

ETHOS URBAN

State Significant Development Application

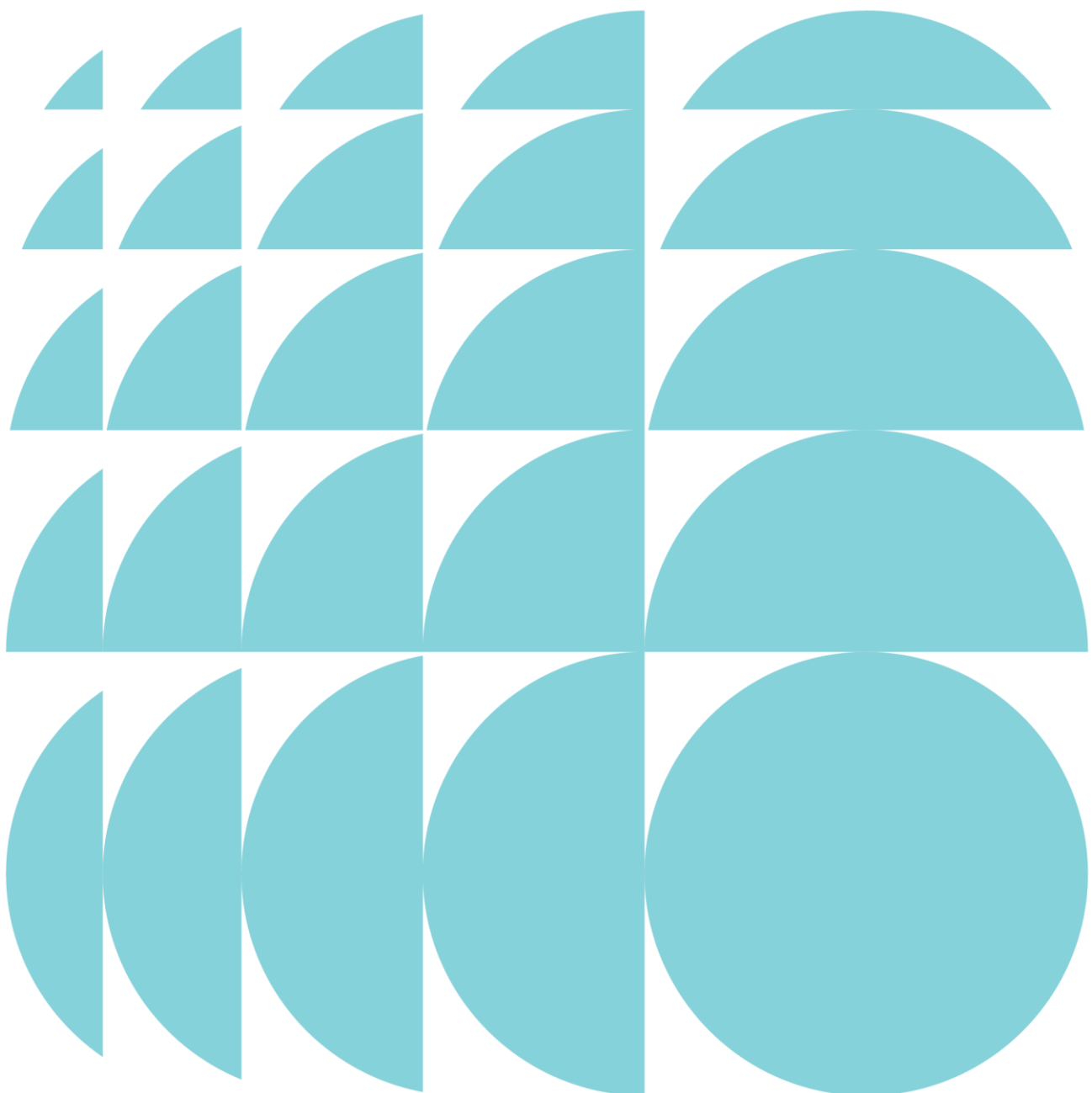
SSD 8596 – Environmental Impact Statement

University of Wollongong
Arts & Social Sciences Building

Submitted to Department of Planning &
Environment

On behalf of University of Wollongong

2 November 2017 | 16680



Contents

Executive Summary	9
1.0 Introduction	13
1.1 Overview of the Project	13
1.2 Background on the Arts and Social Sciences Building	14
1.3 Objectives of the Development	15
1.4 Analysis of Alternatives	15
1.5 Secretary's Requirements	16

2.0 Site Analysis	23
2.1 Site Location and Context	23
2.2 Existing Development	24
2.3 Watercourse	26
2.4 Topography	26
2.5 Soil and Geotechnical Conditions	26
2.6 Vegetation	26
2.7 Heritage	26
2.8 Utilities and Infrastructure	26
2.9 Pedestrian and Vehicular Access and Parking	26
2.10 Public and Sustainable Transport	27
2.11 Surrounding Development	27

3.0 Description of the Development	29
3.1 Design Principles	30
3.2 Description of Levels and Use	30
3.3 Building Height and Form	35
3.4 Building Layout and Connectivity	35
3.5 Building Population	37
3.6 External Materials and Finishes	37
3.7 Landscaping and Public Domain	37
3.8 Tree Removal	39
3.9 Car Parking, Loading and Site Access	39
3.10 Water Cycle Management	40
3.11 Infrastructure and Services	40
3.12 Civil Works	41
3.13 Waste Management	42
3.14 Construction Hours	43

4.0 Consultation	44
4.1 Consultation Summary	44

Contents

5.0	Environmental Assessment	46
5.1	Consistency with Relevant Environmental Planning Instruments	46
5.2	Relevant EPIs, Policies and Guidelines	46
5.3	Built Form and Urban Design	50
5.4	Urban and Landscape Design	52
5.5	Environmental Amenity	52
5.6	Consistency with the UOW Wollongong Campus Master Plan	55
5.7	Crime Through Prevention	58
5.8	Site Suitability and Implications of Proposed Land Use	59
5.9	Traffic, Parking and Access	59
5.10	Construction Traffic Generation and Impacts	63
5.11	Soils, Geotechnical and Groundwater	64
5.12	Flooding	65
5.13	Bushfire	66
5.14	Flora and Fauna	67
5.15	Environmentally Sustainable Development	68
5.16	Acoustic Impacts	70
5.17	Structural Adequacy	73
5.18	BCA and Access	74
5.19	Fire Safety	74
5.20	Lift Access	74
5.21	Economic and Social Benefits	74
5.22	Cumulative Impacts	75
5.23	Public Interest	75
5.24	Site Suitability	75
5.25	Development Contributions	76
<hr/>		
6.0	Environmental Risk Assessment	81
7.0	Mitigation Measures	85
8.0	Justification of the Proposal	87
8.1	Social and Economic	87
8.2	Biophysical	87
8.3	Ecologically Sustainable Development	88
<hr/>		
9.0	Conclusion	89

Contents

Figure 1 – Location of the Western Building in the context of UOW’s Wollongong Campus Master Plan	14
Figure 2 – Site’s locational context	23
Figure 3 – Aerial view of UOW Campus	24
Figure 4 – Campus Map illustrating the site in relation to the broader Campus	25
Figure 5 – Existing development contained within the site	25
Figure 6 – Surrounding development within the Main Campus	28
Figure 7 – Photomontage of the proposed Western Building viewed looking north east	30
Figure 8 – Proposed Ground Floor layout	32
Figure 9 – Proposed Level 1 Layout	33
Figure 10 – Proposed Level 2 Layout	34
Figure 11 – Proposed Level 3 layout	35
Figure 12 – Co-location of faculty around common open space	36
Figure 13 – Orientation and location of common space areas	36
Figure 14 – Relationship between internal circulation spaces and common open areas	37
Figure 15 – Proposed landscaping and public domain works	38
Figure 16 – Proposed tree removal	39
Figure 17 – Proposed massing looking from the south east	51
Figure 18 – Proposed massing viewed from the southern public domain area looking north east	51
Figure 19 – northern and eastern façade treatment as viewed looking from the site’s north east corner	53
Figure 20 – Proposal in relation to the adjacent early learning facility and surrounding vegetation	54
Figure 21 – Shadow impacts resulting from the proposal on the Winter Solstice	55
Figure 22 - Maximum building height for the subject site	56
Figure 23 – Envisaged teaching, learning and research context for the Wollongong Campus	57
Figure 24 – Spaces required to be removed in order to accommodate the development	60
Figure 25 – Existing overflow direction	66
Figure 26 – Risk Assessment Matrix	81

Contents

Tables

Table 1 - Secretary's Environmental Assessment Requirements	16
Table 2 – GFA by Level and Use	31
Table 3 – Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines	46
Table 4 – Summary of amenity noise criteria	70
Table 4 – Summary of amenity noise criteria	71
Table 5 – GFA by Level and Use	72
Table 4 – Western Building Risk Assessment	82
Table 5 – Mitigation Measures	85

Contents

Appendices

- A** Architectural Drawings and Design Report
HASSELL Architects

- B** Secretary's Environmental Assessment Requirements
Department of Planning and Environment

- C** Quantity Surveyors Statement
Quantity Surveyor

- D** Survey Plan
Land Team

- E** Landscape Concept Masterplan and Design Statement
Taylor Brammer

- F** Preliminary Operational Waste Management Plan
University of Wollongong

- G** Traffic and Parking SSD Design Report
Taylor Thomson Whitting

- H** Environmentally Sustainable Development Report
ARUP

- I** Acoustic Report
ARUP

- J** Contamination Assessment Report
Coffey

- K** Services Report
RPS

- L** Electrical Services Report

Contents

Arup

M Fire Services Masterplan
McCallum PFCA

N Mechanical Services Design Report
AECOM

O Water Services Plan
McCallum PFCA

P Hydraulic Report
J Whipps Consulting Group

Q Civil SSD Report and Plans
Taylor Thomson Whitting

R Flood Report
Cardno

S Flora and Fauna Assessment
Narla Environmental

T Bushfire Protection Assessment
Eco Logical Australia

U Infrastructure Management Plan – Stormwater
Taylor Thomson Whitting

V Preliminary Construction Management Plan
University of Wollongong

W Geotechnical Investigation Report
Coffey

Contents

- X** Structural Report
Robert Bird Group

- Y** BCA Assessment Statement
Group DLA

- Z** Accessibility Design Review Report
Mckenzie Group

- AA** Arboricultural Impact Assessment
Accurate Tree Assessments

- BB** Consultation Meeting Minutes
Taylor Thompson Whitting

- CC** Fire Safety Report
Alternative Building Solutions

- DD** Vertical Transport Report
Thompson Elevator Consultancy Services

Statement of Validity

Development Application Details

Applicant name	University of Wollongong
Applicant address	92 North Street, NOWRA 2541
Land to be developed	Western Building, University of Wollongong
Proposed development	Development of an Arts and Social Sciences Building as described in Section 3.0 of this Environmental Impact Statement

Prepared by

Name	Stephen Gouge
Qualifications	BPlan (Hons) MPIA
Address	173 Sussex Street, Sydney
In respect of	State Significant Development – Western Building Development Application

Certification

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

it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000; all available information that is relevant to the environmental assessment of the development to which the statement relates; and the information contained in the statement is neither false nor misleading.

Signature



Name Stephen Gouge

Date 2/11/2017

Executive Summary

Purpose of this Report

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a State Significant Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the construction of a Social Sciences and Law, Humanities and Arts Building (referred to as the Western Building) in the western section of the University of Wollongong's Campus.

Development for the purpose of an Educational Establishment (including associated research facilities) with a capital investment value of more than \$30 million is identified in Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD) and is therefore declared to be SSD for the purposes of the EP&A Act. As the proposed development will have a capital investment value of \$53,248,00 million it is SSD.

A request for the issue of Secretary's Environmental Assessment Requirements (SEARs) was sought on 26 June 2017. Accordingly, the SEARs were issued on 20 July 2017. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs.

Overview of the Project

The State Significant Development Application (DA) seeks approval for the construction of an Arts and Social Sciences Building. The proposal consists of the following:

- a building footprint of approximately 9,088m² excluding plant (maintaining the opportunity to expand the building into the adjacent car park within the next 10 years);
- construction and use of a four storey building plus plant (23.05m in height), containing:
 - two (2) theatre spaces and a rehearsal room;
 - removal of 113 trees;
 - gallery spaces and associated storage;
 - video production rooms;
 - collaborative learning spaces;
 - staff offices and common areas;
 - shared breakout spaces;
 - ergonomics and WHS labs; and
 - digital and simulation labs.
- an external arrival forecourt within the Campus West Precinct;
- outdoor learning spaces;
- provision of 13 bicycle spaces, 64 bicycle lockers and 4 end-of-trip facilities; and
- associated landscape, augmentation of services and public domain works.

The Site

The University of Wollongong (UOW) is located within the Wollongong Local Government Area (LGA) and is situated appropriately 2.4km north-west from the Wollongong CBD and 80km south of Sydney.

The Wollongong Campus includes developments that sit within the boundaries of Robson Road (to the west), Northfields Avenue (to the south) and the Princes Motorway (to the east and north). The proposed Western Building site is located within the western portion of the Campus. It is identified under the *UOW 2016 – 2036 Wollongong Campus Master Plan* (Wollongong Campus Master Plan) to occupy part of the Campus West Precinct.

Planning Context

This application is made pursuant to Division 4.1 of the EP&A Act, setting out the framework for the assessment of State Significant Development. This EIS has been prepared in accordance with the SEARs issued on the 20 July 2017 and Schedule 2 of the Regulation.

Section 5.0 of the EIS considers all applicable legislation in detail. The development is consistent with all the relevant strategic policies, environmental planning instruments, plans and guidelines, and is consistent with the *Strategic Plan 2016 – 2020* and the Campus Master Plan.

Crown Development

Clause 226(1) of the EP&A Regulation 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 of Wollongong is listed as an Australian University under Schedule 1 of the Higher Education Act 2001 and as the development will occur on University land, it is a Crown development for the purpose of Division 4 of the EP&A Act. This application is therefore submitted on behalf of the Crown.

Under the special provisions for Crown developments, the DA cannot be refused (except with the approval of the Minister for Planning), Council cannot impose conditions of consent without the applicant's agreement, the applicant has the opportunity to review the draft conditions and, if the consent authority fails to determine the application within the prescribed period, the application may be referred to the Southern Joint Regional Planning Panel for approval.

Development Contributions

The relevant contributions plan for the site is the Wollongong City Council Section 94A Development Contributions Plan 2016 (Wollongong S96A Plan).

The Plan has a very limited list of approvals that are excluded from the payment of levies, and whilst developments for the purposes of schools are not automatically exempted from the payment of section 94A contributions under this Plan, it is considered appropriate that UOW be given a full exemption in this instance. The proposal relates to the replacement and upgrade of existing buildings contained within the Campus West Precinct and does not result in any additional students beyond those already accommodated by the existing buildings. In light of this, a dispensation is considered appropriate as it will not place any additional demand on public services or facilities. Further discussion is provided in Section 5.25.

Environmental Impacts and Mitigation Measures

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

- Planning Policies
- Built Form and Urban Design
- Environmental Amenity
- Transport and Accessibility
- Ecologically Sustainable Development (ESD)
- Noise and Vibration
- Contamination
- Utilities
- Contributions
- Drainage
- Flooding
- Waste
- Flora and Fauna
- Construction Hours
- Bushfire

All measures that have been recommended as part of the detailed technical studies to mitigate potential environmental impacts have been incorporated into the proposed development, or are included in the Mitigation Measures at Section 7.0.

Conclusion and Justification

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

- There is a strategic need to provide the proposed Western Building within the Wollongong Campus in order to:
 - provide an improved and state of the art educational facility within the Campus West Precinct of the Campus;
 - rationalise and coordinate university wide education infrastructure;
 - create a building of outstanding architectural merit that meets the University's functional requirements; and
 - unlock the development potential of the Campus's West Precinct.
- The development complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines and the Wollongong Campus Master Plan.

- The development is considered to exhibit architectural and urban design excellence.
- The development will have a wide range of positive social and economic impacts.
- There are no adverse environmental impacts that cannot be appropriately managed by the mitigation measures set out in this EIS.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment (the Department) in support of a State Significant Development (SSD) Application for the construction of an Arts and Social Sciences Building within the Campus West Precinct of the University of Wollongong's Wollongong Campus (the site), made pursuant to Part 4, Division 4.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

Development for the purpose of Educational Establishments with a capital investment value of more than \$30 million is identified in Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD) and is therefore declared to be SSD for the purposes of the EP&A Act. The proposed development has a Capital Investment Value (CIV) of \$53,248,00 million and is declared State Significant Development (SSD) for the purposes of the EP&A Act.

This EIS has been prepared by Ethos Urban on behalf of the University of Wollongong and is based on the Architectural Drawings prepared by HASSELL (**Appendix A**) and other supporting technical information (refer to Table of Contents).

The EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation), and the Secretary's Environmental Assessment Requirements (SEARs), which are included at **Appendix B**.

1.1 Overview of the Project

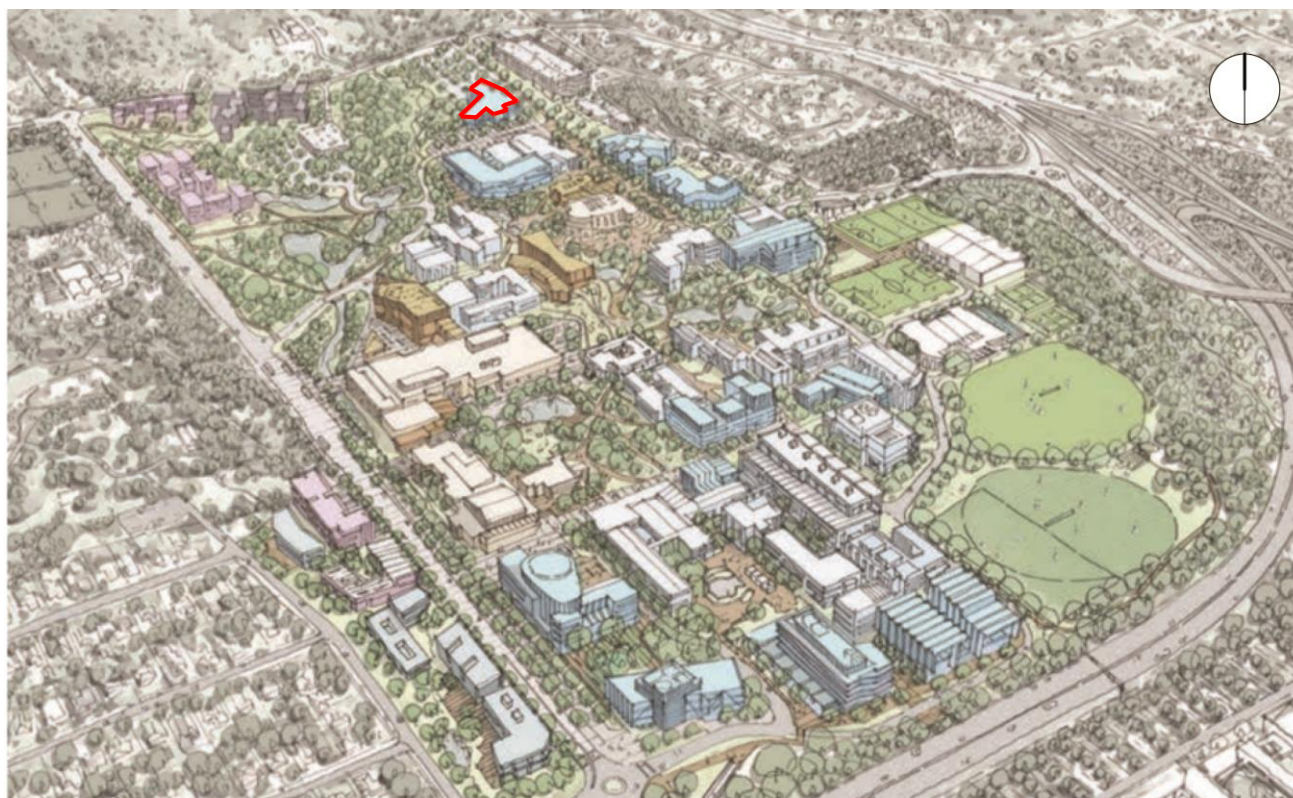
This EIS will accompany an SSDA for the construction and use of a four storey Arts and Social Sciences Building (Western Building) at the University of Wollongong (UOW) in accordance with the Wollongong Campus Master Plan, as shown in **Figure 1**.

The development is located within the Wollongong Campus as shown on the site and campus Maps from **Figures 2 – 4**. Under the Master Plan, the development relates to the south western portion of the Campus West Precinct.

The proposal will co-locate the teaching facilities for the School of Arts, English and Media (TAEM) from the Faculty of Law, Humanities and the Arts, and the schools of Health and Society (HAS), and Geography and Sustainable Communities (SGSC) from the Faculty of Social Sciences into a singular building. It will also provide general teaching and faculty space and public domain upgrades.

Site Preparation Works

The proposed early works consist of the demolition of 2 of the existing demountable buildings and relocation of 5 demountable to alternative locations in the Campus. Existing lighting and communication services are also proposed to be relocated.



 The Site

Figure 1 – Location of the Western Building in the context of UOW's Wollongong Campus Master Plan

1.2 Background on the Arts and Social Sciences Building

Established in 1951, UOW is a leading university that strives to earn a place in the top 1% of the world's universities. To achieve this objective, UOW's has developed a *2016 – 2020 Strategic Plan*. A primary aim of the Strategic Plan is to continue to provide an outstanding research environment with state of the art facilities that enhance the Campus and respond to changing research priorities.

To facilitate in achieving these objectives, UOW is proposing to develop the Western Building within the Campus West Precinct of the Wollongong Campus in order to provide improved facilities and replace the ageing and inadequate building stock that currently occupy the site. The new Western Building will also enable the co-location of facilities for the TAEM School, the HAS School and the SGSC.

The delivery of the Western Building is guided by the Wollongong Campus Master Plan. Developed in consultation with the University's staff, students, community, industry partners and the government, the Wollongong Campus Master Plan provides a framework and vision for the physical development of the campus over the next 20 years and is aligned with the priorities nominated by the *2016 – 2020 Strategic Plan*. The Campus Master Plan recognises that in order to generate outstanding research and earn a place in the top 1% of the world's universities, the Wollongong Campus will need to accommodate a range of new buildings. The Wollongong Campus Master Plan has identified seven precincts including, the Campus Heart, Campus East, Campus West, Sports Precinct, Western Precinct, Eastern Precinct and Mount Keira Foothills. Across these precincts the Plan identifies over 25 new or refurbished buildings as well as extensive public domain works.

The site to which the proposal relates is located within the Campus West Precinct and currently accommodates demountable buildings predominantly used as classrooms for teaching. This SSD DA will contribute to the transformation of the precinct by delivering a new Arts and Social Sciences Building that will provide state of the art facilities capable of delivering an exceptional learning and student experience.

1.3 Objectives of the Development

UOW has identified the need to redevelop the Campus West Precinct and deliver modern learning spaces indicative of its world class research and teaching establishment.

The key objectives of the proposed scheme are to:

- provide a building that contributes to meeting the objectives of the university's *2016 – 2020 Strategic Plan* and is consistent with the Wollongong Campus Master Plan;
- deliver a building that exhibits design excellence and meets the university's functional requirements;
- deliver a building with state of the art facilities that provide exceptional learning and student experience; and
- ensure that any environmental impacts associated with the construction and operation of the building are appropriately mitigated.

1.4 Analysis of Alternatives

As discussed in Section 1.2, the Campus West Precinct of the university is in need of redevelopment to remove out-dated buildings. The proposal is the result of a long term strategic planning process that has culminated in the Campus Master Plan. In accordance with the Campus Master Plan, the proposal will replace the existing outdated building stock with modern teaching and contemporary and innovative research facilities.

Alternative Options

Three options are available to UOW in responding to the identified need for the redevelopment of their facilities.

Option 1 – The Proposal

Option 1 involves undertaking the proposed redevelopment as outlined in the SSD DA (as described in Section 3.0). The proposal will ensure that a high quality building is provided on the site that responds to the strategic need identified above.

Option 2 – Do Nothing

Under the 'do nothing' scenario the university would be required to continue using the current out-dated facilities. This would result in a sub-optimal educational, research and learning environment, and the continued utilisation of outdated facilities that do not cater for changing research and learning needs.

Option 3 – Alternative Design

A number of design options for the Western Building have been considered. The proposed design is a refined evolution of the original indicative envelope scheme shown on the Campus Master Plan.

The proposed development has been the subject of a robust design process aimed at creating a building that meets its functional educational needs and recognises and responds to the context of the University.

1.5 Secretary's Requirements

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

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

Table 1 - Secretary's Environmental Assessment Requirements

Requirement	Location in EIS	Technical Study
General Requirements		
The Environmental Impact Statement (EIS) must address the <i>Environmental Planning and Assessment Act 1979</i> and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> .	This document including appendices.	
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 6.0	
Where relevant, the assessment of the key issues below, and any other significant issues identified in the assessment, must include: <ul style="list-style-type: none"> adequate baseline data; consideration of potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment. The EIS must be accompanied by a report from a qualified quantity surveyor providing: <ul style="list-style-type: none"> a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the <i>Environmental Planning and Assessment Regulation 2000</i>) of the proposal, including details of all assumptions and 	Section 1.0 Section 5.21 Section 7.0	Appendix C

Requirement	Location in EIS	Technical Study
<p>components from which the CIV calculation is derived;</p> <ul style="list-style-type: none"> • an estimate of the jobs that will be created by the future development during the construction and operational phase of the development; and • certification that the information provided is accurate at the date of preparation. 	Section 5.22	
Key Issues		
<p>Statutory and Strategic Context - including: Address the statutory provisions contained in all relevant environmental planning instruments, including:</p> <ul style="list-style-type: none"> • State Environmental Planning Policy (State & Regional Development) 2011; • State Environmental Planning Policy (Education Establishment and Child Care Facilities) 2017; • State Environmental Planning Policy (Infrastructure) 2007; • State Environmental Planning Policy No.55 – Remediation of Land; • State Environmental Planning Policy No 33 – Hazardous and Offensive Development; and • Wollongong Local Environmental Plan 2009. <p><i>Permissibility</i> Detail the nature and extent of any prohibitions that apply to the development.</p> <p><i>Development Standards</i> Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards.</p>	Section 5.1	
<p>Policies Address the relevant planning provisions, goals and strategic planning objectives in the following:</p> <ul style="list-style-type: none"> • NSW State Priorities; • Illawarra-Shoalhaven Regional Plan 2015; • NSW Long Term Transport Master Plan 2012; • Illawarra Regional Transport Plan 2014; and • Healthy Urban Development Checklist, NSW Health. 	Section 5.2	
<p>Built Form and Urban Design</p> <ul style="list-style-type: none"> • Address the height, density, bulk and scale, setbacks of the proposal in relation to the surrounding locality, topography and streetscape. 	Section 5.3	Appendix A Appendix D

Requirement	Location in EIS	Technical Study
<ul style="list-style-type: none"> Address design quality, with specific consideration of the overall site layout, connectivity, interface with the public domain, streetscape, open spaces, landscaping, internal streets, pathways, façade, rooftop, massing, setbacks, building articulation, materials, colours and Crime Prevention Through Environmental Design Principles. Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. 	<p>Section 3.15 Section 3.16</p>	<p>Appendix K Appendix E Appendix F Appendix N Appendix G Appendix L Appendix M</p>
<p>Environmental Amenity</p> <p>Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. A high level of environmental amenity must be demonstrated.</p>	<p>Section 5.5</p>	<p>Appendix A</p>
<p>Transport and Accessibility</p> <p>Include a transport and accessibility assessment which details, but is not limited to, the following:</p> <ul style="list-style-type: none"> the current daily and peak hour vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the road network located adjacent to the proposed development; the existing and proposed pedestrian and bicycle routes and facilities within the vicinity of and surrounding the site and to public transport facilities as well as measures to maintain road and personal safety in line with CPTED and Accessibility principles; an estimate of the total daily and peak (AM, PM) trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips; the adequacy of public transport, pedestrian and bicycle provisions to meet the likely future demand of the proposed development; impact of the proposed development on existing and future public transport and walking and cycling infrastructure within and surrounding the site; measures to promote travel choices that support sustainable travel, such as a location-specific sustainable travel plan, provision of end-of-trip facilities, green travel plans and wayfinding strategies; impacts of the development on the adjoining state road network (i.e. cumulative impact of this development) and consideration of traffic impacts 	<p>Section 5.9 Section 5.10</p>	<p>Appendix G Appendix V</p>

Requirement	Location in EIS	Technical Study
<p>on the basis that the Mount Ousley interchange is and is not constructed and the need/associated funding for upgrading or road improvement works (if required), including traffic modelling and analysis to the satisfaction of Roads and Maritime Services;</p> <ul style="list-style-type: none"> • identification of suitable infrastructure required to ameliorate any traffic and safety impacts associated with the development, including identification of pedestrian, cyclist and public transport infrastructure (e.g. additional active transport works/infrastructure proposed); • the proposed walking and cycling access arrangements and connections to public transport services; • the proposed access arrangements, including car, bus, taxi and emergency vehicle pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and cycle networks; • anticipated increase in staff and student numbers and subsequent implications for car and bicycle demand; • proposed car and bicycle parking provision for staff, students and visitors, including consideration of the campus wide implications of the loss of parking spaces for the proposed development and the requirements of the relevant parking codes and Australian Standards; • provision of end of trip facilities (i.e. showers, lockers, change rooms etc.) for the use of employees who choose to walk or cycle to/from work as well as undertake activities during work hours; • service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); and • traffic and transport impacts during construction and how these impacts will be mitigated for any associated traffic, road safety, pedestrian, cyclists, parking and public transport and the cumulative impact of nearby construction projects, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact. This Plan should include vehicle routes, number of trucks, hours of operation, access arrangement and traffic control measures for all demolition/construction activities. 		

Requirement	Location in EIS	Technical Study
<p><i>Relevant Policies and Guidelines:</i></p> <ul style="list-style-type: none"> • <i>Guide to Traffic Generating Developments (Roads and Maritime Services)</i> • <i>EIS Guidelines – Road and Related Facilities (DoPI)</i> • <i>Cycling Aspects of Austroads Guides</i> • <i>NSW Planning Guidelines for Walking and Cycling</i> • <i>Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development</i> 		
<p>Ecologically Sustainable Development (ESD)</p> <ul style="list-style-type: none"> • Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 4 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 5.14	Appendix H
<p>Noise and Vibration</p> <p>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.</p> <p><i>Relevant Policies and Guidelines:</i></p> <ul style="list-style-type: none"> • <i>NSW Industrial Noise Policy (EPA)</i> • <i>Interim Construction Noise Guideline (DECC)</i> • <i>Assessing Vibration: A Technical Guideline 2006</i> 	Section 5.16	Appendix I
<p>Contamination</p> <p>Demonstrate that the site is suitable for the proposed use in accordance with SEPP 55.</p> <p><i>Relevant Policies and Guidelines:</i></p> <ul style="list-style-type: none"> • <i>Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP)</i> 	Section 5.11	Appendix J
<p>Utilities</p> <ul style="list-style-type: none"> • Prepare 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 3.16	Appendix K Appendix T Appendix M Appendix N Appendix O

Requirement	Location in EIS	Technical Study
<ul style="list-style-type: none"> Prepare 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. 		
<p>Contributions</p> <p>Address Council's Section 94A Contribution Plan and/or details of any Voluntary Planning Agreement.</p>	Section 5.24	
<p>Drainage</p> <p>Detail drainage associated with the proposal, including stormwater and drainage infrastructure.</p>	Section 3.15	Appendix Q
<p>Flooding</p> <p>Assess any flood risk on site and consideration of any relevant provisions of the <i>NSW Floodplain Development Manual (2005)</i>, including the potential effects of climate change, sea level rise and an increase in rainfall intensity.</p>	Section 5.12	Appendix R
<p>Waste</p> <p>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.</p>	Section 3.17	Appendix F
<p>Flora and Fauna</p> <p>Flora and fauna impacts related to the proposed development are to be assessed, including impacts on any riparian buffer zones.</p>	Section 5.14	Appendix S
<p>Construction Hours</p> <p>Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.</p>	Section 3.18	Appendix V
<p>Bushfire</p> <p>Address bushfire hazard and if required, prepare a report that addresses the requirements for Special Fire Protection Purpose Development as detailed in Planning for Bush Fire Protection 2006 guidelines.</p>	Section 5.13	Appendix T
<p>Plans and Documents</p> <p>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.</p>		

Requirement	Location in EIS	Technical Study
<p>Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following:</p> <ul style="list-style-type: none"> • Architectural drawings (dimensioned and including RLs); • 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 detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures; • Geotechnical and Structural Report; • Accessibility Report; • Arborist Report; • Acid Sulphate Soils Management Plan (if required); and • Schedule of materials and finishes. 		<p>Appendix A</p> <p>Appendix C</p> <p>Appendix Q</p> <p>Appendix A</p> <p>Appendix A</p> <p>Appendix E</p> <p>Appendix V</p> <p>Appendix W</p> <p>Appendix Z</p> <p>Appendix J</p> <p>Appendix A</p>
<p>Consultation</p> <p>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:</p> <ul style="list-style-type: none"> • Wollongong City Council; • Roads and Maritime Services; and • Transport for NSW. <p>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.</p>	<p>Section 4.0</p>	<p>Appendix BB</p>

2.0 Site Analysis

2.1 Site Location and Context

The UOW's Wollongong Campus is located within the Wollongong Local Government Area (LGA) and sits to the east of the Illawarra Escarpment and west of the Pacific Ocean. The Wollongong Campus to which the site relates is situated approximately 80km south of the Sydney Central Business District (CBD), 2.4km north-west of the Wollongong CBD, 1km north west of North Wollongong Station and 2km south west of the University's Innovation Campus.

Figure 2 below demonstrates the site's locational context.



Figure 2 – Site's locational context

The Wollongong Campus is bounded by the Princes Motorway to the north and east, Northfields Avenue to the south and Robsons Road to the west (refer to **Figure 3**). It has a strong relationship with the Innovation Centre located on Squires Way that is situated eastward of the site beyond TAFE Illawarra, which together form part of the Wollongong Education Precinct. Located south east of the site is the Wollongong Health Precinct and Wollongong City Centre. Combined the Wollongong Campus, Innovation Campus along with the Illawarra TAFE and the Illawarra Health Precinct form Wollongong's 'University City'.

An aerial photograph of the Wollongong Campus is shown below at **Figure 2**.



Figure 3 – Aerial view of UOW Campus

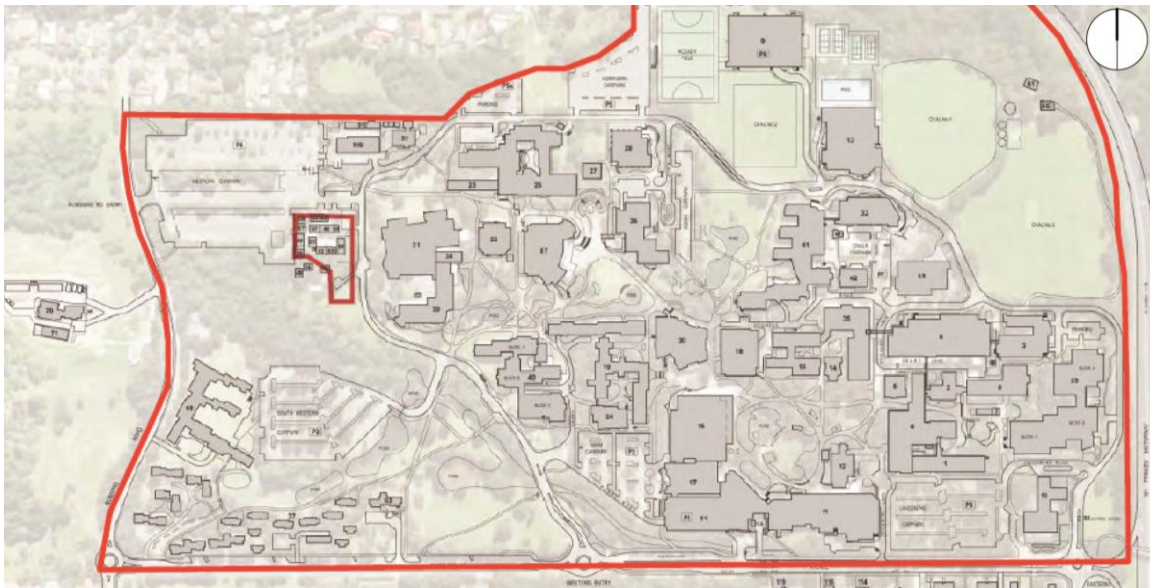
2.2 Existing Development

For the purpose of this application the site is located within the western portion of the Wollongong Campus at the north western section of Lot 1 in DP 1188267, which forms part of the Campus West Precinct under the Wollongong Campus Master Plan. The site is approximately 3,500m² in area.

The site, for the purpose of this SSD is generally rectangular in shape, contained wholly within the Wollongong Campus, as shown in **Figure 4**.

The development within the site comprises eight aged demountable buildings sited adjacent to two bitumen car parks sited at the north, north western and south eastern boundaries of the site and are accessible from Ring Road (refer to **Figure 4**). The car park to the north and north west is formally known as the Western Car Park P4.

Survey Plans have been prepared by Land Team and are provided at **Appendix D**.



 The Site

Figure 4 – Campus Map illustrating the site in relation to the broader Campus



Existing demountable buildings viewed looking west



Existing demountable buildings viewed from the north



Existing car park within the site viewed from the north east



Site viewed looking north adjacent to Ring Road

Figure 5 – Existing development contained within the site

2.3 Watercourse

A water course known as 'University Branch' traverses the site from west to east and forms part of the Fairy Creek catchment which lies south east of the future Western Building. Cabbage Tree Creek catchment lies to the north of the site.

2.4 Topography

The site is generally flat with a gradual slope from west to east. A Site Survey prepared by Land Team is provided at **Appendix D**.

2.5 Soil and Geotechnical Conditions

Coffey Services Australia (Coffey) has undertaken a Geotechnical Investigation of the site to determine its surface and subsurface conditions. Coffey confirm that the 1:100,000 Wollongong Geological map indicates that the site for the proposed Western Building is mapped as occurring at the boundary of the Illawarra Coal Measures and Quaternary Alluvium overlying the Budgong Sandstone. The map indicates that the site is underlain by bedrock comprising interbedded lithic sandstone, coal, carbonaceous, tuff and chert. Budgong Sandstone of is also mapped nearby to the east of this site and comprises red, brown and grey volcanic sandstone.

2.6 Vegetation

The development site contains 223 trees which consist of a mix of native and exotic species. The trees provide a moderately dense canopy coverage across the site and are dispersed between the demountable buildings.

Tree removal is discussed at Section 5.13.

2.7 Heritage

The western portion of the Campus is identified to be a heritage conservation area. Notwithstanding, the portion of the Campus to which the proposed Western Building relates does not contain any local or state heritage listed items nor is it located within a conservation area.

2.8 Utilities and Infrastructure

All services (i.e. water, sewer, gas, electricity and telecommunications) are available to the site, and can be connected / augmented to service the proposal. Further details are provided in Section 3.16.

2.9 Pedestrian and Vehicular Access and Parking

Vehicular access to the site and the broader Wollongong Campus is obtained from three main vehicular access points, which permit access to the Campus's internal road network. Two access points are provided via Northfields Avenue. A third access point is provided from Robsons Road at the site's western boundary. Within this internal road network, Ring Road is the primary road that services the Campus and provides direct access to the various car parks, sporting facilities and educational facilities.

Vehicular access to the site is obtained either from the Robsons Road Entrance at the Campus's western aspect or from the Ring Road, an internal University Road accessible from Northfield Avenue at the Campus's southern aspect.

The site is connected to an arterial road network via Northfields Avenue that provides connections to the Wollongong City Centre, Sydney and Shellharbour.

Pedestrian access to the site is facilitated by an extensive pedestrian pathway network. Existing footpaths are available on the Ring Road, Northfields Avenue and throughout the campus.

2.10 Public and Sustainable Transport

The Campus is serviced by public transport infrastructure (bus and train). The Wollongong Campus is located approximately 1km from North Wollongong Station. Located on the South Coast line the station provides 51 southbound and 45 northbound rail services.

The University provides a free shuttle bus service from various points along Ring Road that facilitates access within the Wollongong and Innovation Campuses, and to Wollongong CBD Station, North Wollongong, Gwynneville and North Wollongong Beach.

Local bus services external to the university that include the 1U, 11, 4U, 41 and 53 are accessible from Northfield Avenue and provide connections to broader Wollongong and Shellharbour.

The Campus provides a number of existing end of trip facilities,. Bicycle racks and secure bike storage facilities are also provided in Buildings 21. The existing cycling facilities are complementary to the *City of Wollongong Bike Plan 2014 – 2018* that aims to improve connections between the two campuses and to the City Centre and North Wollongong.

2.11 Surrounding Development

The site is approximately 2.4km north-west of the Wollongong CBD, and sits within a mixed use locality, surrounded by university buildings, educational and health uses and low density residential development.

Surrounding Built Form and Uses

The site is surrounded by University development directly to the north, east and south (refer to **Figure 6**).

To the direct east is the recently constructed Early Start Building. Further east beyond the bounds of the university is TAFE Illawarra and Keira High School. Further east, adjacent to Memorial drive is the Innovation Campus of UOW. North Wollongong Station is located to the south west.

An extensive at grade car park and a number of administration buildings comprising the UOW Distribution Centre and Facilities Management Division are located to the immediate north of the site. Beyond these lie the residential suburb of Mount Ousley, which comprises detached residential dwellings. A landscape buffer demarcates the Campus from this adjoining residential area.

To the south of the future Western Building is the South Western Car Park and the student accommodation facility known as the UOW Kooloobong Village and the South Western Car Park P3. Located further south and beyond the bounds of the Campus are public playing fields and the Wollongong Botanic Gardens that lie within adjoining suburb of Keiraville. Wollongong Hospital is situated to the south east and forms part of Wollongong's Health Precinct.

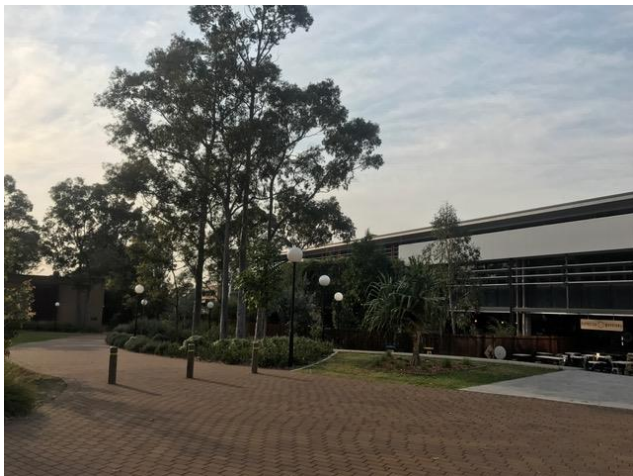
To the immediate west the development comprises an extensive at grade car park known as the Western Car Park (P4). Further west is dense bushland which encircles Mount Keira, a local landmark located along the Illawarra escarpment.



Early Start Facility looking south west from the site



Western Car Park P4 and Mount Keira looking north



Campus and public domain located north east of the site



Kooloobong Village looking west located south of the site



Facilities management building located north of the site



South Western Car Park P3 located south of the site

Figure 6 – Surrounding development within the Main Campus

3.0 Description of the Development

As shown on the Architectural Drawings prepared by HASSELL at **Appendix A**, the SSDA seeks approval for a new four storey building for the UOW's Arts and Social Sciences Faculty, which will be known as the Western Building. The building is located in the north western portion of the University's Wollongong Campus, within the Campus West Precinct.

The new building will provide 9,973m² of GFA (excluding plant), and will contain the following elements:

- video production rooms;
- gallery spaces and associated storage rooms;
- a large and small theatre with amenity rooms;
- rehearsal and workshop space;
- digital learning labs and studios;
- collaborative learning spaces;
- digital, ergonomic WHS and simulation labs;
- design studios;
- shared staff kitchen and common area; and
- staff and research offices.

In addition to the construction of the Western Building, approval is sought for:

- removal of 113 trees, including indigenous and non-indigenous species;
- construction of an external arrival forecourt within the Campus West Precinct;
- additional bicycle storage spaces and end-of-trip facilities;
- inclusion of outdoor learning spaces, courtyard and performance space, and terrace area; and
- provision of new landscaping and public domain enhancements.

The proposal will provide state of the art teaching facilities that will support excellent learning, teaching, and research outcomes. The proposal will replace the outdated buildings currently provided across the site and facilitate the co-location of the TAEM School, the HAS School and the SGSC School.

A photomontage of the proposed Western Building is presented at **Figure 7**.



Figure 7 – Photomontage of the proposed Western Building viewed looking north east

Source: HASSELL Architects

3.1 Design Principles

An Architectural Design Report is included at **Appendix A** and addresses the design intent of the Western Building. The planning and design principles adopted by HASSELL for the proposed development of the site are as follows:

- deliver a landmark building;
- maximise view corridors to Mount Keira and the surrounding landscape;
- provide for informal and interactive spaces that offer flexibility of use;
- provide for an aesthetic that is both contemporary and sympathetic to the environmental setting;
- ensure spaces cater to the needs of students, teachers and the various faculties;
- enhance the public domain by providing courtyards and outdoor learning spaces; and
- improve connectivity and integration with the Wollongong Campus by delivering new egress paths.

3.2 Description of Levels and Use

The proposed use and GFA of each level within the new building is provided in **Table 2** below. The proposed GFA delivers a range of advantages and opportunities for UOW, including:

- maximising the site's potential on a Campus that is designated to undergo a physical transformation in accordance with the Campus Master Plan;

- capitalising on the opportunity to provide state of the arts facilities commensurate with the University's status as a leading international educational provider; and
- upgrading and improving existing learning facilities that will better cater to the needs of staff and students.

Table 2 – GFA by Level and Use

Level	Use	Approx. GFA (sqm)
Ground	<ul style="list-style-type: none"> • Large and small theatre • Theatre storage • Gallery and gallery storage spaces • Video production • Digital lab • Common teaching rooms 	2,360m ²
Level 1	<ul style="list-style-type: none"> • Control room • Project meeting spaces • Lab spaces • Workplace area 	1,771m ²
Level 2	<ul style="list-style-type: none"> • Radio studio • Digital studio • Visual communication design and digital studio • Maker studio • Edit suites • Design studio • Staff common areas • Tech office / storage • Workplace area 	2,604m ²
Level 3	<ul style="list-style-type: none"> • 3D Audio Studio • Performance spaces • Live rooms • Small and large control rooms • Music edit suites • Music digital studios • Rehearsal spaces • Workplace areas • HAS workplace area 	2,353m ²
Total		9088m ²

3.2.1 Ground Level

The northern wing of the Ground Floor Level will primarily accommodate generous sized performance and gallery teaching spaces comprising a video production room, small and large theatres, a gallery space and a rehearsal room. On this level amenity rooms including W/C facilities, storage and dressing rooms will also be provided to service the ground floor facilities (refer to **Figure 8**). The eastern wing includes a digital studio and three general teaching classrooms. The Ground Level is arranged to allow all facilities to be accessible via two corridors that cumulate in a central lobby area that opens to the proposed courtyard. The corridor that services the southern rooms is afforded views of and direct access to the proposed public domain areas and outdoor learning spaces.



Figure 8 – Proposed Ground Floor layout

3.2.2 Level 1

Level 1 is to contain a variety of learning spaces, including a community project meeting room, proposed ergonomics, WHS and simulation, and labs for students. In addition, Level 1 incorporates 28 individual offices / workpoints for staff of the faculty of HAS. The facilities are centred around an atrium to the lobby area, as shown in **Figure 9**.



Figure 9 – Proposed Level 1 Layout

Level 2

Level 2 provides for a number of smaller learning spaces consisting of digital design studios, maker spaces, staff and student offices, radio studios and edit suites. An illustration of the proposed layout of Level 2 is shown in **Figure 10**.



Figure 10 – Proposed Level 2 Layout

3.2.3 Level 3

Music teaching facilities such as recording studios, rehearsal spaces, music edit suites together with collaboration spaces and student workspaces for the School of Geography and Sustainable Communities and the School of Health and Society are accommodated at Level 3. Level 3 also provides an open terrace area with a western facing outlook, as shown in **Figure 11**.



Figure 11 – Proposed Level 3 layout

3.3 Building Height and Form

As shown in the Architectural Drawings at **Appendix A**, the building height for the proposed Western Building reaches a maximum of 23.05m (60.3 RL). The proposal adopts a stepped built form whereby the head decrease to the south to 12.95m (51.95 RL). The proposal reaches three and four storeys in height plus plant.

3.4 Building Layout and Connectivity

The building layout has been determined based on an analysis of the University's existing space requirements and with reference to workplace survey findings that sought to understand the needs of staff and students. The analysis identified the following:

- the need to provide for informal collaborative spaces that foster interaction between staff and students;
- a demand for individual office spaces that cater for individually focused research activities;
- a desire for spaces that are aesthetically pleasing with high amenity;
- a demand for technology enabled spaces that meet the needs of the faculties and provide for state of the art facilities;
- the need to promote flexibility and connectivity between spaces; and
- the need to respond to the surrounding external environment.

It is therefore intended that the proposal will accommodate learning spaces not only for each faculty, but significant areas of common open space, as shown in **Figure 12**. Common open space areas are integrated throughout the four levels and have been designed to maximise views to the surrounds and landmark features such as Mount Keira and foster collaboration (refer to **Figure 13**).

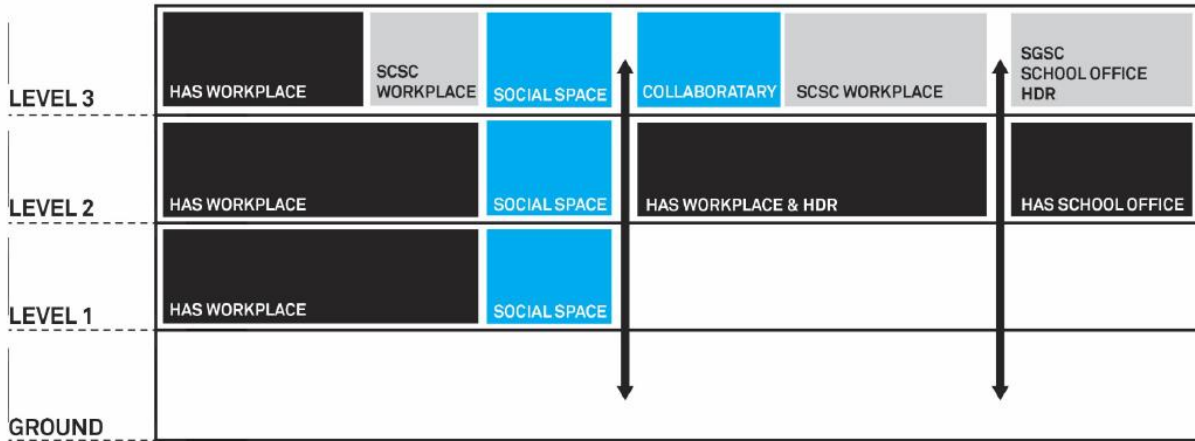


Figure 12 – Co-location of faculty around common open space

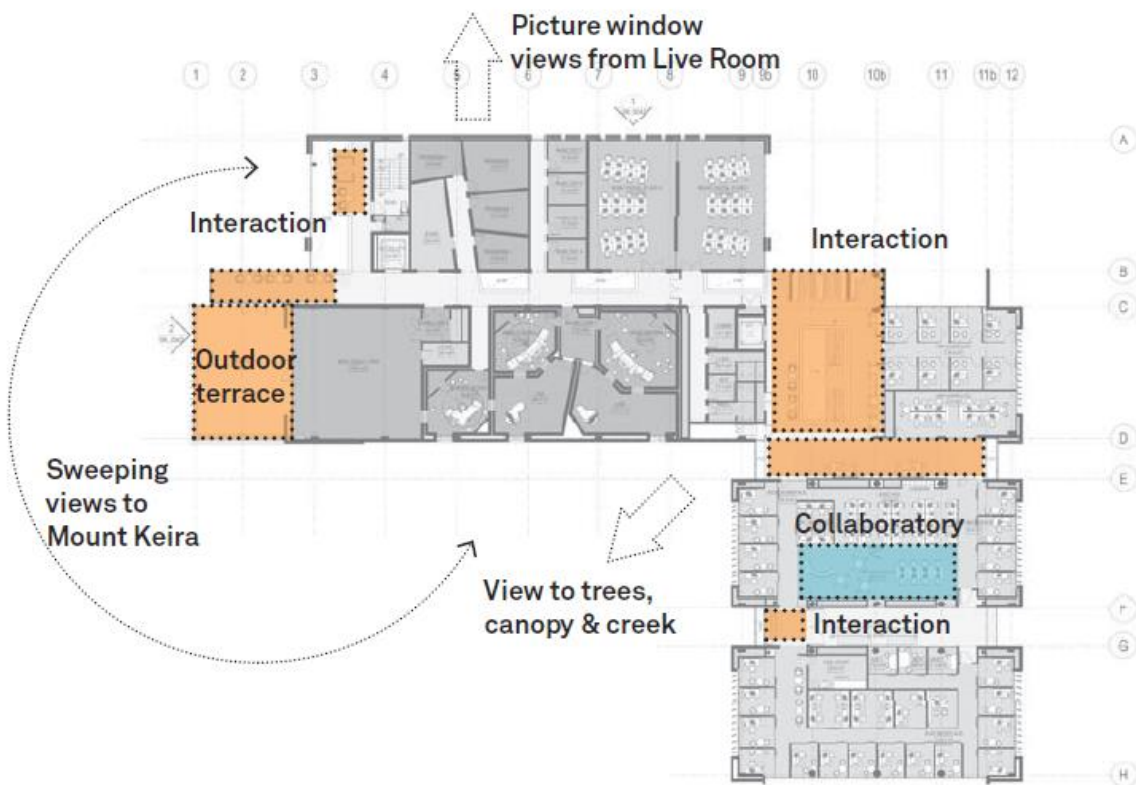


Figure 13 – Orientation and location of common space areas

At ground level, common circulation spaces are designed to open out to public domain areas. As shown in **Figure 14** below, the theatre foyer and entrance foyer and atrium connect to landscaped

outdoor areas. Access to the upper levels will be obtained from the foyer and atrium at ground level adjacent to the pedestrian plaza which will accommodate a lift core and stairs.

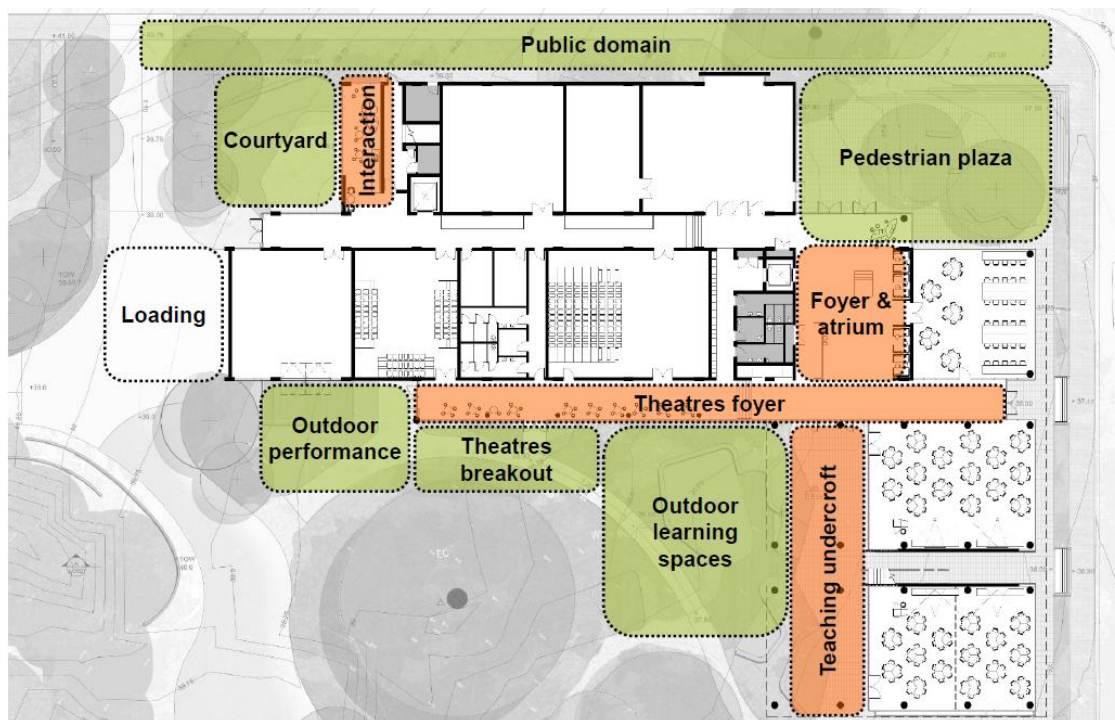


Figure 14 – Relationship between internal circulation spaces and common open areas

3.5 Building Population

The proposed building is intended to cater for existing classes and student activities. Accordingly, the total number of students resulting from the proposal is not anticipated to increase. As the building is to accommodate an increased number of staff spaces and offices, staff numbers are anticipated to slightly increase by 54 during peak occupancy periods.

3.6 External Materials and Finishes

The materials and finishes have been selected to complement the existing built form across the Wollongong Campus, and to respond to the site's environmental setting.

As illustrated in the Architectural Plans at **Appendix A**, the façade is to predominantly comprise face brickwork arranged in a stretcher bond pattern and glazing. The brickwork will be complemented by aluminium composite flat panels, metallic finishes and timber doors.

3.7 Landscaping and Public Domain

A Landscape Concept Plan prepared by Taylor Brammer is included at **Appendix E**. The application proposes two courtyards, an outdoor learning space, new pedestrian egress paths along Ring Road and general landscape embellishments to improve the amenity of the site. The proposed layout of the landscaped areas will increase the useability and functionality of the outdoor spaces and integrate with the surrounding landscape setting. An illustration of the proposed layout is shown in **Figure 15**.

The landscaping for the site aims to provide spaces that:

- respond to building layout / function;
- open turfed areas that will contribute to a sense of space;
- respond to the surrounding landscape;
- are durable and use robust materiality;
- provide quality amenity for students, staff and visitors;
- are safe and easy to use;
- facilitate connectivity within the site and to the broader Campus; and
- are functional and accessible.

The landscape proposal incorporates the planting of new trees, many of which are native species. The landscape design seeks to retain as many trees as possible, including a significant *Eucalyptus Saligna*. Tree removal required to accommodate the proposal will be offset with replacement planting.



Figure 15 – Proposed landscaping and public domain works

3.8 Tree Removal

The site and immediate surrounds currently accommodates 232 trees. Of this amount the development requires the removal of 113 trees, as shown in **Figure 16**. The principle reason for the tree removal is to accommodate the TPZ encroachment on the site. The trees proposed for removal are not identified to significant, as addressed in the Flora and Fauna report at **Appendix S**. An Arboricultural Impact Assessment prepared by Accurate Tree Assessments is included at **Appendix AA** and confirms that most of these trees are precluded from Wollongong Council's tree removal policy and thus could be removed prior to the issuing of a potential development consent.



Figure 16 – Proposed tree removal

3.9 Car Parking, Loading and Site Access

Car Parking

A Transport and Accessibility Assessment has been prepared by Taylor Thomson Whitting and is included at **Appendix G**. There is no car parking directly associated with the proposal. However, the proposal is to be built partially within the existing P4 Car Park and will result in the loss of 130 car spaces and 7 motorcycle spaces. Parking for students using the site will continue to be provided

from the P4 Car Park and will also be accommodated within the proposed P5 Car Park extension (DA/2017/376) located to the north east and the adjacent TAFE car park located to the east.

Loading

The existing on grade carpark contained within the site has an allowance for a loading dock which will service the Western Building. The location of the loading dock is shown in the Architectural Plans at **Appendix A** and is proposed at the site's western axis perpendicular to the building adjacent to the P4 Car Park. The loading area will provide direct access to a driveway located within the P4 carpark that connects to the University's internal road network.

Vehicular Access

The proposed development will continue to utilise the existing internal road network that is accessible from the three primary access points located off Robson Road and Northfields Avenue. Direct entrance to the site will be from Ring Road and will provide direct access to the P4 Western Car Park and the site's loading facilities.

Pedestrian Access

Primary pedestrian access to the site will be obtain via the proposed external forecourt located at the site's north eastern corner. The primary entrance point will be accessible from the existing footpath located along Ring Road.

In addition, multiple access points will be provided from the building's western, southern and eastern aspects. Two entrance points to the building will be provided from the eastern elevation and will be accessible directly from Ring Road. Additional access points are provided off the internal southern corridor and will facilitate access to the building from the rear public domain area. An access point is also provided from the building's southern elevation adjacent to the site's driveway.

3.10 Water Cycle Management

TTW have prepared an Infrastructure Management Plan – Stormwater which is included at **Appendix J**. The report indicates On Site Detention (OSD) will be provided as part of the proposed development and designed to ensure compliance with the relevant Australian Standards and Council's Storm Water Management Code. OSD will be in the form of two 85m³ OSD detention tanks under the proposed external paved area in the north eastern corner of the site.

An Erosion and Sediment Control Plan has been prepared by TTW as part of the Civil Engineering Report (**Appendix Q**) which outlines additional erosion and sediment control measures that will be employed. This plan details the proposed silt fences, sediment ponds, hay bale filters, pit sediment traps and stabilised construction access which will be installed on the site during the construction period.

3.11 Infrastructure and Services

Water and Sewer

The existing sewer system servicing the Wollongong Campus is made up of a network of 150mm and 225mm diameter mains connecting to the Sydney Water Corporation (SWC) sewer system. RPS has confirmed that the sewer system is adequate to service the proposed development (refer to **Appendix O**).

The Wollongong Campus is serviced by a SWC reticulated water system across seven locations, six of which are sited along Northfields Avenue in proximity to the new Western Building. The Servicing Report at **Appendix K** confirms that the proposal necessitates the inclusion of an additional connection to the SWC system along Robson Road.

Electrical Services

The estimated electrical demand has been calculated by ARUP and it is confirmed that the required power can be provided from a new 1.5MVA transformer substation, proposed to be located externally to the building within a kiosk. See **Appendix L** for further details.

Fire Services

Fire services within the existing Campus comprise external hydrants which are connected to an internal reticulated fire main. The fire hydrant system is serviced by a singular fire brigade coaster assembly (FBBA) located on Northfields Avenue. In order to provide adequate water supply for all existing and proposed wet fire services associated with the proposal, the existing fire services will need to be upgraded. Further discussion is provided at **Appendix M**.

Communications

Communications services will be augmented with existing in-ground conduits and pits contained within the Wollongong Campus. Satellite communications floor distribution rooms will be accommodated on each level.

Mechanical Services

A Mechanical Services Report has been prepared by AECOM and is included at **Appendix N**. The report defines the services system proposed within the proposal. This report addresses all mechanical engineering services as well as internal lighting requirements associated with the proposal.

Hydraulic Services

Hydraulic and Wet Fire Services Reports have been prepared by AJ Whipps Wood (**Appendix P**) which establish the hydraulic and fire system design criteria for the proposal.

The report concludes that the existing gas, water and sewer drainage systems have adequate capacity to service the site without requiring any augmentation or amendments. The report confirms that the water system (potable / drinkable water supply) will require upgrading and the installation of a new 65mm water meter with a new connection to the existing water main.

The Project will continue to be connected to the sewer system, gas main, and water mains.

The fire services within the Western Building will be provided in accordance with the Deemed-to-satisfy requirements of the Building Code of Australia, and relevant Australia Standards.

3.12 Civil Works

A Civil Engineering Report and accompanying plans have been prepared by TTW and is included at **Appendix Q** and outline the proposed civil works including stormwater drainage, flooding and the existing ground conditions.

Flooding

The Wollongong Campus is subject to flooding. The site is affected by the 1% AEP and Probable Maximum Flood (PMF) flood. TTW confirm that the 1% Annual Exceedance Probability (AEP) will produce below 100mm of flooding. The flooding risks associated with the development are considered to be a low hazard. Flooding mitigation measures are addressed in Section 5.12 and Section 8.0.

Ground Conditions

The site's ground conditions are characterised by residual clay, alluvium, weathered sandstone and a shallow layer of fill. It is anticipated that topsoils may occur within future pavement areas. Further testing subsequent to the demolition works and during the construction phase will be undertaken to assess the ground conditions.

Stormwater

A Stormwater Concept Plan is appended to the Civil Engineering Design Report. The stormwater system for the development comprises pits, gutters, down pipes and in-ground conduits which will transfer water to the proposed OSD tank discussed in Section 3.10. The design of the stormwater system for the proposed development will be in accordance with stormwater management requirements nominated by the Wollongong DCP 2013 and accepted engineering practices.

3.13 Waste Management

3.13.1 Operational Waste

A Preliminary Operational Management Plan (PCMP) has been prepared by the UOW is included at **Appendix F**. The PCMP indicates that the University of Wollongong will ensure that all generation, storage, treatment and disposal of waste will be performed in accordance with the relevant statutory requirements, Wollongong DCP 2009, and the requirements of UOW including its Waste Management Action Plan 2015-2018 and Environmental Management Plan and Laboratory Waste Disposal Procedure.

In accordance with UOW's Waste Management Action Plan 2015 – 2018, the operation of the Western Building will aim to achieve the following objectives:

- Continuous reduction in solid waste to landfill per EFTSU (equivalent full-time student unit) each year
- Increase overall recycling rate to 70% of total waste by 2020;
- 75% of waste diverted from landfill by 2020; and
- to work towards zero waste to landfill.

The collection of general waste from the Western Building will occur during the mornings by cleaning staff and transported to an appropriately sized bin located in the service yard. The bin will be accessible by UOW Waste Contractors via Ring Road and the main vehicular entrance point to the Western Building and P4 carpark. Waste will be separated into general and recyclable waste streams and held in a secure enclosure located to the south west of the loading bay and the Western

Building. It is noted that liquid waste and hazardous waste will not be generated by the building's activities. The bin will be emptied weekly by a waste contractor appointed by the university.

The proposed waste arrangements will be subject to ongoing monitoring and reporting. Monitoring will occur in the early occupation phase to ensure that the proposed facilities are adequate. Additionally, training and awareness of waste transfer and collection arrangements for the new facility will commence prior to and within the first week of occupation.

3.13.2 Construction Waste

The management of waste generated during the construction phase will be overseen by a Principal Contractor appointed by the University of Wollongong once the details of the quantities generated and handling methods are known. Notwithstanding this, the PCMP indicates that an Environmental Engineer will provide advice throughout the excavations process to ensure waste material is classified in accordance with Part 1 of the *Waste Classification Guidelines 2014* and removed from the site in accordance with the relevant sections of the *Protection of the Environment Operations Act 1997*. A detailed Waste Management Plan (WMP) will be developed once the Principal Contractor has been engaged. The detailed WMP will address matters pertaining to waste handling, management and storage procedures as well as training and emergency plans. A waste register will be kept throughout the construction project to record the quantity, type and location in which the waste will be treated.

3.14 Construction Hours

It is anticipated that site works will be undertaken during standard hours of operation. The following hours of construction are proposed:

- Monday to Friday: 7:00 am to 5:30pm
- Saturday: 7:30 am to 3:30pm
- Sundays and Public Holidays: No works

4.0 Consultation

In accordance with the SEARs issued for this project, consultation was undertaken with relevant public authorities, including Wollongong City Council, Roads and Maritime Services (RMS) and Transport for NSW (TfNSW). This chapter provide a summary of the consultation undertaken.

It is noted that the Project will be placed on public exhibition for 30 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period, Council, State agencies and the public will have an opportunity to make submissions on the Project.

4.1 Consultation Summary

A summary of the consultation undertaken to-date is provided below and at **Appendix BB**.

4.1.1 Wollongong City Council Consultation

A meeting was held with Wollongong City Council (WCC) on the 13 October 2017 at WCC. The traffic impacts associated with the proposal were a principal consideration at this meeting. Specifically, Council requested that the traffic assessment address the following:

- how displaced parking resulting from the building footprint is to be managed;
- trip generation associated with the building;
- the UOW Transport Strategy and the measures that will be adopted promote sustainable transport; and
- the potential encroachment of the APZ on the riparian buffer zone.

The proposed development has given due consideration to the traffic impacts associated with the development and the need to promote sustainable transport. At the meeting Council sought to undertake impacts to the provision of parking.

The proposal does not provide any of parking and the spaces lost as a result of the building footprint will be absorbed by the TAFE carpark located east of the site (where an agreement has been made to allow student and staff parking) and the P5 Car Park located internally to the Wollongong Campus to the direct north east of the site. A Traffic and Parking SSD Design Report prepared by TTW is included at **Appendix E** and confirms the proposed parking arrangements will adequately service the demand for parking resulting from the development and will not give rise to unacceptable traffic generation.

The meeting provided the opportunity to address the ways in which the proposal will support sustainable transport. The Western Building will provide 13 bicycle spaces, 64 lockers and four (4) end of trip facilities. The building will also be serviced by the free UOW bus shuttle service that connects the Wollong Campus to the Innovation Campus and North Wollongong Station. In addition to this, student accommodation facilities and private vehicle services such as the online carpool matching service will further encourage sustainable modes of public transport (refer to **Appendix G**).

Council required that further clarification regarding the potential encroachment of the APZ on the riparian buffer zone be provided. In preparing this application, a suitably qualified consultant has given due consideration to the impact the APZ will have on the riparian buffer zone. As addressed in

the Bushfire Protection Assessment at **Appendix T**, an APZ of 15m is proposed on site and does not conflict with the location of the Riparian Corridor.

4.1.2 Roads and Maritime Services Consultation

A meeting with the Roads and Maritime Services (RMS) was held on the 7 September 2017 at UOW. At this meeting the scope of the proposed works was discussed as well as key issues pertaining to access, parking, and traffic generation.

The RMS confirmed they have no objection to the proposed intersections to be modelled, which are identified in **Appendix BB**. It was agreed between RMS and the Applicant that it is envisaged the SIDRA modelling (an approved RMS software package) will identify the existing queuing issues currently experienced at the Princes Highway and that the slight increase in traffic generation as a result of the proposed Western Building will have minimal impact.

RMS indicated that the Mount Ousley interchange would need to be considered holistically with existing and future projects at the university that are to form separate application. It was also requested that modelling of the three southern intersections at Northfield be undertaken as a network model. The Traffic and Parking Assessment at **Appendix G** confirms that traffic modelling has been conducted of all relevant intersections near to the site, including the potential Mount Ousley interchange. The results indicate that the intersections will continue to operate satisfactorily post development.

4.1.3 Consultation regarding Transport

UOW has engaged in going consultation with transport authorities that include Transport for NSW (TfNSW) and WCC. Ongoing meetings have been held with the University and TfNSW to address the Wollongong Campus and its public transport requirements, including train and bus services that will service the development.

UOW has, on a number of occasions met with WCC to discuss the Keiraville – Gwynneville Access and Movement Study that is currently being prepared.

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see Section 2.0).

The Mitigation Measures at Section 7.0 complement the findings of this section.

5.1 Consistency with Relevant Environmental Planning Instruments

The SEARS required the following legislation, strategies and planning instruments to be addressed:

- NSW State Priorities (NSW 2021);
- Illawarra-Shoalhaven Regional Plan 2015;
- NSW Long Term Transport Master Plan 2012;
- Illawarra Regional Transport Plan 2014;
- Healthy Urban Development Checklist, NSW Health;
- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Environmental Planning and Assessment Regulation 2000 (EP&A Reg);
- State Environmental Planning Policy (State & Regional Development) 2011;
- State Environmental Planning Policy (Education and Childcare Centres) 2017;
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy No.55 – Remediation of Land (SEPP 55);
- State Environmental Planning Policy No 33 – Hazardous and Offensive Development; and
- Wollongong Local Environmental Plan 2009 (WLEP 2009).

5.2 Relevant EPIs, Policies and Guidelines

The development's consistency with the relevant strategic and statutory plans and policies is summarised in **Table 3** below. Variations to, and non-compliance with, the key standards and guidelines highlighted in the table are discussed in detail in the following sections of this environmental assessment.

Table 3 – Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	The NSW State Priorities are a series of reforms designed to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. Whilst not directly related to the proposed development, the project will facilitate the delivery of significantly upgraded education infrastructure, noting that the NSW State Priorities seek to improve educational results.
Illawarra-Shoalhaven Regional Plan 2015	The proposed Western Building is consistent with the goals and aims of the <i>Illawarra-Shoalhaven Regional Plan 2015</i> . A key goal of the Plan is to create a prosperous Illawarra-Shoalhaven. To facilitate the achievement of this goal, the Plan

Instrument/Strategy	Comments
	<p>identifies the need to capitalise on the regions 'knowledge based' assets. Wollongong Campus is identified to be one of the region's key assets. The proposal will deliver new state of the art learning facilities that will contribute to the improvement of the University and enhance the Education and Training Precinct in which it is located.</p> <p>The goal to capitalise on the region's 'knowledge based assets' is underscored by the Action to 'enhance the growth potential of the University of Wollongong to drive innovation in the region'. This aim is guided by the <i>UOW Wollongong Campus Master Plan 2016 – 2036</i>. The proposal is consistent with the envisaged built form, development standards and objectives nominated by the Master Plan for the site. Ultimately, the proposal will enhance research facilities and contribute public domain improvements.</p>
NSW Long Term Transport Master Plan 2012	<p>The proposed development is consistent with the Master Plan as it supports the provision of education facilities in proximity to existing bus and rail infrastructure. In doing so, and by providing no additional parking, the proposal supports a reduced reliance on private vehicles, assisting in improving the modal split between cars and public transport.</p>
Illawarra Regional Transport Plan 2014	<p>The Illawarra Regional Transport Plan nominates actions including but not limited to improving transport services in the Illawarra Region, promoting sustainable transport options and ensuring adequate community transport services are provided. The development of the UOW Master Plan gave due consideration to the Illawarra Regional Transport Plan. In light of this, the designated location of the Western Building is intended to integrate with existing and envisaged transport infrastructure. Specifically, the proposal provides easy access to the NSW Government's free shuttle bus service and does not seek to increase the provision of parking within the university. Secure bicycle facilities are also provided as part of the proposal. Accordingly, the proposal will therefore encourage the use of sustainable modes of public transport, cycling and pedestrian access and ensure the university is well serviced by transport services.</p>
Healthy Urban Development Checklist, NSW Health	<p>The proposed development is consistent with the HUD checklist in that it incorporates more open space within the campus which promotes and is conducive to physical activity and play.</p>
State Legislation	
EP&A Act	<p>The proposed development is consistent with the objects of the EP&A Act for the following reasons:</p> <ul style="list-style-type: none"> • it promotes the social welfare of the community; • it allows for the orderly and economic development of land; • it is development for public purposes and will facilitate the delivery of educational services to the community; and • opportunities for public involvement and participation will be provided. <p>The proposed development is consistent with Division 4.1 of the EP&A Act, particularly for the following reasons:</p> <ul style="list-style-type: none"> • the development has been declared to have state significance; • the development is not prohibited by an environmental planning instrument; and • the development has been evaluated and assessed against the relevant heads of consideration under section 79C.

Instrument/Strategy	Comments
State & Regional Development) 2011	<p>The aim of this policy is to identify development that is State Significant Development (SSD). Pursuant to the SEPP SRD a project will be a SSD if it falls into one of the classes of development listed in Schedule 1 of the SEPP. 'Educational establishment (including associated research facilities)' with a CIV of \$30 million or more are identified as SSD and are considered to be development of State significance.</p> <p>The Project has a CIV of approximately \$53,248,00 million, and so qualifies as State Significant Development. A Quantity Surveyor's certificate prepared by RLB confirming the total CIV of the proposal is included at Appendix C.</p>
SEPP 55	<p>SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. The SEPP specifies when consent is required for remediation of contaminated land. As detailed in Section 5.11 of this report, a Preliminary Site Investigation has been prepared by Coffey relating to the site.</p>
SEPP (Infrastructure)	<p>The aim of this SEPP is to facilitate the effective delivery of infrastructure across the State, including providing for consultation with relevant public authorities about certain development during the assessment process. The proposed development will not accommodate any additional students or additional car parking. However, it is anticipated that the proposal will slightly increase the number of staff. Accordingly, the proposal will be referred to the Roads and Maritime Services (RMS) under the provisions of Schedule 3 of the SEPP.</p>

Local Planning Instruments and Controls

Wollongong Local Environmental Plan 2009	Clause 2.1 – Land Use Zones	<p>The site is zoned SP2 Educational Establishment under WLEP 2009. Development for the purposes of educational establishments (including any development that is ordinarily incidental or ancillary to development for that purpose) is permissible with consent. The Project is therefore permissible within the zone.</p>
	Clause 4.3 – Height of Buildings	<p>A maximum height does not apply to the site. The proposal will have a maximum height of 22.6m. The proposal is consistent with the objectives of the standard for the following reasons:</p> <ul style="list-style-type: none"> • The proposal reaches four storeys in height plus plant that is appropriately screened . The proposal is therefore consistent with the maximum height nominated by the Campus Master Plan. • The proposed height will facilitate the delivery of a high quality built form capable of accommodating a range of state of the art learning facilities.
	Clause 4.4 – Floor Space Ratio	<p>The Western Building reaches four storeys in height plus plant that is appropriately screened. Accordingly, the building is</p>

Instrument/Strategy	Comments	
		<p>commensurate with the scale of the development contained across the Campus, including the nearby Early Start Facility and the Kooloobong Village buildings.</p> <p>Supporting sub-consultant reports confirm the proposed building will not adversely impact existing infrastructure services or the surrounding road network. Accordingly, the proposal provides for an appropriate density.</p>
	<p>5.11 – Bush fire Hazard Reduction</p>	<p>A Bushfire Protection Assessment has been provided by Eco Logical Australia and is included at Appendix T.</p> <p>The report confirms that the site is bush fire prone land. Eco Logical Australian indicate that with the adoption of the various recommendations and bushfire protection measures, the proposal is capable of complying with the requirements of <i>Planning for Bush Fire Protection 2006</i>.</p>
	<p>7.1 – Public Utility Infrastructure</p>	<p>A Water Services Master Plan, Electrical Services Schematic Design and Infrastructure Management Plan are included at Appendices R, O and N, respectively.</p> <p>The reports confirm that existing sewage, electricity and water services can be augmented with the proposed building or upgraded to facilitate the development. Further discussion is provided in Section 3.16.</p>
	<p>7.2 – Natural Resource Sensitivity – Biodiversity</p>	<p>The site is identified to occupy land classified as 'Natural resource sensitivity – biodiversity' under the WLEP 2009. Further a riparian zone is located to the south of the development site.</p> <p>A Flora and Fauna Assessment is included at Appendix S and confirms the proposal will have no adverse impact on surrounding native vegetation and habitat. Further discussion is provided in Section 5.16.</p>
	<p>7.3 – Flood Planning</p>	<p>The site is not located within a known flood plain. A Flood Report has been prepared by Cardno at Appendix R and confirms that the proposed flood mitigation work comprising the construction of a wall and localised diversion along the site's western edge will mitigate flood impacts and accords with the NSW Floodplain Development Manual and Wollongong City Council Development Control Plan.</p>

Instrument/Strategy	Comments	
	7.4 – Riparian Lands	A Flora and Fauna Assessment has been prepared by Narla Environmental and is included at Appendix S . The report confirms that the proposal complies with the objectives of the clause which is to ensure that development does not adversely impact upon riparian lands. Further discussion is provided in Section 5.13 .
	7.5 – Acid Sulfate Soils	The site is not classed as containing Acid Sulfate Soils.

5.3 Built Form and Urban Design

HASSELL has undertaken a detailed analysis of the site's opportunities and constraints, as well as the building's operational needs, to develop a design which accommodates the various services and facilities required by university. Consideration of the proposal's bulk and scale as well as its design quality is addressed below (and as shown in **Appendix A**).

5.3.1 Massing and Scale

The massing of the new Western Building is configured in an 'L' shaped arrangement, which responds to the surrounding landscape environment and provides outdoor learning spaces and public domain located to the south west of the proposed building. The building is massed so as to reach four storeys in height and steps towards the south in accordance with the slope of the site (refer to **Figure 17**). A slight step in built form is also achieved for the building's northern mass. Overall, the varied heights and stepped form facilitate in reducing the perceived bulk and scale of the development (refer to **Figure 18**).

The floorplate is modulated to provide for varying setbacks that assist in breaking down the building's mass. Where the floorplate is inset at the north eastern corner, the proposal provides for full height glass to assist in defining the vertical circulation space associated with the atrium and primary lobby entrance. The inclusion of full height glass also assists in preventing the appearance of a blank façade when viewed from the streetscape (refer to **Figure 17**). Similarly, the southern elevation is to largely consist of full height glass in order to capitalise on views towards Mount Keira, as shown in **Figure 18**.



Figure 17 – Proposed massing looking from the south east



Figure 18 – Proposed massing viewed from the southern public domain area looking north east

The massing of the building at the western and eastern aspects is configured vertically, comprising masonry and vertically articulated glazed facade. The massing at the building's northern elevation where it addresses the street adopts an alternative expression created through the use of metal cladding which provides for a more vertical expression. Combined the juxtaposition of the vertical and horizontal elements minimise visual impact of the building. The proposed roof form is a simple flat configuration, which is appropriate for the contemporary aesthetic of the building and the need to preserve view corridors.

5.3.2 Building Articulation and Façade

In addition to providing a vertical and horizontal articulation, the façade expression for the Western Building has been design to integrate with the Wollongong Campus and the surrounding landscape setting. The surrounding landscape is characterised by a bush like setting with mature eucalypt trees.

As outlined in the Architectural Design Report at **Appendix A**, the façade design incorporates a warm colour palette, consisting of timber finishes, soft grey masonry and face brickwork to contrast with the Eucalyptus foliage. Expansive glazed windows, metallic finishes, and aluminium panels with low reflectivity provide for a contemporary appearance. When viewed from the surrounding public domain, the building will be read in conjunction with the façade of the adjacent Early Start Facility which also reflects a soft colour palette and contemporary aesthetic.

The façade treatment incorporates a variety of materials that will contribute visual interest. Expansive areas of glazed façade will be complemented with the more detailed façade elements such as the proposed stack bond brick pattern, metallic finishes, vertical cladding and vertical sunshading devices.

In light of the above, it is considered that the facade treatment at the interface with the surrounding landscape will provide for an improved outlook for adjacent buildings.

5.4 Urban and Landscape Design

The landscape design has sought to integrate the Western Building with the fabric of the campus and complement the existing landscape character. The building's 'L' shape configuration affords opportunities to deliver a variety of landscaped spaces. Landscape Plans prepared by Taylor Bremmer are included at **Appendix E** and demonstrate the proposed location of these spaces and their various treatments.

The landscape design includes an arrival forecourt in the north eastern corner of the site, as shown in **Figure 15**. The arrival forecourt is intended to improve connectivity. The area is overlaid by stone tile paving consistent with the entry treatment to other areas of the Wollongong Campus. The paving extends towards the footpath and street frontage, connecting the site with the broader campus and providing for an inviting space that defines the building's entrance point.

A new pedestrian footpath is proposed along the eastern street frontage and will align with the existing footpath to improve connectivity between the site and the wider Campus. The path is to be lined with new planting consisting of native shrubs and ground covers that will complement the existing landscaping provided along Ring Road and will improve the site's interface with the existing public domain.

To the south of the site, timber decking and a series of outdoor learning spaces are proposed. The spaces are to be landscaped and incorporate informal paths that are intertwined throughout the landscape. The space will provided opportunities for outdoor learning and in integrating with the landscape, will consequently enhance the building's interface with the public domain.

5.5 Environmental Amenity

In designing the proposal, HASSELL has given due consideration to delivering a high standard of amenity, both for students and teachers who may use the building and for surrounding developments. The below assessment demonstrates that the proposal achieves a high level of environmental amenity.

5.5.1 View Impacts

Photomontages of the proposed development have been prepared by HASSELL, and are provided at **Appendix A**.

As a result of the building's location, the view impacts associated with the development are minimised. The site is located in the western portion of the campus with car parks situated to the north and immediate east. Accordingly, the site is relatively isolated in respect to the broader campus and not located in immediate proximity to surrounding developments or sensitive residential uses.

The most prominent views of the building are from the internal road network located to the north and east of the site. The building has been designed to address these streets and integrate with the surrounding landscape. The northern and western elevations that will be largely visible from the surrounding public domain will feature large areas of glazed façade that reduce the visual prominence of the building and prevent the appearance of blank walls that would otherwise adversely impact the development's contribution to the visual amenity of the Campus (refer to **Figure 19**). When viewed from the south and west, dense vegetation surrounds the site and will diminish any visual impacts the proposal may have when viewed from these locations.



Figure 19 – northern and eastern façade treatment as viewed looking from the site's north east corner

The Early Start Facility is located east of the site on the other side of Ring Road. The proposal will be visible from the building's western aspect. It is noted the Early Start Facility is sited further southward of the site, as shown in **Figure 20**. Accordingly, the proposal will be offset from the Early Strat Facility building for a portion of its length, minimising direct sightlines to and from each building and will consequently mitigate adjacency issues. Where visible, existing landscaping and the proposed vertical sunshading devices on the eastern façade, will also facilitate in minimising sightlines.



Figure 20 – Proposal in relation to the adjacent early learning facility and surrounding vegetation

5.5.2 Overshadowing and Solar Access

Shadow diagrams prepared by HASSELL at **Appendix A** demonstrate the shadow impacts created by the proposed development. The proposed building is bounded by two roads to the north and east, and is relatively isolated from other buildings. Accordingly, the shadow impacts resulting from the proposed development are minimal.

The shadow diagrams demonstrate that on the Winter Solstice, the proposed development will cast shadows that largely fall within the confines of the site, generally impacting the proposed public domain area located internally to the site (south). As shown in **Figure 21**, the open space area will be overshadowed for most of the Winter Solstice. The shadow impacts to this space are largely attributed to the 'L' shaped configuration of the building and the shadow cast by the northern footprint. The shadow impacts are considered acceptable given the space is intended for recreational use and outdoor learning activities.

Overshadowing to the surrounding built form and public domain beyond the bounds of the site is limited to the late afternoon period. From 3pm onwards, the proposal will overshadow the adjacent internal road network to the east, (refer to **Figure 21**). A small amount of overshadowing will impact the western façade of Early Start Facility located east of the site.



Figure 21 – Shadow impacts resulting from the proposal on the Winter Solstice

Notwithstanding, given the limited duration of this overshadowing and its minor extent, the shadow impacts are considered to be acceptable. It is also noted that under the Campus Master Plan, the site is earmarked to accommodate a four storey building (excluding plant). In accordance with the Campus Master Plan, the proposal reaches four storeys in height and accordingly some overshadowing can be reasonably expected.

Given the above, any shadow impacts resulting from the new Western Building should be considered in this context, with very minimal additional overshadowing proposed on the Winter Solstice, which represents the worst case scenario from an overshadowing perspective.

5.6 Consistency with the UOW Wollongong Campus Master Plan

The Campus Master Plan was developed to guide the physical development of the university over the next 20 years in accordance with the goals established by the *2016 – 2020 Strategic Plan*. Whilst the Campus Master Plan is not a statutory instrument, it provides strategic guidance pertaining to, but not limited to, floorspace; necessary learning, teaching and research facilities, the location for retail hospitality and events, landscaping, and pedestrian and cycling connections.

The Campus Master Plan situates the site within the Campus West Precinct. The proposal is generally consistent with the envisaged building form for the area, in that the proposal:

- is consistent with the landscape vision for the site;
- provides an Arts and Social Sciences Building that will function as hub for various faculty schools, accommodating, geography, health and society, social work, theatre, performance, communications, film and journalism;
- accords with the nominated storey height for the site for the site; and
- incorporates and focuses on the planning and design principles addressed in the Campus Master Plan.

Campus West Precinct

The Western Building, its location, function and built form correspond with the envisaged built form for the Master Plan's Campus West Precinct. The Master Plan identifies the site to be an area of significance and envisages the future Arts and Social Sciences Building as consisting of:

'a new hub for both faculties, with state of the art spaces hosting geography, health and society, social work, theatre, performance, communications, film and journalism. There will be opportunities for community outreach in this building, with exhibitions, student performances, seminars and exhibitions throughout the year'.

The proposal is consistent with this desired built form in that the internal layout has been designed to accommodate a range of facilities and spaces consistent with those nominated above.

Specifically, the new Western Building is to contain specialist teaching spaces for the various faculties that form part of the Arts and Social Sciences Building. All spaces and facilities are functional and of high quality design, providing for attractive venues and activities that will encourage community outreach.

Built Form and Space Planning

To guide the future development of the Wollongong Campus and maintain its unique character, the UOW has developed a built form and space planning strategy. It is considered the proposal will facilitate the delivery of this strategy. The Campus Master Plan indicates that eight new buildings with a total GFA of 79,000m² will be established across the Wollongong Campus by 2036 for faculty-focused space and centralised learning, teaching and services. The floor space targets indicate that of this amount approximately 34,000m² will be used for academic buildings for the facilities of Law, Humanities and the Arts, and the Social Sciences. The proposal will deliver 9,973m² (excluding plant) of floor space across four levels and will contribute to the achievement of the aforementioned targets.

The proposed storey height of the proposal is entirely consistent with the Master Plan. As shown in **Figure 22**, the site is identified as being suitable for accommodating a four storey academic building with additional plant. As shown in the Architectural Plans at **Appendix A**, the proposal reaches four storeys in height with plant and adopts a stepped form that achieves an appropriate scale and bulk commensurate with the surrounding built form. Further, the storey height will facilitate in maintaining views to surrounding landscape assets.



Figure 22 - Maximum building height for the subject site

Consistent with the Campus Master Plan, the materials and finishes are of high quality and adopt a consistent language across the entirety of the building. The materiality is reflective of the landscape, comprising a warm colour palette that complements the surrounding bush setting. Contemporary materials such as aluminium and metallic finishes are juxtaposed against light grey tones and timber finishes that are typically characterise the built form within the Campus.

Learning, Teaching and Research Strategy

The Campus Master Plan sets out the vision for the University's physical development, which is integral to meeting the overarching aim of delivering high quality, student-focused learning and teaching experiences (refer to **Figure 23**). The architectural approach has been developed in response to the Master Plan that identifies the need for learning and teaching spaces that are flexible and agile. In accordance with this, the spaces have been designed to accommodate and co-locate the different modes of teaching associated with the functions of the TAEM School and the HAS School and the SGSC School. A large number of these spaces comprise high quality collaborative spaces that offer flexibility and encourage networking by bring the various disciplines together. Collaborative learning spaces and located in and around classrooms and individual research spaces that also support the need for staff and research and undergraduate students.



 The Site

Figure 23 – Envisaged teaching, learning and research context for the Wollongong Campus

Key to fostering flexible learning and collaboration is the inclusion of outdoor learning spaces. The proposed outdoor learning spaces are generally consistent with the Campus Master Plan. The Campus Master Plan identifies outdoor learning facilities are to be situated north of the Western Building Adjacent to the internal road that connects to the Robsons Road entrance (refer to **Figure 23**). The proposal provides for outdoor learning space to the north west and south west. The area to

the northwest is hardstand and breakout area while the area to the south west has been designed to integrate with the surrounds. Specifically, the south west area opens out to the landscape and adjoins informal access paths that traverse through the adjacent planting area. The outdoor learning space will provide a high standard of amenity, incorporating artificial turf, timber decking and native palm planting that will provide shade.

Communications and technology strategy

The building has been designed to leverage and support emerging technologies to the greatest extent possible in order to deliver state of the art learning facilities. As shown in the Architectural Plans at **Appendix A**, the proposal includes, contemporary and state of the art technology focused rooms that include, but not limited to, audio visual, digital design studios, and live music teaching rooms. With the integration of these technologies the Western Building will provide for a superior learning experience in accordance with the vision of the master plan.

Landscaping

A key aim of the Campus Master Plan is to deliver a high quality landscape and public realm that connects with the Wollongong Campus's natural setting (refer to **Appendix E**). The proposal incorporates a landscape scheme prepared by Taylor Brammer with a distinctive native setting reflective of the existing landscape quality that characterises the Wollongong Campus. In accordance with the Campus Master Plan, the landscape scheme provides for the following:

- tree replacement planting consistent with the intention to provide for a tree retention strategy;
- landscape planting whereby 100% are Australian Native Species with 50% of these species being endemic to the Illawarra Region; and
- outdoor classrooms are located adjacent to key buildings and incorporate seating areas, in a high quality landscaped setting.

The proposal provides for extensive public domain works that foster connectivity and walkability in and around these areas. The internal layout of the building has been designed to orientate and open out to the landscape, with some spaces afforded extensive view corridors or natural features such as Mount Kiera.

5.7 Crime Through Prevention

The building positioning and floor plate layout ensures internal facades orientate towards the existing and proposed surrounding public domain areas, as well as the adjacent internal road network, to deter criminal activity to the greatest extent possible. Overall, the proposal has been designed with due consideration given to CPTED principles. For the following reasons the proposal adequately minimises opportunities for criminal activity:

- the design ensures there is a strong visual connection from the building to the public domain and to maximise opportunities for 'natural surveillance';
- multiple entry points along all elevations will increase the sense of surveillance from each building, heightening the perception of risk to potential criminals and the possibility of detection;
- the proposal provides a clear definition of public and private territory through the use of landscaping that demarcates the educational building from the broader campus and emphasises the territorial reinforcement of the space;

- the proposed development will provide a high quality urban environment which will convey a clarity of ownership and display a space that is well cared for, increasing the perceptions of a safe environment;
- the proposal will be utilised for educational purposes and accordingly will be occupied during both the day and night; and
- the installation of CCTV to assist as a deterrent to criminal activity.

5.8 Site Suitability and Implications of Proposed Land Use

The University of Wollongong Campus is suitable for the proposal and has been considered from a research operations perspective as well as from a site capacity and environmental perspective. The site is considered suitable for the proposed development for the following reasons:

- it is within the Wollongong Campus of the University of Wollongong and will facilitate with the co-location of the TAEM School, the HAS School and the SGSC School;
- the location of the Western Building accords with the Wollongong Campus Master Plan and the envisaged future development for the site;
- the proposal will further support and strengthen the research and education facilities available on the Campus and within the broader Health and Education Precinct of Wollongong;
- the configuration of the building and the extent of its footprint is suitable for the provision of a new research and educational building; and
- the proposal will not result in any significant adverse impacts on the use of surrounding buildings, the surrounding road network or the amenity of adjoining occupants.

Further to the site suitability, the proposal demonstrates state significance by providing a number of social benefits, including:

- improving research and educational outcomes by replacing the existing out-dated accommodation, which has failed to respond to a changing research and education environment;
- facilitating research opportunities with new and improved technology; and
- creating a number of construction and operational jobs.

5.9 Traffic, Parking and Access

A Transport and Accessibility Assessment has been prepared by Taylor Thomson Whitting (TTW) and is included at **Appendix G**. The report describes the road and intersection network surrounding the site, existing traffic volumes and parking facilities, and assesses the impacts of the proposed development in terms of traffic and parking. The assessment undertaken by TTW has given consideration to *A Guide to Traffic Generating Developments (RMS)*, *EIS Guidelines – Road and Related Facilities (DoPI)*, *Cycling Aspects of Austroads Guidelines*, *NSW Planning Guidelines for Walking and Cycling*, *Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development*.

Car Parking

As outlined in Section 3.14, no additional parking is proposed as part of the redevelopment of the site. Notwithstanding, as a portion of the building footprint encroaches on the existing P4 carpark,

130 car parking spaces and 7 motorcycle spaces are required to be removed to facilitate the construction of the proposal. Specifically, the car spaces required to be removed consist of 116 ticket spaces, 12 permit holder spaces and 2 accessible spaces (refer to **Figure 24**). Additionally, it is anticipated the Western Building produce a demand for an additional 39 spaces. Consequently, the Western Building will result in an overall demand for 169 vehicular spaces.



Figure 24 – Spaces required to be removed in order to accommodate the development

In light of the above, the proposed loss and additional demand for parking will be offset by the provision of parking within a leased car park at the TAFE NSW Wollongong Campus which is capable of providing an additional 150 spaces. Of these spaces 75 will service the Molecular Life Sciences Building and the remaining 75 spaces will cater to the Western Building.

Additionally, the future expansion of the P5 carpark (DA/2017/376) will supply an additional 183 vehicular and 8 motorcycle spaces. Of these spaces, 80 spaces will service the Molecular Life Sciences Building and the remaining 103 will service the Western Building.

Combined, these two carparks will provide 178 spaces and will adequately service the demand for 169 spaces arising from the proposal.

A letter from TAFE NSW Wollongong is contained within **Appendix G** and provides confirmation of the leased parking arrangement.

Access Arrangements

Two parking aisles to the west of the site will be impacted by the footprint of the development and the car park will have one entry and exit point. TTW confirm that the reduction in parking will precipitate a reduced number of vehicular movements within the car park. Accordingly, the impact

to the existing access arrangements and the parking aisles will have no adverse impact on the functioning of the car park.¹

Bicycle and End of Trip Facilities

The new Western Building is proposed to accommodate additional bicycle and end-of-trip-facilities that will complement existing cycle facilities contained within the Campus. TTW provide a detailed overview of the existing bicycle infrastructure accommodated by the Wollongong Campus. The Wollongong Campus currently provides 1,000 bicycle racks generally located adjacent to buildings. Six secure facilities are provided across the Wollongong Campus and include showers, change rooms, lockers and W/C facilities. All bicycle facilities are serviced by two bike maintenance stations.

TTW confirm the proposal will result in the loss of two bicycle parking spaces. Notwithstanding, the proposal seeks consent for the inclusion of 13 secure bicycle spaces and end-of-trip facilities. The proposed bicycle facilities are consistent with *UOW's Transport Strategy Report* which aims to promote sustainable travel and to reduce reliance on parking.

The quantity of bicycle parking is considered to be satisfactory given that existing survey data indicates 6.7% of staff travel by bicycle. The increase of 54 staff will generate an additional 4 peak and 8 daily cycle trips. Accordingly, it is considered 13 additional bicycle spaces will adequately service the demand for bicycle parking and encourage sustainable modes of transport.

Loading

The proposed loading facility is to be located external to the building, perpendicular to the building's western aspect and will be accessible from the existing P4 car park. In accordance with the UOW's servicing requirements, the loading bay will be sized to accommodate a 12.5m 'Pantech' heavy rigid vehicle. TTW have conducted a swept path analysis and confirmed a 12.5m heavy rigid vehicle will be able to adequately manoeuvre within the loading dock.

Public Transport

The Transport and Accessibility Assessment at **Appendix G** has provided an assessment of the impacts to existing and future public transport within and around the site. TTW confirm that the proposed works will have no impact on the bus stops situated along Ring Road.

The assessment indicates the proposal and the corresponding increase in staff will have a minor impact on public transport usage. Based on mode share data, which indicates that 15.1% of staff travel to the Campus using public transport, it is concluded that the increase of 54 staff during peak periods will generate approximately 8 additional peak hour public transport trips and 16 public transport trips across the entirety of the day.

Traffic Generation

TTW has undertaken an assessment of the traffic generation associated with the proposal and the impacts to the broader road network. The assessment involved obtaining traffic count data for the below intersections on the 29 August 2017 during university semester times in order to determine the peak hour rates.

- Northfields Avenue, Irvine Street and the Princes Motorway
- Irvine Street and University Avenue

¹ The P5 carpark extension will provide 183 spaces in total, approximately 80 of these will be used by displaced parking.

- University Avenue and the Princes Motorway
- Northfields Avenue and Ring Road
- Northfields Avenue and Robsons Road
- Robsons Road and the P4 Carpark Access
- Ring Road and the P4 Carpark Access

Additionally, tube counts were recorded on 29 August and 4 September in the following locations:

- The P4 Carpark Access;
- Ring Road outside of the site location; and
- Northfields avenue near the Western Entrance.

Annual average daily traffic volumes and peak hour traffic volumes are detailed at **Appendix G**. The methodology adopted to undertake the assessment was based on intersection modelling using SIDRA, an RMS approved software package that accounts for traffic volumes, pedestrian volumes, lane geometry, sign control and the nature of the intersection.

The results of the assessment are determined with reference to the travel mode survey results obtained from the 2015 Transport Strategy and Survey headcount data. The data indicates that full time staff have a private vehicle mode share of 79% and that 10% are typically passengers. Predicated on this data, TTW anticipate that 78 daily vehicle trips and 39 peak vehicle trips will be generated.

To determine the likely impacts to the aforementioned intersections, the above trip generation rates were assessed in respect of the most frequently used approach and departure routes. Travel Mode Survey and Journey to Work data combined with intersection traffic count data indicate that 45% of vehicles will originate from the site's east, 30% from the south and 25% from the north.

As the proposal will be completed over the course of a number of years, a projected traffic generation growth rate of 2% has been applied to determine the background traffic growth during this period.

Results

TTW's assessment combine existing intersection counts with the additional projected trips generated by the development and background traffic growth. The assessment concludes that most intersections will operate to a satisfactory standard post development. However, the intersection of Irvine Street and University Avenue is expected to operate to a poorer level of service. The additional movements through this intersection associated with the development are expected to be 29 vehicles in both the AM and PM peak periods. It is noted the trip generation emanating from the Western Building is considered to be minor and the additional traffic at this intersection is principally due to background growth associated with the surrounding area and not the proposal which is expected to give rise to 78 daily and 39 peak private vehicle trips in the worst-case scenario.

Notwithstanding, TTW conclude that the additional traffic generation at the affected intersection is manageable. Further, the impacts to this intersection can also be mitigated with the potential construction of the Mount Ousley Interchange. It is also envisaged that non-vehicular modes of

public transport, including the proposed bicycle and end of trip facilities will facilitate in absorbing the demand associated with the additional staff.

Infrastructure

TTW have given consideration to the infrastructure required to ameliorate potential safety and traffic impacts associated with the development. Traffic calming measures have been introduced to narrow the carpark access road by removing 90 degree angled parking on the southern side within the shared zone. In addition, cyclist infrastructure improvements are proposed in and around the site.

Existing infrastructure in and around the site provides for a high standard of traffic and pedestrian safety. A 10km per hour shared zone is currently provided in the adjacent carpark to slow traffic movements in the surrounds of the site. In addition to this, an existing pedestrian zebra crossing is positioned at Ring Road to provide a safe connection the adjacent carpark to the broader Campus.

Within the site, pedestrian footpaths are provided to facilitate access to the demountable buildings and the adjacent car park. Kerb ramps are also provided at the access road to provide direct safe entry to the site.

5.10 Construction Traffic Generation and Impacts

A Preliminary Construction Traffic Management Plan has been prepared by TTW detailing how construction traffic will be managed throughout the development process (refer to **Appendix V**).

Localised Traffic Impacts

Subject to confirmation from the Contractor to be appointed at the construction phase, access to the site is likely to be from Robsons Road to minimise the distance construction vehicles are required to travel. The type of construction vehicles will generally consist of 12.5m heavy rigid vehicles and 19m semi-trailers, both of which are required for larger deliveries. TTW recommend that following the appointment of a Contractor, a turning path analysis should be conducted to confirm that vehicles can safely and adequately access the site. Traffic control measures will be implemented in the instance vehicles internal and external to the Wollongong Campus need to be managed to ensure safety for passing traffic and pedestrians.

Deliveries and construction works will be wholly contained within the site and there will be no requirement for works zones or lane closures. TTW confirm truck movements resulting from the development will have minor impacts on the surrounding road network and overall the proposed development will result in minimal impacts to localised traffic.

Pedestrians

Pedestrian access to the site will be prohibited during the construction phase. Fencing, directional signage, access barriers and traffic controllers will assist in mitigating potential safety risks to pedestrians and preventing conflicts with construction activities.

Cumulative Impacts

The cumulative traffic impacts associated with the proposal and future construction activities pertaining to the Molecular Life Sciences Building and the P5 Carpark extension have been assessed by TTW. It has been determined internal construction vehicle routes related to the construction activities of the two projects will not come into conflict with those required for the Western Building.

As the Molecular Life Sciences Building is due for completion in August 2019 it is anticipated there will be some overlap construction vehicle movements at the intersection of Northfields Avenue and Irvine Street. Notwithstanding, a detailed Construction Traffic Management Plan (CTMP), to be finalised upon the appointment of a Contractor, will be implemented to assist in minimising any adverse impacts arising from construction traffic. The requirements of the CTMP have been included in the Mitigation Measures at Section 7.0.

5.11 Soils, Geotechnical and Groundwater

Coffey has prepared a Geotechnical Investigation and a Contamination Assessment to assess the potential for contamination, geotechnical conditions, acid sulfate soils and groundwater. The reports are included at **Appendix Q** and **Appendix R** respectively, and are summarised below.

The recommendations from these reports have been included in the Mitigation Measures at Section 7.0.

5.11.1 Contamination

The Site Contamination assessment determines the potential for on-site contamination. The assessment has investigated historical uses on the site to determine whether any contaminating uses may have occurred. The report provides the following key findings and concludes that three Areas of Environmental Concern (AEC) affect the site. Notwithstanding, the report determines that with the adoption of the recommendations the site can be made suitable for the proposed use. A summary is provided below:

- historical information confirms that the site has used demountable structures for teaching purposes since the early – mid 1990s;
- prior to the construction of the university, the site was unoccupied open space potentially used for grazing;
- the surrounds of the existing and former structures are AEC due to the potential presence of hazardous building materials and the potential use of pesticides / herbicides;
- the entirety of the site is identified to be an AEC due to the potential presence of imported fill of unknown origin and quantity; and
- the potential presence of a septic tank in the central western part of the site associated with W/C facilities provides for an AEC.

Coffey confirm that the above AEC are of low contamination risk. However, it is noted that the assessment did not establish if a septic pit exists at the site. The report recommends that further investigations during the construction phase should be undertaken to confirm if a septic pit is contained within the site.

Coffey has noted that there are uncertainties arising from potential sources of contamination, such as stained or odorous soil, fibrous materials, asbestos sheeting, drums, metal or plastic chemical containers, or brightly coloured material. Notwithstanding this, Coffey considers that there is a low risk of wide-spread contamination, and concludes that the site is suitable for use, subject to implementation of an Unexpected Finds Protocol (UFP) for the future construction activities. The UFP would assist in managing potentially contaminated materials should they be discovered during

the construction phase. It is recommended that should soils require offsite disposal, then they be appropriately classified.

5.11.2 Geotechnical

Based on the results of the site investigations, the report provides advice on the geotechnical aspects of the proposed civil and structural design. These recommendations relate to earthworks, excavation, retaining walls, drainage, foundation options and earthquake design.

5.11.3 Groundwater

Groundwater inflow was encountered at depths of 9.5m. However, it is noted the depth to groundwater may vary following periods of rain prior to construction. The assessment assumes that building foundations will likely comprise deep piles socketed into rock and therefore it is likely that groundwater will be encountered during the drilling of bored piles. It is recommended that the bored piles be cased and that their base be cleaned, dewatered and concreted following excavation. Alternatively, Coffey recommend that a blinding layer of concrete should be applied to protect the bored piles.

5.12 Flooding

A Preliminary Assessment of the potential flooding impacts associated with the redevelopment of the site has been undertaken by Cardno and is included at **Appendix R**. The assessment is informed by hydraulic modelling that was simulated for the existing 100 year AFI and PMF storm events. The results indicate that the site is subject to flooding. Specifically, inundation is identified to occur in and around the existing demountable buildings, and in the western carpark adjacent to the site. As shown in **Figure 25**, the associated overland flow originates from Northfields Avenue and passes over the site towards the east.

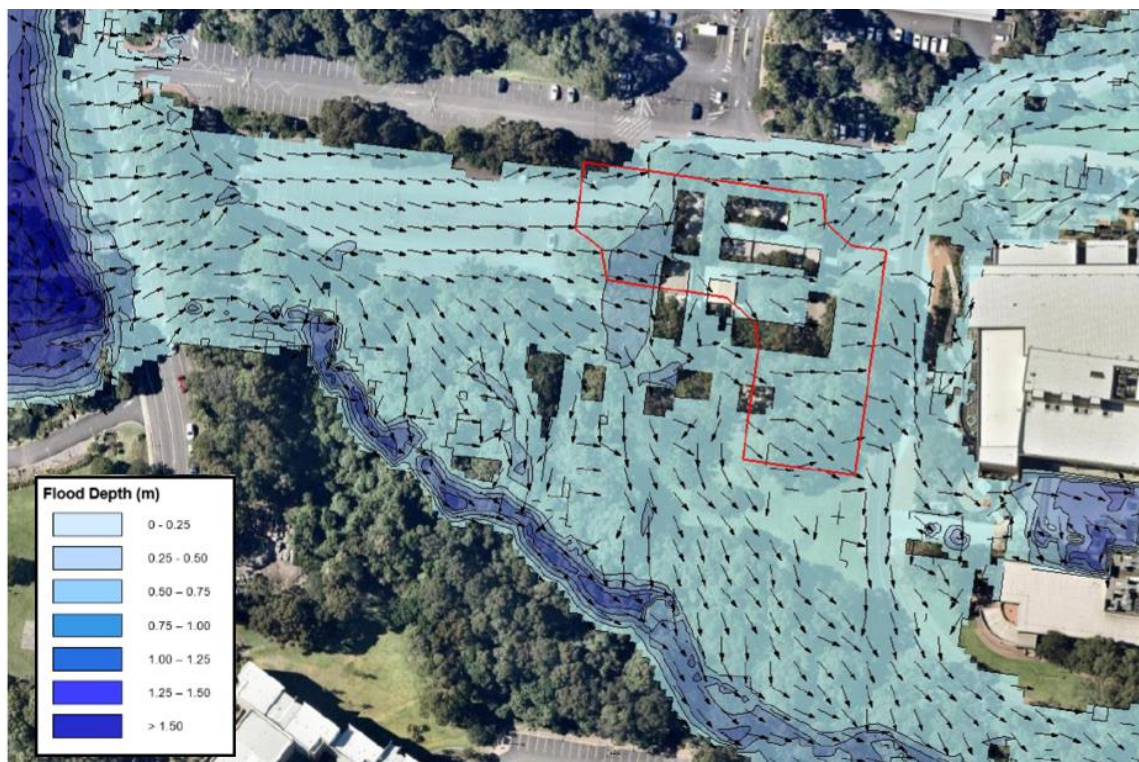


Figure 25 – Existing overflow direction

Cardno confirm that the proposal will interrupt the overflow. In light of this, the hydraulic modelling results indicate that the 100 year ARI water level adjacent to the proposed building in the 100 year event will be approximately 39.9m AHD. Accordingly, the required Flood Planning Level (FPL) for the proposed development, subject to the design adopting a single floor level, is 40.5m ADH.

Cardno recommends three flood mitigation options suitable for reducing the required FPL. The preferred option adopted by the proposal relates to the inclusion of a flood training wall approximately one metre in height at the sites western axis, which would eliminate the need for an increased FPL of the building. Accordingly, the Flood Assessment confirms that with the implementation of the recommendation, the site is suitable for redevelopment from a flooding perspective. The details of the proposed Flood mitigation works are provided in the Civil Engineers Drawings at **Appendix Q**.

5.13 Bushfire

A Bushfire Protection Assessment Report has been prepared by Eco Logical Australia and is included at **Appendix T**. The report identifies that the subject site occupies bushfire prone land. It is noted that as the proposal does not involve student or staff accommodation, the requirements related to Special Fire Protection Purposes development do not apply. In light of this, Eco Logical Australia have assessed the proposal in accordance with the provisions of Section 79BA of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *Planning for Bush Fire Protection 2006*.

The report confirms the site is bushfire prone land due to its proximity to riparian vegetation towards the south and vegetation contained within the Illawarra Escarpment foothills. However, it is

noted the bushfire risk is considered to be low. Eco Logical Australia indicates that an existing Asset Protection Zone is located to the south and west of the proposed building.

The report makes a number of recommendations pertaining to the maintenance of the APZ, including the need for local endemic mesic species or other low flammability spaces, the use of minimal ground fuel and the requirement that no tree canopy is to occur within 2m of the building's roofline. The report confirms that shrubs and trees proposed in the landscaping of the site are acceptable provided they are located a sufficient distance from the building, do not form a continuous canopy and are a species that is not likely to retain dead material.

Eco Logical have proposed a number of recommendations to mitigate bushfire risk. Specifically, it is recommended that the building be constructed in accordance with the Bushfire Attack Level BAL – 29 based on a minimum APZ of 15m. Further, the report makes a number of recommendations pertaining to the provision of utilities. It is advised that the reticulated water supply, gas and electrical services be provided in accordance with the relevant Australian Standards nominated by the report.

Eco Logical recommend that a perimeter road be established to facilitate access for emergency vehicles. However, given the low bushfire threat, it is concluded this road is not essential and access from the existing internal road network should adequately allow safe operational access for emergency personnel.

With the adoption of the above recommendations, Eco Logical Australia confirm that the proposal is suitable for redevelopment.

5.14 Flora and Fauna

A Flora and Fauna Assessment has been prepared by Narla Environmental and is included at **Appendix S**. The assessment has been undertaken to determine the potential impacts associated with the proposal upon terrestrial ecology, including threatened species, populations and communities. The assessment has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act), the *Environmental Planning and Assessment Regulation 2000* (OEH 2014), the *Threatened Species Conservation Act 1995* (TSC Act) and the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999*.

The report confirms that with the adoption of the recommendations the site is suitable for redevelopment, will not compromise the ecological values of the site and meets the requirements of the SEARs subject to the implementation of the various impact mitigation recommendations.

Tree Removal

The proposal necessitates the removal of 113 trees, Narla Environmental confirm that the trees are suitable for removal. However, it is recommended that tree protection measures be implemented during the construction phase to prevent impact to surrounding trees proposed to be retained. Further, all non-indigenous flora is advised to be removed using the cut and paint technique to prevent disturbance to the soil within mapped watercourse and Core Riparian Zone. In accordance with the *NSW Water Management Act 2000*, root balls must also not be removed to avoid disturbance to the soil or impact the riparian corridor (particularly the VRZ). The assessment confirms that the required tree removal can be appropriately mitigated by the planting of indigenous species.

Fauna Habitat

The Flora and Fauna assessment confirms that the required tree removal is unlikely to have any adverse impact on threatened fauna species. Whilst there is a risk the habitats of Powerful Owl and Grey-headed Flying Foxes could be occupy the site, the flora contained within the site and in the surrounds will continue to provide for suitable habitats. Accordingly, it is concluded the proposed tree removal will have a negligible impact on these species.

Bushfire

The site is located in proximity to bushfire prone land. Consequently, the surrounding area is an existing Asset Protection Zone (APZ) that is currently managed by Inner Protection Area APZ standards. As the site is subject to bushfire risk, appropriate bushfire management measures must be adopted in accordance with the requirements of *Planning for Bushfire Protection 2006*. Narla Environmental identify that where possible, weeds and non-indigenous planted species be removed to meet the APZ requirements. Additionally, select trees and shrubs, including 0 – 340m² of Escarpment Moist Blue Gum Forest will need to be removed.

It is recommended that a qualified Ecologist advise on which non-hollowing trees are suitable for removal within the APZ. Subject to the advice of a suitably qualified Ecologist and the adoption of the various recommendations, the requirements of *Planning for Bushfire Protection 2006* can be readily meet without adverse impacts to the flora contained within the site. It is noted that the APZ does not conflict with the Vegetated Riparian Zone. However, as it is impacted by a Vegetated Riparian Zone and contains indigenous Escarpment Moist Blue Gum Forest, a Vegetation Management Plan is recommended in order to prevent any potential ecological impacts.

Landscaping

Narla Environmental has given consideration to the Landscape Concept Design prepared by Taylor Brammer and confirmed that the proposed landscaping accords with the WDCP Landscaping requirements. Specifically, the WDCP 2009 requires that sites adjoining creek lines or natural areas must use locally indigenous species. In accordance with this requirement, Narla Environmental confirm that the species selected for the proposal meet the requirements of the Wollongong DCP 2009.

5.15 Environmentally Sustainable Development

An ESD Report has been prepared by Arup, and is included at **Appendix H**. ESD principles will be incorporated into the design, construction and ongoing operation phases of the development. Whilst the development will be designed to achieve an equivalent 5 star Green Star v1.2 rating under the Green Building Council of Australia's (GBCA) Green Star Rating Tool, no formal certification will be sought. Rather, the rating tool has been used to determine and implement appropriate and feasible ESD initiatives so that the design aligns with the Green Star target. These initiatives will be finalised during detailed design and with stakeholder input. The University also intends on utilising the National Australian Built Environment Rating Scheme (NABERS) performance tool at the occupation phase.

The report sets out targeted initiatives for a number of areas, including:

- energy savings through the use of energy efficient materials, air handling systems, and heating and cooling systems;
- water reduction targets and measures including, efficient fixtures and fittings, water metering and water reuse initiatives to encourage water efficiency;

- encouraging the use of public transport by co-locating faculties in a centralised location and avoiding the inclusion of parking;
- reducing reliance on embodied energy and carbon by using low impact materials;
- providing a positive societal outcome by delivery an aesthetically pleasing scheme with a high level of functionality.

The environmental performance of the development has also been assessed against clause 7(4) of Schedule 2 of the EP&A Regulations. The proposed development is consistent with the five accepted principles of ESD, as described below.

Precautionary Principle

If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation survey

The proposal is supported by environmental studies and technical reports which conclude that there are no environmental constraints that would preclude the development of the site, subject to appropriate management during the design, construction and operational stages. It is considered that through adherence to the Mitigation Measures outlined in **Section 8.0** the proposal will not result in negative environmental impacts.

Integration Principle

The integration principle states that decision-making processes should effectively integrate both long-term and short-term economic, environmental and social considerations. The design of the building has been developed to integrate the short and long-term effects of economic, environmental and social considerations in the provision of teaching and educational facilities at the school.

Intergenerational Equity

The principle of inter-generational equity holds that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. The proposal has been developed to directly benefit current and future generations in that it contributes to the provision of education services for the community without causing significant impact to the environment.

Biological Diversity

Under the biodiversity principle, the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

The development site does not contain any threatened or vulnerable species, populations, communities or significant habitats. The construction and ongoing operation of the facility will be managed in accordance with the Mitigation Measures, ensuring no significant indirect impacts on the surrounding environment.

Valuation and Pricing of Environmental Resources

Under this principle, improved valuation, pricing and incentive mechanisms as well as environmental factors should be included in the valuation of assets and services.

The cost of infrastructure and other design measures to ensure an appropriate level of environmental performance has been incorporated into the cost of development. In addition, the level of waste will be appropriately managed during the construction and the operation of the development. These measures have also been incorporated into the cost of development.

5.16 Acoustic Impacts

An Acoustic Report has been prepared by ARUP and is included at **Appendix I**. The report details the acoustic criteria applicable to the project and provides initial acoustic design advice. It also addresses construction noise and vibration. It is anticipated further acoustic assessment will be undertaken as the design progresses. The assessment has given consideration to relevant policies and guidelines, including:

- *NSW Industrial Noise Policy (EPA)*;
- *Interim Construction Noise Guideline (DECC)*; and
- *Assessing Vibration: A technical Guideline 2006*.

5.16.1 Noise and Vibration Criteria

Operational Noise

Operational noise emission criteria for the project have been assessed in accordance with the NSW INP. The operational noise emissions criteria for the project relates to the 'Intrusive' and 'Amenity' criteria.

Intrusive Noise

The intrusiveness criteria pertains to residential premises and is determined from the prevailing background noise levels at the nearest residential receiver locations and is as follows:

- $LA_{eq(periode)} \leq \text{Rating Background Level (RBL) plus 5 dB}$

Amenity Noise

The amenity noise criteria is detailed below and relates to acceptable and maximum cumulative noise levels for all industrial noise at different receiver types, including residential, commercial, industrial receivers and other sensitive receivers.

Table 4 – Summary of amenity noise criteria

Type of receiver	Indicative noise amenity area	Time of day ¹	Recommended $LA_{eq(periode)}$ noise level	
			Acceptable	Recommended maximum
Residence	Suburban	Day	55	60
		Evening	45	50
		Night	40	45

Type of receiver	Indicative noise amenity area	Time of day ¹	Recommended LA _{eq(period)} noise level	
			Acceptable	Recommended maximum
School classrooms – internal	All	Noisiest 1 hour period when in use	35	40

Note 1 – daytime, 7:00am to 6:00pm; Evening 6:00pm to 10:00pm; Night-time 10:00pm to 7:00am. On Sundays and Public Holidays, Daytime – 8:00am – 6:00pm; Evening 6:00pm – 10:00pm; Night-time 10:00pm – 8:00am.

In addition to the above, the acceptable equivalent criteria for School Classrooms (University) is 45 dB(A) and the maximum 50 dB(A).

Construction Noise

Construction management noise levels provided by the NSW ICNG are used as a basis for determining the appropriate level of construction noise at the nearby sensitive receivers and are detailed in **Table 4**.

Table 5 – Summary of amenity noise criteria

Time of day	Management Level LA _{eq (15 min)}
Recommended standard hours: <ul style="list-style-type: none"> Monday to Friday 7am to 6pm; Saturday 8am to 1pm; No work on Sundays or public holidays 	Noise affected RBL + 10dB Highly noise affected 75dB(A)
Outside recommended standard hours	Noise affected RBL +5dB

Vibration

The vibration impacts associated with the proposal and the impacts of occupants have been assessed in accordance with the NSW DEC 'Assessing Vibration; a technical guideline' (DEC, 2006). The assessment has considered continuous, impulsive and intermittent vibration. The Acoustic Report prepared by Arup details the vibration criteria.

Methodology

An environmental noise survey was conducted by ARUP from 03 October 2017 to 13 October 2017 and the results used as a basis for establishing the noise criteria at the nearest noise sensitive receivers. The closest sensitive noise receivers were taken to be the nearby Early Start Facility and the Kooloobong Village. Specifically, testing was conducted in two locations in proximity to sensitive receivers. Specifically, one logger was stationed east of the site opposite the Early Start Facility and the other to the west near Kooloobong Village. It is noted internal noise levels within the Early Start learning facility have been based on a typical façade construction with a glazing of 6/12/6.

Operational noise emissions from the following sources were assessed:

- noise breakout from performance teaching spaces, including theatres and the rehearsal/performance space during performances and rehearsals;
- noise breakout from studios during music recording and practice sessions; and
- rooftop plant, such as AHUs, fans, chillers, pumps, water heaters and associated equipment; and
- music rehearsal rooms during use.

5.16.2 Noise and Vibration Criteria

Musical / Theatrical Operational Noise

It is noted that theatres, recording studios and other music spaces have been designed to minimise noise emissions to external sources. Noise emissions or 'breakout' through the proposed façade have been assessed and indicate the following noise levels at the two noise receivers will result from the operation of the theatrical spaces:

- Early Start < 20 dB(A) (inaudible external and internal)
- Kooloobong < 20 dB(A) (inaudible external and internal)

Arup conclude that the noise emissions from these spaces will not exceed the relevant noise criteria.

Noise from Externally Located Building Plant

The mechanical plant required for the development has yet to be determined. It is anticipated that all noise emissions from mechanical plant will be attenuated to ensure compliance with the relevant criteria.

Construction Noise and Vibration (for guidance)

Whilst construction process have not been determined, ARUP have undertaken a preliminary quantitative construction noise assessment. The assessment is based on predicted construction equipment and noise levels and the impacts to surrounding buildings located within the Wollongong Campus. The predicated internal and external construction noise levels for these locations are presented in **Table 6**.

Table 6 – GFA by Level and Use

Type of receiver	Indicative noise amenity area	Time of day ¹
Building 21	82 dB(A)	59 dB(A)
Building 68	82 dB(A)	59 dB(A)
Building 73	72 dB(A)	52 dB(A)
Building 74	74 dB(A)	51 dB(A)
Building 75	74 dB(A)	51 dB(A)

Note 1 – daytime, 7:00 to 6:00pm; Evening 6:00pm to 10:00pm; Night-time 10:00pm to 7:00am. On Sundays and Public Holidays, Daytime 8:00am – 6:00pm; Evening 6:00pm – 10:00pm; Night-time 10:00pm – 8:00am.

A detailed construction noise and vibration assessment and management plan will be prepared upon the selection of a Contractor.

Summary of results

The acoustic impacts from the proposed building have been assessed against the *NSW Industrial Noise Policy (EPA)*, *Interim Construction Noise Guideline (DECC)* and *Assessing Vibration: A technical Guideline 2006*. The assessment indicates that operational noise associated with mechanical plant such as the rooftop plant will need to be attenuated in order to ensure acceptable noise impacts to the surrounding sensitive receivers.

Arup conclude that the noise emissions from the proposal will not exceed the relevant criteria. Accordingly, it is concluded the proposal is capable of complying with the aforementioned policies and guidelines.

5.17 Structural Adequacy

A Structural Design Statement has been prepared by Robert Bird Group (**Appendix X**) to address the structural requirements of the building, particularly in light of the building's specific functional requirements. The statement confirms that the structural design will be in accordance with standard engineering practice and principles and the relevant Australian Standards, including:

- Building Code of Australia (BCA)
- AS/NZS 1170 Part 0 Structural Design Actions - General Principles
- AS/NZS 1170 Part 1 Structural Design Actions - Permanent, Imposed &
- Other Actions
- AS/NZS 1170 Part 2 Structural Design Actions - Loading Code Wind
- AS 1170 Part 4 Structural Design Actions - Loading Code Earthquakes
- AS 2159 Piling Code
- AS 2670 Part 2 Evaluation of human exposure to whole-body vibration
- AS/NZS 3600 Concrete Structures
- AS/NZS 3700 Masonry Code
- AS/NZS 4100 Steel Structures
- AS 5100 Bridge Design Code

Based on the findings of the contamination assessment, Robert Bird Group confirm that the with the site's subsurface conditions and the presence of ground water, the site may experience high ground movement. As such, the structural design will be designed for:

- seismic load in accordance with the relevant Australian Standard being AS1170.4.
- wind loads in accordance with the relevant Australian Standards (being AS/NZS 1170.2); and
- slab and beams are designed to achieve a vibration criteria in accordance with AS2670.2.

Robert Bird Group confirm that the structures are suitable in respect of the site's constraints and for the principal design requirements.

5.18 BCA and Access

5.18.1 BCA

A Building Code of Australia (BCA) Assessment Statement has been prepared by Group DLA (**Appendix Y**) to establish compliance to the BCA and relevant Acts and Regulations of the design development documentation for the Project.

Group DLA conclude that the proposed works are capable of meeting the requirements of the BCA, with the inclusion of fire Engineered Performance Solutions. Where compliance with the Deemed-to-Satisfy (DTS) provisions of the BCA cannot be achieved, an Alternative Solution will be developed prior to the issue of a Crown Certificate.

5.18.2 Access

An Accessibility Design Review prepared by Mckenzie Group is included at **Appendix Z**. The report reviews the proposed development to ensure that ingress and egress, paths of travel, circulation areas and toilets comply with the relevant statutory guidelines.

The report makes recommendations regarding the building fit-out design that will not impact the design or appearance of the proposed development and that are capable of being made during the construction certificate stage. These recommendations relate to elements such corridors, doors with acoustic seals, fire isolation stairs, handrails, ramps, and door circulation.

The report concludes that the development has accessible and continuous paths of travel, has a reasonable degree of accessibility, and that the development is capable of achieving compliance with the relevant statutory requirements pertaining to site access, and common area access.

5.19 Fire Safety

Advice regarding the fire safety aspects of the proposal has been prepared by ABS Fire Safety (**Appendix CC**). The advice notes that there are some aspects of the design that will be developed using performance based fire engineering to achieve compliance with the Performance Requirements of the BCA.

This advice confirms that the fire safety design of the building will generally satisfy the Performance Requirements of the BCA by complying with the DTS Provisions. Where required, these variations will be addressed via an Alternative Solution, however it is considered that there are no issues that would affect the building layout arising from fire safety.

5.20 Lift Access

A Vertical Transport Report has been prepared by Thomson Elevator Consultancy Services and is included at **Appendix DD**. The report confirms that the proposed passenger and goods lift arrangements will adequately service and provide for acceptable waiting times. The report also concludes that the proposed lift servicing arrangements will comply with the relevant Australian Standards and BCA Requirements.

5.21 Economic and Social Benefits

The Project will include new research areas, learning and teaching spaces and office space. The proposal will bring a number of social and economic benefits to the region, including:

- supporting and strengthening high quality education and research facilities available to the Wollongong community and general public more broadly;
- attracting more funding, academics and students;
- increased employment opportunities during both construction and operation with approximately 140 full time equivalent (FTE) construction jobs and approximately 89 FTE operational jobs being created; and
- support and encourage learning.

5.22 Cumulative Impacts

The environmental assessment demonstrates that the proposal will not have any negative environmental impacts, whether considered alone, or in conjunction with other recent developments in the vicinity of the site. Any potential impacts will be mitigated by the Mitigation Measures at Section 7.0 and suitable conditions of approval.

5.23 Public Interest

The proposed redevelopment at UOW is in the public interest as it:

- is of a high standard and compatible with the site's existing buildings;
- is consistent with the landscape and built form envisaged under the UOW Wollongong Campus Masterplan;
- will upgrade the existing site and contribute public domain works that will enhance the Campus;
- provides state of the art learning facilities that will improve the University's standing as an international University; and
- reinforces the environmental quality of the site, respecting its biodiversity value and integrating with the surrounding landscape.

5.24 Site Suitability

The site is suitable for the proposed development in that it already accommodates educational facilities, with surrounding buildings that are of a built form not dissimilar to the contemporary design that is proposed.

The development will not increase the number of students, or visitors to the site, and so there will be limited additional impacts on the surrounding neighbourhood as a result of the use of the site.

The site is in close proximity to transport infrastructure, and other services, and the built form is in keeping with the existing site, existing surrounding development, and the future direction envisaged under the UOW Wollongong Campus Masterplan.

The development is suitable for the site as it is permissible in the zone; involves the construction of a quality building of architectural design that enhances the Campus; provides state of the art teaching facilities; and is considered to have no adverse impacts on the surrounding locality.

5.25 Development Contributions

The relevant contributions plan for the site is the *Wollongong Section 95A Development Contributions Plan* for the *Wollongong Local Government Area*.

The Plan has a very limited list of approvals that are excluded from the payment of levies, and whilst developments for the purposes of university educational facilities are not automatically exempted from the payment of section 94A contributions under this Plan, it is considered appropriate that the UOW be given a full exemption in this instance. Under the Plan a full exemption is permitted in the instance the proposal relates to facilities that directly relate to and are required by the main function of the education facilities. Specifically, the Plan stipulates:

(i) Full exemption may be allowed for facilities that are directly required by the main function of the educational facility, such as – classrooms, lecture theatre, training facility, administrative office, research facility.

A full dispensation is considered appropriate given the proposal relates to a teaching facility that is intrinsic to the operation of the university. Further, a dispensation is considered appropriate given the proposed development comprises an upgrade to existing community infrastructure and will not result in an increase in the number of students on the site. Whilst the proposal seeks to increase the number of staff, the increase is minor and will not place any additional demand on public services or facilities.

Furthermore, most of the works for which the Plan seeks to levy a contribution relate to open space upgrades, as well as footpath, parks, gardens, road, kerb and gutter improvements. The school provides its own sport and open space facilities within its campus, and the development further enhances the provision of open space. As the development will not put any additional demand on Council's infrastructure, it is considered reasonable that a dispensation be considered.

Finally, the payment of development contributions would consume resources which should be devoted to the university's core business of teaching and the strategic benefits that would result from such a development.

For an exemption to be considered based on clause 15 (a) to (h), the written application should clearly state which exemption criteria is expected to ensure it is considered and provide all relevant supporting information. Council may allow for exemptions (partial or full) in the following circumstances.

- a. An application by the Council for community infrastructure, such as but not limited to libraries, community facilities, child care facilities, recreational areas, recreational facilities or car parks.*
- b. An application by the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities (primary and secondary) and public transport infrastructure.*

The following exemption requests (partial or full) will require a comprehensive written submission:

- i. An application on behalf of Council for community infrastructure, such as but not limited to libraries, community facilities, child care facilities, recreational areas, recreational facilities or car parks.*
- j. An application on behalf of the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities (primary and secondary) and public transport infrastructure.*

- k. *An application for privately funded community infrastructure, such as but not limited to education facilities (primary and secondary) and private hospitals.*
- l. *Any other development for which Council considers an exemption is warranted, where the decision is made by formal resolution of the Council at a public Council meeting.*
- m. *An application by or on behalf of a tertiary education provider:*

(i) Full exemption may be allowed for facilities that are directly required by the main function of the educational facility, such as – classrooms, lecture theatre, training facility, administrative office, research facility.

(ii) Partial (50%) exemption may be allowed for developments that are not directly required by the main function of the educational facility but will provide support to its main function, such as student accommodation, car park, sports facility, playgrounds, food-court, display facility, function centre, convention hall, auditorium, community centre.

(iii) Nil exemption for developments that are not directly required to the main function of the educational facility and/or have potential to create additional demand for public services and amenities. Development such as but not limited to – shops, supermarket, shopping centre, office for lease, business park, commercial centre, child care centre, entertainment facility.

It is noted that the payment of any contribution on this development is discretionary, and that the approval authority, in this case the Minister for Planning, while empowered to impose a condition requiring the payment of a monetary contribution, is not required to under either the EP&A Act or Council's Contributions Plan.

Whilst developments by the Crown are not automatically exempt from payments under this section 94A Plan, development that in the opinion of Council does not increase the demand for the categories of public facilities and services addressed by the Plan should warrant a merit-based exemption. Justifications for the exemption of contributions include:

- the University is a registered not-for-profit organisation;
- the University is an education facility and a nominated charity; and
- the proposal is a direct requirement for the university, and provides classrooms, specialist teaching facilities, admin offices and research facilities.

Background – University as the Crown and Public Educational Institution

UOW is recognised as the Crown by virtue of clause 226 of the EP&A Regulation.

Section 89 of the EP&A Act provides that in relation to Crown applications, a consent authority is unable to impose a condition of consent without the approval of the University or the Minister. However, the University is conscious of its central position in the Wollongong LGA and its ongoing relationship with Council and the local community. The University also understands the need to continue to work cooperatively with Council to reach agreement on an appropriate balance of development conditions that meet Council's planning responsibilities, whilst also meeting the University's need to provide critical infrastructure.

The Public Nature of the Proposed Development, and the Wollongong S94A Plan

The University and its functions are inherently of a public nature, providing educational and employment opportunities to the Wollongong community and to the public at large. The proposed construction of a new research and teaching facility is directly required by the main function of the educational facility and forms part of the University's core academic functions.

The inherent public character of the University development is in contrast to a strictly commercial development where a full levy might be considered reasonable (such as applicable in a S94A Plan).

The underlying purpose of Council's Contributions Plan is to raise funds from private, commercially driven developments to be put towards the cost of public facilities and infrastructure which are burdened by those developments. Imposing a levy on the University's own public infrastructure (and in doing so financially compromising the University's ability to perform its teaching and research functions) conflicts with the public tenet of the Contributions Plan. Indeed, to do so would be simply diverting education-based funding away from the University for other unrelated purposes, potentially with no nexus to the UOW.

Submission Requirements for an exemption claim to be considered

For an exemption to be considered in accordance with clause 15 (i) to (m) above, the application will need to include a comprehensive written submission arguing the case for exemption and including details of:

- Under which sub-clause the exemption claimed is to be considered.
- The mechanism ensuring that such development will remain in the form proposed in the future (i.e. Not to increase future demand on public amenities and services), NB: where a further development application or application for complying development under the EP&A Act is required for any change to the development no mechanism is necessary, however if a change of use is available by way of exempt development then the requirement for a mechanism remains.
- Other items if applicable:
 - How the development will incorporate the maintenance of the item of heritage significance.
 - How the development will contribute to the public benefit of the community.
 - Works in the public domain included in the development.
 - How the residents/users will utilise existing private facilities attached to the development that replicate those types provided by Council.
 - Advice indicating that the application is on behalf of Council or the NSW Government.

An exemption is considered appropriate as the University is a not-for-profit public institution which relies on government grants, donations, and community funding to provide new facilities for both the University community, and the wider public. The levying of a development contribution would divert a portion of these public funds, which have been specifically provided for an educational purpose, to local services without any direct nexus to the impact on those services.

It is noted that the proposed development will not result in any additional staff or students on the University Campus. As outlined in further detail below, the nature of the development, and its location within a University Campus, means that many of the categories of infrastructure that Council is seeking to levy for are already provided by the University, for use by staff, students and the general public. On this basis, it is considered unnecessary that the development be levied for community facilities, public domain or new open space contributions.

The University's position is also supported by the provisions of Circular D6, as discussed below.

Crown applications – Department of Planning Circular D6

It is noted that Wollongong City Council does not automatically grant exemptions to Crown Developments, however the Department's Circular D6 sets out the reasons why Crown developers should be able to seek exemptions from developer contributions payments.

While Circular D6 "*Crown Development Applications and Conditions of Consent*" was formulated in 1995, it still remains the guiding document in relation to Crown applications and development contributions. The effect of this circular is, that where the applicant is a Crown authority and the development is for Educational Services, no contributions should be collected for open space, community facilities, parking, and general local and main road upgrades. As the proposed development is integral to supporting the University's academic functions it is clearly part of the University's Educational Services. Whilst contributions may be levied for stormwater works, as detailed in the EIS, the University caters for all stormwater run-off on-site and will not further burden any Council-related infrastructure.

Other Public Amenities Provided by the University on the Wollongong Campus

The exemption from payment of contributions relating to community facilities, public domain and new open space is considered appropriate, as the University provides significant areas of accessible open space and recreation, as well as a range of community facilities available to the general public. These include:

- a child care centre
- fitness and Aquatic Centre – including health and fitness programs, corporate, school and university sports programs and children's holiday activities;
- library;
- FCA Gallery and UOW Art Collection;
- performance and rehearsal venues;
- a range of retail services e.g. food outlets including restaurant, cafes and take away outlets, banks, ATMs, IMB, St George and NAB bank branches, travel agency; and a supermarket;
- medical centre, disability services facility, counselling, dentist, physiotherapy;
- chaplaincy and Muslim prayer space;
- student legal services clinic; and
- Woolyungah Indigenous Centre – indigenous student recruitment, access and support.

The availability of these amenities and services on the Campus, which are maintained by the University, reduces the demand on public amenities outside the Campus.

Taking into account the significant public benefits which the proposed development, and the presence the University generally, provides, and the minimal impact this development has on local infrastructure, it is considered that no development contributions should be levied against this development.

As stated in Circular D6:

Crown Activities providing a public service or 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.

6.0 Environmental Risk Assessment

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

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

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

Figure 26 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

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

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

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

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

Figure 26 – Risk Assessment Matrix

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

Table 7 – Western Building Risk Assessment

Risk Assessment						
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Noise and Vibration	C	<ul style="list-style-type: none"> Increase in noise and vibration levels during construction activities. Increase in noise levels during the operation. Increased noise emissions emanating from the building's performance spaces. 	Implementation of various design mitigation measures to ensure adequate internal sound insulation and to minimise noise transmissions.	2	2	4 (Low / Medium)
Traffic and Parking	C + O	<ul style="list-style-type: none"> Increase in construction traffic on local roads Increase in traffic and parking on local roads during operation Reduction in the quantity of parking provided across the site 	<ul style="list-style-type: none"> Construction traffic will not impact on the overall operation of the local road network and the level of construction traffic is anticipated to be low. Traffic generated during operation of the Western Building will have a negligible impact in the context of the university and broader external road network. Specifically, there will be minimal changes in the operation of key intersections surrounding the site. Whilst the ## intersection will be impacted, the additional traffic generation is considered to be manageable and primarily associated with the traffic generation associated with the growth of the wider area. Implement travel demand management measures in accordance with UOW Transport Strategy 	4	4	8 (High)

			prepared by TTW, including new bicycle facilities and the accommodation of parking within the P5 and the temporary TAFE car park.			
Visual and Built Form	C	<ul style="list-style-type: none"> Visual Impact of the development when viewed from the public domain. Impact of the development on the Northfields Avenue streetscape 	<ul style="list-style-type: none"> Ensure proposal is of high quality architectural design. Inclusion of public domain and landscape works that integrate the building with the Campus and surrounding landscape. Deliver a design that accords with the UOW Master Plan. 	1	2	3 (Low)
Contamination	C	<ul style="list-style-type: none"> Potential for discovery of hazardous materials during construction 	<ul style="list-style-type: none"> Implementation of an UFP during construction phase; Classification of all soils disposed offsite. Further investigations during the construction phase to determine the presence of a septic pit within the site. 	1	2	3 (Low)
Geotechnical	C	Potential for groundwater inflows during the drilling of bored piles.	<ul style="list-style-type: none"> Implementation of design and construction measures related to earthworks, excavation, retaining walls, drainage, foundation options and earthquake design. 	2	3	5 (Low / Medium)
Flooding	C	The site is identified to be flood prone land.	<ul style="list-style-type: none"> Inclusion of a flood trailing wall or bund that would eliminate the need for flood planning levels. 	4	3	7 (High / Medium)
Infrastructure	C	<ul style="list-style-type: none"> Undue pressure of existing infrastructure services. 	Various supporting subconsultant reports have confirmed that no existing infrastructure is to be impacted as a result of the proposed building, and that existing and proposed upgrades are capable of servicing the development.	1	2	3 (Low)

Flora and Fauna	C	<ul style="list-style-type: none"> Maintenance of the APZ may impact the site's ecological values; Impacts to flora and fauna as a result of the proposed tree removal; 	<ul style="list-style-type: none"> Implementation of a Vegetation Management Plan to minimise impacts to the Riparian Zone and indigeous tree species. Replacement planing consisting of locally indigenous species. 	2	3	5 (Low / Medium)
Structural	C	<ul style="list-style-type: none"> Ground movements due to the site's subsurface conditions and the presence of ground water. 	<ul style="list-style-type: none"> Building is to be designed and constructed in accordance with the standard engineering practice and principles and the relevant Australian Standards. 	2	2	4 (Low / Medium)
Water, drainage, stormwater and groundwater	C	<ul style="list-style-type: none"> Lack of existng stormwater infrastructure Increased sediment and erosion runoff Diminished water quality levels 	<ul style="list-style-type: none"> Stormwater quality treatment measures including the installation of two OSD tanks with a total volume of 85m³. Inclusion of a flood training wall to divert upstream flows. Stormwater treatment in accordance with Council's policies. 	2	1	3 (Low)

7.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 8** - Mitigation Measures below. These measures have been derived from the previous assessment in Section 5.0 and those detailed in appended consultants' reports.

Table 8 - Mitigation Measures

Mitigation Measures
<p>Environmentally Sustainable Development</p> <p>Use of energy saving materials, low impact materials, and water reduction measures as set out in the ESD Report prepared by Arup.</p>
<p>Preliminary Construction Management Plan</p> <p>Implement the traffic management, erosion and sediment, compliant handling procedures, notification, waste measures nominated in the PCMP.</p>
<p>Noise and Vibration</p> <p>Implementation of various design specifications in accordance with the Acoustic Design Report prepared by ARUP.</p>
<p>Traffic</p> <p>Implement the travel demand management measures in accordance with UOW Transport Strategy and Transport and Accessibility Assessment prepared by TTW.</p>
<p>Geotechnical</p> <p>Adoption of recommendations pertaining to earthworks, excavation, retaining walls, drainage, foundation options and earthquake design as recommended by the Geotechnical Investigation prepared by Coffey.</p>
<p>Contamination</p> <p>Adoption of the measures nominated by the Site Contamination Assessment prepared by Coffey, including implementation of an UFP during construction and classification of all soils disposed offsite. Further investigations during the construction phase to determine the presence of a septic pit within the site.</p>
<p>Structural</p> <p>The building should be designed in accordance with the various Australian Standards nominated by Robert Bird Group in the Structural Design Statement to adequately address the site's subsurface conditions and the potential presence of groundwater.</p>
<p>Groundwater</p> <p>Bored piles are recommended to be cased, dewatered and covered in concrete following excavation to prevent any impacts associated with groundwater should it be encountered.</p>
<p>Flora and Fauna</p> <p>Implementation of a Vegetation Management Plan along with replacement indigenous planting and retention of root balls to prevent impacts to the adjacent riparian corridor.</p>
<p>Flooding</p> <p>Inclusion of a flood training wall approximately 1m in height to prevent impacts associated with overland flows.</p>

Mitigation Measures

Building Code of Australia

Alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA should be considered. The alternate solutions should be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.

8.0 Justification of the Proposal

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

The proposed development involves provision of a new Arts and Social Sciences building known as the Western Building at the Wollongong Campus of the University of Wollongong. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

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

8.1 Social and Economic

The new Western Building lies within the Campus West Precinct of the Wollongong Campus of the University of Wollongong. With the introduction of a new campus gateway to the north of the site, the Precinct is likely to become a new focal point and will provide a range of new services integral to the economic and social success of the university. In light of this, the Western Building will be sited in a prominent location and will function as a central hub with state of the art spaces that support the diverse needs of a number of faculties and provide opportunities for community outreach.

The proposed development will provide a building in accordance with the UOW Wollongong Master Plan and will have a significant positive social and economic impact for the large number of future students, researchers and staff. Specifically, the new Western Building will:

- provide state of the art educational facilities that will foster new opportunities for research and community services;
- showcase contemporary creative spaces and art that will make the university more attractive for future students and visitors;
- provide for a built form that relates to the scale of the existing and future buildings across the Campus;
- upgrade the surrounding public domain and provide an improved experience for students and visitors;
- provide new employment opportunities during construction and operation.

No adverse social or economic impacts resulting from the proposed development are expected to arise.

8.2 Biophysical

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

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

- Flood mitigation measures will be implemented to ensure that there are no adverse stormwater or flooding impacts;
- Measures will be adopted to ensure the proposal can adequately mitigate any impacts associated with contamination, geotechnical and groundwater;
- Responsive measures will ensure that air quality impacts are managed during the construction phase;
- Landscape removal and planting will have no adverse impacts on the flora and fauna contained within the site;
- Measures will ensure an appropriate level of bushfire protection is provided;
- Structural engineering recommendations will be implemented to ensure the building is structurally sound;
- Acoustic mitigation measures will be implemented and are capable of preventing adverse noise impacts; and
- Construction and operational traffic can be appropriately managed.

8.3 Ecologically Sustainable Development

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

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

An analysis of these principles follows.

As addressed in **Section 5.14**, this EIS has not identified any uncertain or serious threat of irreversible damage to the environment.

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

9.0 Conclusion

This EIS has been prepared to consider the environmental, social and economic impacts of the proposed Western Building for the Arts and Social Sciences Faculty at the University of Wollongong's Wollongong Campus. The Western Building comprises a four storey (excluding plant) educational facility designed by HASSELL. The proposed development is to include extensive public domain works designed by Taylor Brammer. Together the proposed building and public domain upgrades will complement the Campus's existing and future development, and integrate with the surrounding landscape.

The Western Building will provide a total of 9,973m² (excluding plant) of floorspace and will co-locate the diverse functions of the TAEM School and the HAS School and the SGSC School into a singular collaborative and hub that will support the ambitions of next generation research and learning.

This EIS has addressed the issues outlined in the SEAR's and accords with Schedule 2 of the EP&A Regulation with regards to requirements for an environmental impact statement. Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- There is a strategic need to provide the Western Building within the University's Wollongong Campus to ensure there is a building that:
 - the Campus West Precinct, to which the building relates, is redeveloped in accordance with the vision prescribed by the UOW Wollongong Campus Master Plan;
 - addresses the demand for state of the art research and educational facilities that meet the diverse needs of the various faculties;
 - replaces the existing outdated demountable buildings contained within the site with a new development that will contribute to the revitalisation of the campus; and
 - provides a wide range of positive social and economic impacts.
- The development is consistent with and complies with all the relevant strategic policies, environmental planning instruments, plans and guidelines, including Concept Plan (Mod 8).
- The development will have a wide range of positive social and economic impacts.
- The proposed development will enhance the overall safety and amenity of the site, therefore providing an improved outcome for the Campus.
- There are no adverse environmental impacts that cannot be appropriately managed by the mitigation measures set out in this EIS.

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