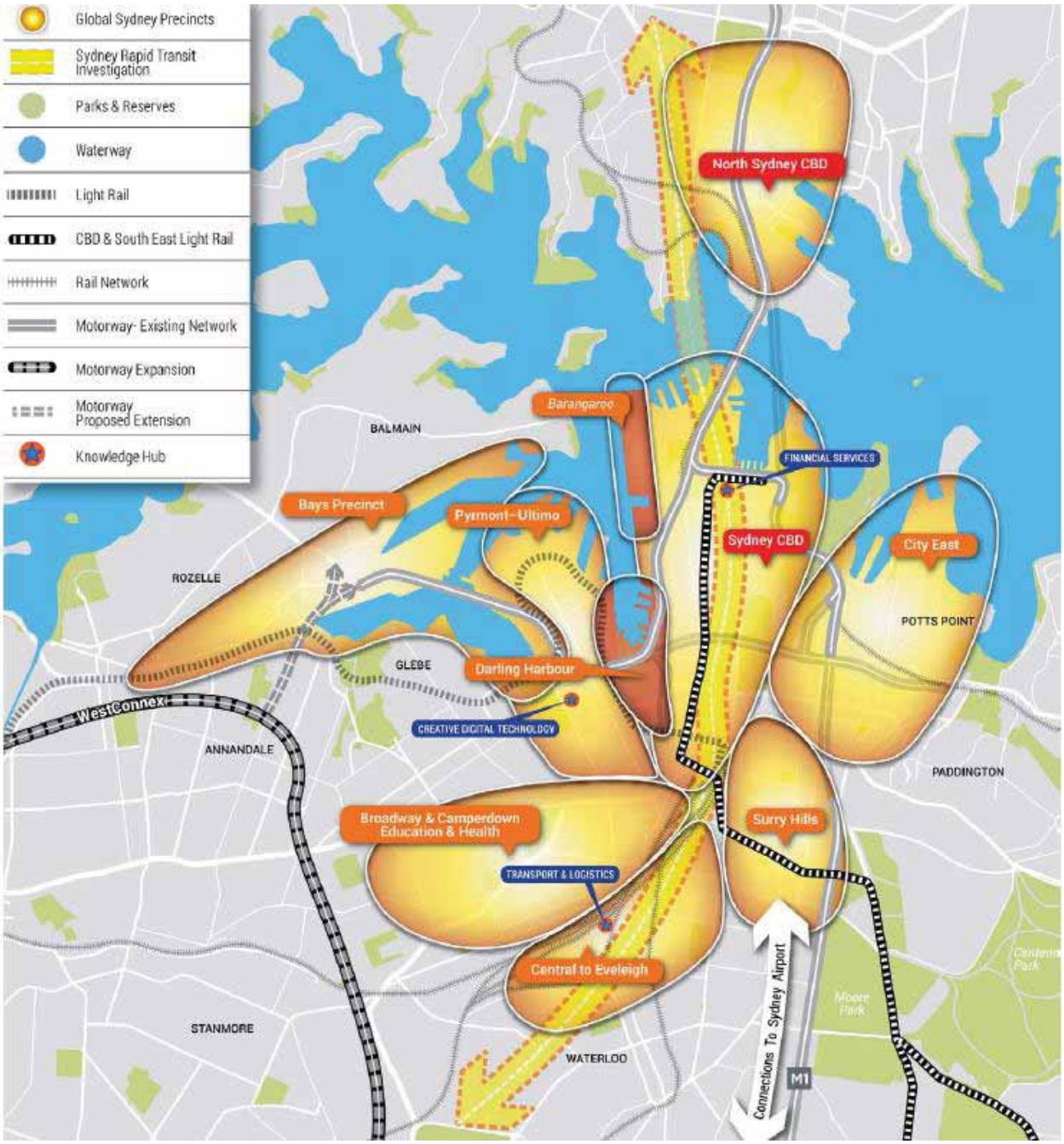


Sydney's CBD is the epicentre of the metropolitan region and is recognised as a "global city" a premier commercial market, generating 28 per cent of the City's GDP. The University Camperdown Campus is located at the south-western edge of the CBD and forms part of the "Broadway and Camperdown Education & Health Precinct" (refer to **Figure 3).**

The location of Camperdown Campus at the edge of the CBD and adjacent to Parramatta Road also places the University within University Sydney's "global economic corridor". an area of global economic activity stretching from Port Botany and Sydney Airport, through the Sydney Central Business District (CBD), North Sydney and St Leonards to Macquarie Park and Parramatta (refer to **Figure 2**). This region accounts for the majority of Sydney's globally oriented commercial businesses and over 10% of the National Gross Domestic Product.

The precinct is recognised as a significant area for world-class education, research medical, and technology-based jobs and include other significant infrastructure assets such as the University of Technology Sydney, the Sydney Institute of Technology as well as the Royal Prince Alfred Hospital (RPA) and the headquarters of the ABC.

FIGURE 3 – PRECINCTS OF GLOBAL SYDNEY (Source: www.planning.nsw.gov.au)



The University of Sydney and the neighbouring Royal Prince Alfred Hospital (RPA) collectively provides a significant inner city precinct that specialises in vital medical health, education and research. The precinct services not only Sydney but also the broader NSW and Australian community. Reflective of NSW planning principles for the integration of land use and infrastructure, there is a long standing research and teaching collaboration between the University and RPA, which is clearly demonstrated by the soon to be completed Charles Perkins Centre.

Further, the University is a significant contributor to Sydney's cultural experiences and includes various cultural attractions such as the Seymour Centre theatre, various campus museums and art galleries and heritage educational offerings.

The campus is well placed in close proximity to regional transport networks that support the role of the University as a leading educational, employment and cultural precinct. Central, Redfern, Newton and Macdonaldtown railway stations enables frequent and walking access to the campus. Various bus services along Parramatta Road, City Road and Cleveland Street offer alternative regional access routes to the site.

2.2 LOCAL CONTEXT

The Camperdown-Darlington Campus shown in **Figure 4** is situated on the western edge of the Sydney CBD, and comprises two distinct 'sub-campuses' of very different origins: Camperdown and Darlington, each divided by City Road.

FIGURE 4 – SYDNEY UNIVERSITY DARLINGTON AND CAMPERDOWN CAMPUS' (SOURCE: WARREN & MAHONEY)

F23 Site

The University is situated at the southern edge of the City of Sydney, Central Business District. Given the size of the campus landholdings the character of the area is variable, with development characterised as a mix of residential (low density and high density housing forms), medical and commercial uses together with public open space (Victoria Park).

2.2.1 UNIVERSITY OF SYDNEY: CAMPERDOWN CAMPUS

The Camperdown Campus sits bounded by Parramatta Road to the north, Victoria Park to the east, City Road to the south and the University Colleges and RPA to the west. Its major topographical feature is a ridge which drains to the Blackwattle Creek in the east and to Orphan School Creek in the west. The University grounds are on part of a broad ridge system which forms the watershed between Port Jackson and Botany Bay.

The University Campus was first established in 1854, prior to the construction of the university the land was used for agricultural purposes and was known as Grose Farm. The initial architecture of the University was Gothic Revival, selected based on its ease of adaptation and extension to meet future growth and demand. The first buildings constructed on the site were The Great Hall and the East Wing, constructed in 1855 and 1863 respectively.

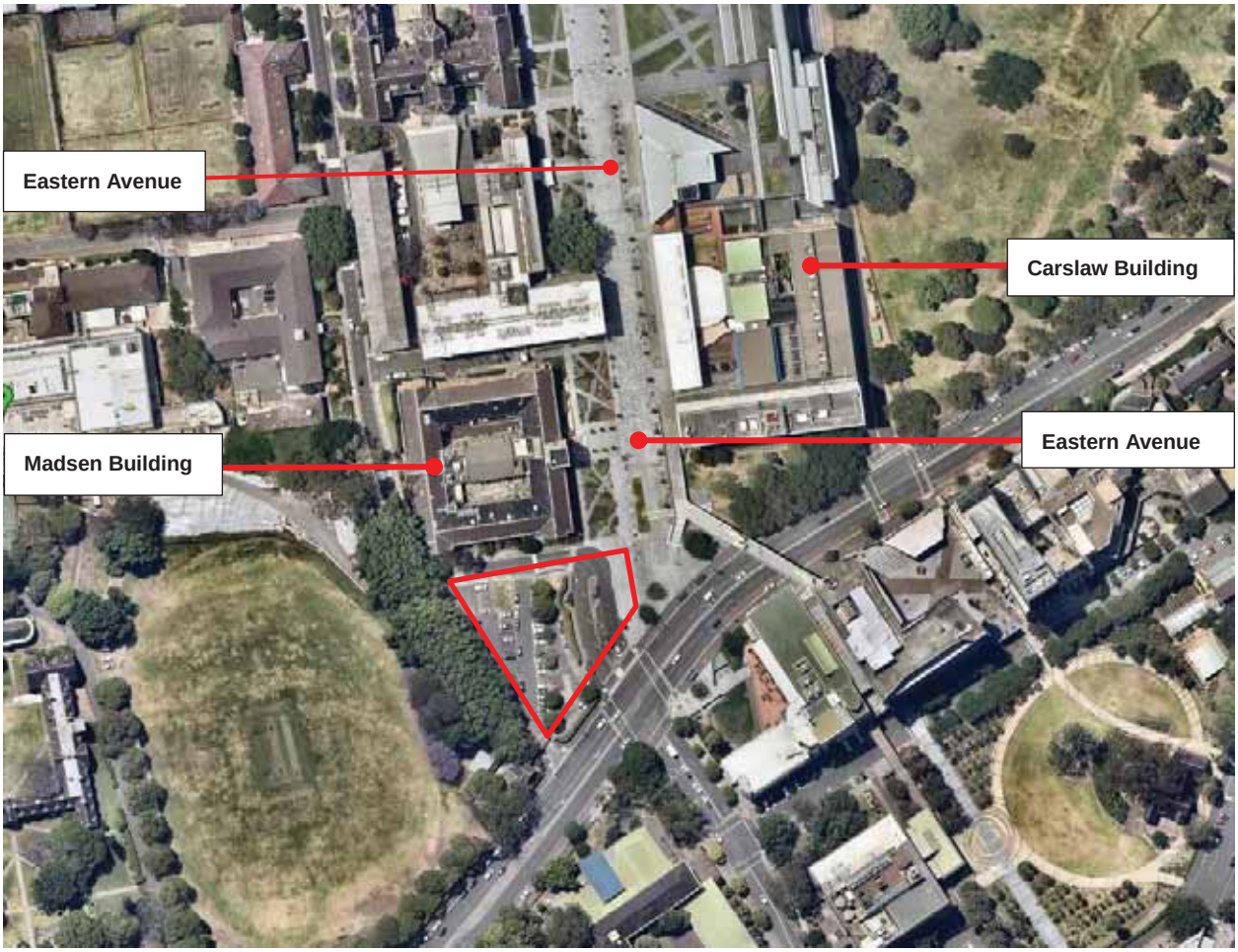
It was not until 1910, that the University sought to develop and implement a campus wide Master Plan. There were successive versions of the early plan adopted almost every two (2) years in 1913, 1915 and 1917. Notwithstanding this, due to cost restrictions and World War I, it was not until 1920 that a Master Plan was successfully developed and implemented. This plan was entitled *"A Plan showing suggested scheme for development"* and it is under this plan that Eastern Avenue was first defined.

2.3 THE F23 DEVELOPMENT SITE

The F23 Administration building site is located on the southern edge of the Camperdown Campus immediately to the south of the existing Madsen Building. The land subject to the SSDA is legally described as part Lot 11 DP 1171806 and part Lot 1 in DP 1171804.

The site is bound to the south City Road, to the west by Fisher Road and to the east by Eastern Avenue. As the site reflects an infill opportunity it is of an irregular configuration with front boundary, to City Road, measuring approximately 75 metres, western boundary to Fisher Road of approximately 98 metres, rear northern edge of 79 and eastern boundary 50 metres.

FIGURE 5 – AERIAL LOCALITY (source: www.google.com)



F23 building site

2.3.1 EXISTING DEVELOPMENT

The site is currently developed for the purposes of an at grade car park supporting a total of 63 parking spaces. The City/Fisher Road car park is for casual parking by students, staff and visitors to the Camperdown Campus. Use of the car park is not restricted by hours. However, a flat rate of $24 dollars per day is applied and expires at 6.00am (the following day).

Access to the car park is available from City Road or via internally via Fisher Road. The location of the site together with the general layout and development can be seen in the aerial image provided at **Figure 5.** Amenity tree plantings are planted through the centre of the site and along the eastern side of Fisher Road.

A sandstone and palisade fence extends the perimeter of the site. The fence demarcates the University boundary to City Road.

FIGURE 6 – EXISTING SITE LAYOUT AND DEVELOPMENT (SOURCE: GRIMSHAW ARCHITECTS)

2.3.2 SITE ACCESS

2.3.2.1 PUBLIC TRANSPORT

The University is highly accessible via public transport, with regular bus services available along Parramatta and City Road. The site is immediately adjacent to the south bound service stop with north bound services available on the opposite side of City Road accessible via the pedestrian over pass or traffic controlled intersection with Butlin Avenue. South bound services connect to central station, Sydney Central Business District. While north bound service connect to Newtown, Stanmore and Marrickville.

The location of bus stops along City Road in relation to the site is shown in **Figure 7.**

2.3.2.2 VEHICLE ACCESS

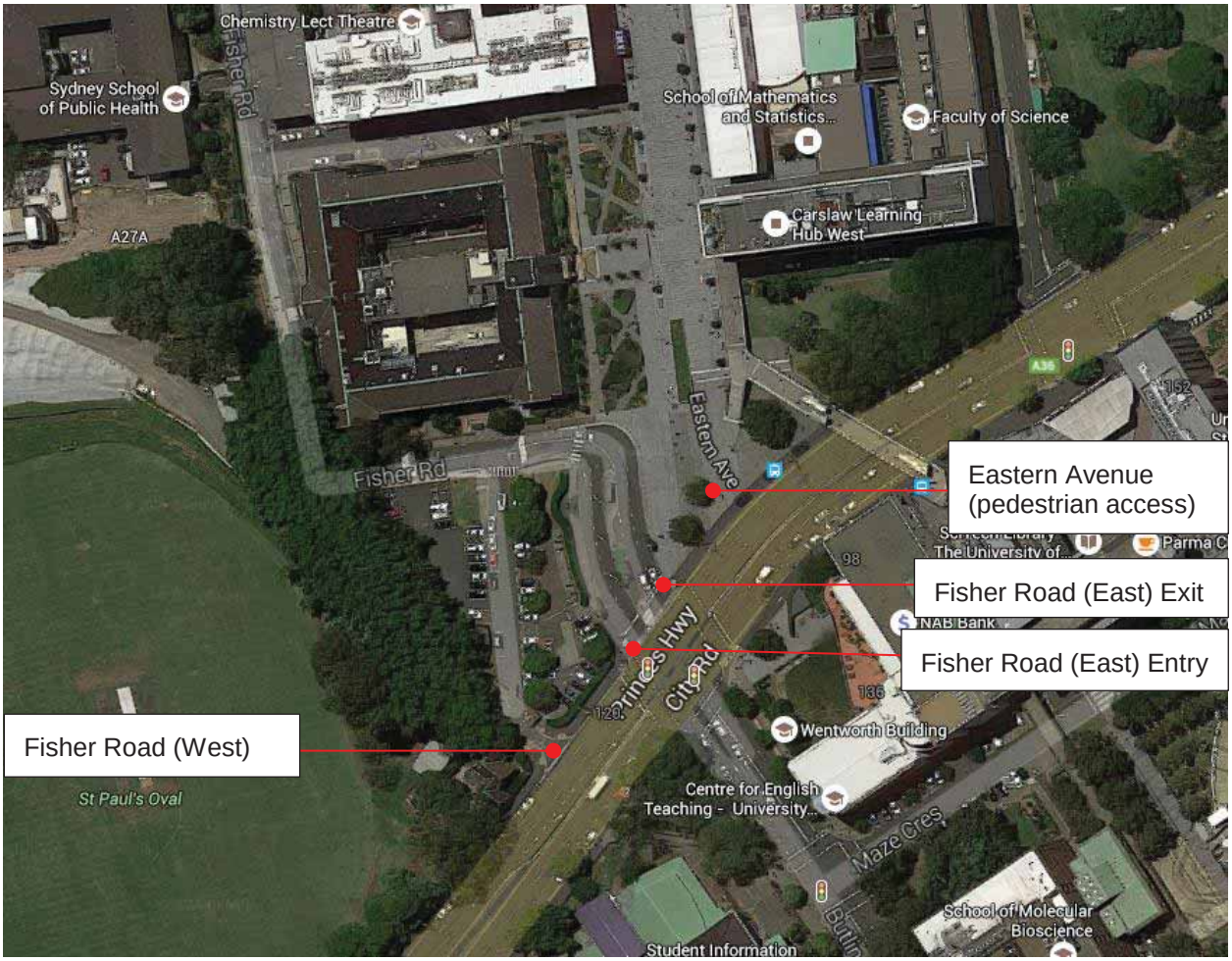
The site layout currently supports the following vehicle access, egress and movements:

- **Fisher Road (West):** A one way (left in only) access from City Road at the gatehouse; and
- **Fisher Road (East):** Separated two (2) lane entry and exit aligned with Butlin Avenue. The exit at Fisher Road east allows exiting vehicles to turn left or right onto City Road. Alternatively they may cross over City Road, south bound, to Butlin Road South.

2.3.2.3 PEDESTRIAN ACCESS

Pedestrian access is currently direct from City Road and along Eastern Avenue. Refer to **Figure 7**.

FIGURE 7 – SITE ACCESS LAYOUT (source: www.google.com)



2.3.3 TOPOGRAPHY

The site has a 2 – 3 metre cross fall, grading in an easterly direction from RL34.5 metres AHD to 31.5 metres AHD. Refer to survey provided at **Appendix B.**

2.3.4 SOIL

The site has been identified using the Sydney 1:100 000 Geological Series Sheet and confirmed through borehole testing as being underlain by Ashfield Shale of the Wianamatta Group, typically comprising black to dark grey shale and laminate (Douglas; 2015 p. 1).

Douglas Partners have undertaken preliminary bore hole testing to determine subsurface soil conditions. A total of four (4) boreholes were drilled to a depth of 12 metres. These preliminary tests have identified the soils profile described in **Table 2**.

TABLE 2 – SITE SOIL PROFILE (SOURCE: DOUGLAS PARTNERS, 2015)

LAYER CLASSIFICATION	DEPTH (RANGE)	SOIL TYPE
Fill	0.4 - 2.5 metres	Pavement, base material and silty clay with some gravels
Silty Clay	1.0 – 4.0 metres	Generally stiff silty clay
Shaly Clay	2.0 – 5.5 metres	Generally very stiff shaly clay

LAYER CLASSIFICATION	DEPTH (RANGE)	SOIL TYPE
Rock	5.5 -12 metres	Extremely low and very low strength laminate and or shale. Rock strength increased with depth with medium strength rock encountered at 5.5 to 89.2 metres.

2.3.5 WATER

2.3.5.1 SURFACE WATERS

There are no rivers, streams or estuaries within the site. As outlined in the Australian Museum Consulting, prepared a preliminary Biodiversity Assessment Report, the nearest waterways and waterbodies include:

- Orphan School Creek located approximately 900 metres north west of site;
- A stormwater channel approximately 1,500 metres west; and
- Lake Northam (a "wetland"), a large constructed pond that collects stormwater approximately 500 metres to the north east in Victoria Park.

2.3.5.2 GROUND WATER

Free groundwater was not encountered by Douglas Partners in the tested locations. However, the present of groundwater seepage cannot be discounted due to the use of drilling fluid during initial testing.

2.3.6 FLORA

The site, noted as being occupied by a concrete car park, supports limited vegetation. Vegetation present on site comprises exotic grasses and planted trees and shrubs in garden beds and hedges.
Approximately 17 trees are located within the immediate vicinity of the development site, species include:

- *Lophostremon confertus* (Brush Box) ;
- *Jacaranda mimosifolia* (Jacaranda);
- *Ficus Morphyllla* (Moreton Bay Fig);
- *Eucalyptus sp.* (Eucalypt);
- *Eucalyptus globulus* subsp. *Bicostata* (Southern Blue Gum);
- *Stenocarpus sinuatus* (Queensland Fire wheel);
- *Syzgium luehmannii* (Riberry);
- *Callistemon viminalis* (Weeping Bottlebrush); and
- *Syzygium paniculatum* (Magenta Lillypilly).

Of those species observed on the site, the Magenta Lillypilly is listed as *vulnerable* under the *Threatened Species Conservation Act 1995*. Beyond the development site on the western side of Fisher Road is a stand of Weeping Figs, these listed on City of Sydney's *Significant Tree Register.*

While many are native to Australia species and endemic to the locality, as they are located within formal garden beds, TreeIQ has assumed them to be planted amenity trees as opposed to naturally seeded or remanent. This is reflected in the Australian Museum Ecology Report, who concluded that the site did not contain any threatened flora species or communities.

2.3.7 FAUNA

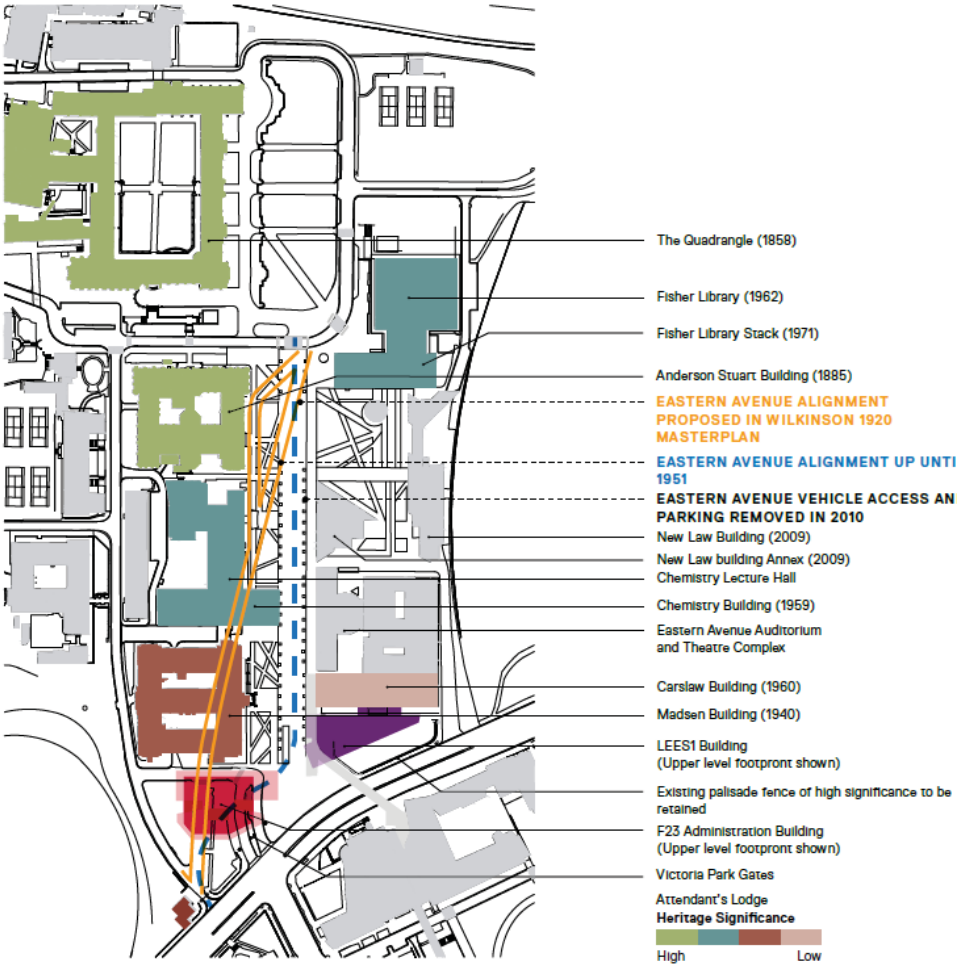
The Australian Museum during their preliminary inspections of the site, opportunistically surveyed the following faunal species using the site Noisy Minors and Crested Pigeons.

Due to the limited vegetation present on the site, including the absence of an understory and ground cover faunal habitat is minimal and limited to small growth brush box trees (> 10 metres), an exotic hedge and grasses. However, Moreton Bay Figs and Brush Box have been identified as species associated with the foraging of the grey headed flying fox (though none were observed during site surveys).

2.3.8 HERITAGE

The University of Sydney, Camperdown Campus is listed as a Conservation Area under the Sydney Local Environmental Plan 2012 as well as being listed under section 170 of the *Heritage Act 1977.* Notwithstanding these general listings, the development site does not support any individually listed heritage items. The relationship of the site to adjacent buildings with heritage significance is shown in **Figure 8**.

FIGURE 8 – SYDNEY UNIVERSITY CONSERVATION MANAGEMENT PLAN: HERITAGE VALUES



2.4 SURROUNDING DEVELOPMENT

The land uses surrounding the F23 Administration comprise:

- St Pauls Oval to the west of the building site on the opposite side of Fisher Road and beyond the row of *Ficus macrocarpa* var. *hillii* (Hills Weeping Fig).

- To the north is a service road connecting to the Madsen Building and a pedestrian plaza connecting to Eastern Avenue and the Madsen Forecourt, including a planter bed supporting several mature trees including *Syzgium paniculata.*

- City Road is immediately to the south with the Darlington Campus beyond and connected by the pedestrian overpass (refer to **Figure 9**); and

- To the east of the building site Eastern Avenue.

FIGURE 9 – VIEW LOOKING NORTH WEST ACROSS EXISTING KEITH MURRAY FOOTBRIDGE

FIGURE 10 – VIEW LOOKING SOUTH WEST SHOWING THE EASTERN FAÇADE OF THE CARSLAW BUILDING

2.5 SITE CONSTRAINTS AND OPPORTUNITIES

Extensive site analysis has been undertaken as part of the detailed site planning and architectural development of the proposal. The key constraints and opportunities are identified in **Table 3.**

TABLE 3 – CONSTRAINTS AND OPPORTUNITIES

SITE	CONSTRAINTS	OPPORTUNITIES
F23	▪ Interface to Arterial Road; ▪ Irregular shaped allotment; ▪ Heritage fence and gates; ▪ Need to maintain vehicle entry point to the north for Madsen Building.	▪ Opportunity to rationalise and reduce vehicle access points from and to City Road; ▪ Opportunity to define Eastern Avenue vista and create prominent gateway entry to the site and a new urban square; ▪ Existing vehicle access along Fisher Road; ▪ Promotes orderly and economic use of land that is otherwise underutilised;

SITE	CONSTRAINTS	OPPORTUNITIES
		▪ Contributes to consolidation of existing facilities, allowing for improved campus operations; ▪ Supports the ongoing development and use of the site.

The proposed development has been designed to respond to these opportunities and constraints and the detailed specialist advice which has explored these factors further.

3 Description of the Proposed Development

3.1 OBJECTIVES OF THE DEVELOPMENT

The objective of the development is to consolidate existing administration and business services from around the Camperdown and Darlington Campus' within a single building. The colocation of services will provide for improve operational efficiencies for the University as well as establishing a recognisable and prominent visual entry to the site.

The F23 Administration Building project will reinforce, define Eastern Avenue's pedestrian axis, adopting a massing that mediates between the existing orthogonal grid of the campus and the City Road alignment.

The proposal explores the potential for the architecture of the project to respond to the primary character of its key interfaces responding to the speed, visibility and momentum of City Road on the one hand; while simultaneously developing a more complex, human scaled response to the slow speed, public realm of Eastern Avenue.

Key objectives include improving pedestrian amenity, and providing shade and shelter at the campus entry. Careful integration of the buildings with the public domain will add to the life of the campus and provide display and presentation of the internal life and activity of each building. The building is to provide visibility and transparency to the activity within and recognise that the sites provide a significant opportunity for the University to address the City and wider community.

3.2 SUMMARY OF THE PROPOSED DEVELOPMENT

The proposed works are best summarised under the three (3) headings of:

- Site preparation works, to include:
  - Demolition and removal of existing at grade car park and associated trees;
  - Decommission northern signalised intersection and reinstate kerb and gutter; and
  - Site excavation.
- Construction works, to include:
  - Construction of two (2) level basement for parking, services and storage;
  - Five (5) storeys of administration, exhibition and symposium space; and
  - Reinstate kerb and gutter to City Road and construct new entry and widening of Fisher Road combined with associated public domain works to Eastern Avenue, utilities and infrastructure augmentation; and
  - Landscaping works.
- Ongoing Operation.

The proposed redevelopment of the site is shown in architectural drawings prepared by Grimshaw provided at **Appendix C.**

3.3 DETAILED DESCRIPTION

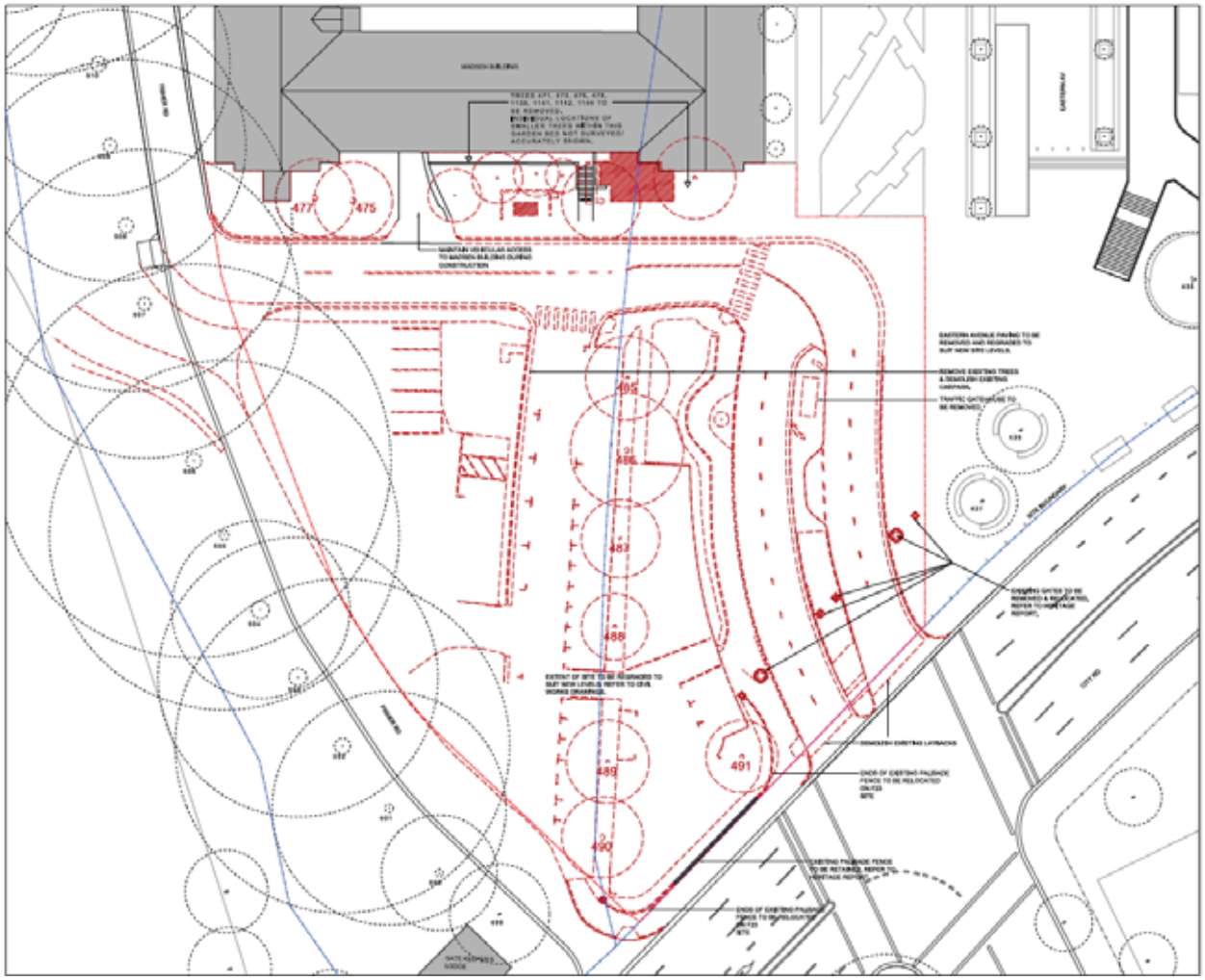
3.3.1 SITE PREPARATION

3.3.1.1 DEMOLITION

All existing improvements on the site will be removed including 17 existing trees as shown in **Figure 11.** Preliminary demolition works will also involve the removal of existing access and egress points to City Road at the eastern end of the site and the widening of the Fisher Road entry at the western end.

Demolition works will also include the careful dismantling of the palisade and sandstone boundary fencing that extends from the eastern side of the Fisher Road (West) entry, westward along the front boundary of the site.

FIGURE 11 – DEMOLITION PLAN (SOURCE: GRIMSHAW ARCHITECTS, 2016)



3.3.1.2 EXCAVATION

The development involves construction of two (2) levels of basement level parking (car, motorcycle and bicycle). Construction of the proposed basement level will require approximately 6.3 metres excavation of spoil material.

Excavation works have been confined to the building footprint and are wholly contained within the site boundaries.

3.3.2 CONSTRUCTION

The following section describes in detail the construction elements of the proposal.

3.3.2.1 BUILT FORM

The F23 Administration Building is located at the gateway to the University and will occupy a prominent site at the entry to Eastern Avenue from City Road. The Building is not only the gateway to the campus but with the growing esteem and prestige of Australian Universities the new Administration Building will co-locate the University's Senior Executive teams and will be the University's face to the world.

The design of the F23 Building has been informed by four (4) key principles:

- Visible Leadership;
- Connection and Accessibility;
- Sophistication and Elegance;
- Functional and Cohesive use of space; and

The siting and design of the building was required to respond to a myriad of site constraints

BUILDING HEIGHT

F23 has a maximum building height of 26.28 metres to the top of the lift overrun at RL59.78. However as this element is recessed from the building edges the height of the building will be read in the context of the roof form that is 21.48 metres (RL54.98) to the underside of the canopy and 25.38 metres (RL58.88) at the ridge.

FIGURE 12 – F23: WEST ELEVATION (SOURCE: GRIMSHAW ARCHITECTS)

SETBACKS

The F23 Building setbacks and alignment is the result of careful consideration of key building alignments along Eastern Avenue, with particular emphasis and definition taken from the adjacent Madsen Building

Along the eastern façade of the F23 Building the mid-section projects to align with the entry portico of the Madsen Building, establishing a prominent and clearly defined building entry, meanwhile the edges of the F23 Building erode (or step back) to emphasise the main façade of the Madsen building alignment. The arrangement reinforces the nature of the building alignments on this edge (refer to Pictures 1 and 2, **Figure 13**).

The building is also carefully positioned in relation to the row of fig trees to the western boundary, the distance between the Madsen building to the north and the relationship to its boundary with City Road. A summary of the numerical setbacks is provided in **Table 4**.

TABLE 4 – SUMMARY OF SETBACKS TO KEY BOUNDARIES/ BUILDINGS INTERFACE

BOUNDARY/ALIGNMENT	APPROX SETBACK
Façade setbacks	
City Road to the eastern façade City Road southern façade	12 metres 13.metres widening to > 32 metres
Northern façade to Madsen	10 metres
Western façade to Fisher Road	8 metres
ROOF/EAVE OVERHANG	
City Road: south-east corner	Nil
City Road – southern alignment	28 metres (maximum)
Madsen northern alignment	9 metres
Fisher Road south-west and west alignment	3 metres (minimum) to 25 metres

FIGURE 13 – BUILDING SETBACKS

3.3.2.2 MATERIALS AND COLOURS

A key ambition of the materials and colour palette adopted for F23 Administration Building is to create a dialogue between the various building typologies along Eastern Avenue, needing to balance modern aesthetic and design with heritage and the characteristic sandstone materials for which the University and the Camperdown Campus is known.

Both the material and colour selections have sought to deliver both harmony and contrast, adopting both a contrast of textures as well as colours to highlight and define building elements. Refer to the Grimshaw Design Report provided at **Appendix E** (pp. 20 -21).

FIGURE 14 – MATERIALS AND COLOURS SCHEDULE (SOURCE: GRIMSHAW, 2016)

PICTURE 1 – USE OF MATERIALS AND COLOURS

PICTURE 2 – MATERIALS/COLOURS

3.3.2.3 ACCESS AND PARKING

The development will modify vehicle access and parking on the site in respect to the following:

- Fisher Road (West), will be widened to permit two (2) way vehicle movements allowing for left in/left out movements;
- A new one way controlled entry/shared way (single width) for use by pedestrians and emergency vehicles will be constructed to the south of the new F23 building footprint connecting to City Road opposite Butlin Avenue;
- A new recessed loading/unloading and services bay will be constructed to the west of the F23 building footprint parallel to Fisher Road;
- All parking will be provided within a two (2) level basement car park accessible from Fisher Road.

The modified site layout including vehicle entry points is provided in **Figures 15.**

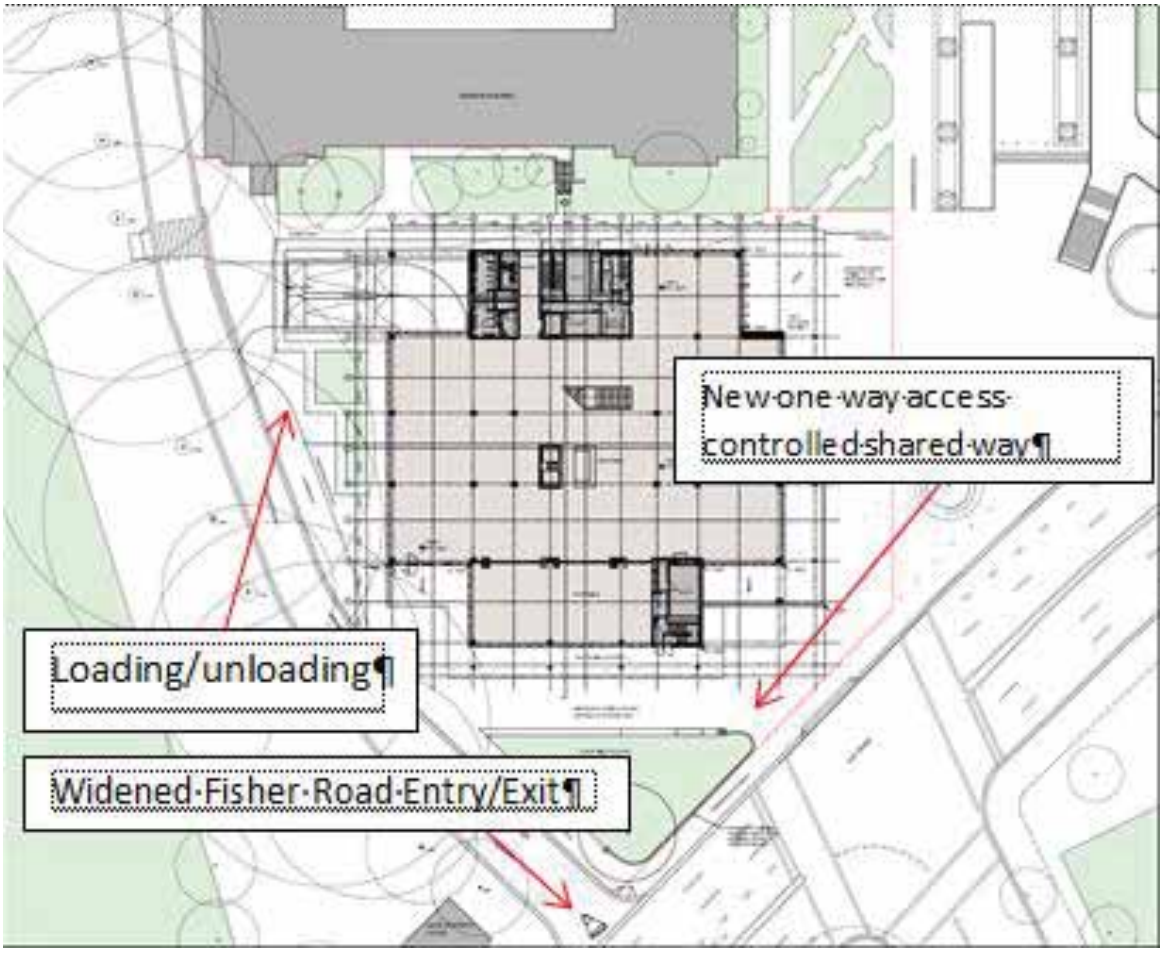
3.3.2.4 PEDESTRIAN ACCESSIBILITY AND PUBLIC TRANSPORT

High quality pedestrian and cycle links are proposed to create a connected and accessible place. Key pedestrian and cycle access initiatives include:

- Connection between Fisher Road and Eastern Avenue (between F23 and the Madsen building);
- Reinforce and define the main pedestrian entry and connection through the Camperdown Campus, Eastern Avenue;
- Retain the existing bus stop to the south east of the site.

The proposed development will maintain and define all existing key pedestrian and cycle routes and infrastructure.

FIGURE 15 – PROPOSED SITE LAYOUT: VEHCILE ACCESS ARRANGEMENTS (SOURCE: GRIMSHAW ARCHITECTS)



3.3.2.5 LANDSCAPING AND PUBLIC DOMAIN

The constrained footprint of the site, located between City Road, Fisher Road (to the east and north) and the pedestrianised forecourt of Eastern Avenue provides limited opportunities to implement soft landscaping elements. Notwithstanding, the siting and layout of the building together with landscape design by Oculus has sought to maximise opportunities to define and reinforce public domain spaces, through the following:

- **Hardscape:** The new F23 Administration Building will create a much more defined interface to Eastern Avenue and along with the proposed F07 LEES 1 Building will help to reinforce it as a major gateway to the University. Effective use of granite cobble paving treatment within this zone will be used to provide a seamless transition and cohesion of new and old, while the effective use of level changes (stepped granite edges) defines the space.

- **Furniture:** The opportunity to deliver street furniture has been maximised, through the delivery of seating on walls and around the base of trees.

- **Soft Landscaping (plantings):** has been intentional limited to the edge of the building site to promote pedestrian movement and permeability in this key location and entry to the site.

Visual interest and amenity will be delivered through the use of varied materials and textured surfaces that will also serve to define spaces within the site. The proposed landscape treatments are shown in **Figure 16**. A detailed landscape report and plans are provided at **Appendix J**.

FIGURE 16 – LANDSCAPE DESIGN PLAN (SOURCE: OCULOUS, 2016)

PICTURE 3 – DETAILED FINISHES PLAN

PICTURE 4 – GENERAL LANDSCAPE PLAN

The development will retain all significant mature vegetation located to the western side of Fisher Road opposite the site, providing a landscaped backdrop to the F23 building, while also balancing the scale of the building. Refer to **Figure 17**.

FIGURE 17 – VIEW OF F23 DEVELOPMENT LOOKING NORTHEAST ALONG CITY ROAD

3.3.2.6 UILITIES AND INFRASTRUCTURE

The proposed utilities to service the site are described in **Table 5**.

TABLE 5 – PROPOSED UTILITIES

UTILITY	PROPOSED WORKS
Power	▪ The F23 building will be connected to a new chamber substation to be provided in the Carslaw building via a new regional main switchboard within the LEES1 Building. Conduits connecting F23 to the regional main switchboard will be installed beneath Eastern Avenue.
Sewer	▪ F23 will be serviced by a 150mm sewer drainage connection to the proposed extension of the Sydney University Sewer Infrastructure located in Fisher Road
Water	▪ Domestic water will be provided by a 65mm connection to the existing Sydney University Infrastructure. ▪ A separate 150mm connection to the existing Sydney University Infrastructure will provide fire service water, the service will be provided with a double detector check valve assembly and terminated with a capped table E flange.

UTILITY	PROPOSED WORKS
	▪ New “domestic” and Fire service water connections are to be .located immediately adjacent the site to the north in Fisher Road.
Gas	▪ Anticipated total loading of 3,600MJ has been calculated for the building, to support the mechanical systems, hot water systems and the café and commercial spaces. ▪ F23 will be served by an extension of the existing University infrastructure. An 80mm main gas supply will reticulate throughout the building at the low pressure to service all gas appliances. .
Fire Services	▪ The University’s existing water supply infrastructure will be extended using a new (and separate 1500mm pipe connection to provide fire services and is subject to flow testing. ▪ A new combined fire hydrant/sprinkler booster assembly and hydrant fee will be required on the southern side (i.e. City Road side) of the proposed F23 Building.
Communication	▪ The University’s existing fibre and copper network will be extended, incoming conduits will be serviced from two (2) points, one (1) from the Madsen building and the other yet to be identified by the university. ▪ An existing underground communications duct running beneath the site will be relocated and new communications ducts and conduits. ▪ Manholes shall be to Telstra specifications with infrastructure for the exclusive use of the University ICT.

3.3.2.7 SIGNAGE

Building identification signage has been incorporated into the eastern façade of the F23 Building promoting legibility of the site for west bound traffic along City Road and pedestrians entering the site along Eastern Avenue. The signage compliments the building design and materials, refer to **Figure 18.**

FIGURE 18 – EASTERN ELEVATION OF F23 ADMINISTRATION BUILDING WITH SIGNAGE (SOURCE: GRIMSHAW)

3.3.2.8 STORMWATER MANAGEMENT AND DRAINAGE

Drainage and Water Sensitive Urban Design (WSUD) is described in the Stormwater Management Plan provided as part of the Integrated Water Management Report in **Appendix L**. The proposed drainage works include a rainwater reuse tank. The general location and configuration of these works are shown in **Figure 19**.

FIGURE 19 – CONCEPT STORMWATER LAYOUT (SCP, 2016)

3.3.3 OPERATION

The F23 Administration Building is primarily intended to deliver and function as an administrative hub for the University. Approximately 620 existing staff will be relocated from existing facilities across the campus to the new building.

The location of the F23 Administration Building at a key entry to the Camperdown Campus, is intentional and seeks to embrace the idea of “Visible Leadership”, this ethos is further reinforced through the use of transparent materials, particularly at the ground plane promoting a sense of lightness in the building form but also transparency.

TABLE 6 – F23 FLOOR AREA BREAKDOWN

FUTURE USE	APPROX FLOOR AREA (M²)	LEVELS
Office/Administration	6,790m²	2- 5
Function/Symposium (Foyer)	1,607m²	Ground
Café	127m² (approximate)	Ground
Other (end of journey facilities, storage etc.)	108m²	Basement Levels 1 and 2
Total	**8,632m²**	**N/A**

HOURS OF OPERATION

As outlined above, the primary purpose of F23 is to provide office and administration space to support the University's function.

Notwithstanding this, the role of Universities is diverse and the generalised administration function includes a diverse range of activities such as symposiums and functions for visiting academics, alumni and industry stakeholders.

TABLE 7 – F23 TYPICAL HOURS OF OPERATION BY LANDUSE

LAND USE	HOURS	DAYS
Retail	7.00 am to 10.00pm	7 days
Symposium and functions spaces (including terraces)	7.00am to 12.00 midnight	7 days
Administration (Public opening hours)	8.00am to 5.00pm	Monday to Friday

Notwithstanding the typical public opening days and hours of the administration building, it is envisaged that the building would be accessible to staff at any time.

STAFFING

The development does not involve a significant increase in the number of staff likely to be present on the Camperdown Campus at any time. As outlined in **Table 8**, the development will facilitate relocation and consolidation of 620 existing roles to a central location. The collocation of the new café on the ground floor may contribute to a minor increase in staff numbers, based on the relatively small area of the café it is anticipated approximately five (5) staff may be present at any one time.

TABLE 8 – STAFF POPULATION BY LAND USE

LAND USE	STAFFING
Administration	620 (existing relocated staff)
Café	Approximately 3 – 5 people.

SERVICING

A dedicated servicing bay has been provided along the western edge of the proposed building to allow for loading and unloading of goods and services to support both the administrative and commercial functions of the building.

TABLE 9 – SERVICING ARRANGEMENTS BY LAND USE

SERVICE	FREQUENCY
Waste Management	6 vt/per week (3 in/3 out - maximum)
Administration (couriers and deliveries)	Bulk deliveries monthly, courier services approximately 3 daily
Goods delivery (café)	Bulk delivery once a week and smaller deliveries daily. Approximately 6 deliveries

3.3.4 DEVELOPMENT STATISTICS

Table 10 provides a high level overview of the key development statistic, existing and proposed, for the F23 Administration Development site and building. .

TABLE 10 – SUMMARY OF KEY DEVELOPMENT STATISTICS

BUILDING ELEMENT	EXISTING	PROPOSED
Gross Floor Area	Nil	8,632m²
Building Height	Nil	26.28 metres
Car parking	63	96 spaces including two (2) accessible spaces
Bicycle Parking	Nil	76 Spaces
Motor Cycle Parking	Nil	21 spaces

4 Justification and Assessment of Alternatives

4.1 JUSTIFICATION

The principal purpose of the development is to consolidate existing professional service units and faculty offices. The consolidation will allow for improved operating efficiencies across the University and reduce fragmentation of administration services, while delivering improved engagement and event spaces to support the multi-faceted role of the University of Sydney.

The SSDA as proposed under this application offers the following key benefits to the existing and future community:

- Development of improved and state facilities to support the delivery of educational excellence.
- Improve the legibility of the campus, through the reinforcement of precinct planning, and colocation of administration and services, fostering positive and improved efficiencies for the university that may contribute to reduce running costs.
- Delivery of an improved urban address that elevates and improves the integration of City Road pedestrian bridge into the building form, to create a positive site and building entrance and reducing the visual impact of the bridge on the main boulevard entrance to the site, along Eastern Avenue.
- Suitable provision for vehicle access, servicing and parking from the rear of the site utilising an existing road network.
- Development of a building that effectively defines both public and private domain areas, providing a defined entrance to the site and framing the boulevard entry of Eastern Avenue;
- An adaptable design that will meet a range of needs and uses to ensure that the university can continue to support the growth of tertiary education facilities within the strategic CBD centre of Sydney.
- A development that retains the significant tree lined street frontage along Fisher Road.
- Necessary infrastructure is to be provided to the site, either through the augmentation of existing utilities and services or provision of new infrastructure.

4.2 ALTERANATIVES

Three (3) possible alternatives were considered in the development of the preferred option.

4.2.1 ALTERNATIVE 1: DO NOTHING

Alternative 1 involves retaining the existing car park and operating model, with administration and executive offices dispersed and fragmented across campuses.

This approach will not facilitate an improvement of the operating capacity of the University. The visual amenity, presentation and appearance of the Camperdown Campus main entry would not be improved with the space retained as a car park, presenting as inactive and transient space.

4.2.2 ALTERNATIVE 2: ALTERNATIVE DESIGN RESPONSE

Significant design development has been undertaken as part of the planning process. This has involved the investigation of two (2) alternative design options been explored and progressed (to various extents). These alternatives have included:

- The incorporation of elevated and physical connections between F23 and LEES1 across eastern avenue (aimed at improving pedestrian connectivity);

- A larger building footprint that extended east ward into Eastern Avenue to align with the Chemistry building. This design option resulted in a lower building height with greater building mass.

Both design alternatives were not progressed due to their potential to adversely effect of the visual amenity of the site and in particular views along Eastern Avenue. Exploration of several design options, has contributed to a refined and considered design response that respects the established urban form and massing.

4.2.3 ALTERNATIVE 3: ALTERNATIVE MEANS OF DELIVERY (AMENDMENT TO CIP)

The University is a prominent provider of employment, education and research skills and is located within a specialised education and health precinct within the strategic global centre of Sydney. The site of the future F23 administration building was identified as part of the CIP process as being suitable for standalone development, due to its predominantly unimproved status and fragmentation from adjacent precincts. The redevelopment of this land will contribute positively to the urban domain and the university.

Other alternatives would not achieve this outcome and would compromise the following:

- To leave the site undeveloped and vacant is not considered to be orderly and economic use of land and its ability to support not only the development of the University but the broader growth of the City;

- Inclusion in the broader CIP is not desirable as each of the site represents a greenfield/urban in fill opportunity as each is substantially undeveloped. In contrast the CIP primarily relates redevelopment of existing building sites within the broader campus.

Overall, the application is considered to reflect orderly and economic development of the land. Extensive site planning and design review has been undertaken to ensure an appropriate urban form and design is achieved. The proposed development has balanced the preservation of significant and prominent trees, existing heritage vistas, views to the city of obtained across the site and suitable compatibility with the future urban context and form as reflected in the adopted CIP. Furthermore the project is consistent with the established project objectives and the principles of ecologically sustainable development.

5 Consultation

Consultation was undertaken throughout the design development process. In particular the University sought to consult with the immediately surrounding landowners, local community groups, relevant agencies and internal user-groups and stakeholders. A consultation strategy was developed to support the proposal and responded to the requirements of the SEARs.

5.1 COMMUNITY CONSULTATION AND ENGAGEMENT

The F23 Administration development site is located within and surrounded by landholding held in the ownership of the University of Sydney. As there are no immediately adjacent sensitive receivers likely to be directly affected by the construction process or ongoing operation the University nevertheless adopted a targeted community engagement program identifying and approaching key local community groups and government authorities and agencies.

5.1.1 INVITATION AND PROMOTION OF EVENT

The University held a community information session on Tuesday 8 December , 2015 at 6pm to provide local community members and organisations with the opportunity to find out about the University's vision for both the F23 Administration Building and the LEES 1 Carslaw Building Extension projects as the University considered that due to the close proximity of these buildings in such a high profile location it needed to demonstrate how the buildings would relate to each other and the surrounding environment.

Invitations to attend the meeting were emailed on the 30 November, 2015 to the following community groups;

- Residents Acting in Defence of Darlington (RAIDD)
- REDWatch
- Chippendale Residents Action Group
- Coalition of Glebe Groups
- East Chippendale Community Group
- Forest Lodge and Glebe Coordination Group
- Glebe Community Action Group
- The Glebe Society Inc.

5.1.2 .INFORMATION SESSION ATTENDANCE AND AGENDA

Three (3) representatives attended the Community Information Session. This included a representative from REDWatch, The Glebe Society Inc. and a local resident.

The University's project team in attendance included the University's Director of Planning (Mr. Stephane Kerr), F23 Project Director (Mr. Glen Nicolson) Senior Project Manager (Mr. Drew Bagnall) and Community Engagement Manager (Ms. Julie Parsons).

A PowerPoint presentation was prepared and displayed that provided, context and details of the project known to date and a Question and Answer session also formed part of this agenda.

5.1.3 LETTERBOX DROP

On 1 December 2015 a letter box drop was conducted by the University to all residents and businesses (occupants and land-owners) along Abercrombie and Darlington Streets.

5.1.4 DISCUSSION POINTS

The response to this early consultation event from the participants revealed that there was general interest and in-principle support for the projects and that they would like to be kept informed of progress. The University has received no further enquiries regarding these projects.

5.2 GOVERNMENT AUTHORITIES AND AGENCIES

Targeted consultation was undertaken with the relevant government Agencies and authorities, as outlined in **Table 11.**

TABLE 11 – SUMMARY OF KEY AUTHORITY AND AGENCY ENGAGEMENT

AGENCY/GOVERNMENT BODY
City of Sydney Council
Transport for NSW
Roads and Maritime Services
Heritage Council of New South Wales

These targeted briefings occurred throughout mid-2015 and also within the last 4 months and involved the preparation of a formal briefing package of the project followed by meetings with each of the agencies.

5.2.1 OUTCOMES OF CONSULTATION

5.2.2 2015: WARREN AND MAHONEY/REFERENCE SCHEME

An early reference scheme was developed by Warren and Mahoney Architects in 2015. This early scheme sited the F23 building eastward of its present position, to align with the Chemistry Building. Advice from OEH at this time was that the building needed to be repositioned to align with the Madsen Building to open up the Eastern Avenue Entry and reinforce the predominant building alignment along the western edge of Eastern Avenue.

As demonstrated in the plans provided at **Appendix C** the current alignment of the F23 Building is sympathetic with the Madsen Building and provides clear entry point for the site.

5.2.3 2016: GRIMSHAW SCHEME

A summary of the issues raised and the response to these is documented in **Table 12** below.

TABLE 12 – SUMMARY OF MATTERS RAISED AND DESIGN SCHEME RESPONSES

ISSUE	RESPONSE
CITY OFSYDNEY	
Complemented the overall architectural design of the building (compared to the resolution shown on the previous scheme).	The final design package included information on materials and colours and is included within the Architectural Design Report at **Appendix E.**
Identified the potential impact on proposed eastern alignment and requested this to be investigated /addressed in the response.	No design change has been made in relation to this issue. The eastern façade of F23 aligns with the portico entry of the Madsen Building.

ISSUE	RESPONSE
	Both the north and south eastern edges of the F23 building are pulled back at the ground plane to be read in alignment of the main façade of the Madsen Building.
Requested a coordinated approach to urban design, landscape architect and building form	Refer to Urban Design and Landscape Design Reports provided at **Appendices D** and **J,** respectively.
Enquired whether the development would accommodate the Chancellor's Office. This was approved under the CIP	The F23 site was not part of the CIP, nor did the CIP make any commitments I relation to the Chancellor's office re-location. The Merewether precinct reflects a considerable financial investment that will not be realised for the next 10 years. The University require the delivery of new and better located administration space in the short term. The F23 building will deliver this. The Chancellor will have access to offices within the building however, F23 is not intended to a Chancellery, this will be retained in "The Quad".
Identified pedestrian accessibility along the southern edge of the building, potential conflict with vehicles due to the limited width of the road edge.	New road/drop off is intended to operate as a "shared zone". Accordingly there is minimal change//difference in levels at and around the road edges to allow for seamless transitions and space to blend visually. Demarcation of areas accessible to vehicles will be achieved through the use of bollards.
Identified the protection of trees on the western side of Fisher Road required. A landscape architect should be engaged.	The development works do not extend into or over Fisher Road. Suitable investigation of the trees on the western side have been undertaken and an Arborist Report provided with management recommendations. **Refer to Appendix I.** Oculus Landscape Architects have prepared landscape plans. These are provided at **Appendix J.**
Enquired as to the colour and material of the louvers on F23, their functionality and design	Refer to Materials and Colours Schedule provided at **Appendix G**.
Office of Environment and Heritage: NSW Heritage Council	
OEH identified the importance of a holistic campus wide development approach that considers buildings and the spaces they create as opposed to individual development sites.	Refer to Urban Design Report provided at **Appendix E**

ISSUE	RESPONSE
OEH appreciated the approach in terms of respect for alignment, general height and form.	Documentation has addressed the alignment issue and the building's relationship with the surrounding forms.
Materials choice is essential to reflecting a quality outcome.	Refer to Materials and Colours Schedule provided at **Appendix G**.
Vast improvement to the previous scheme and would like to see details of the design and review process to ensure quality outcome	Noted. Design Review process adopted by the University is outlined in **Appendix D.**
Roads and Maritime Services (RMS)	
Would prefer the entry onto City Road be a driveway treatment as opposed to an intersection.	The existing signalised intersection is being removed and made into a one way access controlled entry for emergency vehicles only.
Would like to see a traffic island at the intersection to dissuade vehicles leaving the site from cutting across two lanes of traffic to try and turn right at Butlin Avenue.	The signalised entry/exit to the current car park is being removed and replaced by a one way access controlled emergency vehicle entry and shared pedestrian way. Entry to F23 will be from a left in/left out to City Road. The modified site access would not facilitate the movement described.
Transport for New South Wales (TfNSW)	
Enquired as to whether there is a requirement for drop off provision within the University, is there an existing provision and does a new one need to be provided?	There is no longer provision for a drop off point.
Requested the University website include information for VIP parking and temporary permit scheme	The UoS website already provides details regarding parking on the Campus and the payable daily rates Refer to http://sydney.edu.au/campus-life/getting-to-campus/parking.html
Identified lack of loading dock and raised concern at this matter.	A loading bay for F23 is provided to the west of the building off Fisher Road. Given that Fisher Road is a private road within the University with anticipated low vehicle flows it is not anticipated to cause adverse impact on the operation of the adjacent public road network, in particular City Road.
Required further explanation of deliveries and servicing arrangements.	Refer to Traffic Report provided at **Appendix N**.

5.3 INTERNAL STAKEHOLDER CONSULTATION

In addition to the above, the University has also conducted presentations and workshops across the relevant University faculties and schools that are primarily affected by the proposed projects including:

- Various University Administrative Service groups.

Feedback from these parties has been developed into the project brief, and all relevant parties have formed part of the University's project control group, which has helped refine the design and spatial development with the selected architect.

5.4 PUBLIC EXHIBITION

In accordance with the *Environmental Planning and Assessment Regulation 2000*, the EIS will be placed on formal public exhibition and following this exhibition period, the applicant will provide a response to all the matters raised.

6 Legislative and Policy Framework

This chapter assesses and responds to the relevant legislative and policy frameworks in accordance with the EP&A Act, Regulations and the SEARs.

The following environmental planning instruments, policies and guidelines have been considered in the assessment of this proposal:

The following current and draft Commonwealth, State, Regional and Local planning controls and policies have been considered in the preparation of this application:

STATE LEGISLATION

- *Environmental Planning and Assessment Act 1979*
- *Heritage Act 1977*
- *Road Act 1993*

STATE ENVIRONMENTAL PLANNING INSTRUMENTS

- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *State Environmental Planning Policy (Infrastructure) 2007;*
- *State Environmental Planning Policy No 55 – Remediation of Land; and*

LOCAL PLANNING LEGISLATION AND POLICY

- *Sydney Local Environmental Plan 2012;*
- *Sydney Development Control Plan 2012; and*
- *Sydney Contribution Plan 2006*

STRATEGIC DOCUMENTS

- *Metropolitan Plan: A Plan for Growing Sydney ;*
- *Rebuilding NSWL State Infrastructure Strategy 2014;*
- *NSW Long Term Transport Master Plan 2014;*
- *Sydney's Cycling Future 2013;*
- *Sydney's Walking Future 2013;*
- *Healthy Urban Development Checklist (NSW Health); and*
- *Draft Centres Design Guidelines (Department of Planning).*

This planning framework is considered in detail in the following sections.

6.1 STATE LEGISLATION

6.1.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

As outlined in **section 1.2.1** of this EIS the University prepared and received approval from the Department of Planning and Environment for the Campus Improvement Program in 2015 that adopted a whole of campus approach to planning for future growth and upgrades of the University.

The SEARs require consideration and demonstration of consistency with the provisions of section 83D (2) of the EP&A Act 1979, in relation to the approved scope of the CIP and the proposed development. Section 83D (2) of the EP&A Act 1979 states the following

83D Status of staged development applications and consents

(2) While any consent granted on the determination of a staged development application for a site remains in force, the determination of any further development application in respect of that site cannot be inconsistent with that consent.

As shown in **Figure 1** in section 1.2.1 of this EIS, the site of the proposed F23 administration building did not form part of the CIP Stage 1 SSD proposal, as it comprises an individual development site not requiring a "Precinct" building envelope approach. The decision to treat and lodge this proposed site development as an individual SSDA proposal was endorsed in discussion with DPE.

Furthermore the Minister's approval of the CIP SSD13_6123 includes the following condition:

> *"A4. This approval does not preclude additional development sites outside the identified Campus Improvement Program precincts, subject to future approval (where required) and the demonstration of satisfactory environmental impacts."*

The proposal is does not contravene section 83D (2) or the conditions Minister Project Approval for the CIP and may be considered for approval.

6.1.2 THREATENED SPECIES CONSERVATION ACT 1995

The objects of the *Threatened Species Conservation 1995* (NSW) (TSC Act) include:

- To conserve biological diversity and promote ecologically sustainable development;
- Prevent the extinction and promote the recovery of threatened species, populations and ecological communities;
- To protect the critical habitat of those threatened species, populations and ecological communities that are endangered; and
- To ensure that the impact of any action affecting threatened species, populations and ecological preventing the extinction and promoting the recovery of threatened species, populations and ecological communities is properly assessed.

The TSC Act provides the procedure for the listing of threatened species, populations and ecological communities and key threatening processes in NSW and the preparation and implementation of recovery plans and threat abatement plans. As well as establishing a mechanism whereby a licence may be granted to impact on any matters listed for protection.

Ecological Assessment of the site in relation to the proposed development has been undertaken by the Australian Museum and updated Eco Logical Australia, the outcome of this assessment is summarised and the potential for impact on matters identified is provided in **section 7.5.**

6.1.3 HERITAGE ACT 1977

The *Heritage Act 1977* regulates development/activities in relation to non-indigenous heritage, including the Section 170 register a mandatory list of heritage items contained on Government-owned land.

A search of the NSW Heritage database was conducted. The database contains records of all heritage items listed under the Act and relevant Environmental Planning Instrument (where Council has provided the information to OEH). The search confirms that the University's Camperdown Campus is listed on the Section 170 Register. **Section 6.3** of this report details all relevant local listings and **section 7.8** for discussion and consideration of the development and potential for impact.

6.1.4 ROADS ACT 1993

The proposed development involves the demolition of existing access points to a classified road (City Road) and the construction of a new single entry point. City Road is a Roads and Maritime Services (RMS) controlled road and the nature of the works would usually require approval under section 138.

As the application is for SSD, a separate approval under the Roads Act is not required. Preliminary consultation has been undertaken with RMS in relation to the changed traffic conditions and road opening works. The outcome of this consultation is summarised in **Appendix V**. GTA Traffic consultants have also undertaken to prepare detailed transport and traffic impact statement provided at **Appendix N** and the potential impacts of the proposal are considered in **section 7.4**.

6.2 STATE ENVIRONMENTAL PLANNING INSTRUMENTS

6.2.1 STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

SEPP (State and Regional Development) 2011 identifies development types that are of state significance or that is state significant infrastructure or critical significant infrastructure.

The F23 administration building project has been confirmed by the NSW State Government as SSD under the SEPP (State and Regional Development) 2011. The project work is defined as development for the purposes of an "educational establishment" and has a project value of more than $56,527,419, exceeding of the Capital Investment Value minimum threshold of $5 million, for Crown Development, under this SEPP. Refer to detailed CIV Report at **Appendix M**.

6.2.2 STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007

SEPP (Infrastructure) 2007 provides the legislative planning framework for the delivery, maintenance and protection of infrastructure and services across NSW.

The development site is located immediately adjacent to immediately adjacent to City Road, a classified road with an annual average daily traffic volume of more than 40,000 vehicles (RMS, Traffic Volume Data 2002). In this regard the development is required to consider the following matters:

- Clause 101 requires consideration of any development with a frontage to a classified road to ensure that direct vehicular access is minimised where possible and that any such development does not affect the safety and efficiency of the road functions.

- Clause 102: the potential for impact from road related noise or vibration requires consideration in respect to future sensitive land uses including educational establishments) proposed along busy roads.

- Clause 104 as traffic generating development, involving development specified in Column 3, Schedule 3 to include delivery of ancillary parking greater than 50 space with road access with 90 metres of a classified road.

The SSD will be required to be referred to the RMS for comment under the SEPP. Preliminary consultation was undertaken with RMS, the outcome of which is summarised in the consultation report provided at **Appendix V**. Detailed consideration of traffic and parking is discussed in **section 7.4** of this EIS and the GTA report provided at **Appendix N**.

6.2.3 STATE ENVIRONMENTAL PLANNING POLICY NO. 55 REMEDIATION OF LAND

SEPP No.55 relates to use and development of potentially contaminated land. The policy provides a consistent policy approach to the consideration of potential contamination and remediation to reduce the risk for harm to human health.

The site forms part of the Camperdown Campus of the University of Sydney. Prior to the establishment of the University campus in circa 1857 the site was used as farming land. As such the site has a documented and continuance use for the purpose of an "educational establishment" for 158 years. Accordingly the site is not known to have been used for any purpose listed in Schedule 1 of the Management of Contaminated Land Guidelines.

The development of a new administration building will continue the approved and established use and does not involve a change in the use of the land.

Based on the above, the site has limited to potential for contamination. However, a preliminary site investigation was undertaken by Douglas Partners (**Appendix R**). The results are discussed in **section 7.10** of this EIS and where necessary mitigation and management measures included in **section 9.**

6.3 LOCAL ENVIRONMENTAL PLANNING INSTRUMENTS

6.3.1 SYDNEY LOCAL ENVIRONMENTAL PLAN 2012

LAND USE AND PERMISSIBILIY

The site is zoned SP2 Infrastructure (Educational Establishment) under the provisions of the Sydney LEP 2012 (refer to **Figure 20**).

FIGURE 20 – SYDNEY LEP ZONING MAP (SOURCE: WWW.LEGISLATION.NSW.GOV.AU)

PICTURE 5 – EXTRACT OF SLEP 2012 ZONING MAP

PICTURE 6 – SLEP 2012 ZONING KEY

The land use table adopted under clause 2.3 of the Sydney LEP 2012, permits development for that purpose shown on the map, the LEP defines an “educational establishment” as follows:

educational establishment *means a building or place used for education (including teaching), being:*

(a) a school, or

(b) a tertiary institution, including a university or a TAFE establishment that provides formal education and is constituted by or under an Act.

The development forms part of the University of Sydney, Camperdown Campus, a tertiary institution of higher education and involves addition of administration building to consolidate existing administrative faculties from elsewhere on campus.

The proposed development is consistent with the definition of “educational establishment” and the purpose of for which the land is reserved. In accordance with clause 2.3 and the adopted land use table the development may be undertaken with consent of the relevant planning authority.

DEVELOPMENT STANDARDS

There are no development standards prescribed by the Sydney LEP 2012 in relation to floor space ratio or height of buildings.

HERITAGE

The Camperdown Campus contains 18 individually listed items of heritage significance and is located within its own Conservation Area C5: University of Sydney. As shown in **Figure 21**, the development site is also located within proximity to a further two (2) heritage items located on adjacent land and within the visual curtilage of the development site.

FIGURE 21 – EXTRACT OF HERITAGE MAP(SOURCE: WWW.LEGISLATION.NSW.GOV.AU)

PICTURE 7 – EXTRACT OF SLEP 2012 HERITAGE MAP

PICTURE 8 –HERITAGE KEY

Table 13 provides a summary of individual items of environmental heritage listed under Schedule 6 of the Sydney LEP 2012 including their description and general location relative to the development site.

TABLE 13 – SUMMARY OF HERITAGE ITEMS

ITEM NO	DESCRIPTION	LOCATION
I52	St Paul's College group, University of Sydney buildings and their interiors, quadrangles, oval and scoreboard, cricket pavilion and grounds.	Camperdown Campus, City Road, South West of the development site.
I53	Gatekeeper's Lodge, University of Sydney including interior.	Camperdown Campus, City Road, South West of the development site
I72	Site landscaping, University of Sydney perimeter fencing and gates	Camperdown Campus, Parramatta Road, north west of the site within the CIP approved Cultural Precinct.
ITEMS LOCATED ON ADJACENT LAND		
I39	Victoria Park, Gardener's Lodge and its interior, entry gates and piers, park layout, paths and plantings	Immediately to the east of the site on the opposite side of Barff Road.
I522	James Spring drinking fountain and horse trough	96–148 City Road, Darlington. Southwest of the site. Opposite side of City Road.
I523	Former NSW Institute for the Deaf, Dumb and Blind Group, University of Sydney including interiors	96–148 City Road, Darlington. Southwest of the site. Opposite side of City Road.

Conservation Area C5: University of Sydney

The University of Sydney, Camperdown Campus forms a standalone Conservation Area listed under the LEP and recognised for the following:

- As a heritage cultural landscape containing buildings of exceptional individual value set within a designed landscape with large areas enclosed by a historic fence;
- Social significance as the site of the first University in Australia established in 1850, operating continuously at Camperdown since 1858.
- Historic significance for its continuing association with the development of tertiary education in Australia. Incorporating Prince Alfred Hospital and various residential colleges, the Area represents the establishment and continued expansion of institutional uses on Grose Farm.
- High aesthetic significance for its collection of fine buildings and public spaces dating from the 1850s, and has association with several prominent architects including Blacket, Vernon and Wilkinson.

  The continuing function of the institution as a University is also of exceptional cultural significance. An important Sydney landmark, containing what is probably the most significant group of Gothic Revival buildings in the country.

Detailed heritage assessment of the proposal in relation to its context has been undertaken by Ian Kelly Heritage Consultant, from the University of Sydney. Consideration of the findings and recommendations of this report are provided in **section 7.8** of the EIS.

PROTECTION OF TREES

Clause 5.9 seeks to preserve the amenity of an area through the preservation of existing and established trees.

Detailed Arboriculture investigation has been undertaken to inform site layout and planning aimed at retaining and protecting trees along the western edge of Fisher Road. Planted amenity trees within the car park are proposed to be removed due to conflict with the future building footprint. Detailed consideration of the potential impacts on biodiversity is considered in **section 7.7.**

ANCILLARY CAR PARKING

The provisions of Part 7 Division 1 seek to implement maximum parking provisions relevant to a particular land use aimed at limiting the number of car spaces as a means of reducing vehicular traffic.

Council's planning controls categorise land within the LGA based on the availability and proximity to transport and prescribes maximum car parking rate that reflects a locations relative access to alternate modes of transport.

The site is identified as Category "F" land on the Public Transport Accessibility Map and Category B on the Land Use and Transport Integration map. In accordance with clause 7.9 subsection (3) *Information and education facilities* prescribes a maximum of 1 space for every 200m² of gross floor area of the building used for those purposes.

The proposed development delivers a total of 96 parking spaces, which includes the replacement of the existing 63 spaces combined with an additional 33 parking spaces to support the relocated staff. Refer to discussion in **Section 7.4.4** and the GTA assessment report provided at **Appendix N**.

ACID SULPHATE SOILS

Clause 7.14 aims to ensure that development does not disturb, expose or drain acid sulphate soils so as to cause environmental damage.

The site is identified on the Acid Sulphate Soils planning maps as containing class 5 soils. Class 5 soils reflect a low risk of potential acid sulphate disturbance. Excavation of the site will occur to accommodate new basement level parking, as the site is not located within 500 metres of Class 2 or 3 soils, a detailed ASS management plan is not required.

PROTECTION OF AIRPORT OPERATIONS

The site is located on land identified on the Sydney Airport Prescribed Obstacle Limitation Surfaces Drawing No FSS6934 Revision 1, Declared by the Commonwealth Department of Infrastructure and Regional Development on 20 March 2015 as being located between horizontal surface limits of 90 - 100 metres (AHD).

As detailed on the submitted plans the F23 administration Building will have a maximum height of building RL26.28 metres. The development will not penetrate the OLS established for the site.

6.4 DEVELOPMENT CONTROL PLANS

Sydney Development Control Plan 2012 (DCP 2012) provides the design guidelines for future developments. Notwithstanding this, clause 11 of SEPP (State and Regional Development) 2011 excludes the application of development control plans to SSD projects.

TABLE 14 – SYDNEY DEVELOPMENT CONTROL PLAN 2012

PROVISION	RESPONSE
Locality Statement	The Sydney University, Camperdown Campus is identified in Figure 2.1 *City Locality Area maps,* as being within area 2.3 "*Chippendale, Camperdown, Darlington"* subsection 2.3.5 identified as covering the *University of Sydney/Royal Prince Alfred Hospital* locality. The proposed development of a greenfield development site within the University lands demonstrates that the effective urban infill and orderly and economic use of land that is considered to align with

PROVISION	RESPONSE
	Council's outcomes expressed in the character statement and supporting principles such as: ▪ The development is not located within the visual curtilage of any listed heritage items; ▪ Detailed site planning has been undertaken to ensure the preservation and retention of existing and established street tree planting along Fisher Road. This combined with the delivery of a well-designed and proportioned street level design will deliver an improved interface between the University and the public domain along City Road. ▪ The location of the proposed F23 development is currently utilised for the purpose of at grade car parking that is highly visible from the public domain and serves as a principle entry to the Universities Camperdown Campus. Redevelopment of the site to deliver an active use promoting a positive streetscape relationship and serving a prominent gateway entry. Given the inactive nature of the current site use, the proposal is considered to result in a positive outcome with respect to the existing public domain. ▪ Retains and enhances the significant role of the University in the city as a specialised centre for education, research and health. ▪ Will not impact on existing or planned bicycle and pedestrian connections with the site surrounds or legibility and ease of access. ▪ Enhancement of the landscape campus setting by creating new urban spaces that encourage active use of the forecourt entry to the site. ▪ The development redefines the Universities City Road entry and creates a new urban space (in conjunction with the LEES1 Building) that is sheltered from road traffic noise. The siting and layout of the two (2) harmonised and complementary buildings retains and reinforces the entry vista along Eastern Avenue. ▪ The proposed development will effectively activate an otherwise underutilised space improving streetscape amenity and connectivity. ▪ The building siting, scale and mass has been designed to respond to the existing built form and character of the Camperdown Campus and the likely future character and form of the Darlington Campus as dictated by the approved CIP.
GENERAL PROVISIONS The relevant sections of the SDCP 2004 are considered are below.	
Defining the public domain	▪ The F23 Building has been designed to make a positive contribution to the public domain through detailed planning of the campus interface with the site surroundings.
Design Excellence	▪ Clause. 6.21 states that development consent is not to be granted unless the consent authority considers the development exhibits design excellence. ▪ In accordance with clause 6.21, a design competition process is required for the proposed building as the building will exceed a height of 25 metres above ground level (albeit only very slightly). The University of Sydney has its own design excellence process which is summarised In **Appendix D** and accordingly the need to undertake a competition under clause 6.21 was waived in the issuing of the SEARs.

PROVISION	RESPONSE
	▪ Notwithstanding, the proposal displays design excellence against all of the relevant criteria within Clause 6.21. Further information is provided within the Architectural Design Report at **Appendix E**.
Ecological Sustainable development	▪ These matters are addressed in Section 7.5 of this EIS. ▪ A "Gold Standard" rating system has been adopted for the development. A detailed ESD report has been prepared by Steensen Varming (**Appendix O**) that identifies clear goals and benchmarks for achieving sustainable building and operational outcomes. Refer to **section 7.5**.
Water and Flood Management	▪ Existing on site stormwater management systems will be augmented to support any additional run off associated with the development. Details are outlined in **section 7.13** and supporting plans prepared by SCP Engineering provided in **Appendix L**.
Heritage	▪ Detailed consideration of the heritage items located on the site and within proximity to the development site are outlined in **section 2.3.8** and considered in **section 7.8. Appendix K** contains a heritage impact assessment.
Transport and Parking	▪ The proposal is supported by a total of 96 parking spaces provided in a two (2) level basement. ▪ A detailed traffic and parking impacts assessment has been prepared by GTA and is provided at **Appendix N.** Detailed consideration of parking and potential impacts is outlined in s**ection 7.4**.
Accessible Design	▪ The proposed development is capable of complying with the provisions of the Access to Premises Standards of the *Disability Discrimination Act 1992* and the Building Code of Australia.
CPTED	▪ The design and layout of the building is considered to generally align with the broad principles of Crime Prevention through Environmental Design, refer to **section 7.2.5**.
Waste	▪ A construction and operation waste management has been prepared to support the project application and are provided at **Appendices Q** and **W.** ▪ A dedicated waste room is provided in the basement of the building that is adequate to support the needs of the administration building (catering to a range of users) and the operation of the cafe.
Contamination	▪ Consideration of the SEPP 55 is provided in section 6.2.2 of the EIS and supported by a phase I Environmental Site Audit undertaken by Douglas Partners and provided at **Appendix R**. Detailed consideration of the Douglas Partners report and the potential for contamination is provided in **section 7.10**.
SECTION 4: DEVELOPMENT TYPES	
The Sydney DCP 2012 does not contain provisions for a specific "educational establishment" development type. Given the broad nature of uses involved in the operation of a University campus the use of closest fit is the "mixed use" development type.	

PROVISION	RESPONSE
Setbacks	▪ At the ground plane, the Building is setback a minimum of 12.34 metres from the City Road boundary. However, due to the curvature of the road alignment and the buildings angular form the development is read on an angle, as opposed to straight on, reducing the visibly mass of the building as it is presented to the street; ▪ Basement is setback in alignment with the levels above; and ▪ Rear and side setbacks allow for maintenance and access driveway. As well as east-west pedestrian movements, improving connectivity and permeability.
Setbacks (above street level)	▪ Building design enhanced and articulated through effective use of materials and façade elements that break vertical mass through strong horizontal lines.
Amenity	▪ The development does not involve residential accommodation or adjoin land supporting residential accommodation. ▪ The building design and layout has given due consideration to optimising the amenity of employees. The incorporation of a central atria allows sunlight to penetrate all levels of the building, internal placement of space optimises outlook to the east over the significant stand of fig trees; ▪ Consideration has been given to shadowing effects on adjoining public and private domain areas, these are considered in **section 7.3.1** and assessment diagrams are provided at **Appendix F**.
Landscaped area	▪ The enhancement of green spaces and comprehensive landscape planning for the site will contribute towards the biodiversity management of the City of Sydney. High level planning of the CIP allowed for the delivery of a minimum campus planting to achieve a tree canopy cover of 27% on the Camperdown campus, which well exceeds the minimum 15% canopy coverage sought in DCP 2012. ▪ The proposed development will result in the removal of 17 trees. However as outlined above with the implementation of the broader CIP the cumulative outcome is still well within the standard controls of the Council. A landscape plan is provided at **Appendix J**.
Ventilation	▪ The building will be mechanically ventilated. The provision for plant has been integrated into the building design. Refer to **Appendix U**.
Acoustic	▪ A Noise and Vibration report is provided at **Appendix U** and considered in **section 7.6.**
Heating and Cooling Infrastructure	The DCP seeks to implement the principles of ecologically sustainable development (ESD) within future development through various design and construction measures. The University aims to ensure a built environment that is energy efficient, cost-effective to operate and provides improved environmental, economic and social benefits to its student, staff and surrounding communities. This will be achieved by embedding sustainability initiatives into the planning, design, procurement, construction and commissioning process of future campus development. Further discussion on the University's Sustainability Framework is discussed in **section 7.5**.

6.5 OTHER PLANS AND POLICIES

6.5.1 CITY OF SYDNEY SECTION 94 CONTRIBUTIONS PLAN 2006 (WESTERN PRECINCT)

The City of Sydney adopted the *City of Sydney Development Contribution Plan 2006* (DC Plan) in 2007 (amended 7 June 2009), as the basis for levying contributions on development under Section 94 of the EP& Act 1979. The Contribution plan applies to areas surrounding the Sydney CBD, and divides the City into three (3) precincts, each with a specified works program and associated contributions rate. The University of Sydney is located within the Western Precinct, a summary of the relevant contributions rates is provided in **Figure 22**. These figures are subject to indexation.

Council's intention is to levy, by a condition of development consent, all development in the area covered by the plan "*which creates the potential for a nett increase in the population and, therefore, the potential demand for the use of the amenities, facilities and services, which Council provides".* The contribution rates are based on the number of 'equivalent' residents and workers created by development.

FIGURE 22 – WESTERN PRECINCT CONTRIBUTIONS RATE (SOURCE: COS CONTRIBUTIONS PLAN 2006 – AS AMNDED)

Western Precinct Summary Contributions Rates (from 7 June 2009)

Contribution Type	Per Resident	Per Worker	Bedsits and One Bedroom dwellings	Two Bedroom Dwellings	Three or more Bedroom Dwellings	Residents of a Non-Private Dwelling*
Community Facilities	$ 388.18	$ 77.64	$ 504.63	$ 737.54	$ 1,009.26	$ 138.69
Public Domain	$ 748.45	$149.69	$ 972.98	$ 1,422.05	$ 1,945.96	$ 748.45
New Open Space	$ 6,144.52	$ 1,228.90	$7,987.88	$ 11,674.60	$ 15,975.76	$ 6,144.52
Accessibility	$ 61.43	$ 12.29	$ 79.86	$ 116.72	$ 159.72	$ 61.43
Management	$ 66.42	$ 13.28	$ 86.35	$ 126.20	$ 172.69	$ 66.42
Total	$ 7,409.00	$ 1,481.80	$ 9,631.70	$ 14,077.11	$ 19,263.39	$ 7,159.51

*Residents of a Non-Private Dwelling are not charged for Childcare.

The Contributions plan relates to all new development that contributes to an increase in residents, visitors or staff. Section 2.13 of plan states that development by the Crown will be subject to the provisions of the plan unless granted a merit in line with matters outlined in section 2.14.

The University intends on seeking an exemption from the collection of contributions, this is discussed detail in **section 7.12**.

6.6 STRATEGIC PLANNING POLICIES

6.6.1 METROPOLITAN PLAN: A PLAN FOR GROWING SYDNEY

"A Plan for Growing Sydney" was published in December 2014 and replaced the previous Metropolitan Plan 2031 as the key growth strategy to guide development across the Sydney Metropolitan Region.

As with previous strategic growth plans, "A Plan for Growing Sydney" is based on centres based planning model, and adopts a series of Key Directions and Actions around four (4) principle goals of growth. These four (4) goals include:

- **Goal 1:** A competitive economy with world class services and transport;
- **Goal 2:** A City of housing choice, with homes that meet our needs and lifestyles;
- **Goal 3:** A great place to live with communities that are strong, healthy and well connected;
- **Goal 4:** A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources.

Consideration of the proposal against the relevant Directions and Actions of the identified growth goals is provided in **Table 15**.

TABLE 15 – SUMMARY OF RELEVANT METROPOLITAN PLAN DIRECTIONS AND ACTIONS

DIRECTION/ACTION	COMMENT
Direction 1.6: Expand the Global Economic Corridor	
Action 1.6.1 Grow High Skilled Jobs in the Global Economic Corridor by expanding employment opportunities and missed use activities.	Ongoing upgrade of the Universities facilities at its established institution in Camperdown ensures the University retains and reinforces its position as a prominent and respected member of the "Group of Eight" tertiary education institutions in the Country. The University is significant generator of employment both directly and indirectly and has ties with other specialise and priority industries having significant contribution on the local and regional economy. In 2013 the University was ranked in the top 0.3 per cent of universities worldwide[1] enrolling 62,800 students, 10,800 of which were international students from over 145 countries. In the same year the University employed 3,400 academic staff supported by 2,487 general staff. The University attracted $413 million in federal research grants and independently raised a further $83 million. The proposed development does not seek to increase the capacity of the University ongoing maintenance and upgrade of facilities contributes to the research and education capabilities and qualities of institution that attract not only grant funding but also student enrolment both domestic and international. The presence of the University as an attractant supports the local and regional area with respect to the economic flow on affects to supporting services and industries.
Direction 1.7: Grow Strategic Centres – providing more jobs closer to home	
Action 1.7.1 Invest in strategic centres across Sydney to grow jobs and housing and create vibrant hubs of activity.	The University is located in one of the most densely developed areas of the Metropolitan region and is well connected to areas such as Sydney Inner West by public transport. The development will provide for short term employment opportunities through construction and will promote continued operation of the University further supporting its growth in education and research, attracting foreign and domestic investment. The socio-economic demographic of the locality has changed in the past 10 years with a high proportion of local residents of the Central Subregion LGAs holding tertiary qualifications.
Direction 1.9: Support priority economic sectors	
Action 1.9.1 Support the growth of priority industries with appropriate planning controls	International education and research is identified as a "priority industry" in the plan. This is reflected in the establishment or recognition under the plan in the establishment of the "Broadway and Camperdown Health and Education Precinct", the plan encourages the adoption of "appropriate" planning controls as a means of creating conditions that foster and

[1] University of Sydney: Statutory Annual Report 2014 (p. 2)

DIRECTION/ACTION	COMMENT
	encourage growth within specialise and priority industries as key to strengthening the economic role of the City. Detailed design and site investigation phases of the project established suitable GFA and building heights that respond to the sites, vegetative, heritage and urban form constraints. While maximising the use of the land, achieving economic and orderly use of the land and delivering functional world class facilities in-line with the Universities reputation and standards.
Direction 1.10: Plan for education and health services to meet Sydney's growing needs	
Action 1.10.2 Support the growth of complementary health and tertiary education activities in strategic centres.	The Camperdown Campus is located within the health and education precinct of the CBD. The University has established ties with the Royal Prince Alfred Hospital that was in part established as a teaching hospital for the University, this relationship continues to this day. The integrated approach of the University and Hospital ensures that development of one is the benefit of the whole and serves to strengthen the role and prominence of these institutions and the role they play in local and regional development.

6.6.2 REBUILDING NSW – STATE INFRASTRUCTURE STRATEGY 2014

Rebuilding NSW, A State Infrastructure Policy 2014 was published in November 2014 is a $20 million strategic infrastructure funding program that seeks to reinvigorate and secure the State's long term economic future.

Budgetary allocations are focused around seven (7) sectors with an allowance for discretionary projects.

- Urban Public Transport
- Urban Roads
- Regional Transport
- Water Security
- Education
- Health
- Culture and Sport
- Other Opportunities.

The program has not directly allocated funding to develop the State's Universities in this regard effects of the policy on the development and the long term future of the University are likely to be indirect and relate to improved accessibility arising from programs such as the Rapid Transit and improved Urban Roads. In particular the potential delivery of a new rapid transit stop at Central: will improve accessibility of the City and the university.

The proposed development is not inconsistent with the goals of the Strategy and would not compromise attainment of those goals.

6.6.3 NSW LONG TERM TANSPORT MASTER PLAN 2014

NSW' Long Term Transport Master Plan was published in December 2012 and set a 20 year program for the delivery of an improved and integrated transport system. The plan is framed around four (4) primary actions, including:

- Integrate transport services;
- Modernise our system;
- Grow our networks to meet future demand (including the important.

The Plan sets a framework for improving and growing the City through improved accessibility

Improving accessibility through proposed extension of the light rail and making streets cyclists friendly to reduce reliance/dominance of car use. The impacts of the plan will not directly affect the proposal. In the long term realisation of these plans may improve the amenity of the area through reduce car dependence and greater accessibility by improved and extended public transport lines.

6.6.4 SYDNEY'S CYCLING FUTURE 2013

Sydney Cycling Future was published in December 2013 by Transport for NSW. The strategic plan was developed to guide the investment of $33 million dollars across NSW in cycling infrastructure, including establishment of new links and fixing missing links in existing networks and the integration of bicycle rack parking with other modes of transport. The timeframe for implementation of the plan was 2013 – 2014.

The report identified four (4) broad themes in bicycle journeys including:

- Connectivity and Separation;
- Safe behaviour;
- Delivery of supporting facilities; and
- Health well-being and confidence.

The proposal is not inconsistent with the aims of the program and the University is geographically located to take advantage of established bicycle networks through and connecting the inner west and CBD areas.

The development promotes the use of active modes of transport through the provision of suitably integrated bicycle rack parking and journey to work facilities, including showers and lockers to support the use of alternative and active modes of transport as a means of encouraging active lifestyles and reduced reliance on private motor vehicles.

6.6.5 SYDNEY'S WALKING FUTURE 2013

Sydney's walking future, connecting people and places was published in December 2013 by Transport for NSW and was focused on improving pedestrian networks within 2 kilometres of cities, towns, local centres and public transport hubs.

The report reviewed the "walking culture" of the State in relation to, barriers to walking, who was walking, where they are walking, how far and how frequently individuals would walk. From this four (4) broad themes emerged:

- The need for connectivity and reduce delays at intersections;
- The need for pedestrian safety and personal security;
- Health and well-being benefits (as a motivator for walking); and

- The availability of supporting facilities including weather protection along walking routes, signage (way-finding) and journey end facilities to encourage and ensure comfort on walking trips.

The site is located within the immediate proximity of north and south bound bus stops that connect to the CBD and Inner West suburbs of Marrickville and Newtown, respectively. A pedestrian bridge over City Road reduces delay for students, visitors and employees accessing the site from southern campus facilities and south bound bus stop.

The site is generally well connected by suitable public and private domain spaces that encourage pedestrian comfort and safety. Detailed consideration of pedestrian movements through and around the site through construction and operational phases of the development are considered in detail in **section 7.4.2.** In general the proposed development is considered to align with the objectives of strategy.

6.6.6 HEALTHY URBAN DEVELOPMENT CHECKLIST (NSW HEALTH)

The purpose of the checklist is to assist health professionals to provide advice on urban development policies, plans and proposals. It is intended to ensure that the advice provided is both comprehensive and consistent. The checklist is principally about helping to answer the questions:

- What are the health effects of the urban development policy, plan or proposal?
- Can it be improved to provide better health outcomes?

The principal users of the checklist are intended to be Area Health Service Workers and are designed to apply over large regions, whole LGAs and large precincts. In particular the policy indicates (refer to page 30) that its application to plans and proposals relates to developments of the following kind:

- Master plans;
- Town Centre Plans; and
- Development applications for projects involving large housing developments, shopping centres and community and health facilities.

The subject application is for a relatively small, stand alone, urban infill site within a broader land use and single holding. The principles adopted by the plan are fundamental planning principles that are reflected in key planning controls. While the application of this policy is not necessarily related to the scale of the development proposed, the proposal is not considered to be inconsistent

TABLE 16 – SUMMARY OF QUICK GUIDE QUESTIONS (SOURCE: SECTION 6: HEALTHY URBAN DEVELOPMENT CHECKLIST)

CHECKLIST ACTION	RELEVANCE & DISCUSSION
HEALTHY FOOD – ARE THERE ANY SIGNIFICANT ISSUES RELATED TO:	
Access to fresh and nutritious and affordable food	The development involves the construction of a new administration building associated with the University's on-going operation. The application does not result in an increase of students or staff or alter the use of the land in any way to trigger consideration of matters of this nature. Not applicable.
Preservation of agricultural land?	The site is located within a densely developed urban environment. Not applicable.

CHECKLIST ACTION	RELEVANCE & DISCUSSION
Support for local food production?	The proposal reflects orderly and economic use of an existing urban site that does not increase pressure on peri-urban environments and food production lands within proximity to the City. Given the location of the site it is not feasible for the University to provide opportunity for local food production given the inner city location.
PHYSICAL ACTIVITY – ARE THERE LIKELY TO BE SIGNIFICANT ISSUES RELATED TO:	
Encouragement of incidental activity?	The Campus layout encourages incidental activity of staff and students due to its expansive layout and defined "faculty based" precincts. Students and staff walk between teaching and learning facilities, libraries, recreation facilities, administration areas and support services such as cafes and retail services.
Opportunities for walking, cycling and other forms of active transport?	The site is located within Sydney's CBD allowing students, staff and visitors to access the site via walking or cycling. This is supported by the provision of end of journey facilities including bicycle parking racks and showers.
Access to usable and quality outdoor spaces and recreational facilities?	The University grounds provide a range of open space and recreational facilities, ranging from informal "break out" spaces to formal recreation options such as gyms and swimming pools. Victoria Park is located immediately to the east of the site.
HOUSING: ARE THERE LIKELY TO BE SIGNIFICANT ISSUES RELATED TO:	
Provision of housing that supports human and environmental health?	The proposed development does not contribute to a growth in the capacity of the University and is not considered to trigger the need for consideration of delivering additional housing. There is considered to sufficient provision for suitably zoned residential land within proximity to the site.
Dwelling Diversity?	This is a matter for local government authorities in planning for the growth of the area.
Affordable Housing?	This is not a matter relevant to the subject application.
Adaptability and accessibility of housing?	This is not a relevant to the subject application.

CHECKLIST ACTION	RELEVANCE & DISCUSSION
TRANSPORT AND PHYSCIAL CONNECTIVITY: ARE THERE LIKELY TO BE SIGNIFICANT ISSUES RELATED TO:	
Availability of public transport services?	A bus stop is located immediately adjacent to the building site along City Road connecting to Central Station and the CBD. A further stop is located opposite and accessible via a pedestrian overpass connecting to the Newtown and the inner west.
Reduction of car dependency and encouragement of active transport?	The site is located within the CBD of Sydney with superior public transport access to bus and rail, combined to being within walking distance of countless residential and service options.
Encourage of infill development and/or integration of new development with existing development?	The proposed development is an infill development project that reflects orderly and economic use of well located and services land.
Telephone and internet connectivity?	No significant impact, telecommunications connections are available to the site.
QUALITY EMPLOYMENT: ARE THERE LIKLEY TO BE SIGNIFICANT ISSUES RELATED TO:	
Location of jobs to housing and commuting options?	The University is a generator of direct and indirect employment opportunities. No significant issues likely to arise as a result of the proposal.
Access to a range of quality employment opportunities?	As above.
Access to appropriate job training?	Not required. No significant issues likely to arise as a result of the proposal.
COMMUNITY SAFETY AND SECURITY: ARE THERE LIKELY TO BE SIGNIFICANT ISSUES RELATED TO:	
Crime prevention and sense of security?	Refer to section 6.2.4. No significant issues likely to arise as a result of the proposal.
PUBLIC OPEN SPACE: ARE TEHRE LIKELY TO BE SIGNIFICANT ISSUES RELATED TO:	
Access to green space and natural areas?	Victoria park is located to the east of the site and is within acceptable walking distance. St Pauls Oval is located to the west on the opposite side of Fisher Road.
Public spaces that are safe, healthy, accessible, attractive and easy to maintain?	The consistency of the design with the principles of CPTED is considered in detail in **section 7.2.4** of this EIS. The assessment resolves that the development has the potential to make a positive contribution to improving the safety of public domain spaces within the immediate context of the site.

CHECKLIST ACTION	RELEVANCE & DISCUSSION
Quality streetscapes that encourage activity?	The development will turn inactive use space (car park) into an active forecourt entry that promotes pedestrian movement and use.
Sense of cultural identity, sense of place and public art?	
Preservation and enhancement of place of natural, historic and cultural significance?	The proposed development will transform a car park into a pedestrian friendly defined entry to the Camperdown Campus. The design and siting of the building has responded key urban design and building elements that reinforce predominant building alignments and result in sympathetic yet contemporary building forms that enhance the visual appearance and setting of the University.
SOCIAL INFRASTRUCTURE: ARE THERE ANY SIGNIFICANT ISSUES RELATED TO:	
Access to facilities to attract and support a diverse population?	The site is located within an established area with access to a superior level of services offered within the CBD and inner ring urban areas.
Responding to existing (as well as projected) community needs and current gaps in facilities and/or services?	The University is a form of social infrastructure and the ongoing development of the site and delivery of improved/upgraded facilities will provide for the needs of the community.
Early delivery of social infrastructure?	The site is located within a highly established urban centre with existing social infrastructure.
An integrated approach to social infrastructure planning?	Not applicable. No significant issues likely to arise as a result of the proposal.
Efficiencies in social infrastructure planning and provision?	Not applicable. No significant issues likely to arise as a result of the proposal.
SOCIAL COHESION: ARE THERE ANY SIGNIFICANT ISSUES RELATED TO:	
Environments that will encourage social interaction and connection among people?	No significant issues likely to arise as a result of the proposal.
Promotion of a sense of community and attachment to place?	No significant issues likely to arise as a result of the proposal.
Local involvement in planning and community life?	No significant issues likely to arise as a result of the proposal.
Social disadvantage and equitable access to resources?	No significant issues likely to arise as a result of the proposal.

CHECKLIST ACTION	RELEVANCE & DISCUSSION
Community severance, division and dislocation?	No significant issues likely to arise as a result of the proposal.
ENVIRONMENT AND HEALTH: ARE THERE ANY SIGNIFICANT ISSUES RELATED TO:	
Air quality?	Refer to **section 7.9**.
Water quality and safety?	Refer to **section 7.13.1**
Disturbance and health effects associated with noise, odour and light pollution?	Refer to **sections 7.2** and **7.6**.
Potential for hazards (both natural and manmade)?	Refer to **section 7** covers all aspects of potential environmental impacts/hazards both natural and manmade.
Vector catchments and the potential for pest borne disease?	No significant issues likely to arise as a result of the proposal.

6.7 EXISTING APPROVALS

6.7.1 CAMPUS IMPROVEMENT PROGRAM (CIP)

As outlined in **section 1.2.1** a campus wide improvement program has been developed by the University and approved by the Minister. While the development site is not located within an approved precinct, it is located within the vicinity of two (2) of such precincts, including:

- Precinct A: Merewether (Darlington Campus) to the south west; and
- Precinct B: City Road (Darlington Campus) to the south.

Consequently the likely future character of the area and the immediate context of the site will be influenced by these transformation projects that will substantially redefine the built form environment and character of City Road.

Precincts A and B will be redeveloped to achieve the following:

- a mix of land uses including learning and teaching spaces and faculty space. Potential student accommodation, and retail and support services
- Create an active city edge which contributes to the streetscape, urban fabric and wider community
- Deliver function and well-designed spaces that meet the University's need, while preserving important historical features of the site;
- Deliver an iconic gateway entry to the Darlington campus and improve permeability and legibility of the sit

The general building alignment and future building footprints is shown in **Figures 23 and 24.** A comparison of the key development statistics is provided in **Table 17**.

TABLE 17 – COMPARISON OF CIP AND F23 ADMINISTRATION BUILDING DEVELOPMENT STATISTICS

BUILDING STATISTICS	PRECINCT A- MEREWHETHER	PRECINCT B- CITY ROAD	F23
Gross Floor Area	76,400 m^2	93,300 m^2	8,632m²
Height (metres)	RL 83.10 (48.8 metres at City Road)	RL 83.10 - 84.60 Wentworth building – 48.6m	26.28 metres (RL59.78 to the lift overrun)
Setback	Aligns with the Institute building to the west.	International House: Nil Wentworth Building: 6m	0.295 metres to roof edge; 12m to ground floor facade

FIGURE 23 – MEREWEATHER PRECINCT ENVELOPE PLAN

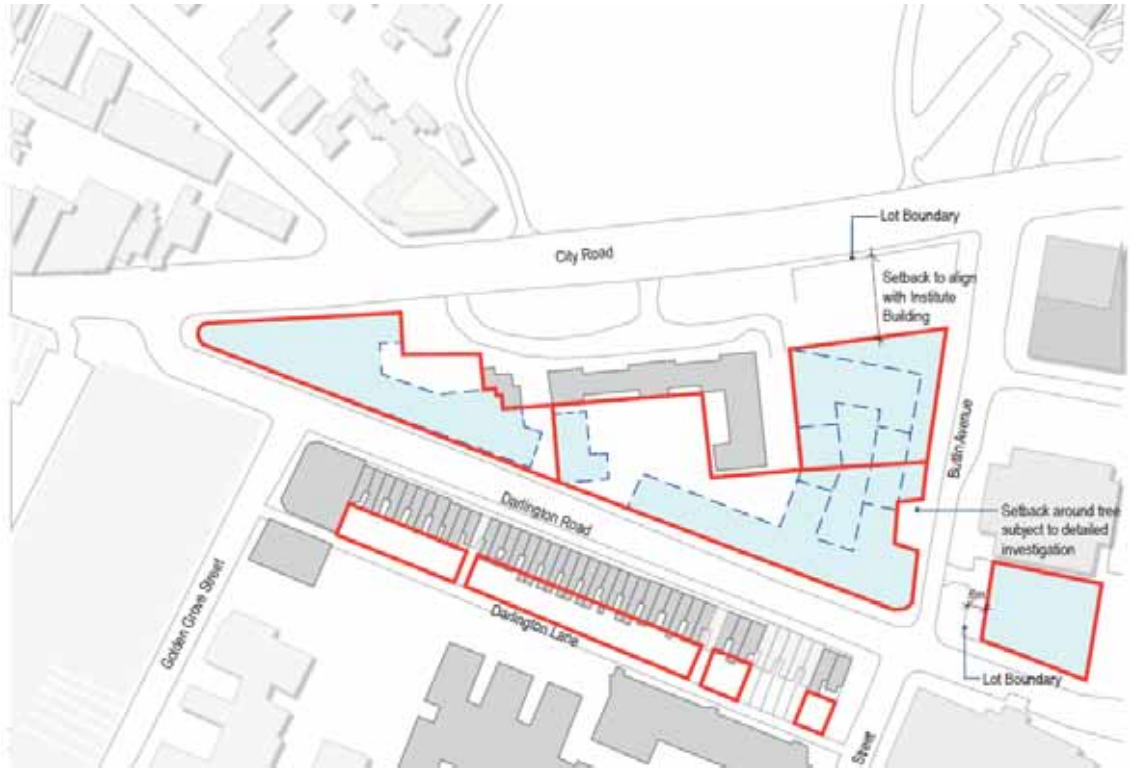


FIGURE 24 – CITY ROAD PRECINCT ENVELOPE PLAN

7 Environmental Assessment

7.1 CONSISTENCY WITH THE PLANNING FRAMEWORK

The development has been considered against the relevant provisions of the listed legislation, EPIs and DCPs as stated in section 6 of this EIS. The outcome of this assessment has determined that the proposal is generally consistent with these state and local environmental planning instruments together with the associated plans, policies and guidelines.

7.2 BUILT FORM AND URBAN DESIGN

The subject site is not part of the CIP, however significant background analysis has been carried out by the University in informing appropriate development of the site. An Urban Design Report has prepared by University of Sydney and provided in **Appendix D** which:

- Identifies the proposed building footprint, public domain areas and pedestrian/cycle linkages
- Forms the basis of the proposed building mass and heights
- Informs the basis for resolving this important entry point to the Camperdown Campus and its relationship with City Road and Eastern Avenue

Grimshaw Architects have prepared a detailed Architectural Design Report that outlines the design approach to the development at Campus and development site level. The campus level design matters have included consideration of key heritage issues with particular emphasis of the relationship of F23 to the Madsen Building. A copy of this report is provided at **Appendix E.**

7.2.1 SITING AND DESIGN

The F23 Administration Building has been designed by Grimshaw Architects to reflect a civic presence whilst being sympathetic to the site context. In this regard the building placement and form has taken cues from both the natural and built environment.

SITE ENTRY: CITY ROAD/EASTERN AVENUE

The building size and position has been carefully considered to avoid creating a “pinch point” at the entry to the University at its south eastern intersection with City Road. The resulting building siting provides a generous pedestrian gateway to the Camperdown Campus. The reduced building footprint is also critical to the success of the urban realm and should also be reflective of the surrounding institutional typologies.

EASTERN AVENUE: ALIGNMENT

Each of the building’s edges presents a unique interface and condition with the surrounding public domain and offers a rich variety in topology and landscape, while seeking to retain a generally consistent alignment along the Eastern Avenue axis and the reading of the portico and colonnade. As shown in **Figure 25**, the Eastern Avenue is a continuum of disrupted alignments that results in the creation of a series of “rooms” or “spaces”

FIGURE 25 – EASTERN AVENUE ALIGNMENT (SOURCE:GRIMSHAW)

PICTURE 9 – EXISTING BUILDING ALIGNMENTS

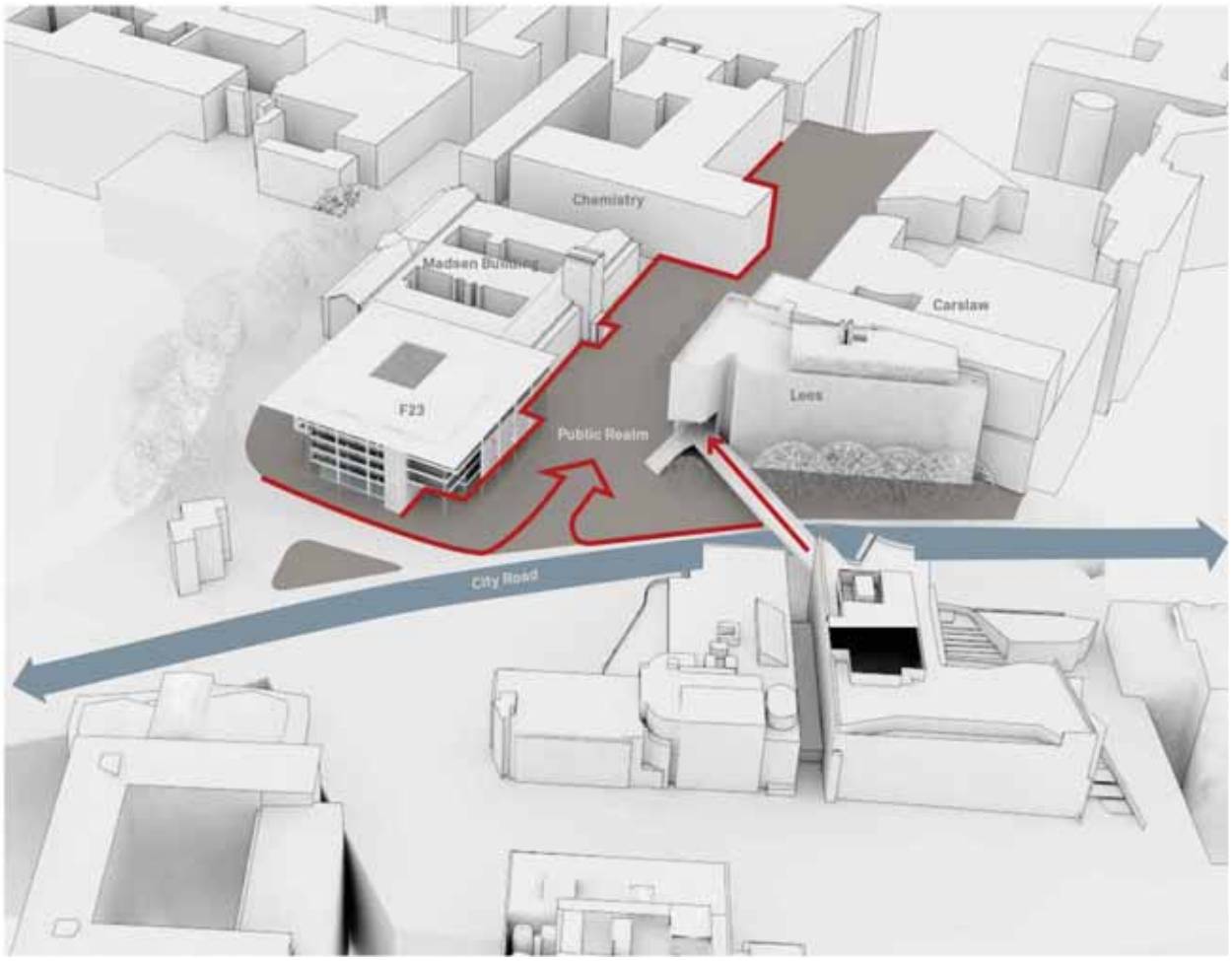
PICTURE 10 – F23 SITING AND ALIGNMENT

The F23 Building alignment is a continuation of the theme, with recessed edges that align with the main façade of the Madsen Building, broken by projecting elements that create new spaces

The F23 Building and LEES 1 Building Sites and are located on City Road at the boundary of the two campuses (Camperdown Campus and Darlington Campus). This provides a unique opportunity to create a new framed entry and urban square to further link the two campuses so that they appear as one single connected campus.

Together with the proposed LEES 1 building, the two new buildings will provide a strong definition to this important University entry at a scale and height which is sympathetic with existing surrounding buildings and consistent with building envelopes for nearby precincts approved under the CIP.

FIGURE 26 – AERIAL MASSING VIEW OF EASTERN AVENUE ALIGNMENT WITH F23 AND LEES1 (SOURCE: GRIMSHAW)



FISHER ROAD: TREE CANOPY

The scale and design of the building have taken into account the large, mature fig trees that line the western edge of Fisher Road. The roof form has adopted a low-wide form, emulating the canopy spread of the fig trees while the building height is comparable to the height of trees. The result is the appearance of a building that set within and amongst the tree canopy, working with its landscape setting as opposed to be imposed onto it.

The large over-sailing roof form will provide shading and amenity benefits to both the external spaces below and the internal spaces within. High albedo paving materials are being considered with the public domain and around the base of the building to help reduce the local heat island effect and produce a more comfortable environment during the summer months.

The building has been positioned to allow for the University's desire to establish a strong pedestrian link along Fisher Road and between the Madsen Building and the new Administration Building. The design of the ground plane encourages pedestrian movement through its transparent facade and covered walkways to the south and east.

FIGURE 27 – COMPARATIVE SCALE AND VERTICAL RELATION OF MADSEN AND F23 (SOURCE: GRIMSHAW, 2016)

BUILDING HEIGHT

F23 has a maximum building height of 26.28 metres to the top of the lift overrun at RL59.78 (from an approximate ground level of RL33.5). However as this element is recessed from the building edges the height of the building will be read in the context of the roof form that is 25.38 metres (RL58.88) to the underside of the canopy and 21.48 metres (RL54.98) at the ridge.

FIGURE 28 – F23: WEST ELEVATION (SOURCE: GRIMSHAW ARCHITECTS)

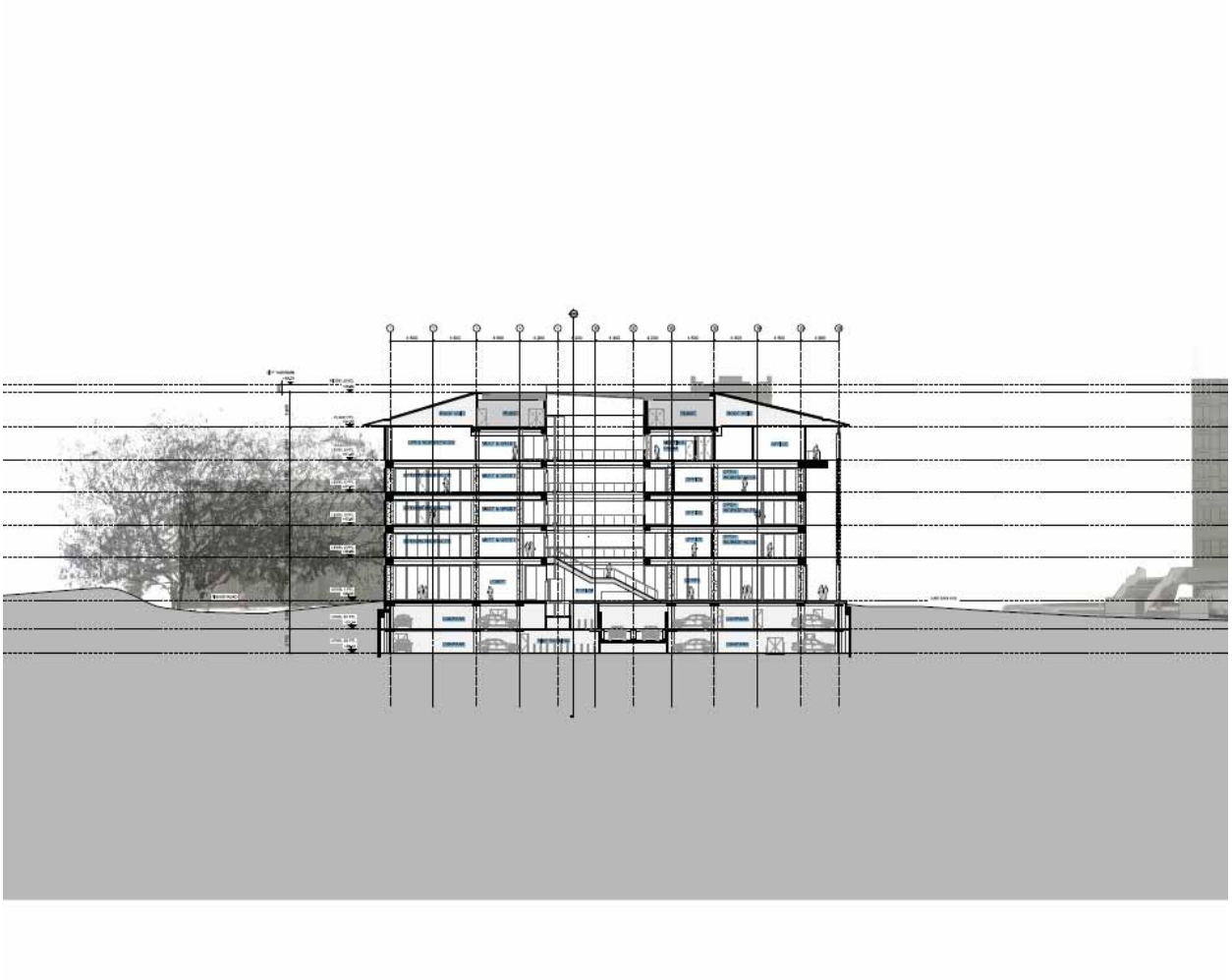
SETBACKS

The setbacks on the site have been informed by alignment of the main façade of the northern adjoining Madsen Building. The building has consequently been position on the site and designed to respond and align with this key site constraint.

7.2.2 BUILDING SERVICES

Essential building services including waste management storage and mechanical plant have been integrated in to the building design. Primary waste storage rooms are located on basement levels and mechanical plant has been carefully integrated into the design within the roof form as shown in **Figure 29**.A small proportion of the lift overrun extends above the roof form, however this element is recessed from the building edges as shown **Figure 28**.

FIGURE 29 – SECTION DRAWING: DETAILING BUILDING SERVICES (SOURCE: GRIMSHAW)



7.2.3 BUILDING AND BUSINESS IDENTIFICATION SIGNAGE

The F23 Administration building incorporates a building identification sign on the eastern façade at ground level and will also provide a retail tenancy business identification sign. Both of these signs are integrated into the building form and serves to identify the site and retail tenancy to motorists and pedestrians. The proposed signage is considered to be generally in accordance with Clause 8 of SEPP 64, the display of signage is consistent with objectives set out in clause 3(1) (a) and Schedule 1 of the Policy.

7.2.4 CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

The NSW Guidelines for *Crime Prevention and the assessment of development applications: Guidelines Under section 79C of the Environmental Planning and Assessment Act 1979* has been used to inform the assessment of the application in relation to the primary principles of CPTED.

CPTED: KEY PRINCIPLES

The proposed development has been designed and laid out to reinforce the principles of Crime Prevention Through Environmental Design (CPTED), as outlined in **Table 18** below.

TABLE 18 – CONSIDERATION OF KEY CPTED PRINCIPLES

PRINCIPLE	DESIGN RESPONSE/CONSIDERATION OF ISSUE
(1) Surveillance	
(a) Casual Surveillance	Casual surveillance is promoted through the predominantly open layout at the ground floor that allows for clear sightlines extending in all directions around the building. This is further enhanced by the upper floors with terraces overlooking main pedestrian ways and offices orientated to all sides. The design and layout of the building incorporates ground level active uses to reinforce positive street level design and encourage use of common areas and promote a sense of safety through activity. . Common areas will be appropriately lit at night to allow for surveillance. The screening elements affixed to the building façade are lifted above the ground plane and consequently do no strict sightlines or allow for concealment. This design feature also allows for clear sightlines and surveillance across the entry promenade to bus stops, improving casual surveillance of the public spaces.
(b) Sightlines	The use of a predominantly glass façade, particularly at the ground plan reduces the potential for concealment by avoiding the creation Pedestrian entries and paths extending to and from the building are linear in nature with minimal change in gradient, free of blind corners. Sightlines within and through public domain and spaces are preserved by low level planting to preserve visibility and avoid concealment. Low level lighting used at night will enhance visibility and not produce glare.
(2) Access Control	The F23 Building sits at a main entry point to the Camperdown Campus. It is desirable to retain an open and permeable (visual and physical) entry to the Campus from a urban design vantage but also to retain and reinforce one of the key design principles of the F23 Building to reflect an ethos of “Visible Leadership’ Accordingly, access control will be achieved predominantly through technical/mechanical controls, such as electronic security controlled lift and door access and formal (organised) access control to include staff at the ground floor to guide guests, visitors and students (i.e. not staff) through the building. The particular strategies of access control may include the following measures: The ground floor of the building will be accessible during standard business hours. The active use nature of this use, which has been designed to encourage accessibility and use means access is promoted through multiple entries and open, flowing space. Notwithstanding this, access control will be implemented outside standard business hours. With the main doors locked. Upper levels will be accessible via the lift will be security controlled at all times

PRINCIPLE	DESIGN RESPONSE/CONSIDERATION OF ISSUE
	of the day.
(3) Territorial reinforcement	Clear delineation of space is achieved through a mix of landscaping treatments and finishes, in particular different paving styles and textures to delineate space around the building. This will work in concert with access control measures, level changes (where appropriate), access control for particular areas of the building and outside standard working hours together with suitable directional signage
(4) Space Management	Space management strategies include activity coordination, site cleanliness, rapid repair of vandalism and graffiti, the replacement of burned out pedestrian and car park lighting and the removal or refurbishment of decayed physical elements. The University have a dedicated grounds management team that manage all publicly accessible domain areas of the Campus. Where damage to the premises occurs the grounds staff are on call to manage and undertake repairs. Combined with on demand response to vandalism or disrepair the grounds staff are also responsible for ongoing management of the grounds. Following completion of the F23 Building the University will include management of the building surrounds as part of their maintenance schedule.

7.3 ENVIRONMENTAL AMENITY

SEARs item no. 4 requires the development to demonstrate a *"high level of environmental amenity for any immediately adjacent residential land…"*

The development site does not immediately adjoin any residential zoned land with the nearest residential receivers are located approximately 170 metres west and 380 metres east of the site, refer to **Figure 30**.

Taking into account the spatial separation of the site from any residential property the potential for adverse impact on residential amenity is considered limited. In particular the proposed development is considered unlikely to have a direct or immediate impact on any residential premises with respect to the following:

- Solar access or overshadowing;
- Noise and Vibration (refer to **section 7.7**);
- Visual Privacy;
- View Loss;
- Light overspill; and/or
- Wind.

Technical reports and plans demonstrating that suitable environmental amenity of adjacent land is maintained are provided at **Appendices F: Overshadowing Assessment, S: Wind Assessment , T: Reflectivity Assessment and U: Noise and Vibration Assessment.** The following sections has considered the outcome of these technical investigations on the amenity that results within the immediate campus domain

FIGURE 30 – IDENTIFICATION OF NEARSET RESIDENTIAL RECEIVERS (SOURCE: GOOGLE MAPS)

7.3.1 SOLAR ACCESS AND OVERSHADOWING

SOLAR ACCESS

There are no development controls or standards that govern/inform solar access requirements for administration buildings. Notwithstanding this siting layout and planning has sought to optimise solar access to the building as a means of promoting sustainability through enhance natural lighting and passive solar design.

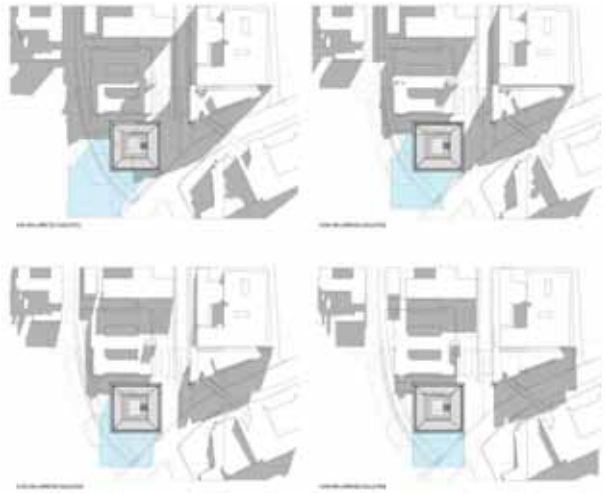
In this regard, all effort has been made to take advantage of the favourable north-south orientation by optimising the setback between the Madsen Building and the northern façade to increase solar access of northern facing windows. Furthermore, solar access to the building has been enhanced through the incorporation of central atria allowing for sunlight to penetrate all levels of the building.

The proposed development is considered to result in an optimal outcome. The layout and design promotes high levels of solar access to workspaces, meetings and function spaces.

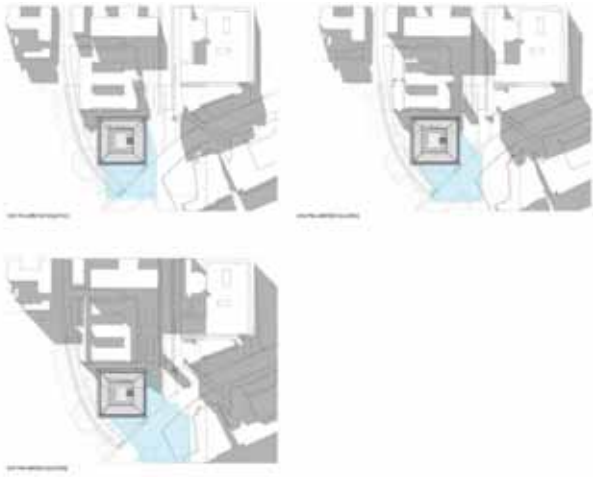
OVERSHADOWING

The development does contribute to an increase in overshadowing of the public domain including Fisher Road, City Road and Eastern Avenue. Taking into account the relationship of the site to the nearest residential receivers (refer to **Figure 31**) there is no overshadowing impacts on residential properties or private open space.

FIGURE 31 – OVERSHADOWING EFFECTS (SOURCE: GRIMSHAW)



PICTURE 11 – WINTER SOLSTICE: 9AM – 12PM



PICTURE 12 – WINTER SOLSTICE: 1PM – 3PM

The effects are considered unlikely to cause significant impact on the thermal comfort of users, due to the following:

- All public domain areas affected by shadow retain the industry standard of 2 hours sunlight at the winter solstice in highly urbanised environments (for residential development). In particular, the gate keeper cottage will receive approximately 2 hours of northern light from 1.00pm onwards.
- Only a small portion of St Pauls Oval is affected early in the morning. We note the net effect of this shadow is mitigated by the fact that the building shadow will be generally cast within the shadows of the adjoining trees.
- Overshadowing to the south over City Road is not anticipated to cause adverse impact as this space is transitory;
- The development will have a minimal effect on Eastern Avenue with shadow only being cast over the south eastern edge from 1.00pm onwards. Retaining a large area for solar access through the centre of Eastern Avenue set back from the road (immediately frontage the Madsen Building).

The proposed development is considered to result in satisfactory solar access outcome in the context of the space and likely use thereof. Full size solar access plans are provided at **Appendix F.**

7.3.2 VISUAL PRIVACY

The development has no direct line of sight views to residential premises. Accordingly impacts on visual privacy are not considered to be of relevance to the assessment of the development.

7.3.3 VIEW LOSS

The development will involve a change in the urban landscape, introducing a five (5) storey building where there is currently an at grade car park. Notwithstanding the change in the presentation of the site, there are no known significant or iconic views available across the site from nearby residential premises. Accordingly impacts on view loss are not considered to be of relevance to the assessment of the development.

7.3.4 LIGHT OVERSPILL

The development does not include implementation of new outdoor lighting. It is possible that internal lights would be left on during the evening for safety and security purposes. The lighting would be low level and unlikely to cause

As shown in **Figure 30,** the nearest residential properties are located to the west (beyond St Pauls oval) and to the south east on City Road.

In the context of the highly urbanised environment of City Road, the introduction of low level internal building lighting is considered unlikely to contribute to adverse impact on residential amenity. In particular it is noted that the identified residential properties do not have clear or direct lines of sight to the site, either obscured by the dense stand of mature trees along the western side of Fisher road or the road alignment that means only distant oblique views are possible.

Notwithstanding the above, any outdoor lighting implemented in relation to the proposed F23 Building would comply with AS4282-1997: Control of the obtrusive effects of outdoor lighting.

7.3.5 WIND

A Wind Assessment (**Appendix S**) has been prepared by Windtech Consultants to provide a desktop assessment of the impact of the proposed buildings on the pedestrian level local wind environment in and surrounding the site. The Wind Assessment notably found that:

- The walkway along the western aspect of the building will be exposed to side streaming southerly winds from the southern façade. Notwithstanding this, it is expected to be suitable for use as a pedestrian thoroughfare.

- The walkaway along the north site frontage will be protected from westerly and southerly winds by the surrounding trees and the development itself. The north-eastern edge of the building will capture the north-easterly wind during the summer months, which are often welcomed. Winds along the north and northern east edge are anticipated to be buffered by surrounding vegetation.

- The eastern frontage along Eastern Avenue will be exposed to the southerly winds side-streaming from the southern building façade. Side-streaming is an effect caused by a pressure build-up driving an acceleration of airflow around building edges. Setbacks that have been incorporated into the building design on this aspect will reduce the effect of wind-speeds at the pedestrian level. The building form is not expected to cause adverse effects due to the north-easterly winds. As such, it is expected that this Eastern Avenue site frontage area will be suitable for the intended use as a pedestrian thoroughfare.

- Corner terraces at Levels 2 to 5 will be exposed to accelerating winds.

- The anticipated wind environment for the café space at ground level in north east corner of the F23 Building will require wind protection to ensure comfort patrons seated outside, as a result of north-easterly and southerly winds in this area.

In light of the above, the following mitigation measures have been recommended:

- **Ground Floor Café:** The use of low level movable screening devices that can be used on windy days at the discretion of the operator to improve patron comfort.

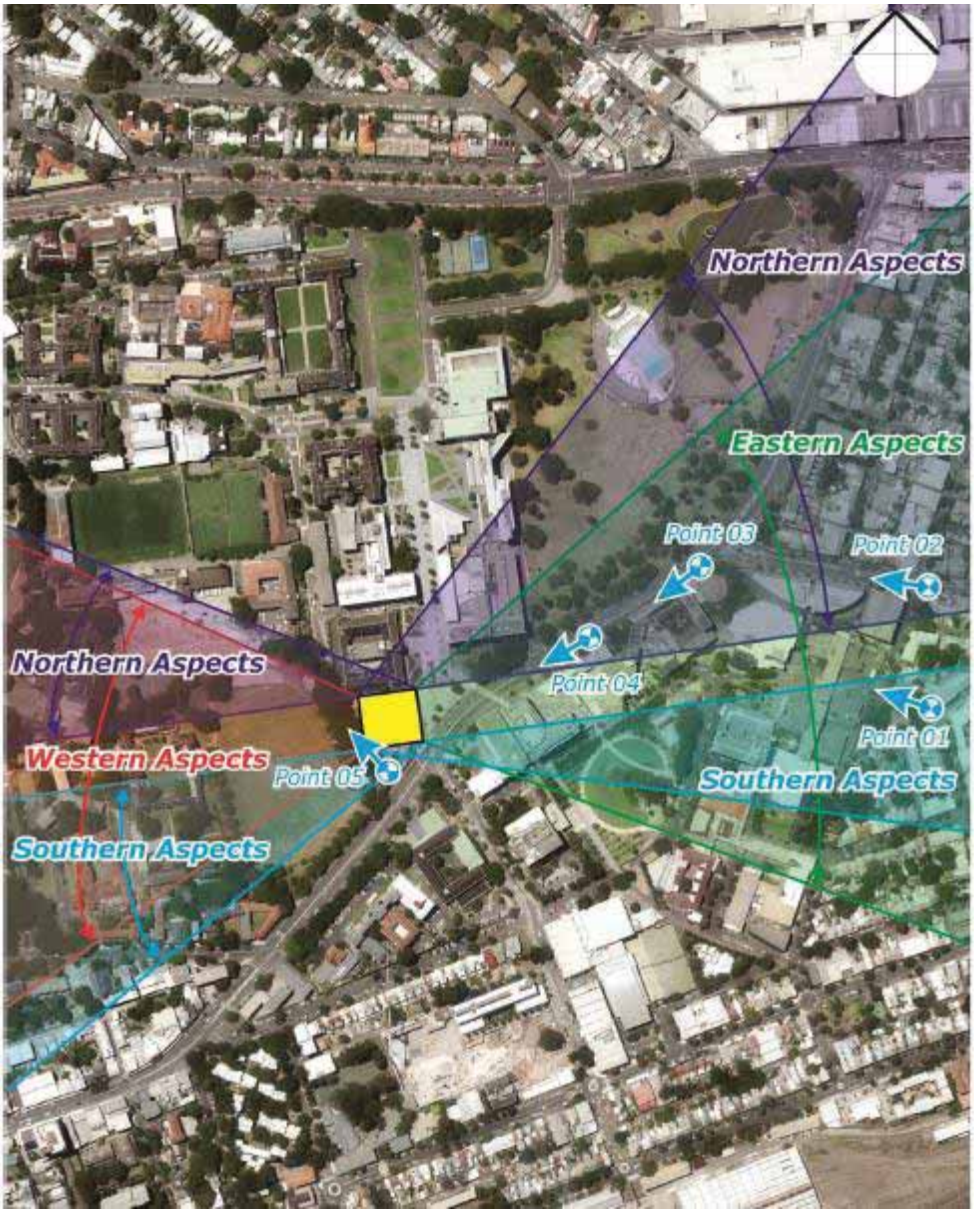
- **Upper Level Terraces:** While the building design, has appropriately recessed these areas to ensure they are suitable for use, Windtech recommends that solid (impermeable) balustrading be used to further enhance the amenity for users and that lightweight materials (including BBQ covers) and glass table tops be avoided.

7.3.6 REFLECTIVITY

A Solar Light reflectivity Analysis (**Appendix T**) has been undertaken by Windtech Consultants to determine the potential effect of the development on motorists, pedestrians together with occupants of neighbouring buildings. The study assessed the compliance of the development with the relevant provisions of the City of Sydney Development Control Plan 2012.

Windtech identified five (5) study points to determine critical sightlines for motorists and pedestrians as shown in **Figure 32**. The study was undertaken using techniques published by Hassall (1991) that concludes where a development can demonstrate satisfactorily limiting veiling luminance of 500cd/m² there will be no adverse impact on the comfort of motorists or pedestrians.

FIGURE 32 – REFLECTIVITY STUDY POINT LOCATION/CRITICAL SIGHTLINES (SOURCE: WINDTECH; 2016)



For each of the study point locations, photographs were taken from the viewpoint of motorists using a calibrated camera. A scaled glare protractor was then superimposed over each photograph, as the development proposes the construction of new road alignment (the shared way/VIP entry) a sketch of the viewpoint of drivers on this road was created to inform the assessment.

The glare protractor is used to assess the amount of glare likely to be caused and to provide a direct comparison with the criterion of 500cd/m^2. It may also be used to determine the maximum acceptable reflectivity index of the façade material of the development for the glare to be within the criterion of 500cd/m^2.

Using the glare protractor a zone of sensitive vision for motorists can be determined at a selected study point location, this zone is located within the central area of the glare protractor), the glare protractor is used to determine what the maximum normal specular reflectance of visible light should be for the glazing or any other reflective material used on that section of the façade of the development to ensure that solar glare will not cause discomfort or threaten the safety of motorists or pedestrians, and hence to allow the subject development to comply with the relevant planning control requirements.

GLARE EFFECTS: MOTORISTS AND PEDSTRIANS

Using the methods outlined above Windtech determined the following potential effects of glare to motorists and pedestrians:

- **Study Point 1: Ivy Street (heading west):** F23 Building will not be visible and is not within the zone of sensitive vision of motorists. Accordingly, there will be no adverse solar glare observed by motorists or pedestrians heading west along Ivy Street.

- **Study Point 2: Cleveland Street (heading west):** F23 Building will not be visible and is not within the zone of sensitive vision of motorists. Accordingly, there will be no adverse solar glare observed by motorists or pedestrians heading west along Cleveland Street

- **Study Points 3 and 4: City Road (heading south-west):** F23 Building will be visible and within the zone of sensitive vision of motorists. Windtech has analysed the potential glare/reflectivity of both the eastern and northern facades (noting that the eastern elevation has a lattice screen attached to the outer façade). Analysis concluded that the northern aspect (façade) of F23 will not visible at Point 3 and 4 and that the eastern façade will not result in adverse glare for motorists or pedestrians heading south-west along City Road subject to the use of glazing with a maximum normal specular reflectance of visible light of 11 per cent at Levels 3 and above.

- **Study Point 5: Fisher Road (heading north-west):** F23 building is visible but not within the zone of sensitive vision of motorists or pedestrians. Accordingly, there will be no adverse solar glare observed by motorists or pedestrians heading north-west along Fisher Road from the western façade of F23.

LAGE EFFECTS: ADJACENT BUILDING OCCUPANTS

The City of Sydney adopted a reflectivity threshold of 20 per cent to avoid nuisance to adjacent building occupants. Windtech, confirm that this standard is consistent with their experience and observations over the span of 250 projects, and also research by Rofail and Dowdle (2004).

Accordingly, a general recommendation has been included in the study that all glazing and other reflective materials used on the façade of the subject development have a maximum normal specular reflectivity of visible light of 20 per cent to avoid adverse solar glare to occupants of neighbouring buildings.

Based on preliminary comments included in section 2.3 of the reflectivity study (p. 6) building materials used in the construction of F23, with the exception of glazed façade elements, will have a specular reflectivity value less than 20 per cent. Concrete, brickwork and timber have a reflectivity value of less than 1 per cent, where are as powder coated metals may range between 1 to 5 per cent.

In relation to the glazed surface, typical reflectivity values of different types of glazing are listed as follows:

- Clear float glass – typically 5% to 8%;

- Low-e solar control glazing – typically 8% to 12%; or

- Other types of compliant performance glazing – up to 20%.

As such the recommendations of Windtech can be readily achieved through the use of appropriate materials thereby avoiding the potential for adverse impact.

7.4 TRANSPORT AND ACCESSIBILITY

A detailed assessment of the proposed development in relation to the potential traffic and accessibility impacts has been prepared by GTA and is provided at **Appendix N**.

7.4.1 PUBLIC TRANSPORT

The University of Sydney, Camperdown Campus is highly accessible via public transport modes including bus and train. The proposal does not contribute to additional staff on the site and so does not directly result in an increased demand for public transport services to and from the site.

TRAIN

Redfern train station is approximately 1 kilometre south east of the site, 10 minutes walking distance. The station is serviced by lines connecting to the Inner West, Greater West and the City. Trains connecting to the City, in particular Central provide access to the broader regional and suburban train network.

BUS

A bus stop is located to the west and south of the development site providing regular services connecting to Newtown and the City. Buses to City provide connection to the wider train network. As outlined in section 2.1 (p. 5) of the GTA report six (6) regular services are available from the bus stops located along City Road with a further 12 services available from stops along Parramatta Road.

The proximity of the F23 Building site to existing connections ensures high public transport accessibility and may contribute to encouraged use of existing services reducing the need for and reliance on private motor vehicle.

Access to City Bound bus services along City Road will not be affected by construction.

7.4.2 ACTIVE TRANSPORT

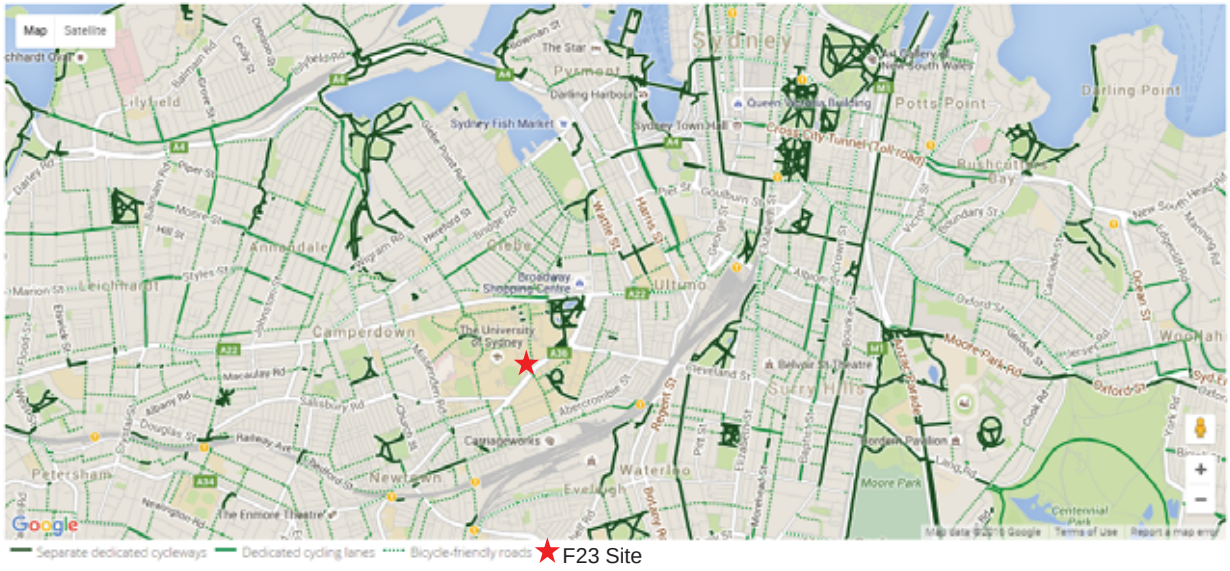
We note that in 2014 the University has a adopted a Sustainable Transport and Mobility Plan (STAMP). This seeks to increase the uptake of active and public transport options by the University's students and staff of the Camperdown and Darlington campuses. The STAMP complements the CIP which aims to improve Campus liveability, accessibility and connectivity by providing students and staff with economic choices and incentives to adopt more sustainable travel modes. It is also consistent with the University's 2015 Environmental Sustainability Policy's objective to promote sustainable transport.

CYCLING ROUTES AND ACCESS

The Camperdown Campus is well located to promote and encourage the use of active transport modes such as walking and cycling. As shown in **Figure 33** the F23 site will site at the nexus of a number of local and district cycle routes connecting the City of Sydney and adjacent suburbs with both dedicated and bicycle friendly laneways and roads.

The construction works will not impact or impede use of local dedicated or shared cycle ways and connections both to or through the University campus, with Eastern Avenue remaining open and accessible throughout construction.

FIGURE 33 – SYDNEY CYLCING MAP (SOURCE: WWW.SYDNEYCYCLWAYS.NET.AU)



The F23 development when complete will supports the University's commitment to encouraging the use of active modes of transport through the incorporation of dedicated and purpose built bicycle parking areas within the basement level combined with "end of journey" facilities. A total of 76 bicycle parking spaces have been provided within the basement of F23.

PEDESTRIAN ACCESS

The site is located at one of the main entry points of the Camperdown Campus. Eastern Avenue forms a primary north-south pedestrian route connecting to Darlington Campus on the southern side of City Road.

GTA have undertaken a traffic and transport study to support the application (**Appendix N)**. The study included consideration of local pedestrian movements around and through the site where in GTA observed that pedestrian flows across City Road are predominantly generated by University related activities. University generated flows crossing City Road consist of two basic types, namely:

- Internal campus flows - crossing between the Darlington and Camperdown campuses.
- External / Internal flows - flows between external origins / destinations (i.e. Redfern Railway Station and Parramatta Road) and the University.

Observations by GTA of pedestrian behaviour identified that while a strong preference was made for use of the overhead foot bridge for the AM period over the at grade crossings. However, in the PM period the preference is not so strong. This reflects the strong connection to the overhead bridge along the path of travel from the Redfern Station transport hub. The reverse movement connections are not as similarly strong with pedestrians coming to the bridge from more diverse locations.

Pedestrian Movements: Construction

Pedestrian Bridge over City Road

In general the proposed F23 development will not affect the pedestrian movement of flow over City Road using the pedestrian bridge. It is noted that a concurrent application (SD 7045) will be lodged for the Carslaw Extension which will connect to and with the pedestrian bridge over City Road, it is noted that the Construction Management Plan prepared by Richard Crookes in support of this application will retain and protect pedestrian movements over this bridge throughout construction.

Pedestrian Movements along and across City Road (at grade)

A detailed construction management plan (**Appendix X**) has been prepared by Lend Lease to support the F23 development and includes detailed consideration of managing pedestrian and vehicle movements across and along City Road throughout construction.

A class B hoarding will be erected along the City Road frontage of the construction site to protect pedestrians combined with the use of traffic controllers to support assisted exit vehicle movements from the site (Gates 2 and 3, refer to **Figure 34**) to ensure pedestrian safety at all.

Fisher Road

Fisher Road will be closed to pedestrians throughout construction.

Pedestrian Movements: Post Construction (operation)

At the completion of F23 the dominant pedestrian movements paths outlined above will not be affected. However it is noted that the F23 development has sought to improve pedestrian permeability and safety through the Camperdown Campus between Fisher Road and Eastern Avenue by reducing vehicular access from City Road, removing the signalised entry and exit point and replacing the same with a single width one-way entry plaza that will be designed as a shared way.

Furthermore, east-west connections across the Camperdown Campus will be improved by the incorporation of the an approximate 9 metre setback between the northern façade and the Madsen building to create new pedestrian plaza connecting to Fisher Road and St Pauls Oval beyond.

Overall the development of F23 will have a moderately positive impact on pedestrian permeability and movement.

7.4.3 VEHCILE ACCESS

7.4.3.1 DEMOLITION AND CONSTRUCTION

Five (5) construction vehicle access points will be established and used for different purposes and at various times throughout the construction program, these are outlined in **Table 19** below with the location of the entry points shown on **Figure 34.**

TABLE 19 – DEMOLITION AND CONSTRUCTION PHASE ACCESS ARRANGEMENTS (SOURCE: LEND LEASE, 2016)

GATE NO	TYPE	USAGE	VEHICLE TYPE	VEHICLE DIRECTION (MOVEMENT)
1	10m: double swing	**Primary Access:** all phases	Semitrailer or >	Entrance only off Fisher Road
2	7m: sliding gate	**Primary Access:** all phases	Semitrailer or >	Exit only left onto city Road
3	5m: double swing	**Secondary access:** Structure and fit out phase	Rigid	Exit only left onto city Road
4	4m: double swing	**Secondary access:** Structure and fit out phase	Van	Entry and Exit off Fisher Road
5	5m: double swing	**Secondary access:** Structure and fit out phase	Rigid	Entry and Exit off Fisher Road

FIGURE 34 – SITE ACCESS: CONSTRUCTION PHASE (SOURCE: LEND LEASE CONSTRUCTION MANAGEMENT PLAN)

All construction vehicles will approach the site heading east along City Road. They will then turn left into Fisher Road and enter the designated gate (5 or 1 – dependant on vehicle size) refer to **Figure 34**.

All gates will be closed at all times unless supervised by Traffic Controllers who will facilitate safe movement of vehicles, in accordance with the approved traffic control plan. Due to limited construction vehicle space, all deliveries will be booked in 24 hours in advance to coordinate movements of vehicles and prevent backing of vehicles on City road. Communication to traffic controllers for vehicles on approach will be via mobile phone, whereby the designated traffic controller located at City Road will be contactable by delivery drivers to ensure access is provided..

Furthermore, vehicles exiting the site will be managed and directed by traffic controllers to ensure the safe operation of City Road and also ensure the safe movement/passage of pedestrians.

7.4.3.2 OPERATION

The proposal will reduce the number of road openings onto City Road with two (2) entry points proposed to be maintained, including:

- Fisher Road at the southern end where it intersects with City Road will be widened to improve two (2) way traffic movements allowing left in and out vehicle movements to the Camperdown Campus; and

- A new one way shared/emergency vehicle zone will be constructed between City Road and the Southern façade of the F23 building. This entry will be access controlled with bollards to allow only emergency vehicles to cross City Road from Butlin Avenue and move in a northerly direction through the campus.

Fisher Road will serve as the primary entry, providing staff and visitors' access to the two (2) levels of basement car parking as well providing service and waste vehicles access to the site.

7.4.4 PARKING

7.4.4.1 DEMOLTION AND CONSTRUCTION

No provision will be made for the construction workforce. As outlined above, the site is highly accessible by active and public transport modes. There is limited availability of metred and public parking on Campus and within the immediate surrounding streets.

Throughout demolition and construction, there will be a reduction of casual parking on site as a result of the demolition of the current car park. However, it is noted that within the City of Sydney the provision of parking under the SLEP 2012 is a “maximum” requirement and not a minimum as the delivery of parking is actively discouraged as a means of promoting alternate transport options. Accordingly the proposal is not antipathetic to the aims and intent of the local planning controls.

7.4.4.2 OPERATIONAL

As outlined in **section 6.3.1** the site is identified in the SLEP 2012 Public Transport Accessibility and Land Use and Transport Integration maps as Category “F” and “B” land, respectively.

In accordance with clause 7.9 subsection (3) *Information and education facilities* a maximum of 1 space for every 200m²of gross floor area.

Parking for 96 cars, including 2 accessible space are located over two (2) basement levels accessible from Fisher Road. An assessment of parking requirements in accordance with the local provisions is provided in the GTA Report, who conclude the development is compliant with the relevant provisions.

7.4.5 SERVICING

Service vehicles will be able to access the F23 building using Fisher Road and are able to enter and exit the site in a forward direction.

7.4.6 TRAFFIC GENERATION

7.4.6.1 DEMOLITION AND CONSTRUCTION

Lend Lease have prepared a detailed Construction Management Plan (**Appendix X**) that outlines how vehicle movements and traffic will be managed throughout construction.

Peak vehicle movements will occur during the period involving development of the concrete structure and building envelope, anticipated to commence in October 20169 (substructure works) and last until May 2017 (façade and roof). During this period is approximately 20 – 30 vehicle trips per day are expected.

It is expected that the peak movements during the structure phase of construction will be bogies removing spoil from the excavation and supply of concrete trucks. The peak movements are calculated as follows;

- · Approximately 13 bogie loads of spoil removal for 40 days during excavation;
- · Approximately 30 concrete loads per major concrete pour; and

All general deliveries will be organised to mostly take effect outside peak traffic periods and vehicle movements will be managed by traffic controllers at all times for materials handling to ensure safe operation of the road.

7.4.6.2 OPERATION

A traffic and transport impact assessment has been undertaken by GTA and is provided at **Appendix N.**

The existing peak hour (AM and PM) traffic flows into and out of the site are provided in **Table 20**. The current left in/left out Fisher Road was not surveyed as it serves as a private entry with minimal traffic flows. The primary intersections at Barff Road (to the east of the site beyond the F07 –LEES1 development site) and the traffic controlled exit/entry to the current car park (site of the proposed F23 building) currently operate at Level of Service A, with minimal delays and queuing, despite congestion within the broader network during the AM and PM peak hours.

TABLE 20 – SURVEYED PEAK TRAFFIC FLOWS (SOURCE: GTA, 2016)

Intersection	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
City Road/ Barff Road	AM	0.76	2	76	A
	PM	0.57	2	35	A
City Road/ Bultin Avenue/ Fisher Road	AM	0.77	8	73	A
	PM	0.74	11	53	A
City Road / Fisher Road	This is currently a private driveway with little traffic so it was not modelled.				

Following implementation of the modified vehicle access and movements through the site as outlined in **section 7.4.3.2**, traffic movements in/out of the campus via City Road and Fisher Road will be significantly reduced as shown in **Table 21** below. The reduction in movements is in part response to the removal of the signalised exit onto City Road that will discourage "rat running" through the Campus.

TABLE 21 – TRAFFIC MOVEMENTS (FISHER ROAD: F23 DEVELOPMENT SITE)

PHASE	AM PEAK*		PM PEAK*	
	IN	**OUT**	**IN**	**OUT**
Pre-Construction (current)				
Signalised intersection only	79	86	116	127
Post-Construction (proposed)				
Fisher Road (east)	73	33	89	54
Fisher Road (west)	0	0	0	0
Difference	**-6**	**-53**	**-27**	**-73**

* Does not include Barff Road Intersection.

GTA estimate that approximately 26 service vehicle trips per day (including courier services) will be associated with the operation of the F23 Building, it is anticipated that the majority of these will occur throughout business hours, predominantly outside peak traffic flows.

The anticipated movements have been modelled using SIDRA, with results summarised in **Table 22.**

TABLE 22 – INTERSECTION OPERATION FOLLOWING DEVELOPMENT OF F23 (SOURCE: GTA, 2016)

Intersection	Peak	Degree of Saturation (DOS)	Average Delay (sec)	95th Percentile Queue (m)	Level of Service (LOS)
City Road/ Barff Road	AM	0.77	2	80	A
	PM	0.57	2	35	A
City Road/ Bultin Avenue/ Signalised Intersection	AM	0.69	6	58	A
	PM	0.99	8	65	A
City Road / Fisher Road	AM	0.50	64	10	E
	PM	0.20	20	5	B

GTA conclude that the modified access and vehicle movement arrangements associated with the delivery of F23 will not adversely impact traffic flows along City Road. IN particular the development does not affect the operation of key signalised intersections. Where the Level of Service is below A, at the Fisher Road/City Road intersection, operation will most likely affect internal movements and traffic flow out of the University onto City Road due to the high volume. Notwithstanding this, the intersection will operate at a suitable level.

7.5 ECOLOGICAL SUSTAINABLE DEVELOPMENT

The SEARS stipulate that the EIS must detail how Ecologically Sustainable Development (ESD) principles defined in Clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 will be incorporated in the design, future construction and ongoing operation of the University. These strategies deal with:

- Using natural resources more efficiently, especially energy and water;
- Reducing greenhouse gas emissions through the incorporation of passive design, energy efficient services and use of renewable energy and with fewer carbon emissions;
- Enhancing and promoting more sustainable and healthier modes of transport; and
- Engaging the University's communities to advance and promote sustainability initiatives.

The F23 development pursues high quality, durable and resource-efficient multifunctional building design and materials that are fit-for-purpose and will have lower whole-of-life environmental impacts.

The University's ESD commitments are embodied in its Sustainability Framework and University Design Standards, which include environmental performance requirements that will apply to the development. Key measures that will demonstrate the F23 building commitment to ESD principles are presented in the following sections. A detailed ESD Assessment has been prepared by Steensen Varming and is provided at **Appendix O**.

7.5.1 THE PRECAUTIONARY PRINCIPLE

This project is being designed and rated under the University of Sydney's proprietary Sustainable Design Framework rather than pursuing a Green Star rating. The University's ESD commitments are embodied in its Sustainability Framework and University Design Standards, which include environmental performance requirements that will apply to the development. The University of Sydney Sustainable Design Framework is a holistic rating scheme looking at a wide range of environmental, social and operational values. It has many similarities to the widely adopted industry standard Green Star rating scheme, but tailored specifically to suit the requirements of new University developments

The aim of the framework is to encourage a balanced approach to designing new university projects; to be resource efficient, cost-effective in construction and operation, and deliver enhanced sustainability benefits with respect to impact on the environment, the health and well-being of students, staff and visitors whilst providing the best possible facilities for a constructive learning experience.

The framework assesses the sustainability initiatives of each project against criteria in the following categories:

- Leadership and Communication
- Resource Efficiency
- Healthy Environment
- Materials
- Climate Change, Landscape and Infrastructure
- Sustainable Transport

The project team has a developed a design which is committed to achieving a Gold rating under this framework. The project team believes this target provides a cost-effective building solution with high quality sustainability outcomes, resulting in value for money for the University of Sydney.

The ESD Report summarises the sustainability initiatives selected for F23 in each of the above framework categories and outline how they have been implemented.

7.5.2 CONSERVATION OF BIOLOGICAL DIVERSITY AND ECOLOGICAL INTEGRITY

This development will occur on land currently used for the purposes of at grade car parking adjacent a main road, in an urban environment at the front entrance to the University Campus.

The proposed development will require the removal of approximately nine (9) trees from the site. The trees have been assessed by an Arborist and ecologist who have determined that while the trees are native they are not locally endemic species and the removal will not adversely affect the local biodiversity.

7.5.3 INTERGENERATIONAL EQUITY

This development will not cause any significant impact on the health, diversity and productivity of the environment and will provide benefits for future generations through the provision of a state of the art teaching and research laboratory facility for the life, environment and earth sciences disciplines.

7.5.4 IMPROVED VALUATION, PRICING AND INCENTIVE MECHANISMS

The design of this development will improve upon environmental performance whilst also improving economic efficiency. The development has been designed to perform efficiently, to reduce consumption of natural resources. A lifecycle costing has been employed to determine the optimum strategy with regards to major items of plant, with decisions being made based on whole of life costs rather than capital expenditure only.

7.6 NOISE AND VIBRATION

7.6.1 NOISE

Acoustic logic has considered the directions of the SEARs requiring consideration of potential noise impacts with respect to:

- NSW Industrial Noise Policy (INP) (issued by the Environmental Protection Authority); and
- Interim Construction Noise Guidelines (issued by the former Department of Environment and Climate Change).

Consideration has not been given to State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) in relation to road traffic noise as the proposed development, despite being associated with an “educational establishment” is not used for the purpose of teaching and learning. Therefore the subject building is not considered by Acoustic Logic to trigger the application of the acoustic considerations imposed by Clause 102 of the ISEPP.

An Acoustic Report has been prepared and is located within **Appendix U** of this EIS, together with a letter from Acoustic Logic confirming a question raised by the DPE as part if it’s review during the ‘Test of Adequacy’.

7.6.1.1 EXISTING NOISE ENVIRONMENT

Acoustic Logic Consultancy have conducted an acoustic assessment of the likely noise impacts associated with the development and operation of the F23 administration building. The following sections detail the outcome of this assessment in relation to the construction and operational noise impacts that may typically arise.

As outlined in Section 7.4 existing residential premises are located approximately 170 metres west and 380 metres east of the site. Acoustic Logic has also considered the acoustic effect of development on the operation of adjacent education buildings. **Figure 35** indicates the location of the site, data collection points and the location of the existing and future sensitive receivers.

Notably acoustic logic has identified and included assessment of impact on the future St Pauls Student Accommodation, currently under construction to approximately 75 metres northwest of the site. Construction is anticipated to complete prior to commencement of construction on the F23 Building.

FIGURE 35 – LOCATION OF ADJACENT SENSITIVE RECEIVERS/USES AND MONITORING LOCATIONS

Acoustic Logic undertook unattended noise monitoring for a duration of one (1) week from 21July 2015 to 28 July 2015. The ambient noise levels established as a result are provided in **Figure 36**.

FIGURE 36 – BACKGROUND NOISE LEVELS (SOURCE: ACOUSTIC LOGIC, 2016)

Time of Day	Rating Background Noise Level dB(A) L_{90}	Existing Noise Level dB(A) L_{eq}
Day (7am to 6pm)	46	55
Evening (6pm to 10pm)	44	51
Night (10pm to 12am)	44	51
Night (10pm to 7am)	43	50

7.6.1.2 PROJECT SPECIFIC NOISE TARGETS

Using the INP Acoustic logic has established both the intrusive and amenity criteria for the development. These are summarised in **Figures 37 and 38.**

FIGURE 37 – INP INTRUSIVE CRITERIA – PROJECT SPECIFIC (SOURCE: ACOUSTIC LOGIC, 2016)

Time of day	Background Noise Level dB(A)L_{90}	Intrusiveness Criteria (Background+5dB(A)) dB(A)L_{eq}
Day	46	51
Evening	44	49
Night (10pm to 12am)	44	49
Night (12am to 7am)	43	48

The amenity criteria have been established using section 2.2 of the INP based on an urban noise environment and have been adjusted in accordance with the provisions of the INP, allowing for:

- The contribution from industrial noise sources, that being mechanical plant associated with the adjoining University of Sydney science buildings was 43dB(A) Le.
- The resultant Leq noise level in the vicinity of the site is largely controlled by latent traffic noise from City Road and sporadic car movements along Fisher Road.

Utilising the modification factors in Table 2.2 of the INP, the amenity criteria established for the site are provided in **Figure 38.**

FIGURE 38 – ADJUSTED INP AMENITY CRITERIA (SOURCE: ACOUSTIC LOGIC, 2016)

Time of Day	Acceptable noise level, dB(A) L_{eq} (period)	Existing L_{eq} noise level from industrial noise sources, dB(A)	Modification factor	Adjusted Amenity criterion, dB(A) $L_{eq\ (period)}$
Day	60	43	N/A	60
Evening	50	43	N/A	50
Night	45	43	Acceptable noise level minus 4	41

7.6.1.3 CONSTRUCTION NOISE IMPACTS

With respect to general construction noise, the impacts on nearby development will be dependent on the activity in question and where on the site the activity is undertaken. Excavation and piling works tend to be the loudest typical construction activity. Work close to the northern and western boundaries will have greatest potential impact on nearby residents.

Construction noise emissions objectives have been established by Acoustic Logic using the guidelines/standards contained in sections 4.1.1 and 4.12 of the Interim Construction Noise Guideline, these are summarised in **Figure 39**.

FIGURE 39 – CONSTRUCTION NOISE EMISSION OBJECTIVES (SOURCE: ACOUSTIC LOGIC, 2016)

Location	"Noise Affected" Level dB(A) $L_{eq\ (15min)}$	"Highly Noise Affected" Level dB(A)$L_{eq(15min)}$
Residences	56 (Standard Construction Hours)	75
Commercial Development	70	N/A
Active Recreation Areas	65	N/A

DEMOLITION AND EXCAVATION

Demolition of the existing on grade car park and excavation of fill for the basement levels may require rock hammering which would likely present the loudest typical noise events associated with the construction period.

These noise sources have been considered by Acoustic Logic against the project objectives and the following observations made:

- Noise levels exceeding EPA “Noise Effected”/”Background+10dB(A)” are likely to occur at the Academic House receiver, given its proximity (although exceedances of the “Highly Noise Effected” level if 75dB(A) is unlikely.

- Noise levels exceeding EPA “Noise Effected”/”Background+10dB(A)” noise level may occur at the existing student accommodation receiver (located to the west) during hammering works, but will be unlikely to exceed for the remainder of works.

- Exceedances of the “Highly Noise Effected” level if 75dB(A) is highly unlikely

GENERAL CONSTRUCTION WORKS

During construction works, Acoustic Logic have identified the use of hand tools (angle grinders etc.) and concrete pumps which are the loudest typical activities. Taking into account the potential noise sources and receivers, Acoustic Logic have concluded the following:

- Noise levels exceeding EPA “Noise Effected”/”Background+10dB(A)” noise levels are not likely to occur at Academic House. Exceedances of the “Highly Noise Effected” level if 75dB(A) is also highly unlikely

- Noise levels exceeding EPA “Noise Effected”/”Background+10dB(A)” noise levels are not likely to occur at the existing student accommodation. Exceedances of the “Highly Noise Effected” level if 75dB(A) is highly unlikely.

Once construction of the building shell is complete, noise from hand tools will be relatively low, as the new building façade will provide considerable noise attenuation and the use of hand tools is unlikely to exceed EPA recommended levels at any sensitive receiver locations.

Road traffic noise associated with construction vehicles is not anticipated to cause impact to adjacent residential receivers as all vehicle movements will occur via a left in/left out movement to and from City Road as outlined in section 7.5 and the appended Construction Management Plan (refer to 14 of **Appendix W**). More over the construction hours will not extend beyond 6.00pm on any given day (refer to section 3.2.3 of **Appendix U**) further ameliorating the potential impact of progressive construction works (including slab finishing works).

To mitigate the effects of noise though demolition, excavation and construction the following management and mitigation measures are recommended by Acoustic Logic:

- Use of augured rather than driven or vibratory piling will be considered if feasible.

- Location of crane as far as practicable from Fisher Road.

- Location of the concrete pump away from Fisher Road if practical. If this is not possible, in the event of complaint, temporary screening of the pump should be considered (plywood hoarding, or plywood sheet fixed to temporary fencing.

- For activities where acoustic controls and management techniques still cannot guarantee compliance with “Noise Management”/”Background+10dB(A)” noise levels, implement a notification process whereby nearby development is made aware of the time and duration of noise intensive construction processes. This may include days of heavy hammering and excavation works.

- Implementation of a noise monitoring program (attended noise measurements during key stages of construction) during construction to provide feedback back to the Builder to ascertain whether

construction noise goals are being exceeded and determine additional management strategies. This would be expected at commencement of excavation works

Combined with the above, Acoustic Logic has also recommended the establishment and maintenance of a complaints register.

7.6.1.4 OPERATIONAL NOISE IMPACTS

LAND USE

Acoustic Logic have predicted noise levels have been developed based on a worst case scenario and compared these predicted noise level with the project specific noise emissions objectives (refer to **Figure 40**) . As shown in **Figure 40**, the likely noise emissions are significantly below the project objectives.

FIGURE 40 – WORST CASE SCENARIO OPERATIONAL NOISE PROFILE (SOURCE: ACOUSTIC LOGIC, 2016)

Time of Day	Receiver Location	Predicted Noise Level, dB(A) $L_{eq\ 15min}$	Noise Emission Objectives[1], dB(A) $L_{eq\ 15min}$
Day 7am to 6pm	Receiver 1 – 'Academic House' Student Accommodation	38	51
	Receiver 2 – Existing St Pauls Student Accommodation	27	51
Evening 6pm to 10pm	Receiver 1 – 'Academic House' Student Accommodation	32	49
	Receiver 2 – Existing St Pauls Student Accommodation	21	49
Night 10pm to 12am	Receiver 1 – 'Academic House' Student Accommodation	< 20	41
	Receiver 2 – Existing St Pauls Student Accommodation	< 20	41

Note[1]: Noise emission objectives based on the strictest noise criteria out of the intrusiveness and amenity criterion respective to the period of the day.

INCREASED VEHICLE MOVEMENTS

The development will contribute does not result in an increase in vehicle movements when complete. Typical noise sources associated with the use that have been considered in the assessment include:

- Staff vehicles entering and exiting the basement car park via the entrance off Fisher Road; and
- Vehicles using the loading area.

Under the provisions of the EPA Road Noise Policy, new developments contributing to traffic are required to demonstrate consistency with the controls summarised in **Figure 41**, when measured at a nearby property.

FIGURE 41 – INP CRITERIA: TRAFFIC NOISE GENERETED BY NEW DEVELOPMENT (SOURCE: ACOUSTIC LOGIC, 2016)

Road Type	Time of day	Permissible Noise Generation
Arterial (City Road)	Day (7am to 10pm)	60dB(A)$L_{eq(15hr)}$
	Night (10pm to 7am)	55dB(A)$L_{eq(9hr)}$

Notwithstanding the above, if existing noise levels exceed those in the table above, Section 3.4 of the Road Noise Policy is applicable and requires noise impacts to be managed and reduced through feasible and reasonable measures. However, in determining what is feasible/reasonable, the Policy notes that an increase of less than 2dB (A) is a minor impact and would be barely perceptible.

MECHANICAL PLANT

Plant material has not yet been selected for the final fit out. Accordingly detail acoustic assessment has not been undertaken with respect to plant selection. Notwithstanding, Acoustic Logic has undertaken an indicative assessment of the following primary plant:

- Cooling towers (located on roof top of the building);
- Air handling plant (air handling units, supply/exhaust/outside air fans); and
- Chillers.

Cooling Towers:

As shown in **Figure 29**, **section 7.2.2** of this EIS plant, including the cooling tower plant deck, is set within the roof cavity that will l act as an acoustic screen around the cooling tower and baffle noise.

Acoustic Logic conclude that based on the preliminary selection of the cooling tower with a sound power level of 94dB(A) running at 100% speed, predicted noise levels at the 'Academic House' receivers will comply with the noise emission criteria for all periods of the day. There will be slightly less impact at the existing student accommodation.

Air Handling Plant and fans

Detailed acoustic review of all plant rooms to be undertaken following equipment selection, in particular if there are louvers facing the West or North. While detailed design of these areas and the sound power level of plant is unknown, suitable design and construction measures can be implemented to manage the transference of noise including treated acoustic louvers and/or internal lining to external ductwork.

Water Cooled Chillers

Chillers are to be located within plant rooms located on Basement Level 2 of the development. Based on the wholly enclosed design of this area Acoustic Logic conclude that there is no acoustic impact likely to arise as a result of this plant material.

Notwithstanding the above, fans will be required to be located on an external face of the building where ventilation is available, and may contribute to noise generation. As outlined above, the plant material has not yet been selected and definitive assessment cannot be undertaken. However any potential noise can be mitigated through the use of appropriate attenuation measures developed at detailed design stage.

Acoustic Logic conclude that compliance with INP acoustic criteria as set out in Section 5.2 is achievable, provided that detailed acoustic review of plant items is undertaken once plant is selected, and acoustic treatments similar to those outlined above are adopted.

7.6.2 VIBRATION

7.6.2.1 DEMOLITION, EXCAVATION AND CONSTRUCTION

GENERAL CONSTRUCTION WORKS

Acoustic Logic has considered the effects of "general construction" in section 6.2 of the Noise and Vibration assessment report (refer to **Appendix U**). Acoustic logic has assessed the potential impact using the vibration goals for the amenity of nearby land users published by the EPA *Assessing Vibration: A technical guideline*, as summarised in **Table 23**.

TABLE 23 – CONSTRUCTION VIBRATION OBJECTIVES (SOURCE: ACOUSTIC LOGIC, 2016)

Location	Time	Peak velocity (mm/s)	
		Preferred	Maximum
Continuous Vibration			
Residences	Daytime	0.28	0.56
Commercial	When in use	0.56	1.12
Impulsive Vibration			
Residences	Daytime	8.6	17
Commercial	When in use	18	36

Notwithstanding the above, Acoustic Logic have resolved that general construction works should not result in significant vibration impact on adjacent development due to proximity (refer to section 6.5, p. 25 **Appendix X**).

EXCACATION

The construction of the two (2) level basement car park extensive excavation of the site is required. As outlined in section 3.4.6 subsurface conditions are expected to be fill and silty clays atop medium to high strength bedrock.

Douglas Partners have considered the effects of vibration arising from excavation works (**Appendix R**). Based on the nature of the subsurface and bedrock materials in particular the excavation of the fill and silty clays will be undertaken using conventional methods. However, the bedrock at depths of 4 to 5 metres and deeper will require the use of rock hammers likely to cause vibration and if not controlled may result in damage or disturbance to nearby structures. The following recommendations should be adopted to avoid impacts:

- Provisionally limit vibration to peak particle velocity (PPV) of 8mm/s at the foundation level of the Madsen Building (the nearest permanent structure) to protect the architectural features of the building and reduce impacts of vibration of users (students and staff).
- Provide notice to owners of any in ground infrastructure and utilities regarding the potential vibration
- Development and adoption of site specific vibration monitoring trial to determine the potential attenuation requires once excavation plant and methods have been determined. This could be prepared as a part of the detailed construction management plan.

7.6.2.2 OPERATION

Vibration is not anticipated to be an ongoing issue for the development.

7.7 BIODIVERSITY

The site has been the subject of several investigations to classify flora present both on the site and within proximity. The preliminary assessment was undertaken by The Australian Museum who undertook a field survey on 5 August 2015 to identify flora on and adjacent to the site combined with an examination of fauna habitat and features (**Appendix H)**.

As part of the preliminary assessment the Australian Museum (AM) collected information on flora species present on the site, site features including vegetation structure, native vegetation cover, exotic vegetation cover, native and weed species present, number of hollow bearing trees and length of logs. AM also made opportunistic fauna recordings.

Subsequently the site was reinspected by Eco Logical Australia on 26 February 2016 and an updated report and peer review provided (**Appendix H**).

7.7.1 FLORA

TREE REMOVAL: WITHIN THE SITE

The development will require the removal of 17 existing trees from within the immediate location of the building footprint and to the north of the site, south of the Madsen Building, refer to **Figure 11.** An arboriculture assessment has been undertaken by Tree IQ (**Appendix I**), the findings of the assessment are summarised in **Table 24**.

TABLE 24 – SUMMARY OF ARBORICULTURE ASSESSMENT

TREE NUMBER	SPECIES	LANDSCAPE SIGNIFICANCE	RECOMMENDATION
471	*Stenocarpus sinuatus* (Queensland Fire wheel)	Low	Remove
473	*Stenocarpus sinuatus* (Queensland Fire wheel)	Low	Remove
475	*Eucalyptus sp.* (Eucalyptus)	Moderate	Remove
476	*Callistemon viminalis* (Weeping Bottlebrush).	Low	Remove
477	*Eucalyptus globulus* subsp. *Bicostata* (Southern Blue Gum)	Moderate	Remove
478	*Syzgium luehmannii* (Riberry)	Low	Remove
485	*Tristaniopsis laurina* (Water Gum)	Moderate	Retain
486	*Lophostremon confertus* (Brush Box)	Moderate	Retain
487	*Jacaranda mimosifolia* (Jacaranda)	Low	Remove
488	*Lophostremon confertus* (Brush Box)	Low	Remove
489	*Lophostremon confertus* (Brush Box)	Low	Remove
490	*Lophostremon confertus* (Brush Box)	Low	Remove
491	*Lophostremon confertus* (Brush Box)	Low	Remove
1139	*Syzgium luehmannii* (Riberry)	Low	Remove
1141	*Syzgium luehmannii* (Riberry)	Low	Remove
1142	*Syzygium paniculatum* (Magenta Lillypilly)^	Low	Remove
1144	*Syzygium paniculatum* (Magenta Lillypilly)^	Low	Remove

^ Listed under the TSC Act 1995 as vulnerable

As identified in **Table 24** all trees proposed to be removed to accommodate the new F23 Building are of low and moderate landscape value, many with immature growth and not locally endemic species.

ADJACENT LAND: MINOR PRUNING AND PROTECTION MEASURES

As shown in **Figure 11** above, trees line the adjacent northern and western boundaries of the site. The proposed development does not seek to remove these trees and Tree IQ has provided recommendations to ensure their protection and retention throughout demolition, excavation and construction.

- **Trees 492 – 505 (western side of Fisher Road):** The most significant of trees adjacent to the site, being the row of Weeping Figs along the western side of Fisher Road, which have been given a Very High Landscape Significance, will all be retained and protected. Minor pruning is required to the canopy to accommodate the proposed roof form of F23 these will be less than 5 per cent of each of the trees total crown volume. Detailed pruning specifications are provided in Appendix 8 of **Appendix I.**

- **Trees 435 and 437 (Eastern Avenue)** identified as *Ficus macrophylla* (Moreton Bay Fig) and are located in a garden bed areas fronting Eastern Avenue. These trees have been allocated a moderate Landscape Significance and a Retention Value of *Consider for Retention.* TreeIQ has reviewed the plans and confirmed that there are no works within the tree Protection Zones

On balance the trees proposed to be removed are primarily those of low landscape significance. TreeIQ confirms that the proposed replacement trees as detailed in the landscape design plans and report will be sufficient to offset any visual amenity impacts associated with their removal.

All trees outside the immediate zone of influence of the construction works are to be retained and protected by way of establishing suitable tree protection zones. Refer to **Appendix I.**

7.7.2 FAUNA HABITAT

The AM report has identifies minimal faunal habitat is present within the boundaries of the F23 development site. Notably there were no surveyed hollow bearing trees, fallen logs or aquatic habitats such as wetlands or water courses.

AM further noted that the majority of vegetation with 100 ha and 1,000 ha assessment circles was terrestrial planted street trees, gardens and parks classified by the OEH as “urban/exotic”. The only native vegetation mapped within the assessment circles was aquatic vegetation located within Sydney Harbour over 1 kilometre from the site.

Notwithstanding the above, the report did identify the stand of significant fig trees that line the western side of Fisher Road as potentially providing foraging habitat to the Grey Headed Flying Fox, a listed threatened species. As outlined in the Arborist report (**Appendix I**) minor crown pruning will be required to accommodate the proposed building.

Eco Logical Australia has considered the potential impact of these pruning works in their addendum advice (**Appendix H**) and concluded that the works are unlikely to have a significant adverse impact on the grey headed flying fox.

7.7.3 FAUNA

The AM made opportunistic recordings of fauna present on the site during the August 2015 site survey. Fauna noted as being present on the site and land adjacent, at this time included two (2) species of native bird were recorded on site and further four (4) on adjacent land. These are listed in **Table 25.**

TABLE 25 – SUMMARY OF FAUNA SURVEYED ON SITE AND LAND ADJACENT (SOURCE: AM, 2015)

BIRDS SPECIES ON SITE	BRIED SPECIES ON ADAJCENT LAN
▪ Noisy Miners; and	▪ Rainbow Lorikeets
▪ Crested Pigeons.	▪ Welcome Swallows
	▪ Pied Currawongs
	▪ Masked Lapwing

Grey headed flying foxes were not observed on the site or land adjacent by either AM of Eco Logical. However the AM report indicated that the presence of the Grey-headed flying fox was assumed as:

- It is known to occur in the vicinity of the site
- It is known to forage in species of tree present on the site, *Lophostermon confertus* – Brush box and *Ficus Macrophylla* – Moreton Bay Fig) and proposed for removal.

7.7.4 FRAMEWORK FOR BIODIVERSITY ASSSESSMENT

The SEARs (**Appendix A**, requirement 8) provided require assessment of the proposal using the Framework for Biodiversity Assessment. In considering the development site in relation to this framework the following matters are notable:

- The site has an area less than 0.25ha.
- There is no remanent flora species present on the site and it has been classified by the OEH as "urban exotic". Furthermore, the site has been assessed by two (2) ecologists as having poor structural complexity and low habitat features. Those native vegetation species surveyed as being present on the site, are not endemic to the local area and are planted amenity trees of immature growth with low habitat quality and features.
- Application of the Biobanking assessment methodology resulted in a landscape value of 0.00 being calculated.

Both AM and Eco Logical conclude that the use the FBA and BBAM is not appropriate in the circumstance due to the size of the site and the calculator should not be applied further. In this instance they have acknowledge the potential loss of trees that provide for foraging habitat for the grey headed flying fox.

Notwithstanding the potential for impact, AM concluded that the trees proposed for removal from the site were small immature species (less than 8 metres) and located within proximity to the road and subject to associated road and pedestrian noise disturbance that would contribute to a high nocturnal disturbance. This noise exposure may limit their use by bats as foraging grounds.

Furthermore, Eco Logical have resolved that the extent of works to the adjacent fig trees are unlikely to cause adverse significant impact to foraging by bats.

On balance the potential for the proposed scope of works to cause significant adverse impact is considered unlikely. Notably the development will not adversely affect the health and vitality of the significant row of fig trees along the western side of Fisher Road. These trees contain faunal habitat values such as wide canopy spread and hollows more likely to support grey headed flying fox.

7.8 HERITAGE AND ARCHAEOLOGY

7.8.1 NON-ABORIGINAL HERITAGE

The site of the proposed F23 development is currently partly a road and the rest is a car park. There are no listed items of environmental heritage on the site listed under an EPI or other statutory instrument.

The whole of the University Campus is listed under Section 170 of the *Heritage Act* and as a conservation area under the SLEP 2012.

The University has developed conservation and heritage management plan that identifies and ranks building improvements across the Camperdown Campus. Under this plan, the following improvements are located with proximity to the development site:

- St Paul's College Oval (High significance);
- Victoria Park (High significance);

- Former Gatekeeper's Lodge and Gates (High significance);
- City Road palisade boundary fence (High significance);
- Madsen Building (Moderate significance); and
- Carslaw Building (Little significance).

A Heritage Impact Statement (HIS) has been prepared by Ian Kelly, Heritage Consultant (**Appendix K**). The HIA concludes that the proposed development will have minimal impact on St Paul's Oval, Victoria Park and the Carslaw Building.

The potential impact of the development on the remaining items is addressed with **Appendix K**, with key matters discussed below:

CITY ROAD FENCE AND VEHICLE ENTRY

The fence currently extend from the Gatekeepers House moving eastward around the southern and eastern perimeter of the existing car park to the "entry gates". The development will require the dismantling and relocation of a portion of the existing City Road Palisade Fence and vehicular entry gates to widen the vehicular entrance.

While the fence and entry gates are read as single streetscape element they were constructed in different periods and as a result have variable heritage value and significance, as follows:

- **Fence:** The City Road boundary fence has been subject to several changes over the past century, in response to the relocations of the City Road entrance to the Camperdown campus. The challenge has always been to maintain some balance between retaining the heritage fabric which delineates the historical boundary of the original University campus, north of City Road, and the need to improve the physical and visual connections to the expanded University campus in Darlington, south of City Road.
- **Gates:** Although they appear to be quite old, the City Road vehicular entrance gates were actually constructed in 1974.Accordingly the role of the gates in designating the major southern entrance to the Camperdown campus is more symbolic than historic. This entry will be redundant under the proposed development scheme and so the gates are to be relocated.

The removal of a small section of the City Road palisade fence, due to the widening of the Gatekeepers' Lodge gateway and the removal of the Vehicular Entrance Gates will result in some minor loss of significant heritage fabric. It is recommended that the extent of fence to be removed is kept to the minimum and the heritage fabric be retained for reuse in maintenance or reconstruction. The entry gates will be repurposed in the future to form an entry to Victoria Park from Barff Road.

FIGURE 42 – STREETVIEW OF MADSEN AND F23 (SOURCE: GRIMSHAW, 2016)

EASTERN AVENUE: VIEW CORRIDOR

The most notable change to arise from the development of F23 is the altered view corridor along and through eastern avenue. Eastern Avenue is identified in the GCMP (2015) as one of several significant view corridors within the University grounds that "should be retained and, if possible, enhanced."

The F23 Building has been aligned with the main façade of the Madsen Building to the north and despite the minor forward projection of aluminium screening to the eastern façade beyond this alignment, but due to the lightweight and transparent nature of the screen the impact of this protrusion has a minimal impact on the significance of Eastern Avenue view corridor.

The HIA acknowledges that the development of F23 in combination with LEES1 (F07) will result in a change in the visual appearance of the site and the spatial relationship of existing buildings over tall the proposed development is "generally acceptable" and is considered to contribute to a "better sense of identity, arrival and transition" to the Campus.

7.8.2 ABORIGINAL HERITAGE AND ARCHAEOLOGY

Aboriginal heritage assessments prepared over the past decade for the university campus in general and for specific work sites, have concluded that no archaeological sites or artefacts relating to Aboriginal occupation have been found within the University grounds.

The Aboriginal Heritage Due Diligence Report (AHDDR), prepared by GML Heritage (September 2015), concludes:

> *"As all three precincts (A02, F07 and F23) are identified as having very low to no potential to retain Aboriginal archaeological deposits and/or objects, it is the finding of this assessment that Aboriginal objects are unlikely to be present and thus would not be impacted by the proposed work." (AHDDR, p.43).*

GML concludes that the potential for aboriginal artefacts to be encountered is low and therefore the potential for impact is limited.

The AHDDR also reports:

> *"No specific [cultural heritage] values were identified that were associated with the study area." (AHDDR Appendix A, p.9.)*

An Aboriginal Heritage Impact Assessment Report (AHIA) prepared by Archaeological & Heritage Management Solutions (AHMS) in February 2016, and is also included within the suite of reports in Appendix K, addresses the requirements to identify any known items and places of Aboriginal cultural heritage value within the University of Sydney, the likelihood of unknown Aboriginal objects being present and areas of key risk. The primary focus of the report is the six CIP precincts, but noted in the Executive Summary it also considers the wider Camperdown and Darlington campuses, especially in relation to the identification of cultural values through discussions with the Aboriginal stakeholders.

The report documents the results of the cultural values identified through liaison with Registered Aboriginal Parties (RAPs) and the local Aboriginal community as follows:

> *"consultation with the Aboriginal community identified six (6) places retaining cultural values with the subject area. These include the Macleay Museum, Shellshear Museum (in the Anderson Stewart building), Mackie Building, the Quad, the Koori Centre, the Sports Ovals and the University entrances." (AHIA, p.7.)*

With regard to potential Aboriginal heritage impact, the AHIA concludes no areas identified as having cultural values would be directly or indirectly affected by the proposed development." (AHIA, p.7.)

7.8.3 NON-ABORIGINAL AND NON- ABORIGINAL ARCHAEOLOGY

Over the past decade a number of archaeological reports have also been prepared for the University campus, both in general and for specific work sites. Based on these previous reports, and given the amount of development that has occurred at the place, the University of Sydney Grounds Conservation Management Plan (GCMP, 2015), and additional material prepared by Circle Square Design concluded "*the potential for archaeology, either Aboriginal or European, is considered to be low*." (GCMP, p.120)

However, there a number of areas within the University grounds which, because they have remained generally undisturbed, are regarded as being archaeologically sensitive. These areas are primarily ovals and playing fields, none of which are impacted by the proposed development.

Notwithstanding the above, the site of the F23 Building has previously supported several cottages and workshops between the years of 1890 to 1944. All these building were levelled in 1974 to allow for the construction of the car park that remains today. The heritage assessment (refer to **Appendix K**) conclude that following demolition works the construction of the car park is likely to have removed any evidence of previous building work and its contents. Any remains would have a moderate to low level (Level 3) of Local heritage significance.

The policy for a Level 3 ranking states that ground disturbance in this area can proceed without prior consultation with an archaeologist. However, if any sub-surface deposit is revealed, an archaeologist should be consulted and the site managed in accordance with Heritage Branch archaeological procedures.

7.9 EROSION AND SEDIMENT CONTROL DEVICES

As the development involves the disturbance of an area greater than 2.500m², an erosion of sediment control as being prepared in accordance with Table 2.1 of Landcom's Soil and Construction Manual Volume 1, March 2004 (commonly known as the Blue Book) (Refer **Appendix W**).

The plan generally applies the following management measures to prevent sediment and erosion being carried by runoff:

- The use of straw bale sediment barriers along the eastern and southern extents of the building site;
- Use of kerb inlet protection and pit filters; and
- Construction of temporary sediment basin (within the north-western corner of the site boundaries).

Prior to commencement of works, the erosion and sediment control measures will be finalised with the Civil Contractor to meet the requirements of the Blue Book, ensuring the design and phasing the installation of the measures to suit the construction staging. A stormwater sump and pump will be required during the basement excavation and construction to capture and discharge trapped stormwater.

WASTE AND CONTAMINATE MATERIAL ENCLOSURES

As necessary and in accordance with the relevant guidelines, all spoil material excavated from the site will be tested prior to disposal. Contaminated solid material would be placed in sealed bins as necessary and transported to an approved disposal site.

DUST CONTROL

If excessive dust is being created, the site will be watered down by a water truck where possible, and/or sprinklers and hoses. Also all stockpiled soils will be covered during periods of high wind to reduce the dust created from onsite storage.

MONITORING

In order to maintain the various erosion and sediment control devices, regular inspections, repairs and cleaning will be carried out on the silt fences to the boundaries, stockpiles, waste enclosures, to the stormwater inlet filters and to the stockpile covers. Inspections of the site erosion and sediment control devices will generally be done regularly and/or after large storm events.

7.10 CONTAMINATION

Douglas Partners have prepared a Preliminary Site Investigation (PSI) for the F23 development site which included a review of the site history (using previous reports), a site walkover and soil analysis from samples collected during geotechnical investigation.

The historical review indicates that the site has been used as part of the University since prior to the 1930s with land titles indicating establishment from 1912. Prior to this time the Camperdown Campus was used as farming land.

The historical review highlighted the following potential risks to contamination:

- The University currently holds chemicals licences for the storage and use a variety of chemicals for experimental purposes. A search of Work Cover records confirmed that chemicals are not presently stored on the F23 development site and therefore the potential for contamination associated with chemical storage is low;

- Extensive fill has been used up to depths of 9m below ground across the site for the purposes of land formation and levelling, the composition of fill materials varies and includes asbestos materials, slag and ash;

- There is potential for asbestos to be present in near surface soils as a result of the demolition of former structures;

- The hazardous materials registers have identified hazardous building materials (including asbestos and lead paint) in many of the older buildings within the university grounds; and

- A significant portion of the campus was previously used for farming. It is therefore possible that residual contamination form the use of pesticides and fertilisers could remain on the site.

Investigations revealed that the site is generally free of obvious contamination such as chemical spills and soil impacts such as odours and staining. Fill material including building rubble has been placed on the site which was most likely done to raise site levels. No obvious signs of any contamination impact were observed.

Four (4) borehole samples were taken from across the site and tested for contaminants. Analysis of samples collected identified the presence of heavy metals including lead (including TCP); Mercury and Nickel, hydrocarbons (TPH) and benzene, toluene, ethylbenzene, and xylenes (BTEX). Analysis indicates that where contamination concentrations are within Site Assessment Criteria (SAC) and the site is suitable for the intended commercial (office) use subject to the following:

- Further *in situ* or *ex situ* testing should be carried out to confirm the preliminary waste classification assigned herein;

- On classification of waste, the fill should be excavated and appropriately disposed of offsite under assigned waste classification;

- An unexpected finds protocol should be prepared for bulk excavation and construction works to manage unexpected contamination finds;

- Following excavation of fill soils for the basement levels the underlying soils should be inspected and validated to determine if the underlying soil can be classified as virgin excavated natural material (VENM).

The Douglas Partners report containing full detail of the preliminary site investigation is provided at **Appendix R.**

7.11 UTILITIES

An Infrastructure Management Report has been prepared by Steensen Varming considering the capacity of existing electricity, potable water, sewer, gas and telecommunications services. The detailed report is provided at **Appendix W**.

As the site is currently utilised for the purposes of car park services will need to extended to support the proposed administration building. Water and electricity utilities are required to be upgraded to meet increased demand and service requirements. The require upgrades are discussed below.

7.11.1 WATER REUSE

A water storage tank will be installed below the basement slab to provide additional flow rate, above to ensure that adequate fire service flow is supplied to the F23 administration building.

7.11.2 ELECTRICITY

The F23 administration building is being delivered in concert with the adjacent Carslaw extension known as LEES1. As part of the proposed LEES1 (Carslaw extension) three (3) new 1,500kVA chamber substations will be created in the basement of the existing Carslaw building. It is proposed to install conduits beneath Eastern Avenue via a trench or underground boring technique.

7.12 CONTRIBUTIONS

The University are seeking an exemption under section 2.14 of the Sydney Contributions Plan 2006 provisions from the collection of section 94 contributions in relation to the project. The University's position in relation to the payment of contributions has been made clear in previous submissions, being that no contributions should be paid having regard to the following reasons:

Clause 226(1) of the *Environmental Planning & Assessment Act Regulation 2000* (the Regulations) provides that a development carried out by an Australian University (under the meaning of the *Higher Education Act 2001*) is a Crown development. The University is listed as an Australian University under Schedule 1 of the *Higher Education Act 2001*. Consequently this DA is a Crown development for the purposes of Division 4 of the *Environmental Planning & Assessment Act* 1979 (the Act).

The Development Contribution Plan 2006

The City of Sydney adopted the *City of Sydney Development Contribution Plan 2006* (DC Plan) in 2007, and which was updated on 7 June 2009, as the basis for levying contributions on development under Section 94 of the Act. The DC Plan applies to areas surrounding the Sydney CBD, and contains work programs and contribution rates for three Precincts. The Sydney University Campus falls in the Western Precinct of the City of Sydney DC Plan.

The contribution rates for components of the levy in the Western Precinct are given in the following table. These figures are subject to indexation.

Western Precinct Summary Contributions Rates (from 7 June 2009)

Contribution Type	Per Resident	Per Worker	Bedsits and One Bedroom dwellings	Two Bedroom Dwellings	Three or more Bedroom Dwellings	Residents of a Non-Private Dwelling*
Community Facilities	$ 388.18	$ 77.64	$ 504.63	$ 737.54	$ 1,009.26	$ 138.69
Public Domain	$ 748.45	$149.69	$ 972.98	$ 1,422.05	$ 1,945.96	$ 748.45
New Open Space	$ 6,144.52	$ 1,228.90	$7,987.88	$ 11,674.60	$ 15,975.76	$ 6,144.52
Accessibility	$ 61.43	$ 12.29	$ 79.86	$ 116.72	$ 159.72	$ 61.43
Management	$ 66.42	$ 13.28	$ 86.35	$ 126.20	$ 172.69	$ 66.42
Total	$ 7,409.00	$ 1,481.80	$ 9,631.70	$ 14,077.11	$ 19,263.39	$ 7,159.51

*Residents of a Non-Private Dwelling are not charged for Childcare.

Sections 2.8 – 2.14 of the DC Plan deals with issues associated with exemptions from development contributions. Council's intention is to levy, by a condition of development consent, all development in the area covered by the plan "*which creates the potential for a nett increase in the population and, therefore, the potential demand for the use of the amenities, facilities and services, which Council provides".* The contribution rates are based on the number of 'equivalent' residents and workers created by development.

Section 2.13 deals with the policy on development contributions by the Crown. The DC Plan explicitly provides that development contributions can be waived for Crown and private development based on a merit assessment. The types of developments that may be considered for an exemption include:

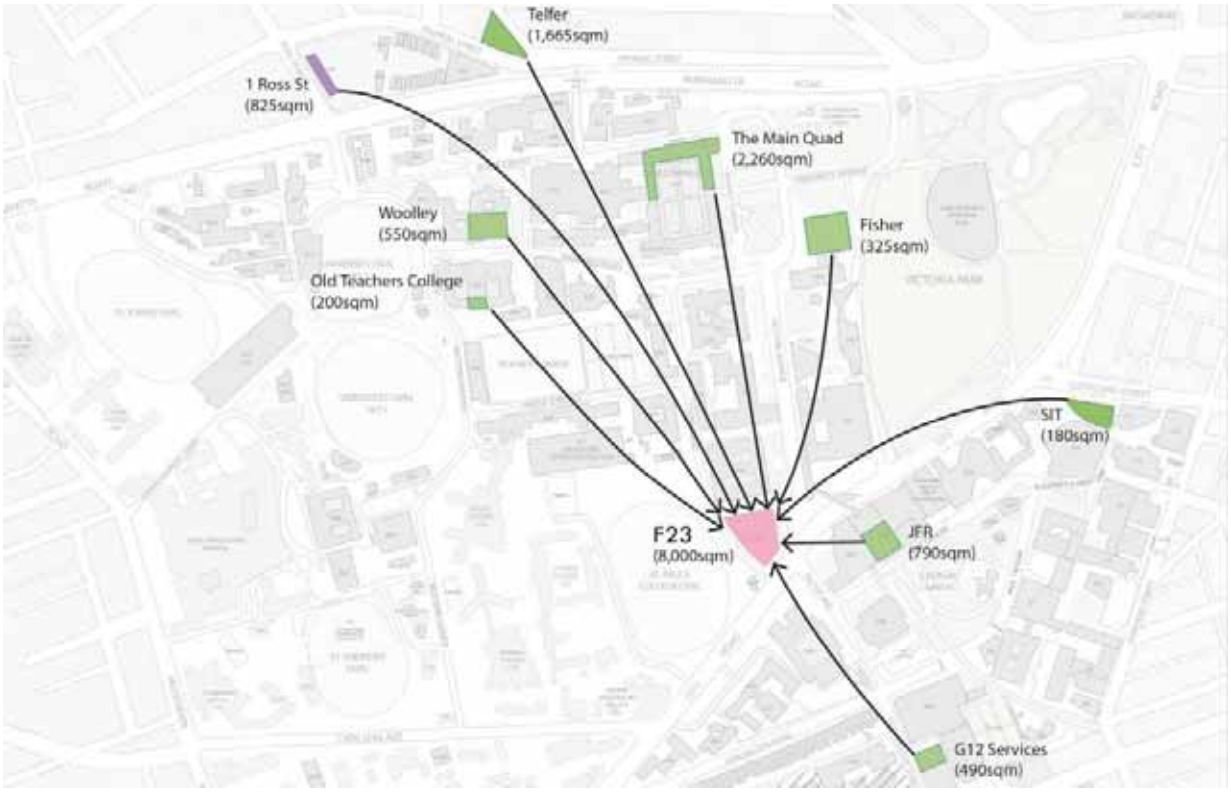
- Developments which provide a distinct community benefit on a not-for-profit basis;
- Development by or for non-profit organisations which provide a distinct community development;
- Alterations and additions to an existing residential development;
- Residential development on vacant land where the immediate prior use of the land had not been for non-residential purposes; and
- Conversion of a "dwelling" type of building to residential from a commercial use.

Given the proposed development by the University constitutes development by a non-profit organisation which provides a distinct community benefit through *educational establishment* facilities and services, the proposed development therefore qualifies for exemption from the DC Plan.

University consolidation strategy:

The DC Plan applies to the impact of additional residents and workers, but makes no reference to students. No nexus has been sought or established for any demand for community facilities required by students. Furthermore, the proposed building does not contain any residential component. Accordingly, a contribution per resident is not applicable. The proposed development will utilise and relocate existing University administrative staff and students within the Camperdown-Darlington campus to this new consolidated building.

FIGURE 43 – F23 – RELOCATION WITHIN CAMPUS



Exemption from contributions is also supported by Planning Circular (Circular D6) relating to Crown Development Applications. The Circular (from 1995) is referenced in the Department's draft Development Contributions Guidelines 2009 as providing the 'current limitations on the imposition of development contributions on public sector developments'. The Circular provides a guide to Councils and Crown agencies as to which categories of section 94 contributions are applicable to Crown Developments stating that:

> *"Crown activities providing a public service of facility lead to significant benefits for the public in terms of essential community services and employment opportunities. Therefore, it is important that these essential community services are not delayed by unnecessary disputes over conditions of consent. These activities are not likely to require the provision of public services and amenities in the same way as developments undertaken with a commercial objective"*

The project involves the delivery of public infrastructure by the Crown. Such development is one of the express exemptions under both the Contributions Plans identified (i.e.*'…other public infrastructure approved by the Minister'*).

The University has a public character and is open to the public as a non-gated, accessible and permeable precinct which presently provides a number of material public benefits such as sports facilities (e.g. pools), open space, libraries, cultural spaces and venues, and retail outlets.

The University is not a developer and is a not-for-profit public institution which relies on significant grants, donations, and external funding to provide new facilities for both the University community, and the wider community at large.

The levying of contributions on projects that are funded by external sources including Commonwealth Government grants is simply diverting a portion of funds for an educational purpose to local services without any direct nexus to the development.

It is unreasonable to require the University to pay development contributions which will have the effect of directly reducing the amount that the University can spend on public infrastructure and facilities.

The University provides a wide range of social, cultural, and recreational public benefits and contributions to LGA and its resident and worker population, in addition to the subject development.

Importantly, the project does not increase the capacity of the site or its ongoing use. The development seeks to consolidate existing activities spread out across the Camperdown Campus, resulting in a no population "nett increase" to warrant the collection of section 94 contributions to offset increased demand of local services or infrastructure.

The University of Sydney, along with other Universities across NSW, have taken up this matter at a broader and strategic level through the NSW Vice Chancellors' Committee given this issue is common across many University jurisdictions. This has resulted in the drafting of a sector-wide position paper which has recently been issued to the Minister for Planning and DPE's Infrastructure Taskforce.

7.13 DRAINAGE AND FLOODING

7.13.1 WATER QUALITY: DEMOLITION AND CONSTRUCTION

A Preliminary Construction Management Plan, which incorporates an Erosion and Sediment Control Plan, has been prepared by Lend Lease and is included at **Appendix W**.

The Sediment and Erosion Control Plan identifies sediment control systems to be implemented on all stages of the project. The sediment control systems are designed to minimise erosion on site and retain sediment eroded by water and wind.

7.13.2 STORMWATER MANAGEMENT AND HARVESTING

The F23 site is positioned at the top of two catchments and consequently watershed from the site, as stormwater runoff, is divided between the Blackwattle Bay catchment in the east and the Johnson Creek Catchment in west.

Consequently the north-west portion of the site discharges to the Johnston's Creek Catchment which also includes the majority of the University's Camperdown Campus. The south east portion of the site drains in an easterly direction to the Blackwattle Bay Catchment.

SCP Consulting have prepared a Civil Design Report (**Appendix L**) that includes the concept stormwater water drainage plan and design details. The concept stormwater drainage design has been designed in accordance with the requirements of the City of Sydney, Sydney Water and Australian Standard 3500.3 Plumbing and Drainage. The key design criteria include:

- Minor drainage system AEP = 5 per cent;
- Minimum pipe grade = 1 per cent;
- Minimum pipe diameter 225mm;
- Minimum fall through pit of 20mm; and
- Pipe material to be steel reinforced concrete pipe (SRCP).

Key stormwater design considerations include water quality treatment including water reuse schemes and the incorporation of water sensitive urban design elements.

ONSITE DETENTION

The F23 site is located within the Johnson Street Catchment. Developments in the Johnston Street Catchment drains to downstream communal floor mitigation works that overcome the need to provide OSD on a development-by-development basis.

WATER SENSITIVE URBAN DESIGN

A rainwater reuse tank is to be provided (refer to **Figure 19**). When full the tank will discharge to the main stormwater system that drains west along Fisher road.

Gross Pollutant Traps (GPT) will be in place as part of the Campus Improvement Program (CIP) downstream of the F23 site to comply with City of Sydney WSUD treatment for stormwater runoff from the campus including runoff from the F23 site. Therefore, no water quality measures are required for the F23 site.

7.13.3 FLOODING

As outlined in Section 7.13.2 the F23 site is positioned at the top of two catchments and consequently watershed from the site, as stormwater runoff, is divided between the Blackwattle Bay catchment in the east and the Johnson Creek Catchment in west.

An overland flow path has been identified based on previous site investigations. Accordingly, SCP has prepared a flood management report to support the application and inform design and construction of the F23 Building. This is provided at **Appendix P**. SCP undertook hydraulic modelling to determine the hazard classification level of the development site. In particular the study has considered the potential effects on the following:

- Depth and velocity of flood water flows along Fisher Road;
- Necessary floor level requirements to avoid inundation; and
- Basement car park entry (ramp and crest) design.

Combined with the above flood impacts, SCP has also considered and assessment the accessibility of the site for and by emergency vehicles.

HAZARD CLASSIFICIATION

The preliminary result of the hydraulic modelling classified the F23 Building development site as being a high hazard flood zone, with inundation of the north western edge of the site categorised as follows:

- **Probable Maximum Flood:** the site would be categorised as a Floodway and Flood Storage; and
- **During a 100 year ARI flood event:** the site would be categorised as the floodway fringe and flood storage.

Flooding modelling images for each of the above are provided in Appendices of the SCP Report (pp. 22 - 28).

Despite the above, the Campus Improvement Program involves progressive upgrade works to campus stormwater infrastructure to alleviate areas of inundation. As a result of these downstream works (refer to Section 7 of the SCP report) the F23 Building development has been downgraded to a “low risk” of hazard related to potential flood inundation and velocities for people and vehicles being swept downstream along Fisher Road.

BUILDING DESIGN MEASURES

The potential for inundation has been taken into consideration in the design of the F23 Building in particular the height of the Finished Floor Level at ground as well as the basement entry design. SCP in Section 12 of the flood report, note that the following design measures have been included to offset the potential effect of flood waters:

- The floor levels will be higher than the flood levels calculated along the Fisher Road side of the building. Along the Eastern Avenue side of the building, the pavement is lower than the ground floor level. Both pavements will provide relief drainage in accordance with Council’s Stormwater Code.

- Flood immunity for the basements has been achieved through the use of a crested entry set at RL33.61 which is 500 mm above the 1% AEP flood level calculated at the upstream edge of the basement ramp at Chainage 106 in the HECRAS model of 33.091 metres AHD. The PMF level at the same location is 33.163 metres AHD and also below the crest of the entry ramp. This demonstrates that the building is protected from inundation in accordance with City of Sydney DCP 2012 (Section B10 Stormwater, and the Interim Floodplain Management Policy) which requires the basement to be protected from flood waters with 500 mm freeboard to the 1% AEP and not lower than the PMF at all entrances or services penetrations to the basement.

The proposed development will therefore be protected for potential impact of flood inundation and is unlikely to alter the flow of the water to exacerbate the impact of flood inundation elsewhere on the Camperdown Campus.

7.13.4 GROUNDWATER

Despite groundwater not being observed in the four (4) boreholes, seepage through and along strata boundaries is anticipated particularly after rain events. This can be controlled through the installation of a sub-floor drainage and collection system below basement level 1.

Iron precipitates caused from seepage through shale may need to be managed through additional maintenance measures (i.e. wash out and “rodding points”) to avoid drain blockages. Mitigation measures to address potential geotechnical impacts are provided in **Section 10** of this report.

7.14 WASTE

7.14.1 DEMOLITION AND CONSTRUCTION WASTE MANAGEMENT

A demolition and construction waste management plan (DCWMP) has been prepared by Lend Lease as part of the Preliminary Construction Management Plan and is provided at **Appendix W**.

The DCWMP details the waste management principles which will be used as guiding principles for waste management on the site. Specifically the following waste hierarchy of avoidance, reduce, reuse, recycle, treat and or dispose. Lend Lease aim to reuse and recycle a minimum of 80% of all waste materials to support the reduction of waste diverted to landfill.

A detailed framework and methodology has been prepared and is provided in Section 4.2 of the Preliminary Construction Management Report (refer to **Appendix X**).

KEY WASTE STREAMS

Table 1 (page 27) of the DCWMP provided at **Appendix W** provides an indicative breakdown of the likely waste streams to be generated through demolition and construction combined with onsite use, off site contractor or disposal destination is provided.

The types of materials and wastes likely to be generated across the Demolition and Construction phases of the project include, Green waste, General (municipal) waste, Concrete, Metals, Timber, Excavated Spoil, Liquid wastes (associated with wash outs) and potential chemical wastes (oils) associated with the operation of plant material on site.

KEY MANAGEMENT MEASURES

Lend lease have developed a reporting and monitoring matrix (refer to section 4.2, pp. 20 – 26 of **Appendix W**). This waste management matrix outlines key stages of project lifecycle where waste will be generated, identifies a control measure aimed at early identification and classification of materials, allocates timing and responsibilities.

LOADING ZONES

The loading of all waste materials to be exported off site for recycling and/or landfill purposes will be undertaken within the site boundaries along Fisher Road. The location of waste material storage is shown in **Figure 44** and outlined in detail in **Appendix W.**

FIGURE 44 – ONSITE WASTE MANAGEMENT/STORAGE LOCATION (SOURCE: LEND LEASE, 2016)

7.14.2 OPERATIONAL WASTE MANAGEMENT

The F23 building will be serviced in line with the Universities existing waste management strategy. A high level summary of these operations is outlined in **Table 26**. The key waste streams associated with the ongoing operation of the F23 Administration building are:

- General waste streams;
- Food waste;
- Green waste;
- Paper and cardboard recycling; and
- Glass and plastics recycling.

TABLE 26 – INDICATIVE WASTE MANAGEMENT OPERATIONS

ELEMENT	PROPOSED ARRANAGEMENTS
Loading and unloading of goods	Will occur at ground level from Fisher Road in a dedicated loading/unloading zone to the west of the building
Location of waste storage areas	Main storage area is located within the basement each floor is capable of storing a minimum of one days general waste. Cleaners will be responsible to removing waste daily to the basement for storage and collection, in lie with the Universities waste collection roster.

ELEMENT	PROPOSED ARRANAGEMENTS
At-source waste separation facilities	Will be the responsibility of individual staff members, separated general and recycling waste bins will provided at desks and within common spaces to promote at source separation.
Recycling facilities	Recycling will be managed in a similar manner to general waste streams.

A detailed operational waste management plan is provided at **Appendix Q**.

7.15 GEOTECHNICAL CONDITIONS AND STRUCTURAL DESIGN

A Preliminary Geotechnical Investigation has been prepared by Douglas Partners and is provided in **Appendix R**. The report provides information on subsurface conditions for the preliminary design and planning of earthworks, foundations, excavation support and pavements. This has been reviewed by SCP Engineers and informed the preliminary Structural Design Report provided at **Appendix X**.

EXCAVATION SUPPORT

Due to the nature of the bedrock, ranging from low to very low strength laminate or shale at depths of 2- 6 metres and not increasing to medium strength till depths of 5.5 to 9.2 metres, vertical excavation cannot be guaranteed to remain vertical. Due to the constrained nature of the site Douglas Partners have recommended that solider piles at 2 to 2.5 metres spacing be used combined with shotcrete over the full excavation depth at 1.5 metre to 2.0 metre drops as excavation proceeds to reduce the risk of slippage.

Combined with the above stabilisation methods, Douglas Partners also recommend that temporary ground anchors be used to prevent lateral deformation of the shorting/retaining walls. The permanent basement structure will ensure lateral perimeter support once constructed and the temporary anchors are de-stressed.

Douglas Partners has provided detailed design measures to be implemented in the construction of the basement. These have been considered by SCP Structural design report (**Appendix X**). SCP has concluded that the potential for ground water is low and therefore hydrostatic lateral pressure highlighted by Douglas Partners has not been incorporated into the design parameters.

Notwithstanding the above, the number of borehole samples taken was nominal and there is the potential for seepage to occur. As such it is considered prudent to adopt the recommendations of Douglas Partners report to manage any unforeseen impacts of ongoing excavation and construction. These include:

- Preliminary design of the temporary support system be carried out such that the support system has a factor of safety of 1.1 against slippage or the mobilisation of wedges along unfavourable defects. The support system would typically comprise anchors spaced over the rock face, through the soldier piles. These anchors should have their bond lengths behind the projected 45° line from the bulk excavation level and provide sufficient force to resist the movement of a wedge of rock projected at 45° from the bulk (or detailed) excavation level adjacent to the shoring, rising to the ground surface. The frictional resistance of the wedge along the joint may be calculated assuming an angle of friction of 25°.

- Regular rock-face inspections be undertaken during excavation to determine whether any adverse jointing/defects have formed wedges of rock and require support for the permanent condition. In the event large edges are observed additional anchors may be required to increase the factor of during excavation, or alternatively the basement structure (e.g. floor slabs) may need to be designed for the wedge loading for the permanent condition.

FOUNDATIONS

The Douglas Geotechnical Report (**Appendix R**) anticipates that bulk excavation works will predominantly expose medium strength shale or laminate at the base of the excavation. Noting that bedrock of suitable strength (i.e. medium strength) was encountered at inconsistent depths within the subsurface profile requiring some footings to be deeper than others.

Douglas Partners has provided detailed recommendations on several foundation design and construction options, including strip/pad footings or bored piers.

SCP has considered the structural requirements of the F23 Building and has determined that deep foundations, bored piled foundations, are suitable based on the subsurface soil profile and load bearing requirements of the development. Douglas Partners has specified the typical design parameters and inspection requirements to be implemented through construction to ensure adequacy of the preferred construction method.

SEISMIC DESIGN

Douglas Partners have assessed the site in accordance with AS1170.4 -2007 *Earthquake Loading Standard* and categorised the site as having a hazard factor (z) of 0.08 and subsoil class of “Be”.

SCP Engineers have prepared a Structural Engineering report (**Appendix X**) that has assessed the required loading bearing capacity of the finished building and identified the appropriate construction methods and materials to manage the effects of lateral force associated with wind and earthquake. The SCP report concludes that later force will be resisted by the northern and southern vertical movements cores (lifts and/or stairs). These cores will be constructed using reinforced concrete and founded on a piled base to the lowest basement level.

In light of the above and the assessment by Douglas Partners and SCP have assessed the development and conclude that the site is suitable for its intended use and that the geotechnical conditions on the site can be adequately be managed through the adoption of suitable structural design and construction methods/techniques.

As such, subject to the recommendations being adopted and carried forward into the detailed design stage no adverse impacts are expected to result from the redevelopment of the site.

7.16 ECONOMIC IMPACTS

The F23 Building will retain and relocate an existing 620 jobs within the University of Sydney. However up to 140 new jobs will be created throughout construction. Jobs will fluctuate based on the stage of the project construction program as outlined in **Figure 45** below.

FIGURE 45 – ANTICIPATED EMPLOYMENT GENERATION (SOURCE: LEND LEASE; 2016)

	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
OVERALL																				
early works		8	14																	
Structure				20	30	50	60	60	60	60	40									
Façade										10	15	25	20							
Services									20	20	30	50	60	60	60	40	25			
Fitout										10	25	50	60	50	50	45	40	30	10	
External works															10	20	20	20	15	
No. of Resources		8	14	20	30	50	60	60	80	100	110	125	140	110	120	105	85	50	25	

8 Section 79C Assessment

The proposed development has been assessed in accordance with the matters of consideration listed in Section 79C of the *Environmental Planning and Assessment Act 1979* as outlined **Table 27** below:

TABLE 27 – SECTION 79C ASSESSMENT

CONSIDERATION	COMMENT
Environmental Planning Instrument	State and Local Environmental Planning Instruments have been assessed in Section 6.
Draft Environmental Planning Instruments	There are no relevant Draft Environmental Planning Instruments applicable to this application.
Development Control Plans	The proposed development has been assessed against the Sydney Development Control Plan 2012 in Section 6.
Any Matters Prescribed by the Regulations	This EIS has been prepared in accordance with Sections 6 and 7 of Part 3 of the *Environmental Planning and Assessment Regulation 2000*.
Likely Impacts of the Development	An impact assessment has been provided in Section 7 of this report. Mitigation measures to the risks and impacts identified within Section 7 are summarised in Section 7.
Suitability of the Site	The existing University site is entirely suitable for the development of new administration building that is ordinarily incidental or ancillary to an educational establishment as outlined in Section 7.
Any Submission made in accordance with this Act or the Regulations	Submissions will be considered following exhibition of the application.
The Public Interest	The development is compliant with the relevant planning instruments and controls. The proposal will not create any adverse significant social, economic or amenity impacts. This project represents a significant opportunity to promote and enhance the University of Sydney as an important place of education and research within the Global Corridor of Metropolitan Sydney.

9 Mitigation and Management Measures

Following the delivery of appropriate mitigation measures identified above, it is determined that the proposal will not result in any significant adverse impacts on the surrounding environment with the exception of potential view impacts to private properties. This impact has been addressed at Section of this EIS and it is determined that the extent of impact is acceptable.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
Built Form and Urban Design	Building setbacks and southern road alignments may affect pedestrian access / amenity.	Ensure that access to the new one way entry/shared zone is access controlled with bollards to support pedestrian use and movement.	Construction and management
	Potential to disrupt the continuity of building alignments and view corridor along Eastern Avenue.	Construct in accordance with the submitted plans	Construction
	Building form, mass and scale may not be consistent with heritage character.	Construct in accordance with the submitted plans	Construction
Amenity	Adverse impact on reflectivity of the proposed buildings on public domain.	All other glazing used on the external façade of the development should have a maximum normal specular reflectance of visible light of 20%.	Construction.
	Adverse impact on the wind environment of upper level terraces	▪ Use of solid balustrade elements;	Detailed design and construction
		▪ avoid using/leaving light weight furnishings on terraces (as outlined in the Windtech report)	Operation.
	Adverse impact on wind on use of outdoor seating areas along the north and northeaster edge of the proposed café	Use of low level screening devices to reduce wind effect and improve thermal comfort for patrons.	Discretionary throughout operation.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
Biodiversity	Adverse impact on health, vitality and retention of weeping fig trees located on the western side of Fisher Road.	Implementation of tree protection measures as prescribed by the Tree IQ report in sections.	Prior to the commencement of any works on site.
		Tree pruning of any one tree should not exceed 5 per cent of the crown volume and should be undertaken by a minimum AQF level 5 arborist. Pruning of branches should only be undertaken in relation to those less than 50mm wide.	Prior to the commencement of construction.
	Adverse impact on health, vitality and retention of the established trees located to the north of the development site (adjacent to the Madsen Building).	**Demolition:** Tree sensitive demolition works should be used for the removal of existing pavements within TPZ areas. Where possible, existing sub base materials should be left in situ and reused. Where required, existing Sub-base materials should be removed using hand tools only to avoid damage to any roots present within the sub-base. Where roots (>25mmØ) are encountered, they should be protected from damage and desiccation.	Demolition, Excavation and Construction.
		Pavement: New pavement surfaces within the TPZ areas should be installed at or above the existing grade. No Roots (>25mmø) should be damaged in the installation of the new pavement	Detailed Design and Construction.
	Adverse impact on visual amenity through removal of trees	Ensure replacement plantings identified in the Oculus landscape plans are implemented to offset potential impacts	Post Construction.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
Transport and Accessibility Impacts	Congestion and adverse impact on key intersections as a result of increased traffic generation on the site and altered traffic arrangements.	Implement proposed modified access and traffic arrangements as detailed on plan and in the traffic report to reduce rat running and improve performance of intersections.	Demolition and construction.
	Additional demand for on street car parking spaces due to the short removal of onsite parking and construction staff.		Throughout construction
	Adverse impact on pedestrian access across the site.	Implement pedestrian management plan as described in the CEMP prepared by Lend Lease	Demotion – Construction Phases.
Ecologically Sustainable Development	That the development does not align with the principles of ESD.	Adopted the provisions of the ESD report as a condition of consent.	Construction through to operation
Noise and Vibration	Long term adverse impact on the existing noise environment	▪ Adoption of suitable hours of operation to limit noise generating activities. ▪ Limit the use of outdoor amplified music/speakers. ▪ Selection of appropriate plant material to limit noise generation associated with plant material and fans. Where necessary incorporation of appropriate attenuation measures.	Operational conditions of consent. Prior to certification plant is to be selected and a further acoustic assessment undertaken to demonstrate compliance with project specific noise targets and the INP.
	Road traffic noise affects ongoing operation of the administration services	No anticipated impacts.	N/A
	Construction vibration causes adverse impact on the structural adequacy adjacent buildings	Adopt the recommendations of the Geotechnical and Structural reports.	At commencement of works on site and until completion/occupation of the building.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
	Construction noise adversely affects adjacent land uses, including teaching and learning areas	▪ Limit hours of construction works in accordance with local government standard conditions of consent. ▪ Use of augured rather than driven or vibratory piling will be considered if feasible. ▪ Location of crane as far as practicable from Fisher Road. ▪ Location of the concrete pump away from Fisher Road if practical. If this is not possible, in the event of complaint, temporary screening of the pump should be considered (plywood hoarding, or plywood sheet fixed to temporary fencing. ▪ For activities where acoustic controls and management techniques still cannot guarantee compliance with “Noise Management”/”Background+10dB(A)” noise levels, implement a notification process whereby nearby development is made aware of the time and duration of noise intensive construction processes. This may include days of heavy hammering and excavation works. ▪ Implementation of a noise monitoring program (attended noise measurements during key stages of construction) during construction to provide feedback back to the Builder to ascertain whether construction noise goals are being exceeded and determine additional management	At commencement of works on site and until completion/occupation of the building.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
		strategies. This would be expected at commencement of excavation works Combined with the above, Acoustic Logic has also recommended the establishment and maintenance of a complaints register	
Heritage	Impact on established building alignment within Eastern Avenue	Maintain the current setback and building alignment as detailed in the Grimshaw Architectural Plans.	Detailed design and construction
	Impact on City Road Palisade Fence (including vehicle entry gates)	Reinstate a portion of the boundary fence to delineate the campus boundary and minimise adverse impact. Fence shall be carefully dismantled and stored until the completion of primary construction works to ensure that it is not damaged by demolition, excavation and construction.	Following completion of the main construction works and prior to occupation. Demolition.
	Impact on Eastern Avenue View Corridor	The assessed level of impact has been deemed acceptable by the heritage consultant. Construction in accordance with the Grimshaw plans will deliver an acceptable outcome.	Detailed design and construction
	Impact on significant trees lining the western side of Fisher Road	Implementation of the recommendations of Tree IQ to manage impact on root zone combined with the establishment of suitable tree protection zones	Prior to commencement of works and to be maintained until completion of construction.
	Excavation works may encounter unexpected artefacts.	Implementation of an unexpected finds protocol.	Demolition and excavation.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
Infrastructure Provision	Potential to impact on utility and services through demolition and construction	Implement construction management plan developed by Lend Lease.	
	Ensure that services and utilities have sufficient capacity.	Liaise with providers throughout design development and construction.	
Flooding and Drainage	Increase on downstream flood impacts	Implement upgrades to campus stormwater infrastructure to reduce the level of affectation at the F23 Development site.	Prior to construction
	Inundation of basement and ground floor due to the flooding impacts.	Implement recommendations contained in the SCP report to alleviate the symptoms of flood affection including adoption of FFL for ground level above the PMF and use of suitable crest height at the top of the basement entry ramp (with RL above the PMF) to avoid flood waters entering the basement.	Design and construction
	Uncontrolled runoff from the site contributes to excess overland flow down stream	Implement onsite stormwater collection and diversion to existing campus infrastructure.	Construction.
Waste	Excess building and construction materials are diverted to landfill	Implement detailed construction waste management plant within CEMP prepared by Lend Lease.	Throughout demolition, excavation and construction
	Inadequate space is provided on site for the storage of waste materials throughout construction and demolition.	Adopt site management outlined in the CMP prepared by Lend Lease	Throughout all phases of construction.
	Operational waste is stored or disposed of properly	Adopt the submitted operational waste management plan.	Operation.

SEAR	POTENTIAL IMPACT	MITIGATION/MANGEMENT RECOMMENDATION	STAGE OF DEVELOPMENT
	Inadequate storage space for operational waste materials	Each land use is provided with a separated and dedicated waste storage area that is of an adequate size to accommodate anticipated waste volumes (as influenced by waste servicing arrangements).	Operation

10 Conclusion and Justification for the Development

Sydney University has a world class reputation in education and research. The proposed new Administration Building seeks to build upon the University's objective to improve operational efficiencies across the Camperdown and Darlington Campus'. The building will promote "Visible Leadership" at the University's front door through a highly transparent façade to City Road. .

The F23 building has been designed to respond to the unique attributes of the site in particular the alignment of buildings along the western edge of Eastern Avenue and the protection and enhancement of the Madsen Building. Consequently to integrate the building into its context and provide the necessary gateway presence the design has adopted an atrium typology eroded corners at the ground plane as a means of achieving gravitas and presence required of a gateway building whilst ensuring the vistas into Eastern Avenue remain open from City Road.

The proposal has been assessed under the relevant statutory planning and policy provisions and the issues identified within the SEARs for this SSDA. It is concluded that the proposal demonstrates that all on-site and off-site impacts have been carefully considered and addressed and is therefore warranted for approval. In particular, the assessment relating to key environmental considerations demonstrate:

- The siting and design of the F23 Building reflects its importance in the University hierarchy, presenting an appropriate civic presence to the University whilst being sympathetic to its context.

- The architectural form and finish of the F23 Administration Building forms a dialogue with the Carslaw Extension (LEES1) located on the opposite side of Eastern Avenue. Together these two (2) modern building create a new and defined entry to the campus and address for the University Campus from City Road. The two (2) buildings have been developed in close consultation to deliver a common palette of materials and urban responses that harmonise and resonate with the aesthetic of the Universities characteristic sandstone collegiate gothic architecture and palette, whilst proposing new and modern architectural form that contributes to the architectural evolution of the campus.

- The F23 together with the LEES1 building has been sensitively designed to mark the juncture between the old and new campus. The two (2) developments will provide a strong definition to the City Road end of Eastern Avenue and will further link the two University campuses (Camperdown Campus and Darlington Campus) so that they appear as one single connected campus.

- The contemporary design of the F23 Building responds to the existing older part of the campus, which is largely defined by horizontal mass buildings that express vertical façade proportions through modulation and openings. Further the building siting, height, scale and mass has been designed to respond to the existing built form and character of the Camperdown Campus and the likely future character and form of the Darlington Campus as dictated by the approved CIP.

- The proposed development has been designed to maintain and have minimal physical impact on the health or life expectancy of the row of Weeping Trees located along the western side of Fisher Road.

- The proposal will relocated a total of 620 existing staff, and involves a minor increase to support the integration of a complimentary and ancillary café use. As the development delivers an administration building there will be no increase in student enrolment as a consequence.

- Potential environmental and amenity impacts are able to be managed through construction, noise, vibration, lighting and wind mitigation management measures.

- ESD principles have been incorporated into the design and the proposal is capable of achieving a silver rating under the University of Sydney's proprietary Sustainable Design Framework.

- This proposal accords with the State, Regional and Local strategic initiatives to promote and enhance education in Sydney and NSW.

Having considered all the relevant matters, we conclude that the proposal will facilitate a sound development outcome that upholds the NSW Government's vision for the site, and is worthy of a favourable assessment by the DPE.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

Appendix A SSD 7055 SEARs

Appendix B Site Survey

Appendix C Architectural Plans

Appendix D Urban Design Report

Appendix E Architectural Design Report

Appendix F Shadow Diagrams

Appendix G Schedule of Materials and Colours

Appendix H Ecology

Appendix I Arboriculture Report

Appendix J Landscape Design and Report

Appendix K Heritage Assessment Reports

Appendix L

Integrated Water Management Report and Stormwater Design and Civil Report

Appendix M CIV Letter

Appendix N Traffic and Transport Report

Appendix O Ecological Sustainable Development Report

Appendix P Flood Report

Appendix Q Operational Waste Management Plan

Appendix R Geotechnical and PSI

Appendix S Wind Report

Appendix T Solar Reflectivity Report

Appendix U Acoustic Report

Appendix V Infrastructure and Utilities Report

Appendix W Preliminary Construction Management Report

Appendix X Structural Report

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