WESTERN SYDNEY UNIVERSITY BANKSTOWN CITY CAMPUS

AMENDED DEVELOPMENT APPLICATION AND RESPONSE TO SUBMISSIONS REPORT

Prepared for
WESTERN SYDNEY UNIVERSITY
26 August 2020

URBIS

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EXECUTIVE SUMMARY

This Amended DA and Response to Submissions (**RtS**) Report has been prepared by Urbis on behalf of Western Sydney University (**WSU**) to address the matters raised by public authorities and the community during public exhibition of the WSU Bankstown City Campus State Significant Development (**SSD**) Development Application (**DA**).

DEVELOPMENT DESCRIPTION

The proposal involves construction and use of a 19-storey building comprising 29,384m² of GFA and consisting of:

- Two basement levels including car and bicycle parking, a loading dock, back-of-house storage and plant equipment.
- Ground floor retail tenancies, shared lobby, multi-purpose tiered space, pop-up space, amenities and plant equipment.
- Above ground levels comprising a mix of tertiary education uses including conference facilities.
- Landscaped podium terraces and balconies.
- Ground level landscaping and public domain works, including the provision of a pedestrian plaza along The Appian Way fronting the retail premises.
- External signage zones.

RESPONSE TO SUBMISSIONS

In December 2019, WSU submitted the Western Sydney University Bankstown City Campus SSD DA (SSD_9831) to the Department of Planning, Industry and Environment. The SSD DA was on public exhibition from 7 November 2019 to 4 December 2019. During this period a total of 13 submissions were received from community and stakeholder groups.

Key issues raised within submissions include:

- Visual bulk.
- Active frontages and public domain interface.
- Solar access to Paul Keating Park.
- Parking provision.
- Stormwater and flooding.

Visual Bulk

In response to the submissions the building has been reviewed to identify strategies to reduce the apparent bulk and scale, whilst meeting the University's briefed requirements for the vertical campus functionality, amenity and floor area.

Key building form changes in the revised design include:

- Moving the east façade to match the new Right of Way boundary that delineates The Appian Way creating a clear alignment and visual connection to Bankstown Train Station to the south.
- Reducing the cantilevered volume, in both height and length resulting in reduced perception of bulk when viewed from Paul Keating Park.
- Simplifying of the overall building form to improve the legibility of the building (removal of the Level 13/14 annex and terrace).
- Review of the façade treatments, including how they delineate and articulate the form.
- Reducing the extent of south facades facing Paul Keating Park further reducing the perception of bulk from this vantage point.

- Redistributing the balcony and terrace locations within the overall form to ensure a visual connection with Paul Keating Park.

Active Frontages

Active frontages are achieved along Paul Keating Park, The Appian Way and Rickard Road. The revised design creates visual connections between internal and external spaces which is critical to achieving an active ground interface. The orientation and location of windows, spacing of structural columns, wind mitigating features and materials have been reviewed to maximise visual and physical connectivity. The materiality of the ground level facades, integrated seating and planters, and external soffits have been modified in the revised design to enhance the internal and external connectivity.

Public Domain

Public domain upgrades are proposed around the site, including along the site's frontage to Rickard Road and The Appian Way. The Appian Way is to be redesigned as a shared zone with provision for short-term drop-off and pick-up, as described in Bankstown Complete Streets. The public amenity of The Appian Way will be vastly improved as a vibrant shared space that adds to the urban fabric of Bankstown. The realignment of The Appian Way improves pedestrian and visual connections from the Bankstown train station to the campus and creates a coherent pedestrian space.

Public domain improvements on Rickard Road include a widened footpath that enables the provision of large planters with street trees. The extent of public domain works outside of the site boundary is subject to ongoing discussions and coordination with Council.

Solar

A rigorous, iterative interrogation of the building form and subsequent shadows cast throughout the year has been undertaken to maximise sun access to the adjacent Paul Keating Park.

The revised design complies with Council's proposed solar access control, which requires the building to permit 4 hours of continuous sun onto a contiguous area of Paul Keating Park equal to 50% of its area between 9am and 3pm at the winter solstice.

Parking

Traffic generation projections provided within the TMAP show there is demand for 86 parking spaces during the day, which aligns with the proposed capacity of the car park. No on-site student parking is proposed which is an approach which works well in WSU's other CBD locations and was supported by the Peer Review.

A mode share target of 15% of staff travelling to the campus via private car equates to 98 car parking spaces (650 staff). This mode share target is supported by the Peer Review (The Transport Planning Partnership, September 2019). The building incorporates 87 parking spaces. It is not proposed to provide any visitor parking of which the Peer Review recommended 1 - 2 spaces.

Stormwater and Flooding

Flood modelling has been updated to incorporate Council flood mitigation works that are nearing completion adjoining the site to present accurate current day conditions. The modelling demonstrates that the current upgrades will largely reduce the flood levels, depth and hazard on The Appian Way and Rickard Road following the completion of the building.

Although the current upgrades do not entirely remove the high hazard on The Appian Way, the hazard pattern is contained in a small isolated area and therefore is considered to have a significantly lower risk. The current upgrades are considerably effective in terms of mitigating the flood risk and levels around the WSU building.

CONCLUSION

This Amended DA and RtS Report demonstrates that the proposal will not result in any significant departures from applicable controls or unreasonable environmental effects. Having regard for the biophysical, economic and social considerations, including the principles of ecologically sustainable development, the proposed development is justified for the following reasons:

- It is permissible with consent on the site under the provisions of *Bankstown Local Environment Plan 2015* and satisfactorily responds to the aims and matters for consideration listed within the LEP;

- It is consistent and compatible with the strategic land use and transport policies and will deliver a substantial investment in south west and western Sydney with significant construction and ongoing employment opportunities close to the growing residential population;
- It has been sited and designed to satisfactorily address State and local environmental planning instruments and guidelines, including compliance with relevant regional and local strategic plans;
- The environmental impacts associated with the construction and operational phases have been comprehensively assessed and can be appropriately mitigated to avoid unacceptable impacts to the site or locality;
- It will provide positive local, regional and national economic impacts through the provision of employment and essential education infrastructure;
- It can be adequately serviced by essential infrastructure without unreasonable demands on existing networks; and
- The issues identified during the stakeholder consultation have been incorporated into the revised design and can be implemented in the construction and operation phases of the proposed development.

As outlined throughout this report, the proposed university campus as sought within the SSD DA is in the public interest and should be approved subject to appropriate conditions. Therefore, the proposal in its current form is considered appropriate for the location and should be supported by the consent authority.

1. INTRODUCTION

This Amended DA and Response to Submissions (**RtS**) Report has been prepared by Urbis on behalf of Western Sydney University (**WSU**) to address the matters raised by public authorities and the community during public exhibition of the proposed WSU Bankstown City Campus State Significant Development (**SSD**) Development Application (**DA**).

1.1. PROJECT CONTEXT

1.1.1. Planning Proposal

Canterbury – Bankstown Council (**Council**) is progressing a Planning Proposal (PP_2019_CBANK_004_00) to amend the maximum Height of Building and Floor Space Ratio (**FSR**) development standards applying to 74 Rickard Road, Bankstown (Lot 15, DP 1256167) (**the site**) under the Bankstown Local Environmental Plan 2015 (**BLEP 2015**).

Table 1 - Proposed amendments to Bankstown LEP 2015

Development Standard	Existing max.	Proposed max.
Cl 4.3 Height of Buildings (HOB)	53 metres	83 metres
Cl 4.4 Floor Space Ratio (FSR)	4.5:1	8:1
New Clause: *Development must allow for 4 hours of continuous solar access to a consolidated area of Paul Keating Park between 10am and 3pm on 21 June (inclusive of existing shadow). The size of the consolidated area must be a minimum 50% of the area of Paul Keating Park (not including the footprint of existing buildings)*		

At its meeting of 22 October 2019, Council resolved to proceed with the Planning Proposal subject to a number of suggested actions being completed, including preparation of a site-specific Development Control Plan (**DCP**) that sets out detailed objectives and controls applying to the site. A draft Site Specific DCP has been prepared to address Council's resolution and is currently under review by Council.

On 10 June 2020, the DPIE issued a Gateway Determination allowing the Planning Proposal to proceed subject to conditions.

1.1.2. Early Works - Development Application

In September 2019, WSU submitted a DA (697/2019) to Council which proposes early works on the site for the proposed university. The early works include demolition, tree removal, bulk excavation, shoring and temporary anchors, services division of existing utilities to The Appian Way layback at Rickard Road.

The determining authority for the DA is the Sydney South Planning Panel as the development application is Council related and has a capital investment value over $5 million. This application is currently under assessment.

1.1.3. State Significant Development - Development Application

In December 2019, WSU submitted the Western Sydney University Bankstown City Campus SSD DA (SSD_9831) to the Department of Planning, Industry and Environment (**the Department**) under *State Environmental Planning Policy (State and Regional Development) 2011.* The determining authority for the SSD DA is the Minister for Planning and Public Spaces.

Since submission of the SSD DA, WSU and their development partner Walker Corporation have worked extensively with Council to resolve concerns in relation to a variety of issues including solar access to Paul Keating Park, the proposed alignment of The Appian Way, overland stormwater flows and the public domain interface of the proposal.

This Amended DA and RtS Report provides an in-depth and holistic response to all matters raised within the submissions. Revised specialist documentation has been provided in support of the Amended DA and RtS. These documents outline the revised architectural and landscape design, traffic impact assessment and further assessments that have been undertaken since the proposal came off public exhibition.

2. OVERVIEW OF SUBMISSIONS

2.1. SUBMISSIONS BREAKDOWN

The WSU Bankstown City Campus SSD DA was on public exhibition from 7 November 2019 to 4 December 2019. During this period a total of **13 submissions** were received from community and stakeholder groups.

All submissions were managed by the Department, including registration and uploading the submissions onto the Departments 'Major Projects' website. A breakdown of the submissions by respondent type and their position is provided in **Table 2** below.

Table 2 - SSD-9831: Submissions Received by Respondent Type

Submitter	Position	Number of Submissions
Public Authorities and NSW Government Agencies		
Canterbury Bankstown Council	Comment	1
NSW Environment Protection Authority (EPA)	Comment	1
Transport for NSW (TfNSW) and Roads and Maritime Services (RMS)	Comment	1
DPIE- Environment, Energy and Science Group	Comment	1
Subtotal		4
Community/ Public		
General Public	Support	1
General Public	Object	3
General Public	Comment	5
Subtotal		9
Total Submissions		13

2.2. KEY COMMUNITY FEEDBACK

A number of issues were raised frequently or in a large proportion of the submissions received from the community.

Key community feedback received related to:

- **Parking** – Concern was raised that insufficient parking has been provided within the building which could result in an increase in demand for on-street parking and free car parks in the area. Concern was also raised regarding construction workers parking in the surrounding area.
- **Traffic** – The impact of the proposal on existing roads and whether this had been adequately considered.
- **Built form** – Concern that the density and height proposed would create negative impacts on the adjoining Bankstown Library and Knowledge Centre and Paul Keating Park.
- **Public space** – Concern was raised that the building will result in a loss of open space and an under supply of open space for users of the area. A key concern was ensuring the usability of Paul Keating Park is maintained year-round and that the playground and Exeloo toilets are retained.

- **Milperra** – The future use of the WSU Milperra - Bankstown Campus following the relocation to the Bankstown City Campus was queried in multiple submissions.

A Detailed Response Matrix addressing each of the community concerns is contained at **Appendix B**.

2.3. CANTERBURY - BANKSTOWN COUNCIL

The following key issues were raised by Canterbury - Bankstown Council within their submission:

- **Statutory context** - The SSDA must comply with the planning proposal currently under assessment for the site.
- **Flood Risk Management** - The applicant was requested to contribute to an additional culvert at North Terrace. This infrastructure improvement is required to support the planning proposal and SSDA. In Council's opinion, without this infrastructure improvement, the flooding issue cannot be resolved. Council requested that the SSDA adequately address the floor levels and evacuation routes.
- **Transport and Accessibility** - The applicant must contribute to public domain works to improve pedestrian connections to public transport and shops. This infrastructure improvement is required to support the planning proposal and SSDA. The SSDA must provide appropriate bike parking and associated end–of–trip facilities on the site. Council requested the applicant must contribute to any parking infrastructure requirements. This infrastructure improvement is required to support the planning proposal and SSDA.
- **Built Form and Urban Design** - The SSDA must minimise the overshadowing and wind impacts. The SSDA must minimise the visual bulk impacts. The SSDA must demonstrate consistency with the Bankstown Complete Streets Transport and Place Plan. The SSDA must ensure the proposed ground level interface promotes active street frontages and pedestrian weather protection. The SSDA must demonstrate consistency with the 'Safer by Design' guidelines.
- **Utilities** - The SSDA must submit detailed information on the capacity of utilities and services.
- **Contributions** - The SSDA must apply Council's Contributions Plan.
- **Approval of Uses** - The SSDA must clarify whether the proposed uses are subject to separate approvals.
- **Construction** - The SSDA must protect the surrounding land and road network during the construction stage.

A Detailed Response Matrix addressing each of Councils concerns is contained at **Appendix A**.

2.4. GOVERNMENT AGENCIES

2.4.1. DPIE - Environment, Energy and Science Group

The Environment, Energy and Science Group (EES) raised the following key points:

- **Landscaping** – Recommend the Landscape Plan incorporates a diversity of local native provenance species from the relevant local native vegetation communities that once occurred in this location to improve biodiversity
- **Urban Tree Canopy** - EES recommendations in relation to tree replacement planting are to be implemented to assist in mitigating the urban heat island effect and improve the urban tree canopy and local habitat.
- **Sustainability and Building Design** - EES support the proposed planting on terraces and green wall.
- **Flood** - EES advise that all relevant flood risk management issues have been appropriately addressed for this stage of the approvals process.

A Detailed Response Matrix addressing each of the points raised in the EES submission is contained at **Appendix A**.

2.4.2. NSW Environment Protection Authority

The NSW Environment Protection Authority (EPA) raised the following points for consideration:

- **Noise and vibration** - the Acoustic Assessment submitted with the EIS is to be revised to address the comments within the EPA submission including:
  - Address road traffic noise;
  - Carry out adequate background noise monitoring;
  - Quantitative operational noise assessment and mitigation measures;
  - Options analysis for plant location; and
  - Construction noise assessment and mitigation measures.
- **Contaminated Lands** - the EPA recommends the preparation and implementation of an unexpected finds protocol during the development of the site.

A Detailed Response Matrix addressing each of the points raised in the EPA submission is contained at **Appendix A**.

2.4.3. Transport for NSW and Roads and Maritime Services

The following key recommendations were provided in the joint response from Transport for NSW (TfNSW) and Roads and Maritime Services (RMS):

- **The Appian Way** - provide an assessment of the proposed operation of the drop off zone on The Appian Way and how this will be managed.
- **Workplace and Green Travel Plan** - The applicant shall prepare a Travel Plan, in consultation with TfNSW, for the proposed development which must be approved by TfNSW prior to the issue of the first Occupation Certificate.
- **Swept Paths** – Revised swept paths are requested along with any required redesign to illustrate:
  - Ability for vehicles to enter and exit the basement simultaneously without conflict; and
  - Ability for MRVs to enter The Appian Way without encroaching into the shared pedestrian zone.

A Detailed Response Matrix addressing each of the points raised in the EPA submission is contained at **Appendix A**.

2.5. ACTIONS COMPLETED FOLLOWING EXHIBITION

2.5.1. Consultation

Engagement with Council, the Department, public authorities and the community has been ongoing. Since the public exhibition of the SSD which ran from 7 November 2019 to 4 December 2019, WSU has sought to further engage with government agencies and relevant authorities on technical matters including through meetings, over the phone and via email correspondence.

Key meetings with Canterbury-Bankstown Council and government agencies following exhibition include:

- 13 December 2019 – WSU met with Health NSW to discuss redevelopment of Bankstown Hospital
- 20 February 2020 – WSU met with Greater Sydney Commission to discuss Bankstown Collaboration Area Governance
- 3 March 2020 – Council regarding Stormwater and Flood Management.
- 18 March 2020 – DPIE and Council regarding proposed solar access to public open space, planning proposal and next steps.
- 27 March 2020 – Council regarding solar access to public open space.
- 14 April 2020 – Council regarding Paul Keating Park Masterplan process.
- 27 April 2020 – Council regarding solar access to public open space.

- 29 April 2020 – WSU met with Greater Sydney Commission to discuss Bankstown Collaboration Area Governance.
- 18 May 2020 – Council regarding amended design, solar access to public open space and next steps.
- 9 July 2020 – DPIE and Council regarding amended design, solar access to public open space and RTS responses.
- 10 July 2020 – Council regarding stormwater and flood management
- 24 July 2020 – Council regarding next steps.
- 19 August 2020 – Council regarding stormwater and flood management.

Community engagement activities have been ongoing since the lodgement of the SSD DA. Key activities include:

- Updates to the Western Sydney University 'Western Growth' website (westernsydney.edu.au/westerngrowth).
- Monitoring project contact email - BCCproject@westernsydney.edu.au.

The University Bankstown City Campus Project Steering Committee and Project Control Group (PCG) have continued to engage internally with staff, academics and student representatives through Functional Working Groups. The groups below were established to support the project and make recommendations to the Project Control Group. Each group meets approximately every 6 weeks:

- **Academic and Learning Spaces Functional Working Group** - Responsible for leadership, decision making and advocacy around key academic aspects related to the project and stakeholder management. This includes representation of the project to the academic community and representing the academic requirements that inform the design and specification to ensure that the project is delivered to achieve project outcomes, as approved by the Program Steering Committee and approved business case. Leading requirements for design of formal and informal learning spaces, pedagogic development and staff training for the new environment, educational partnerships and program that will be offered.
- **Change and Communications Functional Working Group** - Responsible for leadership, decision making and advocacy to support the communications, change management, non-learning spaces and impact on people by the project and stakeholder management. This includes representation of the project to the University community and representing the non-teaching and research requirements that inform the design and specification to ensure that the project is delivered to achieve project outcomes, as approved by the Program Steering Committee and approved business case.
- **Operations and Facility Management Functional Working Group** – Responsible for leadership and decision making to support overall delivery of the project, including commercial, design, IT, AV, construction, resourcing, operations, facilities, project management, financing, technology and stakeholder management.
- **Research and Partnerships Functional Working Group** - Responsible for leadership around key research related aspects related to the project, stakeholder management and to provide support and advocacy to ensure that the project can maximise benefits related to research, engagement and partnerships. This includes representation of research and partnership requirements that inform the design and specification to ensure that the project is delivered to achieve project outcomes, as approved by the Program Steering Committee and approved business case.

2.5.2. Amended DA

In response to the submissions received during the exhibition of the proposal, the proponent proposes a revised design as described in **Section 4**.

A response to each of the key issues raised is provided at **Section 3** of this report and is supported through a submission matrix for agency and community submissions included at **Appendix A** and **Appendix B** respectively.

Additional environmental assessment of the revised design is undertaken in **Section 4**. The specialist technical reports that accompany this report are at **Appendix D – Appendix EE.** The reports address the key issues identified in the SEARs and submissions and provide additional assessment, justification and clarification on the revised design.

The specialist technical reports are listed in **Table 3** below.

Table 3 – Amended DA and RtS Supporting Documentation

Appendix	Report	Prepared By	Date	Report Status
Appendix A	Detailed Response Matrix – Council and Government Agency Submissions	Urbis	26.08.20	New
Appendix B	Community Submissions - Detailed Response Matrix	Urbis	26.08.20	New
Appendix C	State Design Review Panel – Detailed Response Matrix	Urbis/ Lyons	26.08.20	Supersede EIS table
Appendix D	Architectural Plans	Lyons	Various 25.08.20	Supersede EIS plans
Appendix E	Architectural Design Report	Lyons	25.08.20	Addendum
Appendix F	Clause 4.6 Report - Height	Urbis	26.08.20	New report
Appendix G	Clause 4.6 Report - FSR	Urbis	26.08.20	New report
Appendix H	Site Survey	RPS	Various 21.07.20	Supersede EIS survey
Appendix I	Deposited Plan and 88B	Land Titles NSW	Various 25.08.20	New plan
Appendix J	Fitout Plans	HDR	14.08.20	Addendum
Appendix K	Landscape Plans and Selections Schedule	Aspect	Various 14.08.20	Addendum
Appendix L	Solar Study	Urbis	29.06.20	New report
Appendix M	Photomontage View Analysis	Art + Form	21.08.20	Supersede EIS
Appendix N	Lighting Strategy	NDY	11.08.20	New
Appendix O	Civil Drawings and Civil Report	Bonacci	24.08.20	Supersede EIS drawings
Appendix P	Traffic Management and Accessibility Plan	Arup	14.08.20	Addendum
Appendix Q	Preliminary Construction Traffic Management Plan	Arup	12.08.20	New report

Appendix	Report	Prepared By	Date	Report Status
Appendix R	Preliminary Construction Management Plan	Walker	15.07.20	Supersede EIS report
Appendix S	Acoustic and Vibration Assessment	NDY	12.08.20	Supersede EIS report
Appendix T	Flood Emergency Response Plan	Bonacci	11.08.20	Supersede EIS report
Appendix U	Waste Management Plan (Operational)	Elephants Foot	13.08.20	Supersede EIS report
Appendix V	Flood Assessment Report	Bonacci	17.08.20	Supersede EIS report
Appendix W	Infrastructure Management Plan	NDY	14.08.20	Supersede EIS report
Appendix X	Pedestrian Wind Assessment and Façade Wind Pressure Advice	Windtech	14.08.20	Addendum
Appendix Y	Sustainable Design Statement	Umow Lai	14.08.20	Supersede EIS report
Appendix Z	Structural Design Report	TTW	13.08.20	Supersede EIS report
Appendix AA	Reflectivity Assessment	Inhabit	13.08.20	Addendum
Appendix BB	Accessibility Report	Group DLA	20.08.20	Supersede EIS report
Appendix CC	BCA Compliance Assessment	Group DLA	24.08.20	Supersede EIS report
Appendix DD	CPTED Report	Urbis	14.07.20	Supersede EIS report
Appendix EE	Airspace Controlled Activity Approval	CASA	18.11.19	New report

3. KEY ISSUES AND PROPONENT RESPONSE

This section of the report provides a detailed response to the following key issues raised by the Department, government agencies and community during the public exhibition of the SSD DA including:

- Visual Bulk and Active Frontages;
- Solar Access to Adjoining Public Spaces;
- Public Domain Works;
- Parking and Pedestrian Infrastructure; and
- Managing Storm and Flood Water.

A response to each of the individual issues raised by the DPIE and Government Agencies is provided in **Appendix A**, raised by the Community in **Appendix B** and raised by the Government Architect via the State Design Review Panel at **Appendix C**.

3.1. VISUAL BULK AND ACTIVE FRONTAGES

3.1.1. Issue

The Department consider the proposed building height and scale of development excessive in the context of the current planning controls. Council request the built form is reviewed to address visual bulk impacts and to ensure the proposed ground level interface promotes an active street frontage.

3.1.2. Proponents Response Visual Bulk

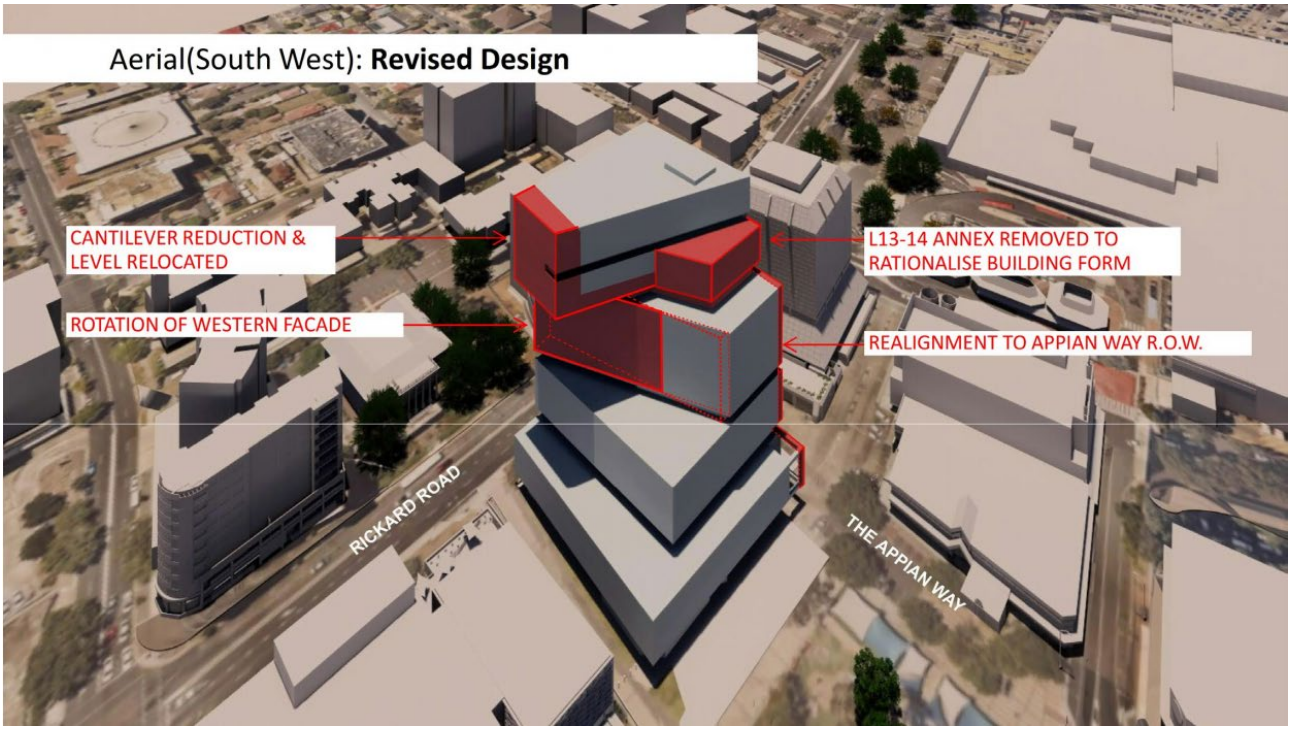
In response to the submissions the building form has been reviewed to identify strategies to reduce the apparent bulk and scale, whilst meeting the University's briefed requirements for the vertical campus's functionality, amenity and floor area.

Key building form changes in the revised design include:

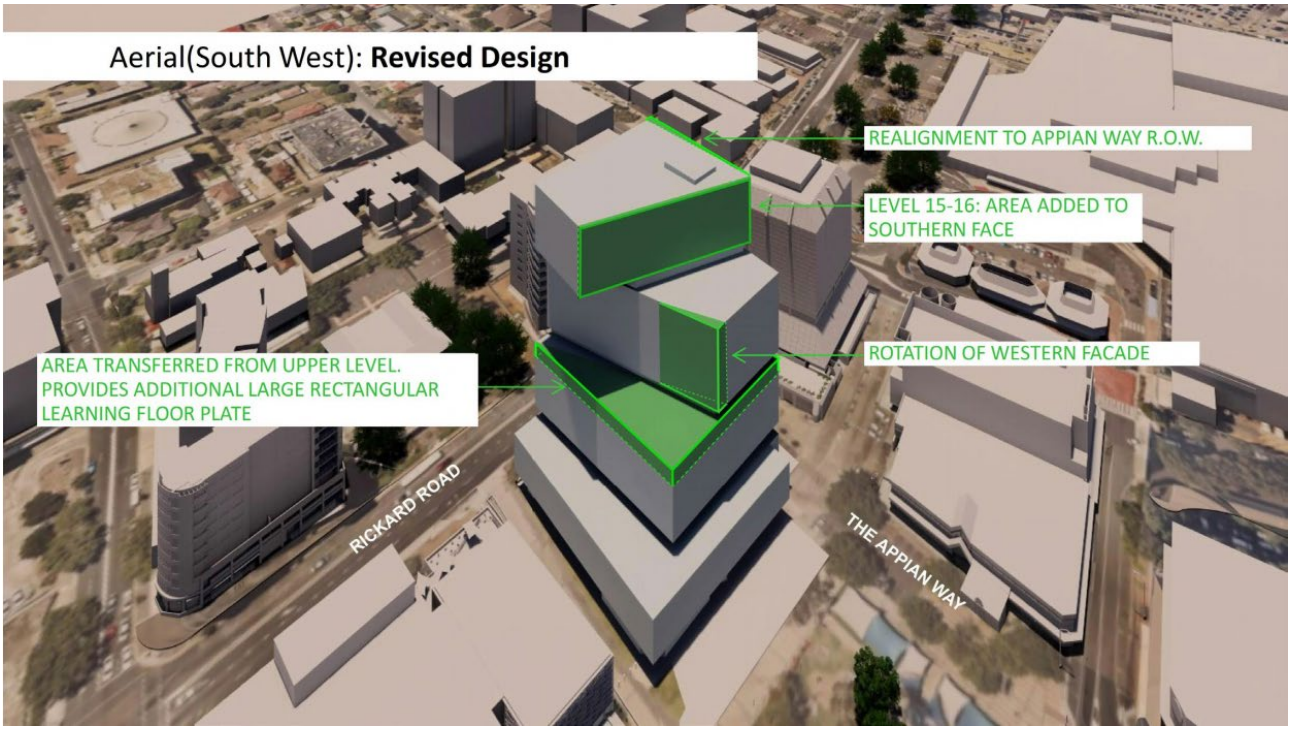
- Altering the alignment of the east façade to match the new Right of Way boundary that delineates The Appian Way creating a clear alignment and visual connection to Bankstown Train Station to the south.
- Reducing the cantilevered volume, in both height and length resulting in reduced perception of bulk when viewed from Paul Keating Park.
- Simplifying of the overall building form to improve the legibility of the building (removal of the Level 13/14 annex and terrace).
- Review of the façade treatments, including how they delineate and articulate the form.
- Reducing the extent of south facades facing Paul Keating Park further reducing the perception of bulk from this vantage point.
- Redistributing the balcony and terrace locations within the overall form to ensure a visual connection with Paul Keating Park.

The adjustments to the building form illustrated in **Figure 1** and described in further detail in **Section 4.6** have resulted in a building that responds to its urban context.

Figure 1 - Building form revisions diagram



Picture 1 – Diagram highlighting form removed from the original SSDA design.



Picture 2 – Diagram highlighting form added to the original SSDA design.

Source: Lyons

3.1.3. Proponent's Response Active Frontages

The Council submission queries several aspects of the ground level layout and the design of the interface between the building and the public domain. The creation of active interfaces between the building and The Appian Way, Rickard Road and Paul Keating Park, is a key objective of the building design.

The design consultant team has extensively explored the design to ensure it meets:

- Council's requirements for 1 in 100 year flood level freeboard.

- The University's progressive approach to inclusivity and equal access for all users, including DDA compliant access into the retail tenancies from both inside and outside the building, gender neutral toilets and a 'Changing Places' facility. The design exceeds the minimum statutory requirements by targeting AS1428.2 [*Design for access and mobility - Enhanced and additional requirements*] where practicable.
- Legible entries from primary pedestrian approaches. From the south, along The Appian Way from Bankstown Station, and via Rickard Road from existing bus stops and future shared and separated bicycle paths.
- All-weather access at ground level, including mitigating potential wind issues and providing undercover pedestrian paths.
- Crime prevention through environmental design (**CPTED**) principles that consider the security operational management of the building.

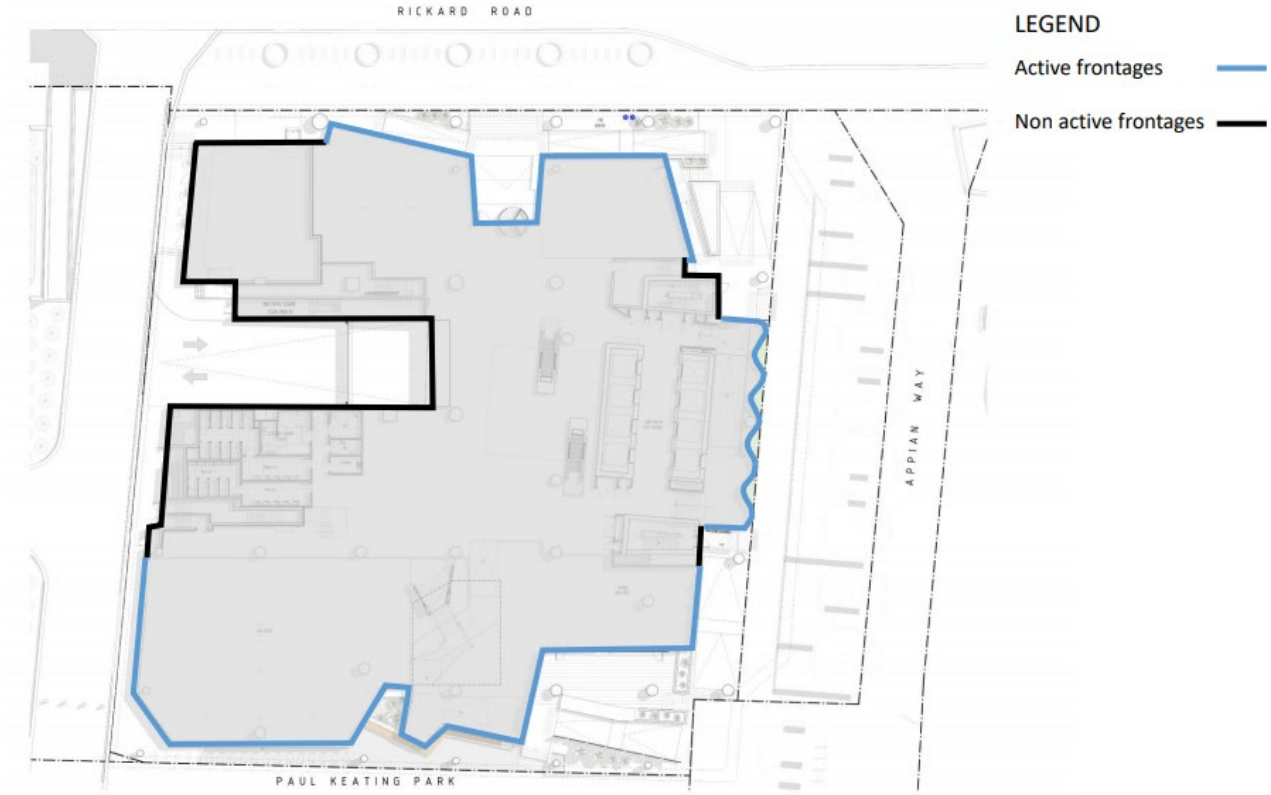
In exploring how active and legible building interfaces could be created, in tandem with addressing the technical requirements noted above, several alternative strategies were explored before arriving at the proposed design. These included:

- The use of floodgates at entrances along The Appian Way, to allow the internal level of the retail tenancies and foyers to be set at the same level as the finished ground surface of The Appian Way. This could eliminate the need for steps or ramps external to these habitable spaces, however it is understood that Council was concerned about this risk of active flood water protection devices failing.
- The use of a vertical platform lift, adjacent to entrance stairs, in place of DDA compliant ramps. This option was not preferred as, in practice, these lifts do not provide the ease and equality of access required for public building entrances.
- Variations to the internal and external separation line, review of the suitability of external spaces for dining (including proximity to wind, outlook, traffic), testing viable servery, counter and seating layouts, and resolving floor levels so that the tenancies have DDA compliant access from both the building interior and exterior.
- The layout of occupiable spaces and circulation paths which must be coordinated with the structural and services requirements of the building. The building requires large column spans to provide flexible column-free learning spaces, coordinated with a space efficient parking layout in the basement. The primary loadbearing column grid is positioned at nominal 8m to 12m centres with columns located close to the façade. Structural design changes have been made in the revised design to reduce the number of columns along The Appian Way façade. The layout of ground level non-loadbearing walls, level changes, services risers and circulation zones have been developed to work with the structural column grid.

The revised design creates visual connections between internal and external spaces which is critical to achieving an active ground interface. The orientation and location of windows, spacing of structural columns, wind mitigating features and materials have been reviewed to maximise visual and physical connectivity. The materiality of the ground level facades, integrated seating and planters, and external soffits have been modified in the revised design to enhance the internal and external connectivity.

Active frontages are achieved along Paul Keating Park, The Appian Way and Rickard Road as illustrated in **Figure 2**.

Figure 2 - Active Frontages



Source: Lyons

Responses to each of Councils detailed comments are contained in **Appendix A**.

3.2. SOLAR ACCESS

3.2.1. Issue

The Department and Council have requested further assessment of the proposed extent of overshadowing of Paul Keating Park, and confirmation of compliance with Council's proposed solar access control:

"Development must allow for 4 hours of continuous solar access to a consolidated area of Paul Keating Park between 10am and 3pm on 21 June (inclusive of existing shadow). The size of the consolidated area must be a minimum 50% of the area of Paul Keating Park (not including the footprint of the Council Chambers)."

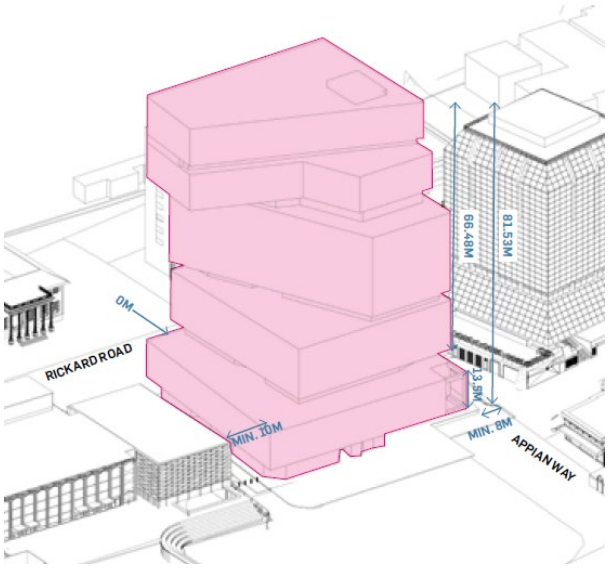
The DPIE has requested clarification of the extent of Paul Keating Park used within the solar assessment, as there is a discrepancy between the area zoned *RE1 Public Recreation* and the boundaries of Paul Keating Park (as defined by Council).

3.2.2. Proponent's Response

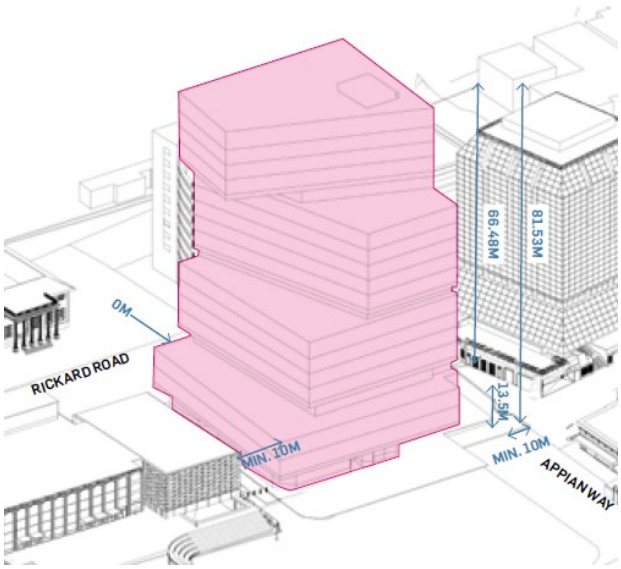
A rigorous, iterative interrogation of the building form and subsequent shadows cast throughout the year has been undertaken to maximise sun access to the adjacent Paul Keating Park.

Reducing the cantilever volume (**Figure 3**), increases solar access to Paul Keating Park at mid-winter.

Figure 3 - Revised Massing



Picture 3 - Initial SSDA Design



Picture 4 - Revised design

Source: Urbis

Detailed analysis of Council's proposed solar access control and how this is achieved by the revised design is provided in the Solar Amenity Report prepared by Urbis (**Appendix L**) and **Section 5.6**.

In summary the EIS design resulted in 48.6% of Paul Keating Park achieving at least 4 hours of continuous solar access at mid-winter between 10am and 3pm, whilst the revised design results in 50.7% as illustrated in **Figure 4** and complies with Council's proposed solar access control.

Figure 4 - Comparison of compliance with solar access control

Picture 5 - Initial SSDA Design

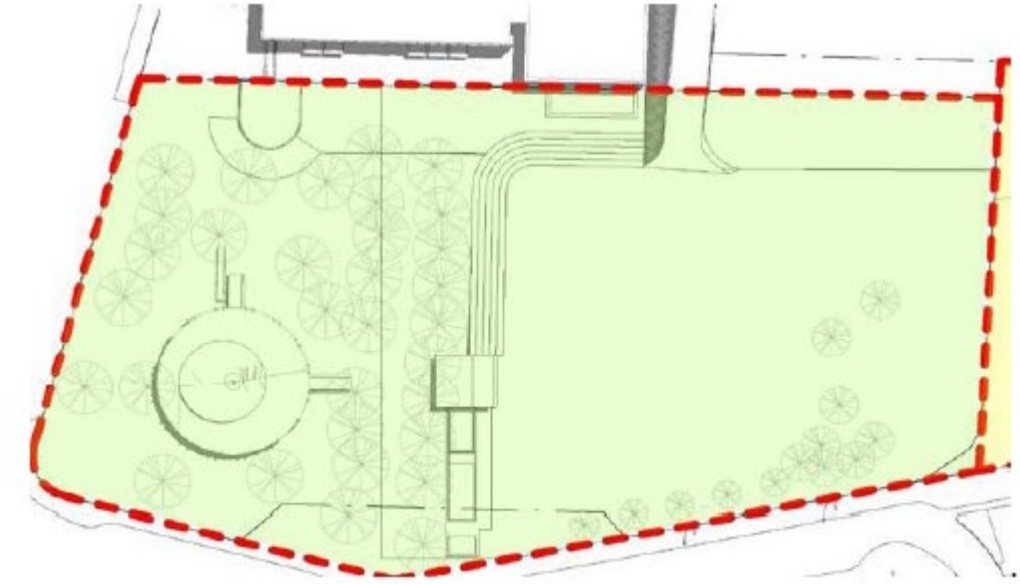
Picture 6 - Revised design

Source: Urbis

The area of Paul Keating Park included in the solar analysis is defined in the Minutes of the Canterbury Bankstown Local Planning Panel Meeting held on 30 September 2019 as illustrated in Figure 5. This area was also used within the Peer Review Urban Design Study prepared by Tract (2019) and 'Open Spaces in City Centres - Solar Amenity Study, Case Study: Paul Keating Park' prepared by Council (2019).

This definition of Paul Keating Park is the area that Council intends will be subject to its proposed solar access control, and incorporates recreation areas and civic spaces around the heritage Council Chambers and forecourt to the Town Hall/ Bryan Brown Theatre and Bankstown Library and Knowledge Centre (BLaKC).

Figure 5 - Paul Keating Park area definition as per LPP Minutes.



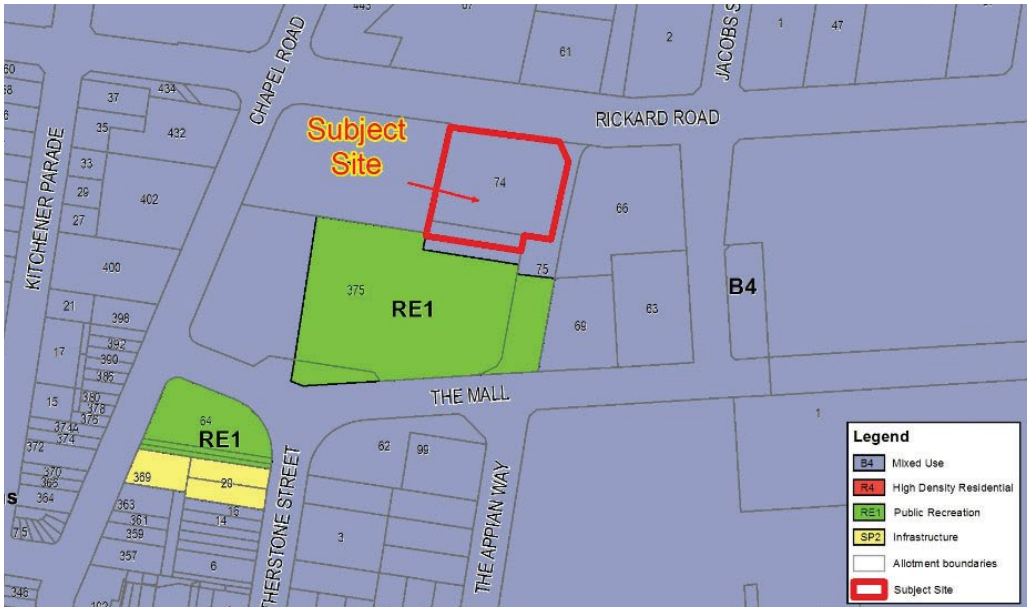
Source: Canterbury Bankstown Council

The extent of the land zoned RE1 Public Recreation under *Bankstown Local Environmental Plan 2015* (BLEP 2015), identified in **Figure 6** below, differs from the defined Paul Keating Park as follows:

- It includes the paved footpaths and street trees within The Appian Way;
- It excludes turf and paving to the south of the site; and
- It excludes the civic spaces, treed landscape and gardens around the Council Chambers and the Town Hall/ Bryan Brown Theatre and BLaKC.

The extent of Paul Keating Park as assessed within the Solar Amenity Study is therefore considered the most appropriate for the purpose of this impact assessment.

Figure 6 - Land Zoning Map



Source: BLEP 2015

See **Section 5.6** for further details on compliance with the proposed solar access control.

3.3. PUBLIC DOMAIN

3.3.1. Issue

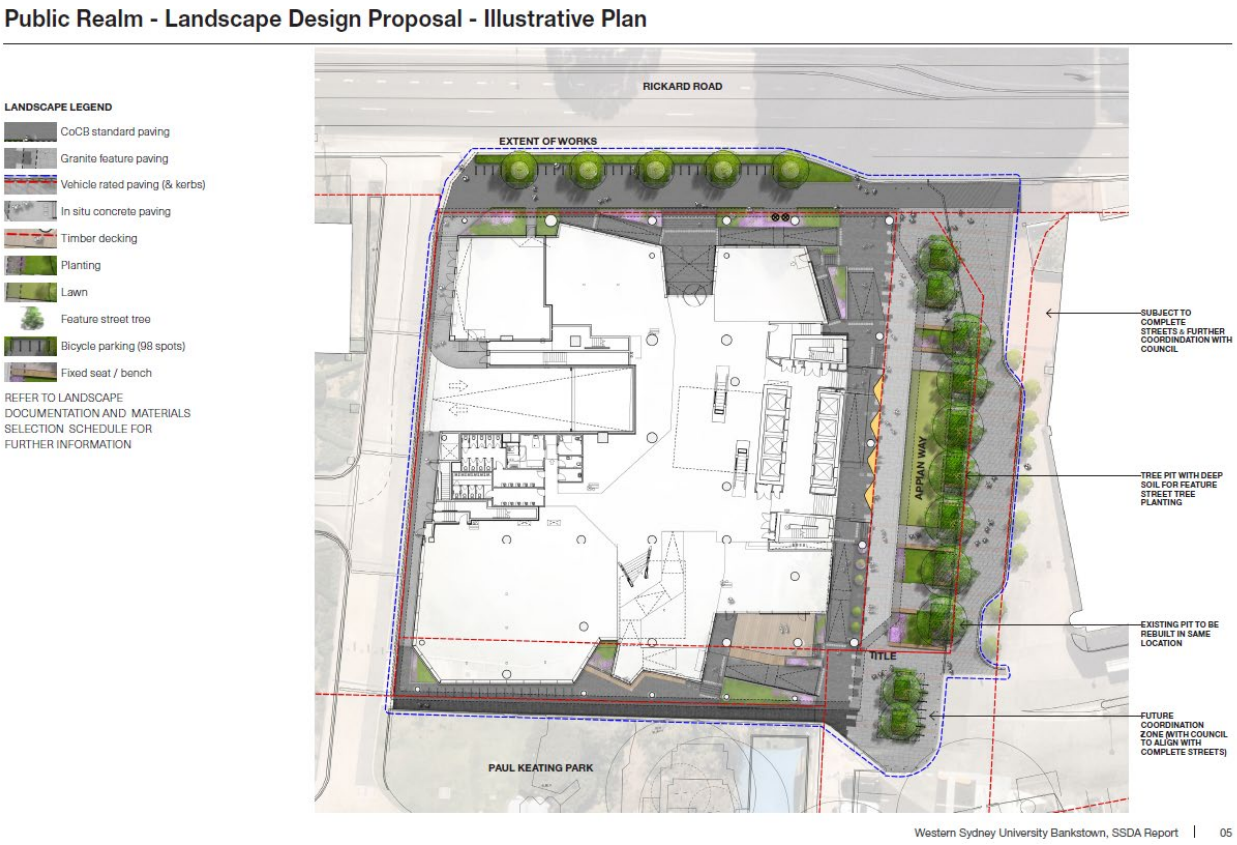
The Department requested clarification on the extent of the proposed works adjoining the site, particularly details of the proposed interface with the public domain in The Appian Way.

Council are seeking further justification and illustrations to detail how the proposal reinforces the street edge along Rickard Road and The Appian Way.

3.3.2. Proponent's Response

Public domain upgrades are proposed around the site, including along the site's frontage to Rickard Road and The Appian Way as diagrammatically illustrated in **Figure 7**.

Figure 7 - Public Realm Landscape Design Proposal



Source: Lyons

Council's 2019 'Bankstown Complete Streets' promotes active transport and public transport as a way to move large volumes of people safely to and within the CBD. The revised design is aligned with this strategy through the provision of a limited amount of on-site car parking and encouraging other sustainable forms of travel.

The revised design delivers the street frontage conditions in The Appian Way and Rickard Road as envisaged by Bankstown Complete Streets (see **Section 5.2.6** for further discussion on compliance with Bankstown Complete Streets).

The revised design has shifted the building and its basement to be clear of the RoW created in the recently registered Plan of Subdivision. This defines The Appian Way alignment, improves pedestrian and visual connections from the Bankstown train station to the campus and creates a coherent pedestrian space.

Figure 8 - Aerial view looking over The Appian Way from the south east illustrating clear alignment.

Source: Aspect

The Appian Way will be a car and pedestrian shared zone with provision for short-term drop-off and pick-up, in accordance with Bankstown Complete Streets. The public amenity of The Appian Way is vastly improved with the existing access road a vibrant shared space that adds to the urban fabric of Bankstown. See **Section 4.5.2** for further discussion on the future The Appian Way.

Figure 9 - View toward The Appian Way Lobby from the landscaped pedestrian zone.

Source: Lyons

Public domain improvements on Rickard Road include a widened footpath that enables the provision of a shared path on the southern side of the road in the future and large planters with street trees. See **Section 4.5.1** for further discussion on the proposed configuration of Rickard Road.

Figure 10 - View of north east corner showing Rickard Road and The Appian Way

Source: Lyons

At the site interfaces with Paul Keating Park and BLaKC driveway, Bankstown Complete Streets indicates awnings for undercover pedestrian access. Undercover circulation along these interfaces is achieved by recessing the building façade at ground level. Columns supporting the building above are located to maximise the unobstructed width of the pedestrian paths.

3.4. TRAFFIC AND PARKING

3.4.1. Issue

A number of public submissions raised concern regarding the proposed number of car parks on-site and the impact the perceived shortfall will have on street parking and car parks in the CBD.

Council's independent traffic peer review supports the project's aim to minimise off–street car parking and encourage sustainable modes of transport. Council state that the proposed mode share can only be achieved, with the implementation of a range of off–site measures to change travel behaviour, including public domain works to improve pedestrian connections to public transport and shops.

Council suggest a car parking contribution should be sought to address a perceived shortfall in car parking provision.

Council state that all loading activities associated with the building are to be undertaken within the site with drop–off / pick–up activity occurring at The Appian Way, consistent with the proposal. Transport for NSW and the RMS requested additional information in relation to the usage and management of the drop–off / pick–up zone along The Appian Way.

Council state that the proposal should provide a minimum of 153 bike parking spaces and associated end of trip facilities on the site.

3.4.2. Proponent's Response

A Transport Management and Accessibility Plan (TMAP) (**Appendix P**) has been prepared and updated by Arup to address the revised design and respond to submissions. See **Section 5.7** of this report for a detailed assessment of Traffic and Parking Impacts.

Parking Provision

The eastern extent of the basement has been reduced to align with the RoW along The Appian Way. This has resulted in a reduction in the number of car parking spaces proposed within the basement from 94 to 87. Traffic generation projections provided within the TMAP show there is demand for 86 parking spaces during the day, which aligns with the proposed capacity of the car park.

No on-site student parking is proposed which is an approach which works well in WSU's other CBD locations and was supported by the Peer Review (The Transport Planning Partnership, September 2019) commissioned by Council. Limiting access to car parking as a way of encouraging people to travel by other modes is a key feature of Bankstown Complete Streets. Key parking management features of Bankstown Complete Streets include minimizing private parking in the CBD (particularly within 400m of the train station).

A mode share target of 15% of staff travelling to the campus via private car suggests 98 car parking spaces (650 staff). This mode share target is supported by the Peer Review. The proposal incorporates 87 parking spaces which is a shortfall of 11 car parking spaces. It is not proposed to provide any visitor parking of which the Peer Review recommended 1 – 2 spaces.

Loading

All loading activities associated with the proposal will occur via the loading dock within the basement.

The basement driveway design has been revised to accommodate simultaneous truck entry and egress movements. The driveway splays at the BLaKC driveway and overhead clearance have been adjusted, and a central median with card reader has been incorporated to allow simultaneous entry and exit of two medium rigid vehicles.

The BLaKC driveway is not intended to be used as a pedestrian thoroughfare and therefore there will be no conflict between pedestrians and vehicles.

Bike parking and end of trip facilities

In response to the submissions the total number of bicycle parking spaces have been increased, end of trip (EoT) facilities have been increased, cyclist and pedestrian access into the basement have been separated from the vehicle access ramp, and a bicycle maintenance station has provided in the secured bicycle parking room in the basement.

The revised design includes a total of 160 bicycle parking spaces, meeting the Council request for a minimum of 153. This includes:

- 98 bicycle parking spaces provided externally at ground level;
- 56 bicycle parking spaces in a secured room at B1; and
- 6 bicycle parking spaces in open space at B1.

Access to the basement is secured and these facilities will be for the use of staff with security access cards. Ground level bicycle parking is provided for students and visitors who do not have access to the secured basement.

The revised design includes the following EoT facilities at Basement 1 level:

- 10 showers (comprising 4 female, 4 male, 1 gender neutral, 1 unisex accessible).
- 68 Lockers (as defined by Greenstar and Property Council of Australia Grade A requirements).
- Handbasins, toilets and towel hanging space are included within the female, male, gender-neutral and unisex accessible facilities.

Student access to the basement will not be permitted for security and safety reasons. Students will have access to personal lockers as part of the University fit out, for storage of bicycle helmet and shoes.

It is not possible to provide EoT facilities for students as:

- The floor area on the ground level is prioritized for active and engaging uses such as retailing, exhibitions and the lecture hall.
- The necessity for an additional ramped entry for bicycle access to potential ground level cyclist facilities, ramping up from external ground level to necessary freeboard above the 100year flood level.

- The impacts on the efficiency of lifts if the EoT facilities were located above ground level.

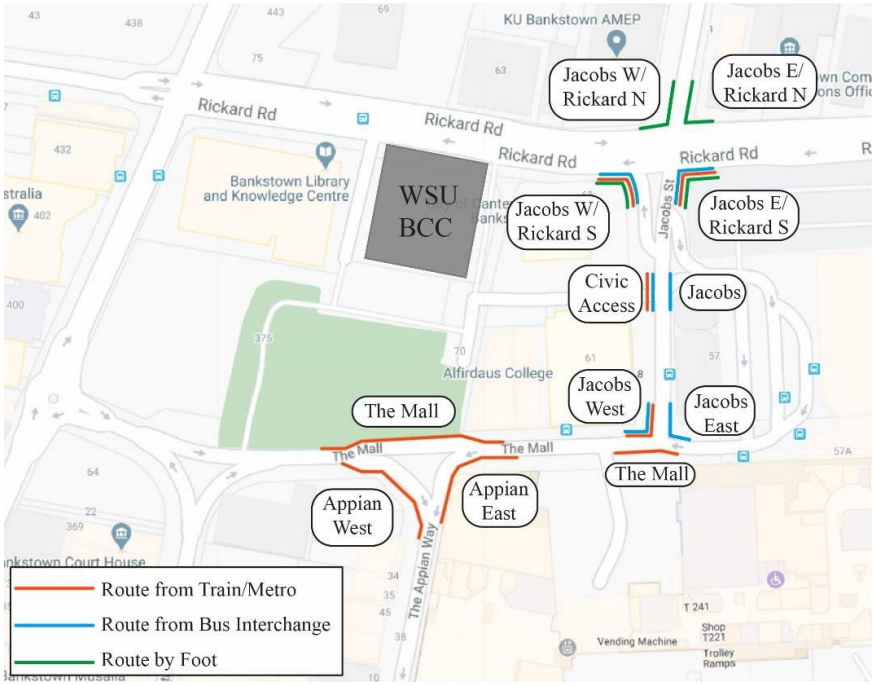
Off-site pedestrian infrastructure upgrades

In order to assess the anticipated impact of the proposal on the surrounding pedestrian network, a static Fruin pedestrian assessment was undertaken. Site observations and spot counts were conducted for the surrounding network to identify pedestrian movements near the development. The observations and counts were undertaken on February 26, 2020 during the morning peak hour (8am – 9am) and lunch time peak hour (12pm – 1pm).

The intersections chosen for survey are those which facilitate pedestrian connections between the site and key public transport/ other land uses near the site such as Bankstown Central shopping centre. The intersections surveyed included:

- The Appian Way and The Mall;
- The Mall and Jacobs Street;
- Civic Tower Carpark Entrance and Jacobs Street; and
- Rickard Road and Jacobs Street.

Figure 11 - Intersection Survey



Source: Arup

The results indicate that there is sufficient capacity on the surrounding pedestrian network to accommodate the expected volumes of pedestrian traffic generated by the WSU building. The analysis indicates that the existing pedestrian connections to public transport and shops are sufficient to achieve the mode share targets.

It should be noted that Bankstown Complete Streets identifies pedestrian network improvements that will ensure there is sufficient space for pedestrians along the key routes to the Metro/train station and the bus interchanges. Specifically, it nominates The Appian Way as a north-south activity spine which creates a pedestrian friendly environment between the new Metro station and the site. By converting The Appian Way to a low speed, shared zone and by improving the pedestrian crossings at the North Terrace and The Mall, the pedestrian route between the Metro/train station and southern bus interchange will be high quality and able to accommodate the anticipated demand.

The Pedestrian environment to the northern bus interchange will also benefit from the above improvements along with the proposed changes to Jacob Street. It is also noted that Council are investigating relocating the bus interchange, which will impact on pedestrian desire lines.

3.5. STORMWATER AND FLOODING

3.5.1. Issue

The EES concluded that all relevant flood risk management issues have been appropriately addressed for this stage of the approvals process. However, the Department and Council have sought further information regarding the potential impact of flood events on the proposal, and requirements to ensure that post development flood conditions are the same, if not improved.

Council has requested confirmation that finished floor levels are based on water surface levels following acceptable flood mitigation, a revised Flood Emergency Response Plan and confirmation there will be no impact on the operation of the existing stormwater inlet.

3.5.2. Proponent's Response

In consultation with Council engineers and Council's flood consultant DHI, Meinhardt – Bonacci (**Bonacci**) have investigated strategies to manage flood levels and overland flow paths and confirm freeboard and entry protection measures.

A revised Flood Assessment (**Appendix V**) has been prepared based on the Salt Pan Creek TUFLOW Flood Model prepared by DHI and adopted by Council. The Bonacci base model has been updated to incorporate the Council flood mitigation works that are nearing completion adjoining the site to present accurate current day conditions.

The method for assessment involved modelling of 4 scenarios using TUFLOW for the 1% Annual Exceedance Probability (**AEP**):

- Scenario 1: Existing Case
- Scenario 2: No Drainage Upgrade + WSU Building
- Scenario 3: Interim Upgrades + Council Rickard Road AFC + WSU Building
- Scenario 4: Full Drainage Upgrades + Council Rickard Road AFC + WSU Building

The results of the modelling suggested that the WSU building would divert flood water to The Appian Way. Without any drainage upgrade, the hazard is continuously high on The Appian Way and could cause damage to properties, and is unacceptable for pedestrians.

The interim upgrades (Scenario 3) modelling demonstrate that the current upgrades will largely reduce the flood levels, depth and hazard on The Appian Way and Rickard Road with the WSU building.

Although the interim upgrades do not entirely remove the high hazard on The Appian Way, the hazard pattern is contained in a small isolated area and therefore is considered to have a significantly lower risk compared to no drainage upgrade. The velocity x depth product in the small area of high hazard that remains has been significantly improved, lowering from 1.24 m²/s to 0.788 m²/s. The results indicate that the interim upgrades are considerably effective in terms of mitigating the flood risk and levels around the WSU building.

The full drainage upgrades (Scenario 4) modelling results demonstrate a further lowering of flood levels on The Appian Way by approximately 50mm compared to the interim upgrade, with the high hazard completely removed.

DHI are assessing the drainage upgrade options and the WSU building on behalf of Council. The results produced by Bonacci largely match the DHI flood modelling results in terms of flood levels and hazard patterns. The flood levels at the main building entrance from Rickard Road for both upgrade scenarios vary from RL25.10 to RL25.25, the revised design entrance landing has been designed at RL 25.75 to achieve at least 500mm freeboard as per Council requirements.

4. REVISED DESIGN

A revised design is proposed incorporating changes that respond to submissions and new site and regulatory information.

Figure 12 - Comparison of EIS and Revised Design

Picture 7 – Design Proposed within EIS

Source: Art + Form and Lyons

Picture 8 – Revised design within RtS

Source: Art + Form and Lyons

The revised design maintains the proposed maximum building height of 83m and proposed FSR of 8:1. There has been a slight increase in gross floor area (**GFA**) from 29,132m² to 29,384m² as illustrated in **Figure 13**.

Figure 13 - Revised distribution of GFA Revised v Originally Proposed

Usage	Level	GFA m²
Upper Tower – University / Education Use	Level 18	785
	Level 17	1122
	Level 16	1232
	Level 15	1434
	Level 14	1504
Conference Facilities & Terrace	Level 13	1059
Mid Tower – Learning spaces, University Staff Workspaces, Research.	Level 12	1395
	Level 11	1423
	Level 10	1339
	Level 9	1403
	Level 8	1399
Learning Spaces & Terrace	Level 7	1191
Lower Tower – Learning spaces, University Staff Workspaces, Research.	Level 6	1909
	Level 5	1862
Library	Level 4	1897
Student Hub & Terrace	Level 3	1462
Engagement, Research & Student Services	Level 2	2546
	Level 1	2362
'University street' Concierge, Tiered Multipurpose Space & Retail.	Ground Level	1649
End of trip facilities, Plant, Loading, Carparking, Parking.	Basement 1 & 2	160
TOTAL		**29,133**

Usage	Level	GFA m²
Upper Tower: University / Education Use	Level 18	809
	Level 17	1084
	Level 16	1210
	Level 15	1278
	Level 14	931
Mid-Tower: University / Education Use	Level 13	1378
	Level 12	1478
	Level 11	1372
	Level 10	1461
Uni.Staff Workspaces, Research.	Level 9	1454
Conference Facilities & Terrace	Level 8	1122
Lower Tower: Learning spaces, University Staff Workspaces, Research.	Level 7	1942
	Level 6	1940
	Level 5	1865
Library	Level 4	1936
Student Hub & Terrace	Level 3	1455
Engagement, Research & Student Services	Level 2	2575
	Level 1	2431
'University street' Concierge, Tiered Multipurpose Space & Retail.	Ground Level	1663
End of trip facilities, Plant, Loading, Car Parking	Basement 1 & 2	-
TOTAL		**29,384**

Source: Lyons

Key site and regulatory information that has been addressed in the revised design includes:

- Revised title boundary and easements created by the registration of a Plan of Subdivision;

- Clarified location of inground stormwater and services infrastructure within the verge between the site boundary and Rickard Road;
- Building design updates to comply with *National Construction Code 2019* (NCC 2019), including the outcome of investigations regarding the combustibility and compliance of Green Wall facades with NCC 2019 which determined that this facade could not be used;
- Finalisation of a solar access control for Paul Keating Park, proposed by Council as part of the concurrent Planning Proposal for the site.

The revised design incorporates design adjustments addressing the items raised in the Submissions, along with coordinated alterations to building services and structure. The internal fitout and landscape design have been revised in response to the changes in the building massing and design.

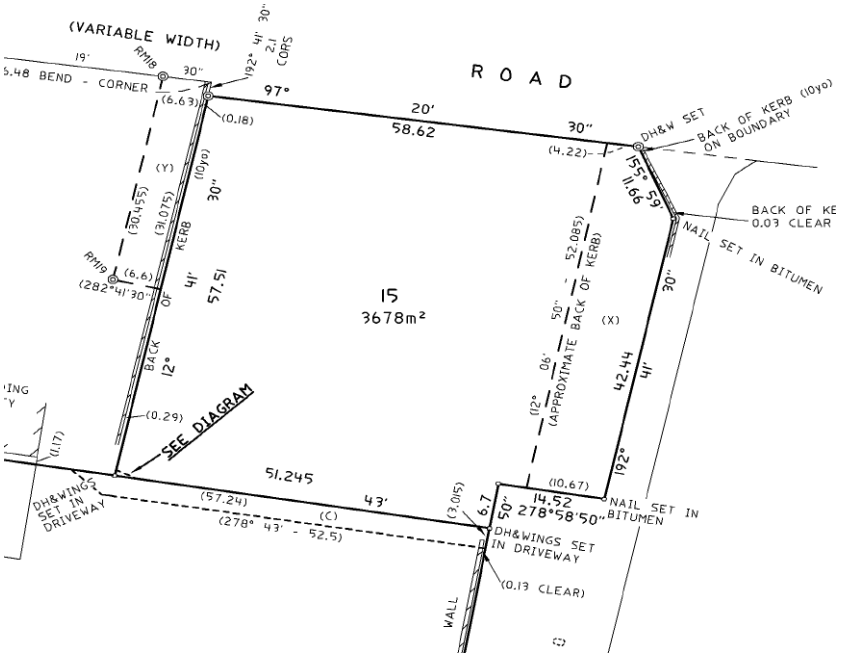
4.1. SITE DEFINITION AND EASEMENTS

The street address 74 Rickard Road, Bankstown and site area of 3,678m² are unchanged from the EIS submission

Key changes include:

- Consolidation of the site, which previously entailed the whole of Lot 5 DP 777510 and an adjacent portion of Lot 6 DP 777510, onto a single title, registered as Lot 15 DP 1256167.
- Establishment of an easement, being a RoW of variable width (marked X on the DP), benefiting Council and establishing the alignment and extent of The Appian Way. The terms of the RoW prohibit (except with Council consent) excavation, construction or building works under or over the easement, including any encroachment or parking of vehicles within the easement.
- Establishment of an easement on the adjacent Lot 12 DP566924, being a 6.6m wide RoW (marked Y in the DP), benefiting the site, facilitating vehicle access to the site from the BLaKC driveway.
- Removal of a redundant right of carriageway created by DP777510 that affected the site.
- Retention of a small portion of easement for drainage within the south west corner of the site, associated with the easement marked C in the DP extract below.

Figure 14 - Extract from DP 1256167



Source: Land Titles

In response the revised design incorporates the following changes:

- Reduced extent of the basement levels to prevent encroachment into easements marked X (The Appian Way) and C (Paul Keating Park) on the DP;

- Reduced extent and revised structural design for the ground level awning along The Appian Way, within the easement marked X; and
- The building façade and building core have been realigned to match the alignment of The Appian Way, as established by the boundary of the easement marked X.

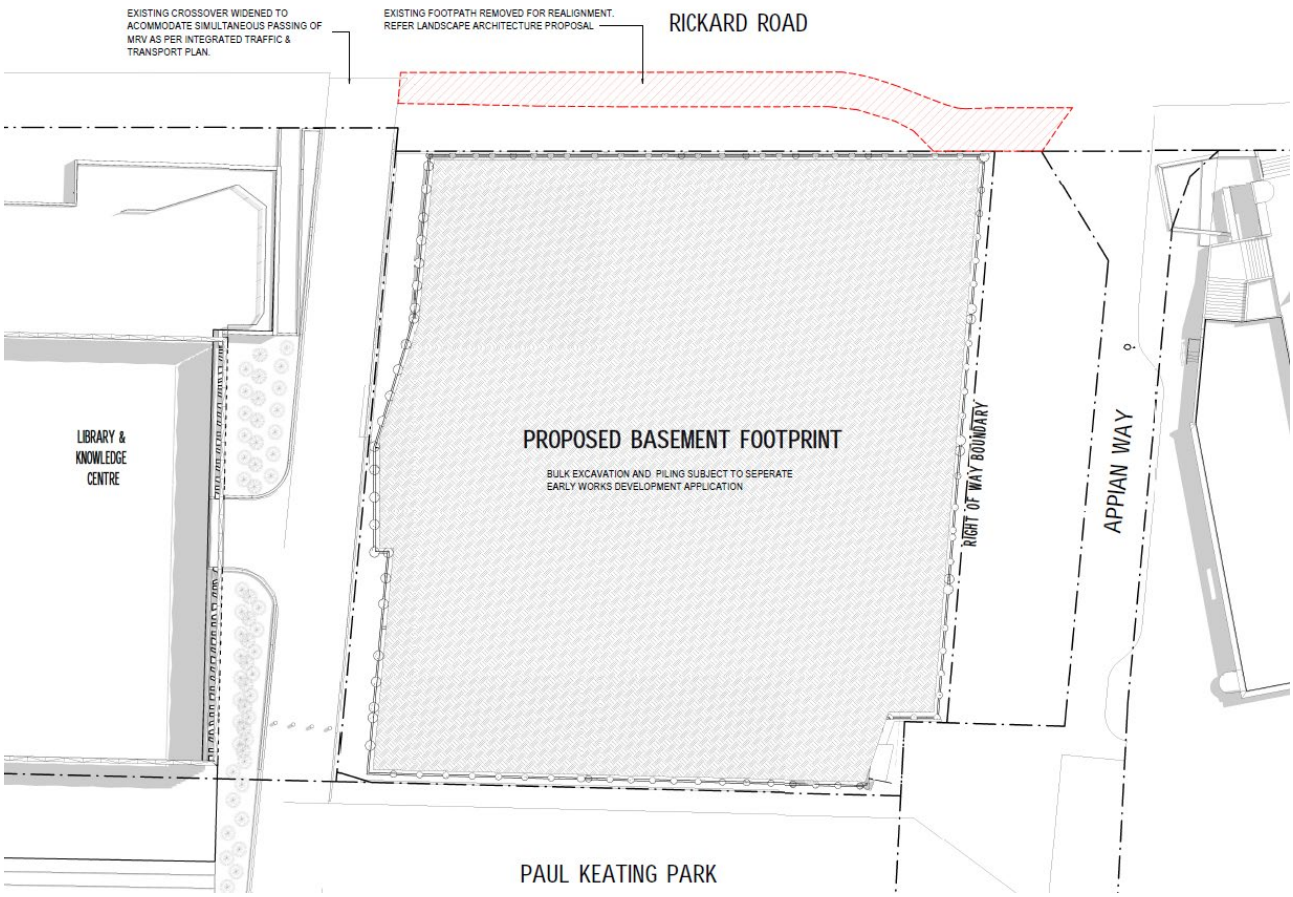
See **Section 4.5.1** for further discussion on the alignment of The Appian Way.

4.2. DEMOLITION

The majority of site preparation works have been addressed in the Early Works DA lodged with Council and currently under assessment by the Sydney South Planning Panel.

As part of the SSD DA works demolition of the existing Rickard Road footpath is proposed to allow its realignment as illustrated in **Figure 15**.

Figure 15 - Demolition Plan



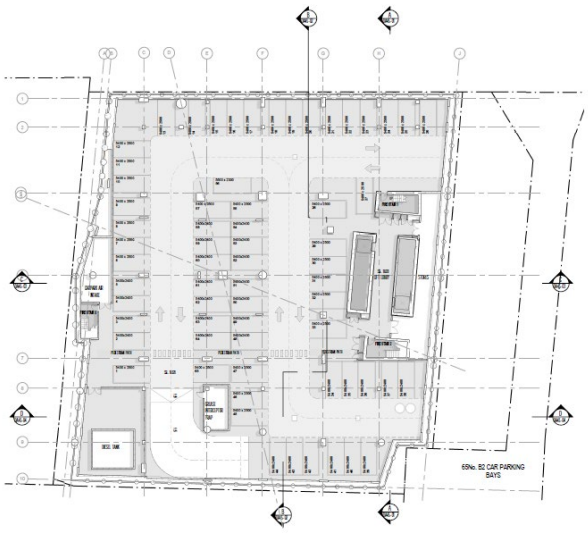
Source: Lyons

4.3. BASEMENT

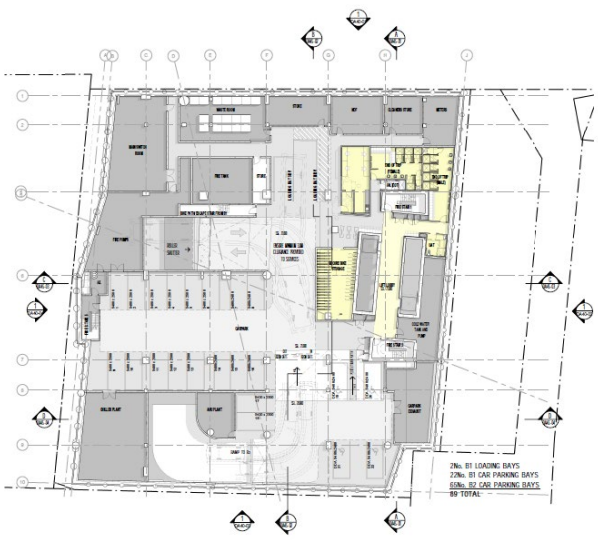
In response to the new easements on the title, the two basement levels have been redesigned with a reduced floor plate as illustrated in **Figure 15** above.

Services plant, carparking circulation, waste collection loading and bicycle parking have been relocated within the site. The basement vehicle entrance ramp from the BLaKC driveway has been retained, with separate pedestrian and cyclist access located alongside.

Figure 16 - Proposed Basement



Picture 9 - Basement Level 2



Picture 10 - Basement Level 1

Source: Lyons

The Building Manager's office is positioned to enable oversight of the basement entrance, with internal boom gates controlling vehicle access to the lower level of parking. Two lifts serve the basement levels, providing access to parking and EoT facilities, as well as goods loading. Parking adjacent to the Manager's office includes the truck loading bay, positioned next to the waste store, van loading bays, disabled parking bays and standard car bays for visitor or contractor parking.

The capacity of the EoT facilities and secure bicycle parking have been increased, aligning with Greenstar and Property Council of Australia Grade A benchmarks, incorporating Male, Female, Gender Neutral and DDA compliant facilities.

The revised design includes a total of 160 bicycle parking spaces, meeting the Council request for a minimum of 153. This includes:

- 56 bicycle parking spaces in a secured room at B1; and
- 6 bicycle parking spaces in open space at B1.

Access to the basement is secured and these facilities will be for the use of staff with security access cards. Ground level bicycle parking is provided for students and visitors who do not have access to secured basement..

The revised design includes the following EoT facilities at Basement 1 level:

- 10 showers (comprising 4 female, 4 male, 1 gender neutral, 1 unisex accessible).
- 68 Lockers (as defined by Greenstar and Property Council of Australia Grade A requirements).

Student access to the basement levels will be minimised for security and safety reasons. Students will have access to personal lockers as part of the University fit out, for storage of bicycle helmet, shoes and a change of clothes if required.

4.4. GROUND PLANE

The revised design maintains the general layout of the ground plane spaces with retail tenancies in the north-east and south-east corners, a tiered multipurpose theatre on the south west corner and the substation located in the north west corner. The research and industry pop up space facing Rickard Road is retained for university use.

Floor levels have been verified through additional flood modelling taking into consideration Council infrastructure works currently underway (see **Section 5.7.5** for further discussion on flood impacts). Both the tenancy areas and the Park entrance are set at a mid level between the main Ground Floor and external pavement, at a height that provides 500mm freeboard above 1 in 100 year flood levels.

The materiality of the ground level facades, integrated seating and planters, and external soffits have been revised to enhance the internal and external connectivity.

Figure 17 - General Arrangement Plan - Ground

Source: Lyons

The south east retail, located between the Paul Keating Park entrance and The Appian Way lobby, includes a sheltered external dining area looking out to the Park (see **Figure 18**).

Figure 18 - View towards the south east retail and building entries

Source: Lyons

Wind analysis of the project identified the need for wind screening to the south to ensure an appropriate amenity for outdoor dining (see **Figure 19**).

Figure 19 - View of the south east retail outdoor seating area.

Source: Lyons

The north east retail is positioned at the corner of Rickard Road and The Appian Way (see **Figure 20**) and provides an active interface through direct external access, glazed facade and landscaping.

Figure 20 - View towards the north east retail on The Appian Way.

Source: Lyons

At the site interfaces with Paul Keating Park and BLaKC driveway, Bankstown Complete Streets indicates awnings for undercover pedestrian access. Undercover circulation along these interfaces is achieved by recessing the building façade at ground level. Columns supporting the building above are located to maximise the unobstructed width of the pedestrian paths (see **Figure 21**).

Readily accessible bicycle parking clear of principal pedestrian routes and landscaping is also proposed. Further integration of the ground plane landscaping with Paul Keating Park is subject to the outcomes of the Council's Paul Keating Park Masterplan which is currently on exhibition.

The southern façade at ground level includes the glazed walls and the multi-purpose theatre space, providing a generous window into the life and activity of the University. Steps from the south entrance door and integrated seating at the façade edge further support informal activation of the building, and open connection with the public domain.

Figure 21 - Section – Paul Keating Park interface

Source: Lyons

4.5. PUBLIC DOMAIN

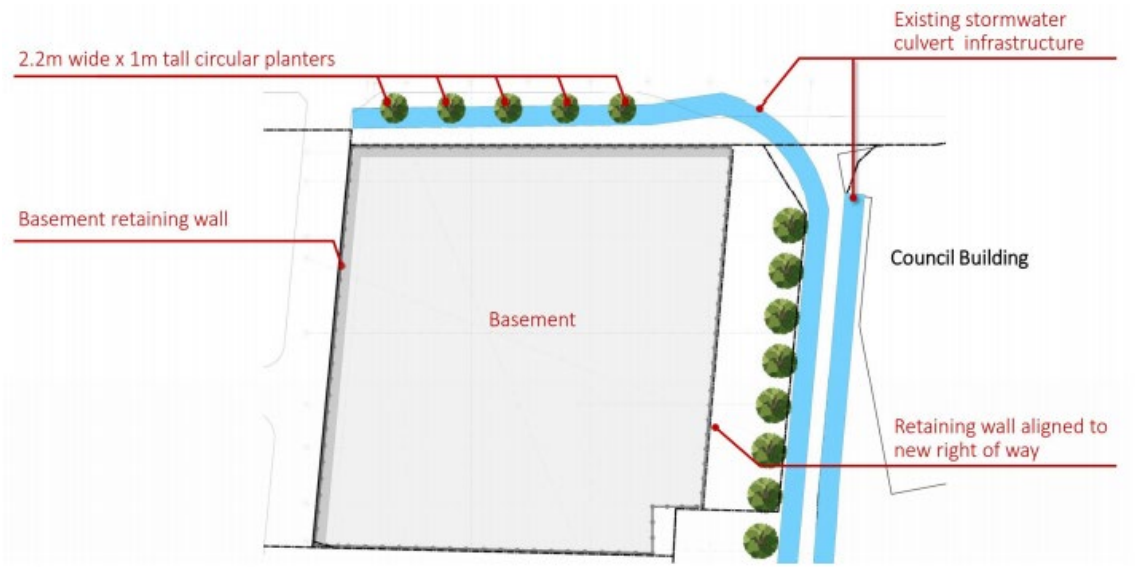
The public domain treatment within the revised design addresses technical flood and stormwater issues as well as responding to the submissions, the new title and easements, and information regarding in-ground services.

4.5.1. Rickard Road

The revised design incorporates the following changes in comparison to the EIS design:

- New street tree locations in response to in-ground services infrastructure;
- Realignment of the pop-up space façade to align with the main facade;
- Reduced extent of the void above the main entrance;
- Reduced number of columns along the undercover walkways;
- Revised materials to the ground level façade and soffit;
- Additional bike parking;
- Coordination with landscape, traffic and civil design outcomes.

Figure 22 - Stormwater infrastructure



Source: Lyons

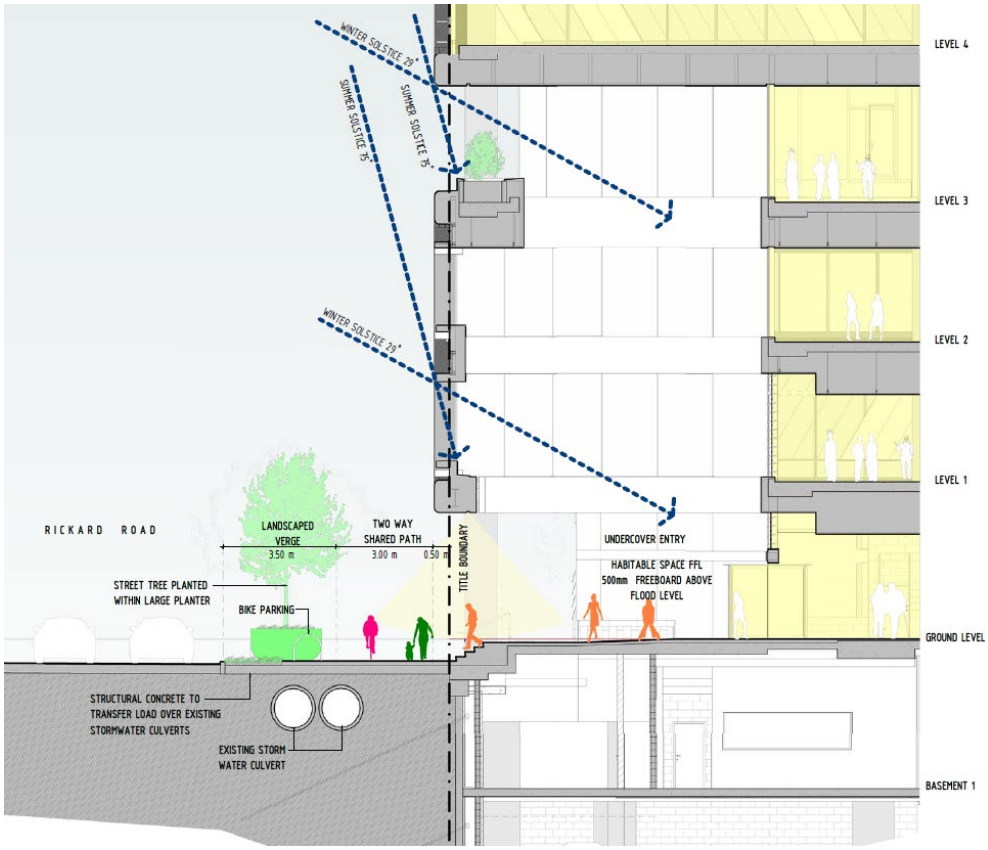
Street trees in above ground planters are proposed along Rickard Road due to the presence of substantial below ground stormwater infrastructure (**Figure 22**). Trees include 5 'Sydney Golden Wattle' (*Acacia longifolia*) which are native to south eastern Australia. Under ideal growing conditions this species reaches a mature height and spread of 6m x 6m. The trees will be planted in GRC pots 1m deep by 2.2m in diameter. The soil volume for these trees will be approximately 4m³.

There are no overhead powerlines in this section of Rickard Road, therefore the trees will grow to their full potential within the planters. Flood modelling has confirmed that the planters will not impact on flood levels or hazard around the site.

Figure 23 - View east along Rickard Road

Source: Lyons

Figure 24 - Rickard Road Section



Source: Lyons

4.5.2. The Appian Way

The site is affected by a RoW that defines the alignment and extent of The Appian Way. It is noted that building projections including sunshades and façade elements, and a cantilevered awning (reduced in size from the EIS design), extend into the air space of the RoW.

Figure 25 - The Appian Way alignment

Source: Lyons

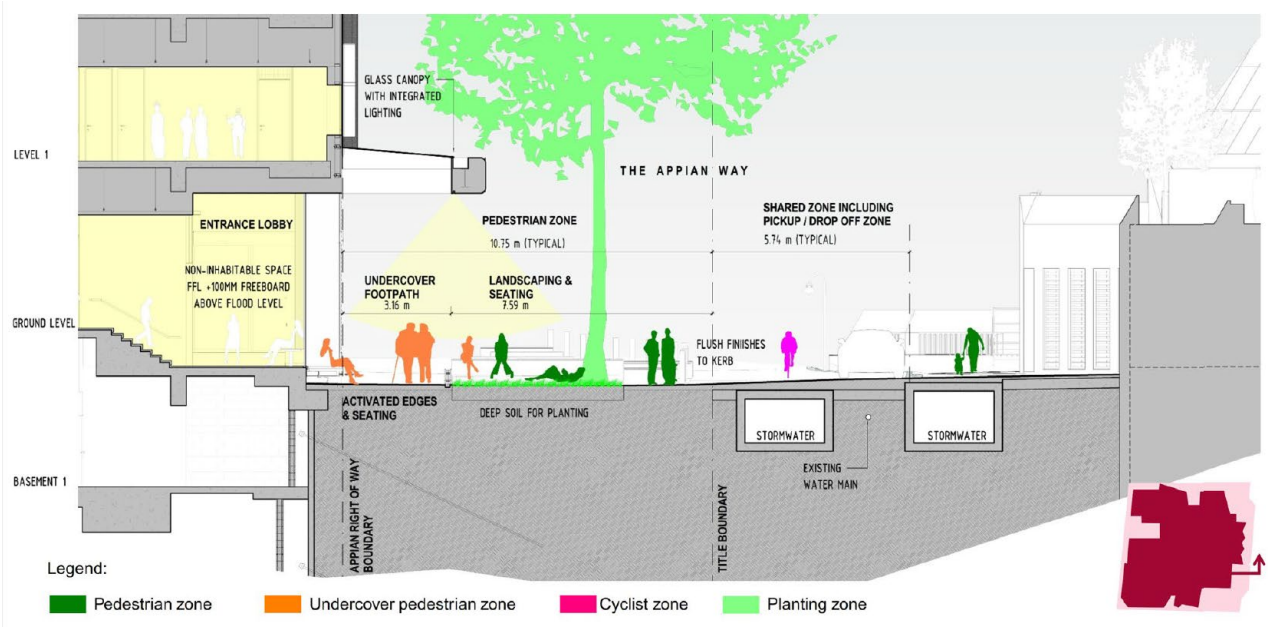
The revised design addresses the key changes to The Appian Way, as defined in Bankstown Complete Streets, as follows:

- Bankstown Complete Streets refers to the conversion of The Appian Way from a busy one-way street a two-way shared zone, however, this refers to The Appian Way south of The Mall. At the site, The Appian Way is currently a one-way shared zone, and it is proposed to remain as a one-way shared zone.
- The existing one-way shared zone will be reinstated to the east of the site boundary. This relocation of the shared zone will provide a linear zone of pedestrianised space within the RoW, linking with the existing pedestrian space south of the site, to create a direct pedestrianised route from Rickard Road to The Mall.
- The presence of stormwater and water supply infrastructure immediately adjacent to the site has been considered in the proposed location of street trees. The trees, in conjunction with garden planting, lighting bollards, awning canopy, paving design and street furniture provide substantially improved pedestrian amenity to the existing site conditions.
- Seating is proposed as an integrated feature along the ground level of the building and within the pedestrianised space.
- Provision has been made for power outlets integrated with the building at ground level and with street furniture to facilitate events within the pedestrianised space.
- Paving levels to the one-way shared zone and drop off parking bays is continuous with the paving levels within the site and has been developed through coordination of DDA accessibility and stormwater flow requirements.

The design includes feature paving treatment along The Appian Way, which has been developed in conjunction with the design of the external ground level treatment of the building. It is anticipated that this could be reviewed once the Paul Keating Park Masterplan has been finalised, to ensure that this section of The Appian Way works cohesively with the future adjacent public domain.

Trees proposed along The Appian Way include 11 ‘Spotted Gum’ trees (*Corymbia maculate*). Under ideal growing conditions this species reaches a mature height and spread of 30m x 10m. The trees will be planted in either individual or continuous soil trenches 1.2m in depth running between the building foundation and the existing stormwater culvert. The paving system above the soil trench will be supported by strata vaults providing the 7 central trees with a shared soil volume of 35.4m³ per tree or 248m³ combined. With a continuous vault tree roots can share this volume and intertwine giving an effective soil volume of approximately 45m³ per tree.

Figure 26 - The Appian Way Section



Source: Lyons

Figure 27 - View south along The Appian Way

Source: Lyons

4.6. BUILDING FORM

The building form has been revised to address the revised Design Principles outlined in **Section 5.2.6**. The building maintains the same Gross Floor Area (GFA), FSR of 8:1, and maximum 83m building height as sought by the Planning Proposal. However, the revised design achieves improved solar access to Paul Keating Park, and more refined appearance when viewed from vantage points within the urban context.

The key form changes include:

- Re-aligning the building's eastern façade along the RoW boundary that delineates The Appian Way.
- Reducing the height and length of the cantilevered volume.
- Removing the Level 13/14 annex and terrace, to rationalise and simplify the building form.
- Reducing the frontage of the mid tower along Rickard Road, with a slight increase on Paul Keating Park.
- Incorporating an additional level in the lower tower volume.

The building has also been revised internally. The key internal changes include:

- The building core has been re-oriented to align with The Appian Way façade.
- The structural design has been rationalised in association with the reduced cantilever and new core orientation, optimising column spans to maximise clear spans between columns.
- The footprint of the basement has been reduced so the eastern wall aligns with the RoW boundary that delineates The Appian Way.
- Pedestrian and cyclist access to the basements, including the expanded EoT and bicycle parking facilities, has been separated from vehicle access.

Above the ground floor the building comprises a tower on a podium. The EIS design incorporated, the largest floor plates, which accommodate teaching spaces and the highest student populations within the podium and lower tower volumes.

The lower tower form has increased in height by one level, so that the main terrace outdoor spaces are located at level 3 and level 8. Access to the Level 3 terrace via the Park Stair has been retained.

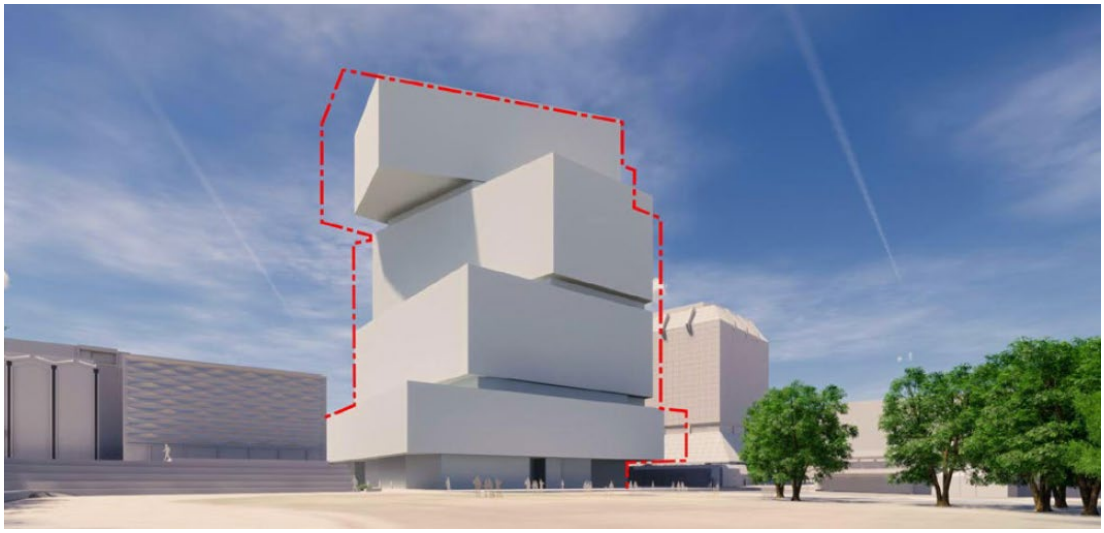
The lower tower levels (Levels 4 to 7) retain access via escalators and lifts. The courtyard void that punctuates this form, and provides external breakout to the library, has been modified to improve daylight access.

The mid tower (Levels 8 to 13) includes recessed balconies on the western façade, with one in the north east corner and a substantial outdoor terrace at Level 8. Circulation between floors is via the lift core.

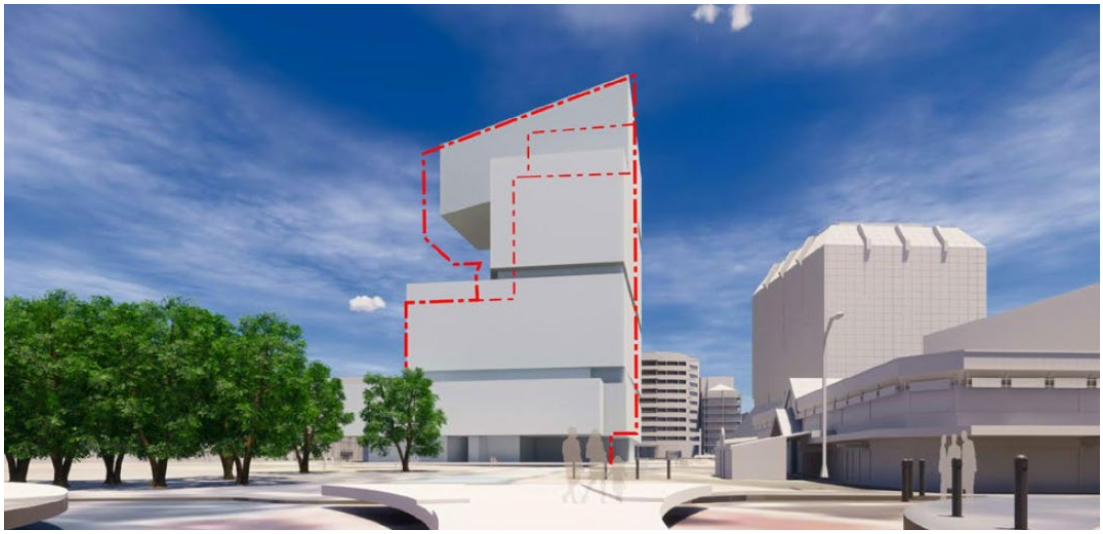
The upper tower includes a smaller floor plate with south facing outdoor terrace at Level 14, and the reduced cantilevered form comprising Levels 15 to 18. This component of the building includes two recessed balconies (one facing north, one south).

It is noted that the plant rooms for the building have been incorporated within the building, and therefore will not be visible.

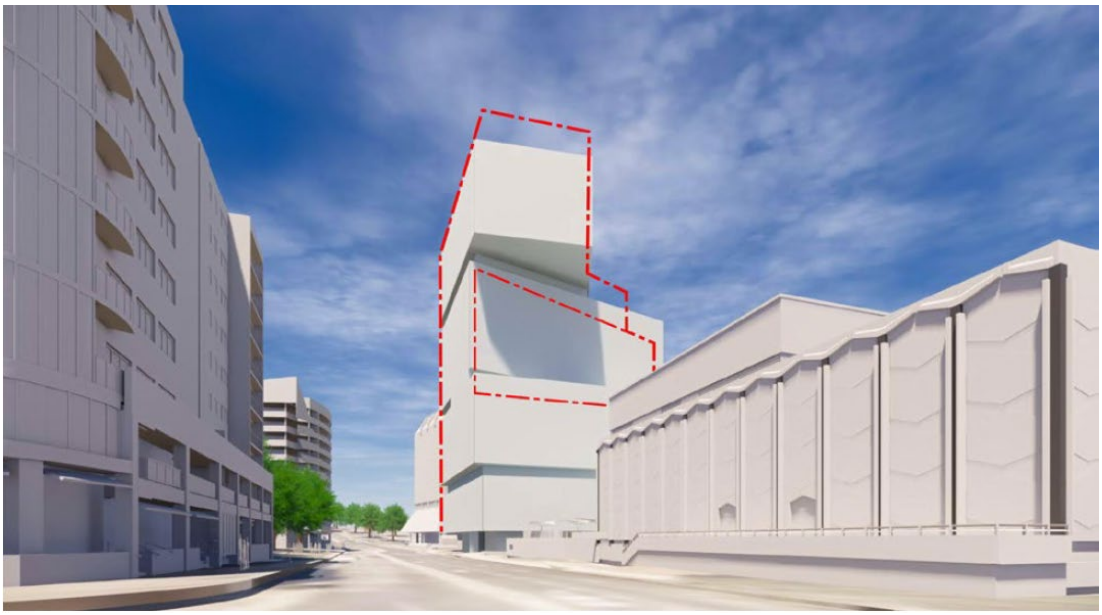
Figure 28 - Revised design with Original SSDA Design outlined.



Picture 11 - Viewed from Paul Keating Park



Picture 12 - Viewed from The Appian Way



Picture 13 - Viewed from the corner of Rickard Road and Chapel Road

Source: Lyons

4.7. FACADES

The façade of the revised design has been adjusted to suit the new building form and provide clearer and more consistent articulation of the massing from different views. Additionally, changes to the façade have been made to comply with NCC 2019 (as opposed to NCC 2016) these changes include:

- Removing the green wall from the east façade, because the systems currently available on the market do not satisfy the façade combustibility requirements of NCC 2019.
- Addressing thermal performance compliance with NCC 2019.

The façade of the revised design utilises similar shaded curtain wall and infill systems to those proposed in the EIS, incorporating a graduated colour spectrum of prefinished aluminium across the building. The orientation of the shades has been adjusted, incorporating horizontal shades on the north, vertical shades on the west end of the upper tower, and shades angled in varied orientations to the east, west and south west faces. The south façade, which doesn't require sunshades, includes coloured trim to the window mullions. Lozenge shaped 'portal' frames outline feature picture windows and meshed openings to balconies, providing scaled breakup and visual interest to the forms.

Figure 29 - View of south western façade of mid tower.

Source: Lyons

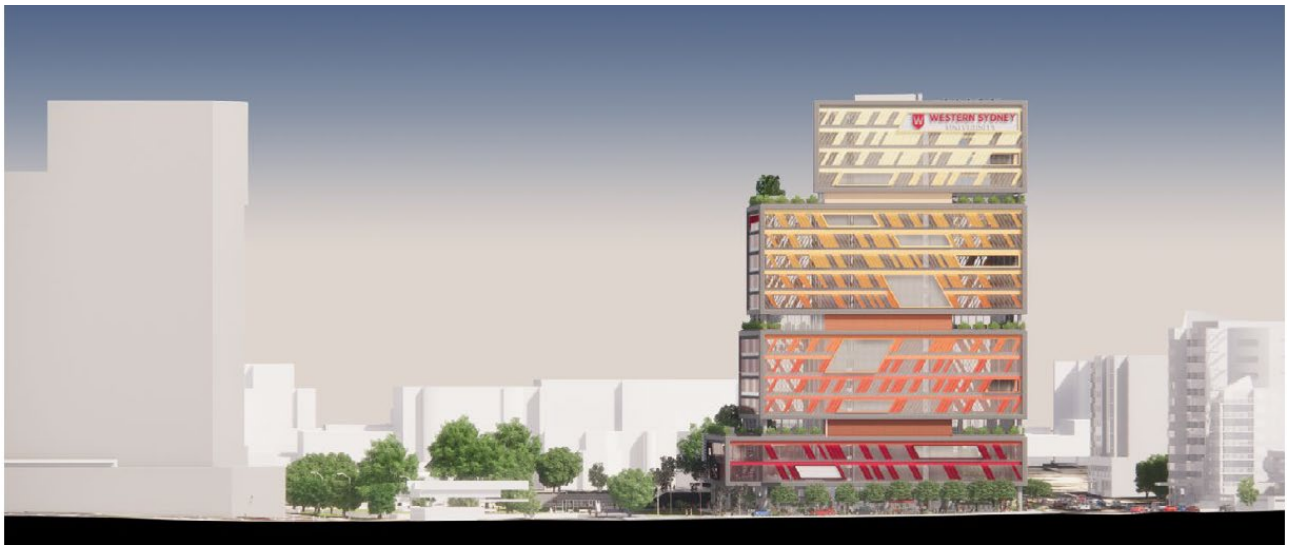
The edges of the building faces are delineated with preformed glass reinforced concrete (GRC) panels, which serve to clearly articulate the four volumes that make up the building. At the terrace levels, landscape planters sit behind the GRC panelling, with glass curtain walls and glazed safety balustrades set back from the main building faces.

Figure 30 - Southern façade with indicative signage

Source: Lyons

On the east façade the façade (**Figure 31**) setback is maintained, incorporating coloured terracotta cladding to conceal the core. This setback to the façade, wrapping around all sides of the building form, provides consistent differentiation and legibility to the revised design when viewed from all directions.

Figure 31 - East façade with indicative signage



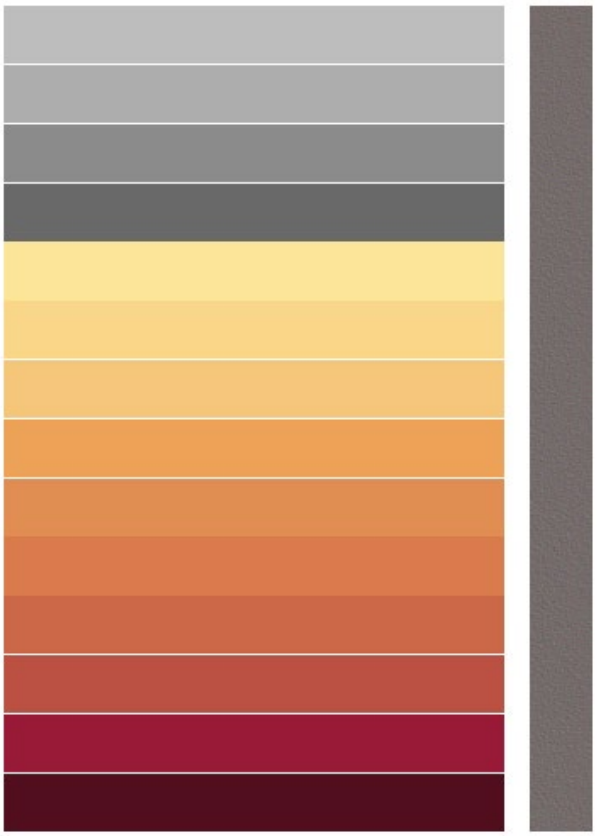
Source: Lyons

The revised materials palette retains the materials nominated in the EIS design and incorporates some additional materials and colour adjustments. These changes include:

- Timber soffit lining material added to the ground level soffits.
- Coloured terracotta façade system added to the east façade at terrace levels.
- Reduction in the number of colours from 16 to 10 shades in the ombre spectrum of the main façade, after consultation with powder coat manufacturers and colour spectrum sampling.

These changes are included in the updated Materials Board.

Figure 32 – Colour palette



Source: Lyons

4.8. FITOUT

A revised fit out (**Appendix J**) has been developed by HDR and Lyons in response to the revised building form. Detailed fitout plans have been prepared by HDR for levels Ground to level 9 with typical floor layouts prepared for levels 10 – 14 and 15 – 18 by Lyons. The amendments to the building envelope have resulted in improved floor plates providing greater flexibility and catering to the needs of a vertical campus.

The floorplates and internal fitout are designed to foster growth, and responsiveness to evolving approaches to education and research, and incorporate:

- Large contiguous spaces;
- Ability to subdivide;
- Ability to connect vertically; and
- Access to outdoor spaces.

Internal spaces have been reconfigured and re-distributed with a small loss of Informal Learning.

WSU is committed to industry and community partnering. The revised fitout furthers this commitment with a Factory of the Future on Level 1. A joint initiative between WSU and UTS, the space will foster entrepreneurship and innovation with south west and western Sydney community and industry partners, fostering community ingenuity, spirit and ownership. The incubator spaces are located to the south overlooking Paul Keating Park. The Factory of the Future is supported on Ground Level with the pop-up exhibition space facing Rickard Road

The conference level is relocated from Level 13 to Level 8, where it has direct access to larger breakout and terrace spaces than the EIS design.

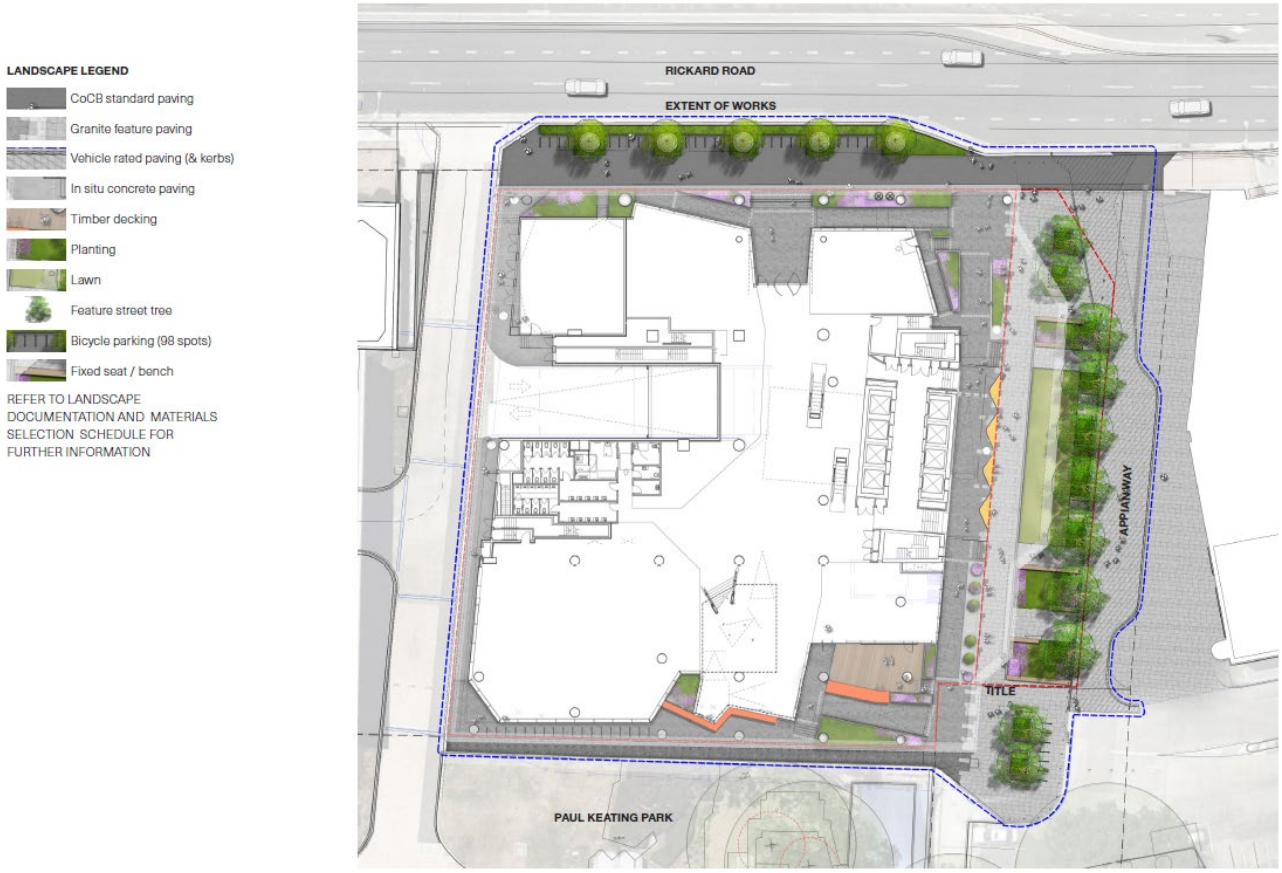
The interior narrative of weaving cultures, social opportunities, and academic pathways presented in the EIS design remains strongly evident in the revised fit out design. The locations of the formal and informal learning spaces, social hubs and circulation form in abstraction the ‘weaving’ analogy.

Social and gathering spaces are purposely located at the inter-loop of circulation weaves as a celebration of social interaction and cross collaboration. The Learning spaces are connected through the ‘intertwining’ of the ideas and interests of the diverse university community. The interior material palate will support the narrative with use of colour, design embellishment, natural fibres and quality finishes.

4.9. LANDSCAPE

A revised Landscape Design **Appendix K** has been prepared by Aspect Studios which responds to the revised design, submissions and additional technical studies.

Figure 33 - Illustrative Landscape Plan - Ground

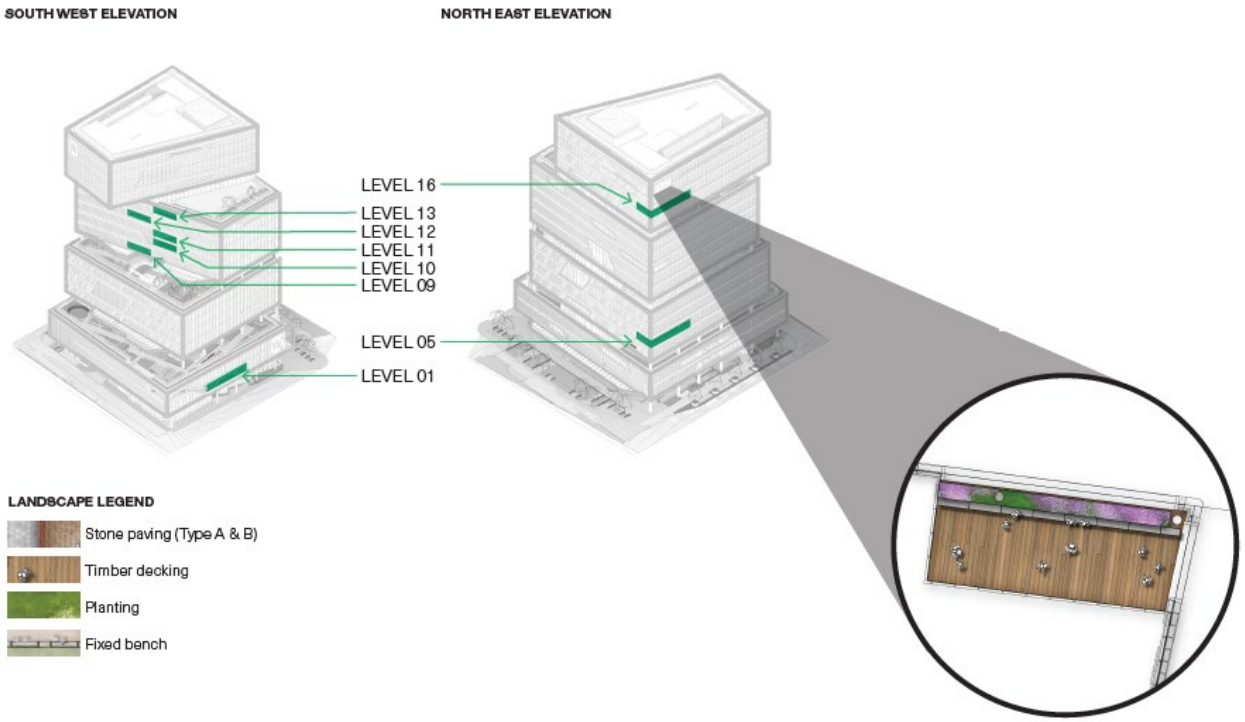


Source: Aspect Studios

4.9.1. Balconies

Balconies provide pocket locations for breakout, study and meetings of small groups of 2 – 6 people. Allowance will be made for 2-phase power to facilitate the charging of laptops and phones while timber decking provides warm textural spaces for students and visitors.

Figure 34 - Illustrative Landscape Plan - Balconies

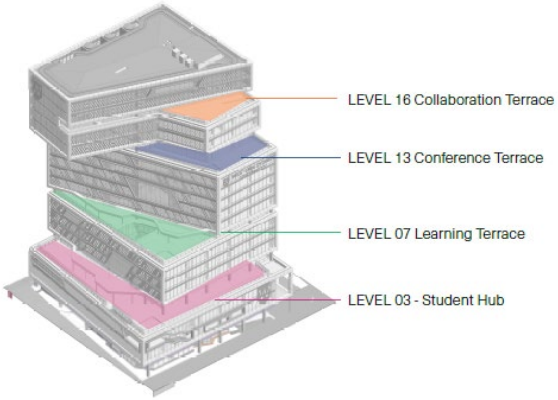


Source: Aspect

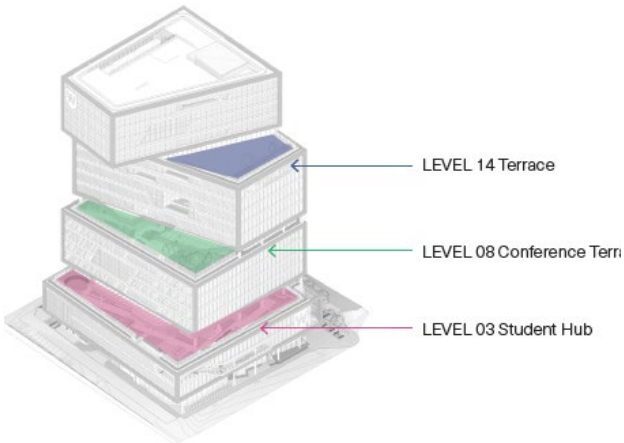
4.9.2. Terraces

The revised design has removed the southern annex from the cantilever volume which created the level 16 terrace, and increased the size of the level 14 (previously level 13) terrace (see **Figure 35**).

Figure 35 - Revised Terrace locations



Picture 14 - SSDA Design

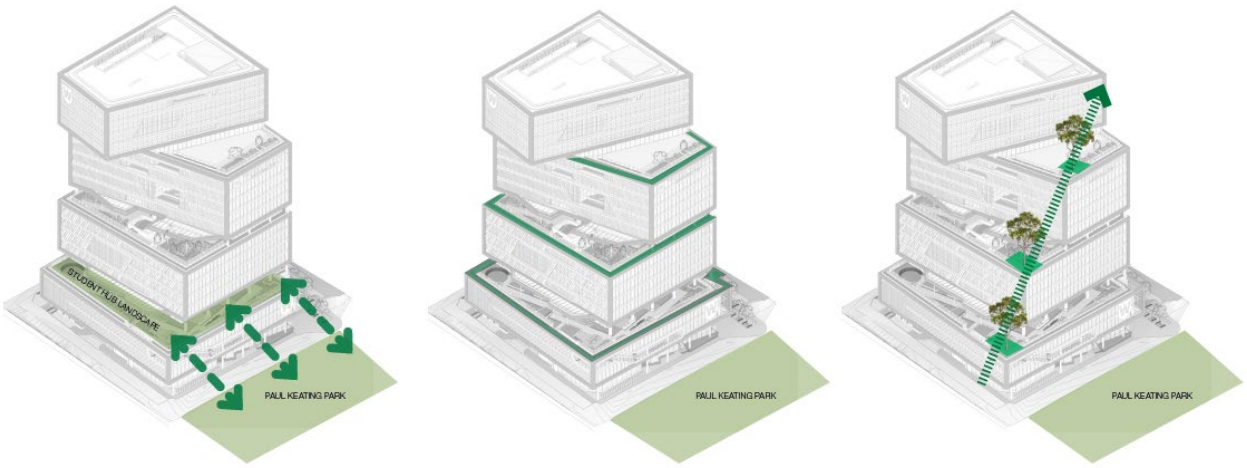


Picture 15 - Revised design

Source: Aspect

The terraces will continue to achieve the vertical greening strategy as illustrated in **Figure 36**. The level 3 Student Hub provides a visual green connection to Paul Keating Park and a significant tree and a green edge along the perimeter of each terrace will draw the perception of greenery up through the tower.

Figure 36 - Vertical Greening Strategy



Source: Aspect

4.9.3. Level 3 - Student Hub Courtyard

The Student Hub configuration remains as per the EIS design with the following key spaces:

- Indigenous Space (managed by the Badanami and WSU Indigenous Representatives);
- Study Zones;
- Social Dining Zones;
- Recreation zones;
- Movie Zone; and
- Tech and Gaming Zone.

Figure 37 - Illustrative Landscape Plan – Student Hub

Source: Aspect

4.9.4. Level 4 - Library Courtyard

The Library Courtyard brings a sense of green and light to the heat of the building. The hospitable and inviting space invites students to study and occupy the courtyard. The visual sense of green connects the Library to the Level 08 Learning Terrace providing a green link to all floors between. Vertical planting requires specialist grow lights to ensure the success of the vegetation.

Figure 38 - Library Courtyard Illustrative Section

Source: Aspect

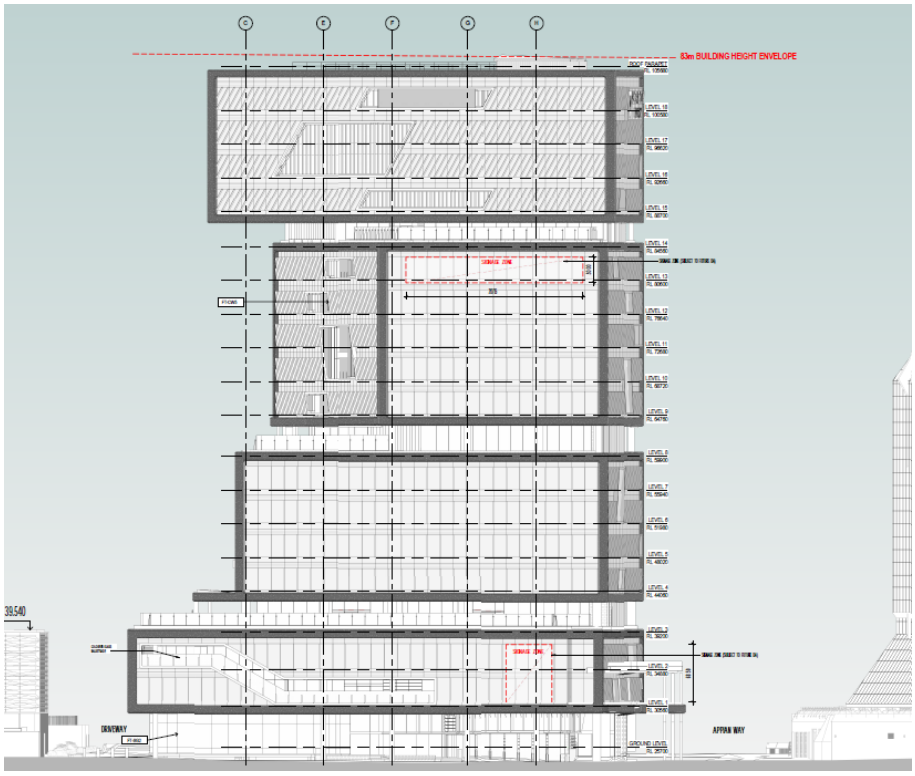
4.10. SIGNAGE

The revised design incorporates signage zones for which consent is sought within this application. A development application will be submitted for the detailed design of the signs within the approved signage zones.

The signage zones proposed in this application (illustrated in **Figure 39**, **Figure 40** and **Figure 41**) include:

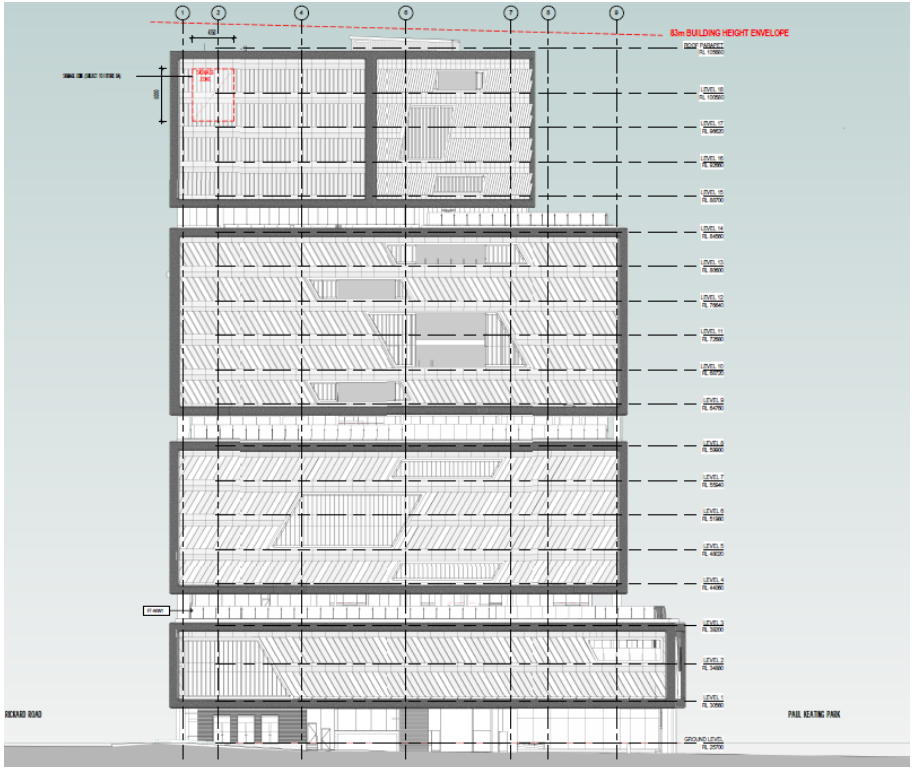
- **Eastern façade** (The Appian Way) – top of tower signage zone 3m in height by 20.715m wide.
- **Southern façade** (Paul Keating Park) – middle tower signage zone 3m in height by 20.715m wide and podium signage zone 6.85m in height by 5.4m wide.
- **Western façade** (Bankstown Library and Knowledge Centre) – podium signage zone 6.85m in height by 5.4m wide.
- **Northern facade** (Rickard Road) – no signage zones.

Figure 39 - Signage Zone - Southern Façade



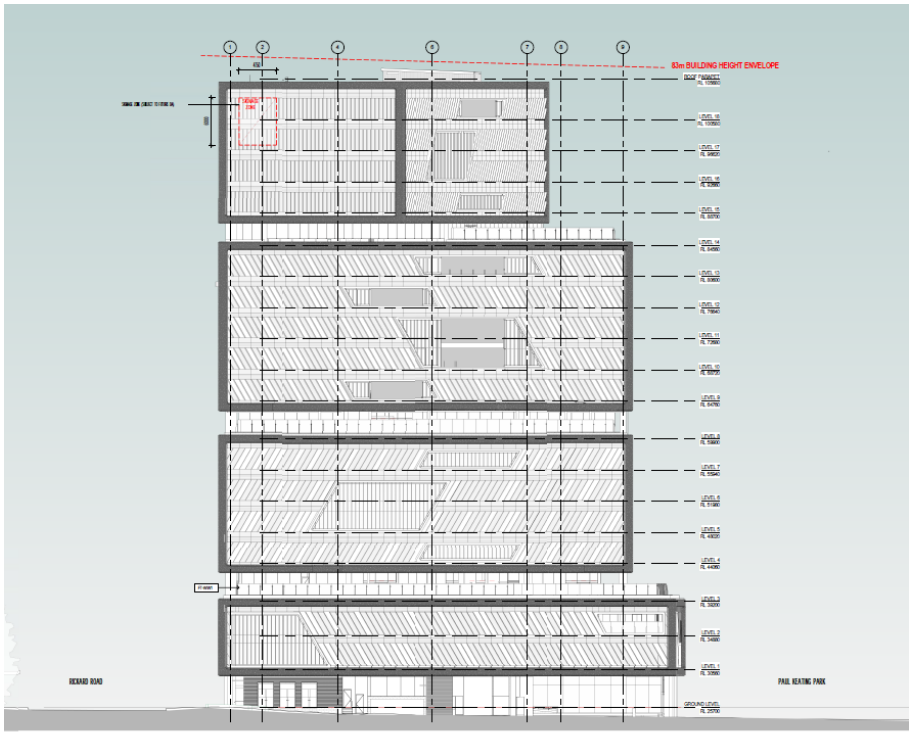
Source: Lyons

Figure 40 - Signage Zone - Western Façade



Source: Lyons

Figure 41 - Signage Zones - Eastern Façade



Source: Lyons

5. ADDITIONAL INFORMATION AND ASSESSMENT

The following sections outline the additional information provided and revised planning assessment undertaken in response to the Amended Design.

5.1. ADDITIONAL INFORMATION

The Department requested additional information on 17 December 2019 in relation to a number of matters, which are listed in **Table 4** below, with the nature of the information provided and the proponent's response in the corresponding column.

A number of other reports have also been updated to respond to detailed matters in agency submissions. These are addressed in more detail in the Detailed Response to Submissions Matrix in **Appendix A**.

Table 4 - Department additional information request

Request	Applicant's response
Planning Proposal The Applicant must provide a complete assessment of the proposal against the current relevant provisions of BLEP 2015. The Applicant must demonstrate how the proposal addresses the recommended actions raised in Council's assessment of the Planning Proposal, including, but not limited to: – contributions towards infrastructure and public domain works upgrades (i.e. stormwater/flooding infrastructure and improvements to pedestrian and cyclist connections). – inappropriateness of the proposed Rickard Road loading zone. Council's resolution to submit the Planning Proposal for a Gateway Determination included the recommendation that it prepare, and concurrently exhibit, a site specific DCP for the site.	An assessment of the proposal against the current provisions of BLEP 2015 is contained at **Section 5.2**. Discussion regarding infrastructure and public domain works is contained within **Section 4.5**. A Site Specific DCP has been prepared and is currently with Council for finalisation prior to concurrent exhibition with the Planning Proposal which received Gateway Determination on 10 June 2020.
Built Form and Urban Design The Applicant must submit written clause 4.6 variation requests to support the proposed departures from the maximum permitted building height and FSR development standards prescribed under clause 4.3 and clause 4.4 of BLEP 2015, respectively.	Clause 4.6 requests to clause 4.3 (Height of Buildings) and clause 4.4 (FSR) of BLEP 2015 are contained at **Appendix F** and **Appendix G** respectively.
Overshadowing Impacts – Paul Keating Park The Department requires the assessment of the proposal's overshadowing impact on Paul Keating Park be revised to consider the land zoned RE1 Public Recreation under BLEP 2015 only. Any	A detailed Solar Amenity Study has been prepared by Urbis (**Appendix L**). The area defined as Paul Keating Park is discussed further in **Section 3.2**, with a detailed

Request	Applicant's response
adverse impacts identified must be appropriately minimised to ensure the ongoing amenity and enjoyment of this public recreation area. It is noted that the planning proposal includes a clause requiring a minimum of four hours of continuous solar access to a consolidated area of Paul Keating Park during mid-winter. This requirement should be addressed in the response to submissions, including whether is it a pre–requirement for determination or otherwise.	discussion on the revised design solar impact provided in **Section 5.6**. The revised design complies with Council's proposed solar access control which requires '*a minimum of four hours of continuous solar access to a consolidated area of Paul Keating Park during mid-winter'*. Council confirmed compliance on 29 July 2020. The solar analysis addressed the area incorporated into the draft Paul Keating Park Masterplan which Council placed on public exhibition on 21 August 2020.
Landscape Design The proposed landscape design must be updated to reflect comments provided by the EES Division of the Department The landscape plan must include details of the proposed pavement design and any threshold treatments for the proposed pick-up/drop-off facility on the eastern side of The Appian Way.	Revised Landscape Plans and a Design Statement have been prepared by Aspect (**Appendix K**). The proposed treatment of The Appian Way is discussed further in **Section 4.5.2**.
Traffic and Transport The design of vehicle access arrangements must be reviewed to ensure that all MRV movements do not conflict with kerbs and pedestrian environments. An assessment of the adequacy and operational performance of the proposed pick-up/drop-off facility is to be provided. Consideration is to be given to the provision of additional end-of-trip facilities for students.	A revised Transport Management Plan has been prepared by Arup (**Appendix P**) addressing these requirements. An assessment of the proposal traffic and parking impacts is contained in **Section 5.7**.
Noise Impact The submitted Acoustic Report prepared by Normal Disney and Young must be updated to address the following matters: – Compliance with the Noise Policy for Industry – Construction noise impacts – Road traffic noise impacts; and – Noise impacts of the use of the terraces.	A revised Noise and Vibration Assessment has been prepared by Norman Disney Young (**Appendix S**). Acoustic impacts are discussed further in **Section 5.14**.

Request	Applicant's response
Amenity Details must be submitted demonstrating how internal/external lighting associated with the proposal will be controlled to ensure no adverse off-site light spill impacts.	Norman Disney Young have prepared a Lighting Strategy (**Appendix N**) addressing this requirement.
Stormwater and Flooding The proposal seeks to contribute to the revitalisation of the locality through the establishment of active street frontages at the ground plane interface, particularly along The Appian Way. Details must be submitted demonstrating that necessary improvements will be made to support the establishment of such an area and to mitigate against documented hazardous flooding conditions that would only be exacerbated by the proposed siting of the development.	A revised Flood Report (**Appendix V**) has been prepared along with a Flood Emergency Response Plan (**Appendix T**) by Bonacci Group. Flood and Stormwater impacts are discussed further in **Section 5.8.**
Signage Additional details of the proposed business identification signage must be submitted to ensure a thorough assessment is capable of being undertaken.	The revised design incorporates signage zones, and detailed sign designs will be subject to a future development application. See **Section 4.7** for further discussion on signage.
Site Description The submitted architectural and landscape plans imply works extend beyond the site into Lot 7 DP 777510. The land to which the application applies must be clarified accordingly. Where works are proposed within Lot 7 DP 777510 the relevant landowners consent must be submitted.	Created by the registration of DP 1256167 the site is now legally known as Lot 15 on DP1256167. The scope of works outside the site boundaries are discussed further in **Section 3.3**.

5.2. REVISED PLANNING ASSESSMENT

A revised planning assessment is contained in the following sections.

5.2.1. Bankstown Local Environmental Plan 2015 (BLEP)

Zoning and Permissibility

The site lies within the "B4 (Mixed Use)" zone under the BLEP. Educational establishments and Commercial Premises are specifically identified as being permitted with consent in the B4 zone.

As illustrated in **Table 5** the proposed development is entirely consistent with objectives of the B4 Mixed Use zone.

Table 5 - B4 Mixed Use Zone Objectives

Objective	Response
To provide a mixture of compatible land uses.	The proposed educational land use is compatible with the broader range of commercial, retail, residential and recreational land uses within the 'Civic Precinct' identified in Bankstown Complete Streets.
To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.	The site is easily accessible to existing and future transport infrastructure including buses and Sydney Metro. The University building will include a significant number of bicycle racks, bicycle storage lockers and end of trip facilities to encourage walking and cycling.
To maintain the role of the Bankstown CBD as a major metropolitan centre.	The University will contribute to the Bankstown CBD's role as a major metropolitan centre as it will accommodate international quality tertiary education and research facilities. Students, staff and visitors to the University will contribute to the strength of the CBD as an economic driver within south west Sydney. The high quality and striking architecture of the building meets the standard anticipated for all future projects within the CBD.

Height

The Height of Buildings Map of BLEP 2015 identifies the site as being subject to a maximum 53 metre height. Council is currently progressing a Planning Proposal to amend the height control to a maximum 83 meters, as proposed in this application.

A clause 4.6 variation request to the Height of Buildings development standard accompanies this Amended DA and RtS Report as **Appendix F**.

Floor Space Ratio

The Floor Space Ratio Map of BLEP 2015 identifies the site as being subject to a maximum 4.5:1 FSR. Council is currently progressing a Planning Proposal to amend the FSR control to a maximum of 8:1, as proposed in this application.

A clause 4.6 variation request to the FSR development standard accompanies this Amended DA and RtS report as **Appendix G**.

The height and scale of the University building complies with the proposed maximum height and FSR limits, and reflects a careful analysis of the site's urban context, particularly the need to maintain a high level of mid-winter sun access into Paul Keating Park, and relate appropriately to adjoining buildings and the public domain.

Heritage

Clause 5.10 – Heritage conservation applies to land on which a heritage item is located, land that is within a heritage conservation area (HCA) or land in the vicinity of a heritage item or HCA.

The site is not within an HCA. The Council Chambers, a local heritage item is located to the south west of the site within Paul Keating Park. A Heritage Impact Statement has been prepared by Urbis and submitted

as Appendix T of the EIS which concludes the proposed university campus will not have a negative impact upon the heritage significance of this item.

5.2.2. Canterbury-Bankstown Draft Consolidated Local Environmental Plan (Draft CBLEP)

The draft Consolidated Canterbury Bankstown LEP was on public exhibition until 24 April 2020. The planning controls that will apply to the site under the consolidated CBLEP are the same as those currently contained in BLEP 2015.

5.2.3. Draft Employment Land Strategy (ELS)

The draft Employment Land Strategy is a supporting study which is on exhibition in parallel to the draft CBLEP. The draft ELS identifies three strategic directions which frame and organise the planning and economic development actions for the LGA being:

1. Enhance amenity while accommodating growth and change.
2. Develop strategic assets - of which WSU is specifically identified as one of three important strategic assets in the LGA.
3. Modernise and Reposition Industry to build on Locational Advantage.

Directions 1 and 2 are of specific relevance to the WSU proposal and speak to the balanced approach required to deliver both *"high amenity and sustainable development"* and ensure *"planning recognise and seek to maximise economic outcomes from the presence of strategic assets"* (page 34). The draft ELS also confirms the indicative scale of the WSU campus in line with the design brief for the proposed building as accommodating "*7,000-10,000 students*" - *(ELS page 39).*

The ELS identifies the following key action for the commercial and administrative core precinct:

"A review of planning controls including height and floor space controls subject to development of a place plan" - (ELS page 244).

This reflects the intent to develop precinct specific controls for the WSU site and achieving a balanced approach between development and amenity.

5.2.4. Connective City 2036 - City of Canterbury-Bankstown Local Strategic Planning Statement (LSPS) 2020

The LSPS reinforces Bankstown City Centre as Canterbury Bankstown's premier urban centre and the location for commerce, civic, cultural, administrative and social activity.

Already connected to Greater Sydney by a mass transit system, it acknowledges the centre will be enhanced by the introduction of major infrastructure such as Sydney Metro, universities, renewal of key sites, and a new Hospital (subject to investigation by Health Infrastructure NSW).

The LSPS acknowledges the following opportunities for Bankstown CBD:

- The Appian Way will be transformed into a pedestrianised street lined with shops and restaurants. Streets will radiate from The Appian Way to an interconnected network of places with character, creating a 24-hour city.
- Important precincts within Bankstown including Saigon Mall, Bankstown Mall and the Civic precincts will continue to define the character and attractiveness of Bankstown as the City's primary civic, cultural and shopping places.
- Precinct Anchors - Major public health, transport and education institutions form anchors in the precinct including a new hospital (subject to investigation by Health Infrastructure NSW).
- Chapel Road Precinct and Bankstown will be the location for major civic and cultural spaces and places that will draw people from across the city to enjoy major events and celebrations.
- Bankstown - To include taller, high density commercial and residential towers, with commercial uses lining most streets, subject to working with Bankstown Airport and within aviation safety parameters for height in the Bankstown City Centre.

- Chapel Road Precinct - A north-south spine connecting through the heart of Bankstown Civic Precinct. Designed as a tree-lined, wide footpath boulevard where people can take the bus, walk, cycle or drive it will be the focus for new education, knowledge intensive and cultural jobs connecting public buildings, parks and public places.
- Paul Keating Park - is a key open space and will continue to offer the City quality outdoor spaces for community and civic events.
- Renewal of major sites - will offer new opportunities for new open space and linkages

In relation to the proposal specifically, the LSPS identifies the role the WSU Bankstown City Campus plays in anchoring the Bankstown Health and Education Precinct, as well as the rapid change an additional 12,000 students will have on Bankstown City Centre. It also acknowledges the ongoing commitment from Council to engage with WSU as collaborative and active partners in shaping the City's development including:

"The University of Western Sydney has committed to a new campus in Bankstown which will lead to other associated job and business opportunities including over 650 teaching and support staff." - (LSPS 2020 page 50)

"Bankstown City Centre is experiencing a period of rapid change including a planned Western Sydney University Campus for up to 12,000 students." - (LSPS 2020 page 60)

"Local organisations such as Western Sydney University, Bankstown Hospital, Bankstown Airport, Sydney Airport, and major businesses that have the size will be active partners in the City's development." - (LSPS 2020 page 98)

5.2.5. Bankstown Development Control Plan (DCP) 2015

The Bankstown Development Control Plan 2015 (Bankstown DCP 2015) identifies the site as being located within the Northern CBD Core, at the heart of Bankstown CBD. The Northern CBD Core Precinct is described as:

"The Northern CBD Core precinct is located to the immediate north of the railway line. The Civic Precinct and Paul Keating Park form the central focus, and the established character is distinctly commercial due to a concentration of major civic, office and retail buildings (namely Bankstown City Council, Bankstown Court House, Bankstown Police Area Command, Compass Centre and Bankstown Central, which is a regional shopping centre).

This precinct is highly accessible to the railway station and bus interchange, and as a result, this precinct is characterised by taller buildings and higher densities compared to other precincts.

The desired character is to have the Northern CBD Core precinct continue to function as the heart of the City of Bankstown, with a mix of retail and commercial activities on the ground and first floors, and high density living above.

Development will generally be in the form of tall buildings to create an identifiable skyline image for the Bankstown CBD. ***The tallest buildings will generally locate around Paul Keating Park to define the Civic Precinct and to take advantage of the amenity provided by the park****."*

5.2.6. Bankstown Complete Streets

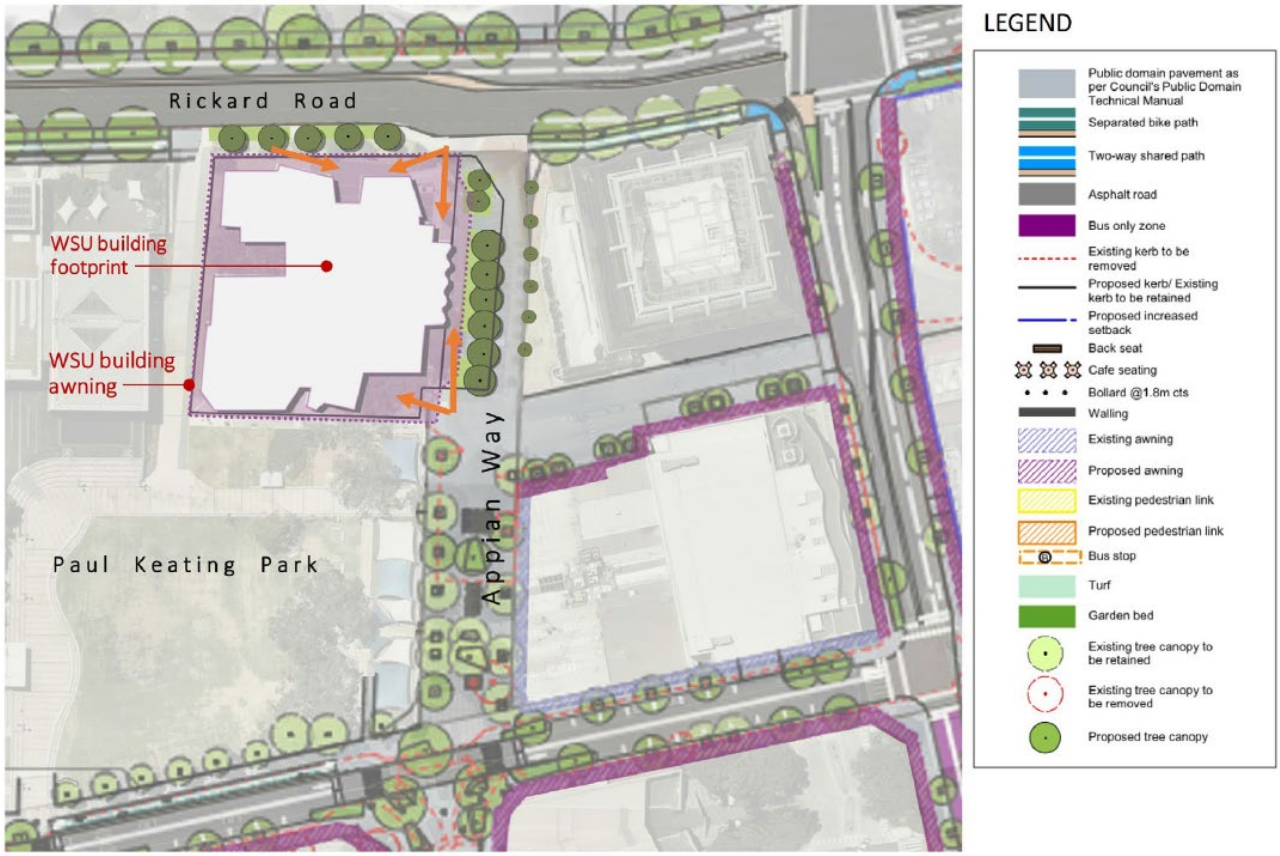
The 2019 Bankstown Complete Streets Transport and Place Plan is a new 20-year plan that focuses on improving transport networks and streetscapes in Bankstown CBD. Additional design and site investigation work has informed the revised design. Where this additional work has identified obstacles to implementing the Complete Streets Plan the revised design seeks to support the overall objectives and principles, including the Future Street Character.

Rickard Road Central: Refer Complete Streets, Concept Design p152-153. The revised design supports the Future Street Character as defined in Complete Streets: *"Part of the ring road providing good access to the edges of the CBD and carpark and providing an attractive tree-lined gateway to the CBD".*

The Appian Way: Refer Complete Streets, Concept Design p180-185. The revised design supports the Future Street Character as defined in Complete Streets: *"A key 'activity spine' that links the civic precinct and the new university to the rail and bus interchange and south to schools and parks. A shared zone environment prioritises pedestrian movement and encourages street life and retail activity."*

Paul Keating Park and BLaKC driveway: As these site interfaces are not roadways there is no Concept Design provided in Complete Streets, although plan diagram on p149 indicates proposed awnings providing undercover access along these two edges of the site.

Figure 42 - Revised design superimposed on Complete Streets Concept Design



Source: Lyons/ Canterbury Bankstown Council

Table 6 outlines how the revised design responds to each of the key changes specified with Complete Streets for Rickard Road and The Appian Way adjoining the site.

Table 6 - Bankstown Complete Streets

Key Changes	Design Response
Rickard Road Central	
Provide additional street trees and underplanting to create a distinct continuous tree-lined ring road and gateway to the CBD.	As discussed in **Section 4.5.1** the presence of substantial stormwater infrastructure directly under the existing footpath means that it is not possible to plant street trees adjacent to the road. Instead, a series of smaller trees planted in substantial above ground planters are proposed. The flood modelling has been reviewed to ensure that the location of planters does not have an adverse impact on the flood hazards and flood levels to adjacent properties.
Provide a two-way shared path along the south side.	The transition of two-way shared path to separated bike path is proposed to the west of the site, in lieu of transitioning mid-way along the site. The two-way shared path is supplemented by an undercover footpath adjoining the ground level façade, which is designed to ensure under-cover DDA compliant access into the building within the site boundary.

Key Changes	Design Response
Underground powerlines to enable full tree canopy growth.	There are no overhead powerlines along this portion of the site. There is adequate space around the proposed location of the street tree planters to enable full canopy growth.
Upgrade footpath paving as per the Bankstown Public Domain Technical Manual (**PDTM)**.	The footpath paving can be upgraded as per PDTM.
The Appian Way	
Convert from busy one-way street to a two-way 10km/hr shared zone.	This refers to The Appian Way south of The Mall. At the site The Appian Way is currently a one-way shared zone, and it is proposed to remain as a one-way shared zone.
Additional street trees for enhanced amenity and traffic calming.	Street trees, in conjunction with garden planting, lighting bollards, awning canopy, paving design and street furniture provide substantially improved pedestrian amenity to the existing conditions. The presence of stormwater and water supply infrastructure immediately adjacent to the site has been considered in the proposed location of street trees with and adjoining the site.
Pave street level with the footpath.	The design includes feature paving treatment along The Appian Way, which has been developed in conjunction with the design of the external ground level treatment of the building. Paving levels to the one-way shared zone and drop off parking bays match with the paving levels within the site, and have been developed through coordination of DDA accessibility and stormwater flow requirements.
Provide additional seating areas.	Seating is proposed as an integrated feature along the buildings ground level interface with the public domain within the pedestrianised space.
Provide three-phase power for street events.	Provision has been made for power outlets integrated with the building at ground level and with street furniture to facilitate events within the pedestrianised space.
Retain and upgrade existing shared zone and pedestrian space north of The Mall.	The existing one-way shared zone will be relocated to the eastern side of The Appian Way corridor, adjoining Civic Tower. This relocation of the shared zone will provide a linear zone of pedestrianised space within the site's RoW and will be the first phase of a pedestrianised shared way from Rickard Road to The Mall.

5.3. BUILT FORM AND URBAN DESIGN

The revised design is based on urban design principles that have been established with input from Council officers and consultation with the Government Architect (**GA**) NSW through the State Design Review Panel (**SDRP**). These principles have been developed with reference to the GANSW Better Placed objectives to ensure that the proposal responds appropriately to its urban context.

In response to the SSDA submissions the design principles have been reviewed, and the building form has been revised. The key principles that have been reviewed include:

Principle 2 - Preserve open space along The Appian Way alignment.

The GANSW and SDRP emphasized the importance of creating a clear alignment of The Appian Way, and made the following comments:

- Overhanging of the building mass over The Appian Way above ground floor level is not supported. The Appian Way should be retained as a street open to the sky.
- Clarify the alignment of The Appian Way between Rickard Road and the Compass development to the south to ensure a clear spatial reading of The Appian Way from the train station to the WSU building.

The new title boundary and RoW easement clarifies the alignment of The Appian Way as it transitions from Rickard Road to The Mall, south of the site. The eastern façade of the building has been repositioned to align with this boundary, the canopy has been reduced in size, and supporting columns relocated. This has created a wide corridor along The Appian Way that will allow views from the Station.

The revised design results in the creation of The Appian Way as a future pedestrian prioritised link connecting Rickard Road to The Mall then Bankstown Train Station, with open space and new active frontages defining its alignment.

Principle 3 - Optimise solar access to Paul Keating Park.

The revised design has been altered in order to meet the Bankstown City Council's proposed Solar Access Control for Paul Keating Park. This control is identified in the separate concurrent Planning Proposal associated with the site.

Increased solar access to the Park has been achieved through adjustment to the setbacks, orientation and heights in the revised design. This is examined in detail in the Solar Study prepared by Urbis (**Appendix L**). Council confirmed compliance with its proposed control on 29 July 2020.

Principle 5 - Alignment with surrounding urban forms.

The revised design aligns the parapet line of the podium volume with the BLaKC parapet, and the mid-level tower volume aligns with the apartment building on Rickard Road. The building has been simplified, and façade treatments modified, to enhance the clear legibility of the building form within its urban context.

The revised design retains the key elements of the building massing which have been designed in response to the urban context and design excellence process. Key changes include:

- Improves the level 8 and level 14 landscape terraces and their relationship to Paul Keating Park.
- Reduces the western extent of the cantilever, reducing the perception of bulk. This also results in improved constructability.
- Results in minimal change to the massing of the building towards the southern elevation of Paul Keating Park compared with the EIS design.

This proposal provides a transition in building height from the BLaKC to the west to the Civic Tower to the east. The stepped nature of the built form allows for landscaped terraces on levels 3, 8 and 14 to soften the vertical built form and enhance the building's amenity.

Mitigation Measures

Council is currently undertaking several strategic design projects to address broader urban design opportunities, particularly the Paul Keating Park Masterplan which is currently on exhibition.

WSU and the design team have engaged with Council on these projects, and anticipate further consultation with the Council as these strategies are refined and developed, to ensure the successful integration of the university building with the future public domain

5.4. VISUAL IMPACT

A series of photomontage views have been prepared by Art + Form (**Appendix M**), illustrating the proposed building from key vantage points in the public domain and around the site. The views used as part of the assessment were selected from those specified within the SEARS and include:

- View 1 - the southern end of The Appian Way, adjacent to the railway corridor looking northward;
- View 2 - the southern end of Paul Keating Park looking northward;
- View 4 - Council Chambers looking north east;
- View 6 - the view from the corner of Chapel Road and Rickard Road, looking east;

Two additional photomontages have been prepared, showing how the design sits with the existing and future context from additional relevant vantage points:

- View option B - Rickard Road from Meredith Street looking east.
- View Option C - South Terrace view looking north from Restwell Street.

Figure 43 - Visual Impact Assessment

Picture 16 View 1 - Existing

Picture 17 View 1 - Proposed

Picture 18 View 2 - Existing

Picture 19 View 2 - Proposed

Picture 20 View 4 - Existing

Picture 21 View 4 - Proposed

Picture 22 View 6 - Existing

Picture 23 View 6 - Proposed

Picture 24 View Option B - Existing

Picture 25 View Option B - Proposed

Picture 26 View Option C - Existing

Picture 27 View Option C - Proposed

Source: Art + Form

The site comprises an at grade car park and low level landscaping. Key clear views towards the site include vistas along Rickard Road from the east and west, and from the south, from the Railway station approach along The Appian Way. From the north, direct views to the site are generally obstructed at ground level by the surrounding mid height mixed use and residential apartments. The top of the Civic Tower can be seen from more distant elevated vantage points including from Apex Park adjacent to the Hume Highway, Mt Lewis Shops on Wattle Street and the Stacey Street railway overpass.

These views of the site, together with closer proximity views from the immediate surrounding streets and Paul Keating Park have been considered during the design review as illustrated in **Figure 43.**

The proposed building will be clearly visible along view corridors along The Appian Way, along Rickard Road, and from more distant vantage points.

The impact of the proposal is assessed as follows:

- The university building will be a landmark to identify Paul Keating Park and the Civic Precinct.
- Together with the Civic Tower, it will bookend the north end of The Appian Way.
- The building will transform views out of adjacent buildings that currently overlook the site.
- The heritage significant architectural elements of the Council Chambers will not be dominated by the building;
- The building ‘converses’ with adjoining buildings with the podium aligning with the parapet of the BLaKC and the mid tower creating a “soft datum” aligned with the Civic Tower; and
- The building is consistent with the character, massing and scale of new and existing development within the Bankstown CBD. Specifically, the building’s articulated façade and modulated roof form creates a dynamic and interesting skyline.

The following changed outlooks and view impacts are noted:

- Council Offices: Distance from the proposed university building: minimum Lower levels 26.1m, Upper levels 31.8m. The fully glazed west façade currently overlooks the site and is highly exposed to western sun in the afternoon throughout the year. The proposed university will shade the building and offers outlook to the façade with shifting shadows in the morning.
- BLaKC: Distance from the proposed university building: 12.5 to 14m. The east façade, which accommodates study seating and circulation between the façade adjacent to bookstacks, currently overlooks the site through the folded horizontal shade screens. These screens break up the view out and provide shade to morning sun. The proposed university building will shade some morning sun.
- Rickard Road apartments: Distance from the proposed university building: 32m. The residential apartments diagonally across Rickard Road from the site currently have substantial open outlook across the site and Paul Keating Park. As the university building is on the south side of Rickard Road it won’t shade the residential buildings. The apartments will retain a clear view south down The Appian Way, although the southwest outlook from the residences will be reduced. The outlook to the building will include the colour treatment of the horizontal shading and new street trees.

- Paul Keating Park: Although defined by a perimeter concrete path and pole lighting, the Park is not currently contained along the edge of the site. It merges spatially with the existing carpark. The building will occupy this existing void between the BLaKC and Civic Tower, with the podium aligning with height of the existing buildings and offering a highly permeable, occupiable and active sheltered edge at ground. The terracing and landscape planting concepts for the building's upper levels, provide new elevated green spaces and backdrop to park activities
- Compass Site Development: Distance from the proposed university building: Minimum 94m. This residential and commercial development will include apartment towers up to a similar height to the proposal. The lower retail space along The Mall will receive some shading from the WSU building for a short period in the middle of winter. The residential apartments will look across the park to the WSU building, including the new elevated green spaces, and able to view the overall elevation colour treatment and cantilever.

It is also noted that the site is strategically located, which is reflected in the District Plan, Local Strategic Planning Statement (LSPS) and site specific Planning Proposal. Having regard to the above, it is unreasonable for residents and owners of the surrounding developments who currently enjoy views over the site to expect that these views will be maintained in perpetuity. The retention of these views is only contingent on the site not being redeveloped pursuant to Council's vision.

In view of the above, and with regard to the detailed renders in the VIA, the visual impact of the proposal is considered to be acceptable, having regard to its built form and materials, when viewed from the locations tested.

The architectural design has had regard to a number of design considerations in addition to view impacts, including the need to facilitate market appropriate floor plates, reflect the high accessibility and amenity of the locality, minimise overshadowing, define the alignment of The Appian Way and make a positive contribution to the future built form context of the Bankstown CBD. The design outcome by Lyons is considered to be the most appropriate balance of these considerations and the proposal will have an overall positive visual impact on the locality.

5.5. SIGNAGE ASSESSMENT

SEPP 64 applies to all signage that under an environmental planning instrument can be displayed with or without development consent and is visible from any public place or public reserve.

The revised design incorporates signage zones for which consent is sought within this application. The content and size of the signage will be subject to a future development application and Signage Strategy.

The signage zones proposed in this application include:

- **Eastern façade** (The Appian Way) – top of tower signage zone 3m in height by 20.715m wide.
- **Southern façade** (Paul Keating Park) – middle tower signage zone 3m in height by 20.715m wide and podium signage zone 6.85m in height by 5.4m wide.
- **Western façade** (Bankstown Library and Knowledge Centre) – podium signage zone 6.85m in height by 5.4m wide.
- **Northern facade** (Rickard Road) – no signage zones

The zones for building signage have been identified at high level where they are prominent and will be integrated into the roof top architecture without impacting tenant views.

The proposal will remain compliant with the aims and objectives of this SEPP, which are:

(a) to ensure that signage (including advertising):

(i) is compatible with the desired amenity and visual character of an area, and

(ii) provides effective communication in suitable locations, and

(iii) is of high quality design and finish, and

(b) to regulate signage (but not content) under Part 4 of the Act, and

(c) to provide time-limited consents for the display of certain advertisements.

(d) to regulate the display of advertisements in transport corridors, and

(e) to ensure that public benefits may be derived from advertising in and adjacent to transport corridors.

The proposal is consistent with the above objectives in that it will facilitate future signage on a new major building within the Bankstown CBD, that will be designed to be complementary to the character and aesthetics of the building and will achieve a high-quality design and finish.

The signage proposed under this application is classified as building/business identification signage. The provisions within Part 3 of SEPP 64 therefore do not apply. Only the objectives of SEPP 64 and the criteria in Schedule 1 – Assessment Criteria of SEPP 64 requires consideration.

Schedule 1 of SEPP 64 contains a range of assessment criteria for consideration in assessing signage applications. The way in which the proposed development has met this assessment criterion is set out in **Table 7** below.

Table 7 - SEPP 64 Assessment

SEPP 64 Provision	Comment	Compliance
Character of the Area ▪ Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located? ▪ Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	▪ The proposed signage is consistent with the civic and commercial character of the Bankstown CBD. The signage will promote the provision of educational use within the precinct and therefore highlight the public services promoted in the area. ▪ The locality currently consists of predominantly minimalistic, capitalised identification signs at the various service buildings. ▪ The proposed signage will be consistent with the existing signage within the precinct.	Yes
Special areas ▪ Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	▪ The proposed signage will not intrude or detract from the heritage listed Council Chambers located south west of the site. ▪ A HIS prepared by Urbis concluded the proposal will have no adverse impacts on the identified heritage item. The signage will be designed so as to not detract from the aesthetics of the Paul Keating Park.	Yes
Views and Vistas ▪ Does the proposal obscure or compromise important views? ▪ Does the proposal dominate the skyline and reduce the quality of vistas? ▪ Does the proposal respect the viewing rights of other advertisers?	▪ All proposed signage will be attached to the building facades and not protrude above the structure or obscure any views. ▪ The proposed signage will be visible with the skyline as some signs will be located at the top elevations of the building. However, the high-quality design of the signage will enhance the existing character of the civic precinct. ▪ The proposed signage will not compete against the viewing	Yes

SEPP 64 Provision	Comment	Compliance
	rights of any surrounding advertisers.	
Streetscape, Setting and Landscape ▪ Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape? ▪ Does the proposal contribute to the visual interest of the streetscape, setting or landscape? ▪ Does the proposal reduce clutter by rationalising and simplifying existing advertising? ▪ Does the proposal screen unsightliness? ▪ Does the proposal protrude above buildings, structures or tree canopies in the area or locality?	▪ The proposed scale is appropriate considering the desired streetscape character of the precinct. ▪ The proposed positioning of the signage will greatly improve the visual interest within the streetscape. They will also substantially liven the Bankstown skyline. ▪ There is no existing signage or advertising on the site. ▪ The proposed signs will not screen any unsightly elements. The proposed signage does not protrude above the proposed building rather is attached to the building facades.	Yes
Site and Building ▪ Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located? ▪ Does the proposal respect important features of the site or building, or both? ▪ Does the proposal show innovation and imagination in its relationship to the site or building, or both?	▪ The proposed signage scale and locations are consistent with the scale of the proposed building as well as its unique cantilevered design. ▪ As only signage zones are proposed at this stage, the content and size of the signage will be subject to a separate application and future Signage Strategy.	Yes
Associated devices and logos with advertisements and advertising structures ▪ Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	As only signage zones are proposed at this stage, the content and size of the signage will be subject to a separate application and future Signage Strategy.	N/A
Illumination ▪ Would illumination result in unacceptable glare? ▪ Would illumination affect safety for pedestrians, vehicles or aircraft? ▪ Would illumination detract from the amenity of any residence or other form of accommodation? ▪ Can the intensity of the illumination be adjusted, if necessary?	As only signage zones are proposed at this stage, the content and size of the signage will be subject to a separate application and future Signage Strategy.	N/A

SEPP 64 Provision	Comment	Compliance
▪ Is the illumination subject to a curfew?		
Safety ▪ Would the proposal reduce the safety for any public road? ▪ Would the proposal reduce the safety for pedestrians or bicyclists? ▪ Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?	▪ The proposed signage will be positioned on the campus' facades and will therefore not obscure any sightlines. ▪ Safety will be further reviewed in the subsequent signage DA when a detailed design is confirmed.	Yes

5.6. SOLAR ACCESS

Key changes incorporated in the revised design, in response to submissions include massing changes to reduce the visual bulk of the building and increase the solar access to the adjacent public open space, achieving compliance with the solar access control.

The solar access control proposed by Council includes several components:

- Three timeframe requirements:
  - Duration of 4 hours;
  - Between 10am - 3pm on 21st June (mid-winter); and
  - Continuous (uninterrupted sunlight).
- Two area requirements:
  - Minimum 50% of the total park area; and
  - Consolidated: (one larger contiguous space, rather than a number of separate spaces separated by areas in shade).

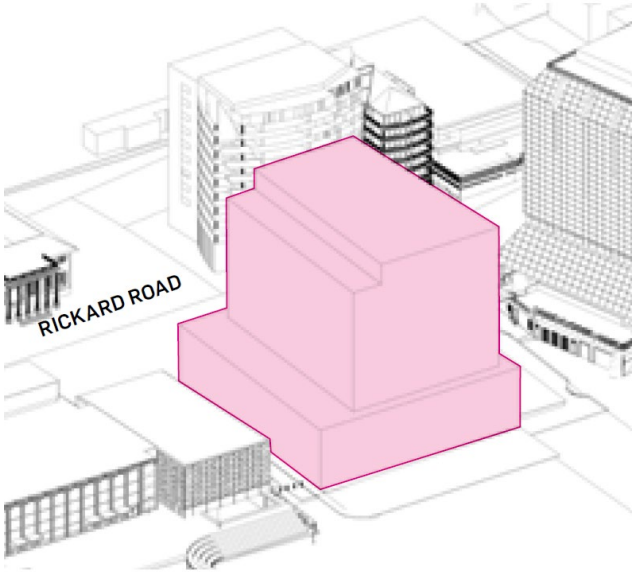
Three built form scenarios were assessed against these requirements:

- Scenario 1 - Compliant Built Form: A built form that complies with the existing height and FSR BLEP 2015 controls, while also reflecting the site's physical context and WSU's design brief and educational requirements;
- Scenario 2 - WSU SSDA Building: as per the original SSDA application; and
- Scenario 3 - Revised Cantilever and Mid-Tower Building: Considers changes to the upper massing volumes only (design as proposed within this Amended DA and RtS).

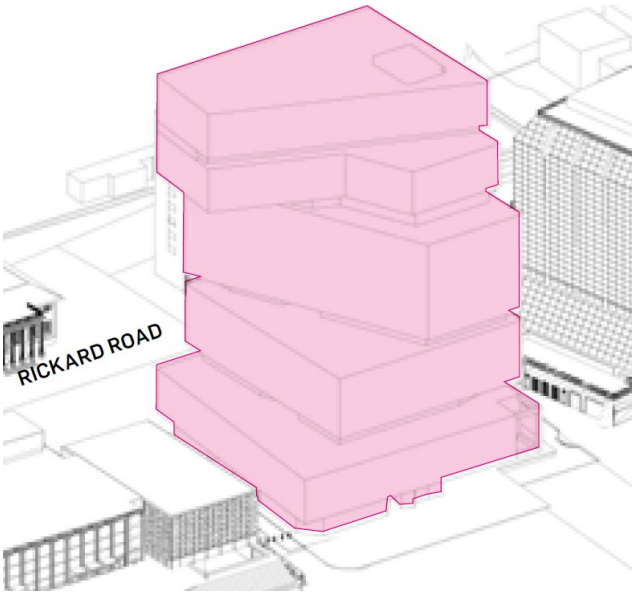
All scenarios are based on the following assumptions for the purpose of understanding the solar amenity controls and impacts:

- Surrounding Built Form
  - 80 Rickard Road: Located immediately to the west of the subject site and to the north of Paul Keating Park. Occupied by Bankstown Town Hall and the BLaKC (recently built in 2014). This is modelled as per existing built form.
  - 375 Chapel Road: Located within the western extent of Paul Keating Park is Council Chambers - a heritage listed circular building within the park. This is modelled as per existing built form.
  - Solar amenity studies are based on existing buildings only. Council, as owner of these sites, would prepare a master plan to consider any redevelopment of the civic precinct, to ensure Paul Keating Park continues to receive adequate sun light.
  - Paul Keating Park: Defined as per Council's definition, excludes Council Chambers and has a total area of 12,207 sqm.
- An analysis of the solar amenity achieved to Paul Keating Park at hourly intervals between 9am and 4pm on winter solstice was analysed to understand the total solar amenity realised in the park throughout the day.

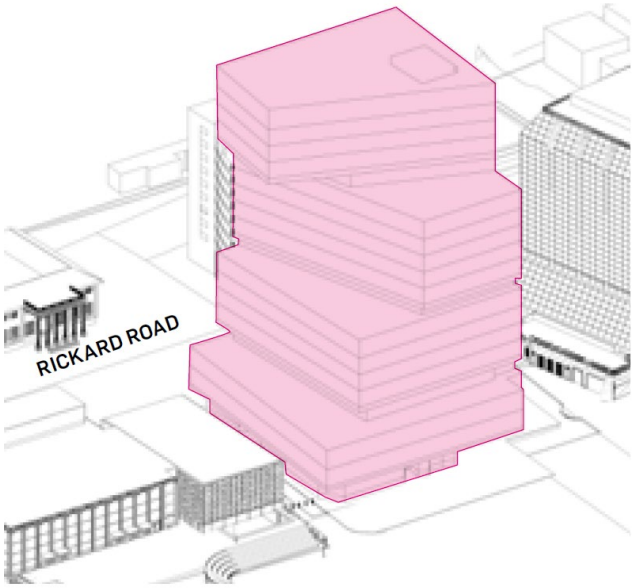
Figure 44 - Solar access Scenarios



Picture 28 Scenario 1 – Compliant Built Form



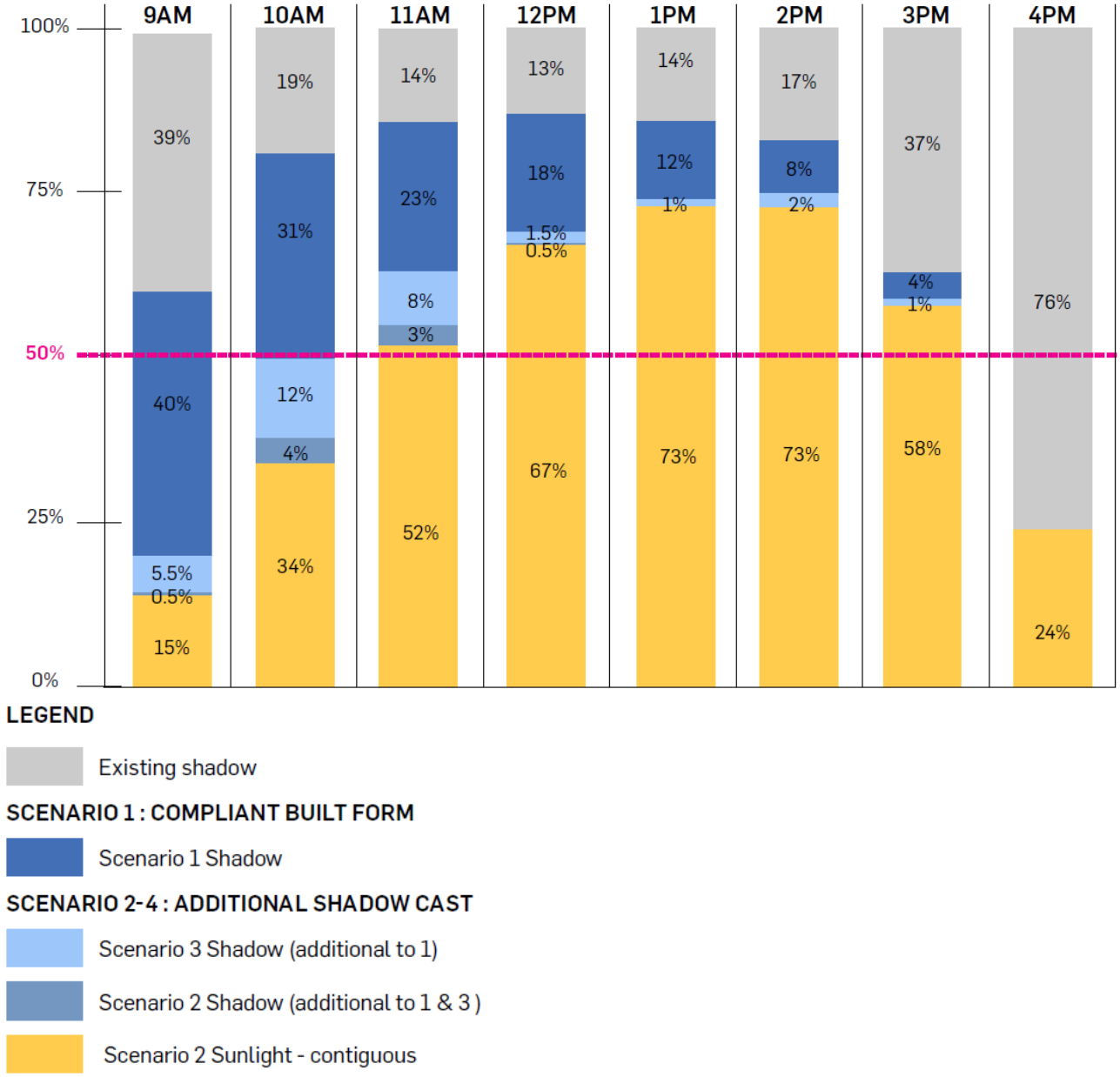
Picture 29 Scenario 2 – Built Form as proposed in EIS



Picture 30 Scenario 3 – Revised Built Form

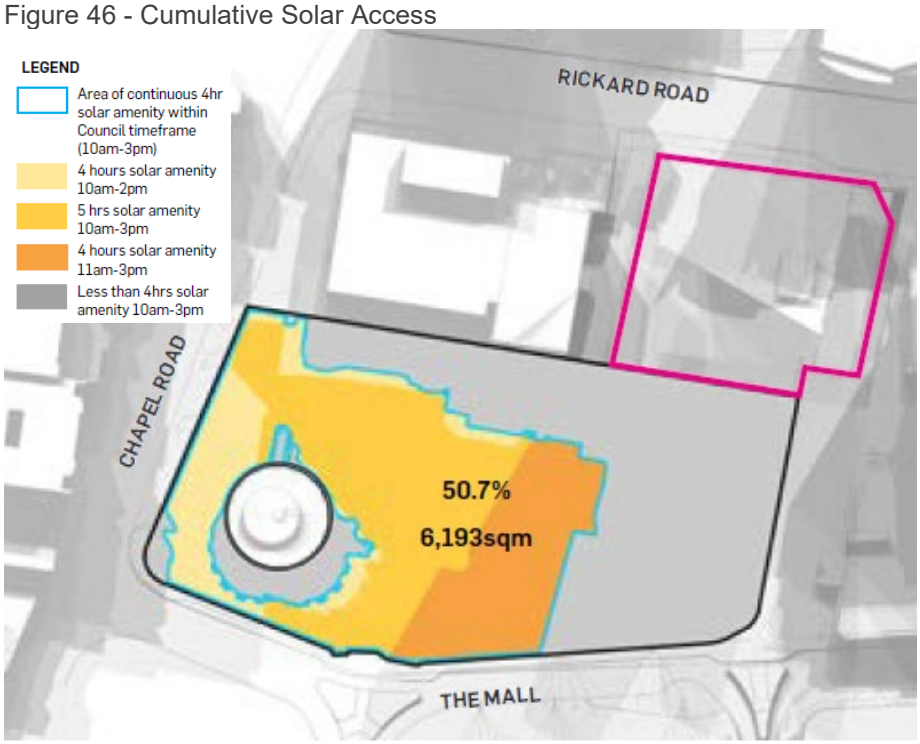
Source: Urbis

Figure 45 - Solar Amenity Hourly Intervals



Source: Urbis

Figure 46 - Cumulative Solar Access



Source: Urbis

The hourly interval solar amenity analysis identifies that the solar amenity outcomes can be achieved with an amended built form as follows:

- At least 50% of the park is in sunlight for each hour between 10am and 3pm (refer to hourly analysis). This outcome ensures there are large sunlit areas of the park for people to enjoy.
- Scenario 3 (revised building form) ensures 50.7% of Paul Keating Park will receive 4hrs of continuous solar amenity between 10:00am and 3:00pm. This meets Council's proposed solar amenity control and also meets the university's requirements for total floor area and functional spaces. Vegetation and lawn areas will receive the solar exposure required to facilitate healthy and sustainable growth.
- It is considered that assessing compliance based on cumulative sun access across the five hours between 10:00am and 3:00pm meets the solar amenity outcomes which underpin Council's controls, while facilitating delivery of the campus. The Bankstown campus will bring social and economic benefits to the area and meet metropolitan, regional and local strategic planning objectives.

Mitigation Measures

Council is preparing a Master Plan for Paul Keating Park, which is currently on exhibition. It is recommended that consideration be given to applying the principles outlined in Section 5 of the Urbis Solar Analysis Report to the outcomes of the Master Plan, which seek to coordinate new and existing soft landscaping and activity areas with the availability and duration of solar amenity on June 21.

5.7. TRAFFIC AND PARKING

A revised TMAP and a Construction Traffic Management Plan (CTMP) both prepared by Arup accompany this report at **Appendix P** and **Appendix Q** respectively.

The site is well serviced by public transport with significant capacity available on existing and planned public transport services:

- Bankstown is a bus hub and is served by up to 58 services per direction during peak times;
- The train station is within 400m of the site, with the Sydney Metro becoming operational from 2024; and
- The Sydney Metro will be a step-change in terms of public transport provision, with faster and more reliable services every 4 minutes per direction during peak times. This will increase the accessibility of the siteby public transport and significantly reduce its car dependency. It will also allow sustainable and equitable travel habits to form from day one as envisioned in the Bankstown Complete Streets.

The Bankstown Complete Streets has been developed in response to growing traffic congestion issues and looks to promote active transport and public transport as a way to move large volumes of people (by mass transit) safely to and within the CBD. The university campus will be aligned with this strategy through the provision of a limited amount of on-site car parking and encouraging other sustainable forms of travel.

The Appian Way is to be redesigned as a shared zone with provision for short-term drop-off and pick-up. This is consistent with Bankstown Complete Streets which identified The Appian Way as a shared zone. Approximately 16 existing parking spaces on The Appian Way will be lost, however the impact will be negligible considering other spaces are available in the CBD in addition to the upcoming improvements to the public transport, pedestrian and bicycle network;

The basement incorporates 87 car parking spaces (including 4 DDA bays) and a loading dock (2 bays). Access to the basement car park will be off the existing access road along the western boundary (Library Driveway). End of trip facilities and bike parking will be provided within the basement consisting of 56 secure and 6 visitor bike parking spaces. An additional 98 bike spaces placed within the public domain of the site.

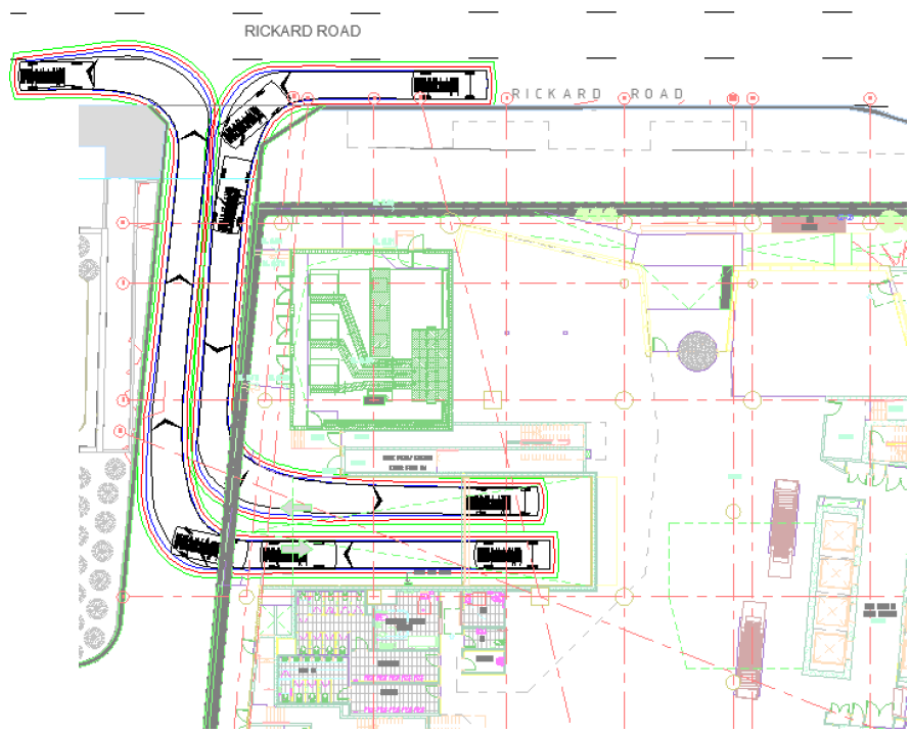
The assessment found that the car park is likely to generate 548 vehicle trips in the AM peak hour and 45 vehicle trips in the PM peak hour. The Appian Way drop-off was assumed to generate 50 movements in the AM peak period and 34 in the PM peak period.

The impact of this to the surrounding intersections at peak times was found to be manageable, with the SIDRA traffic modelling finding they will continue to operate at a satisfactory level of service.

5.7.1. Vehicular Access

Vehicles are proposed to enter and exit the site via the BLAKC driveway off Rickard Road along the western boundary of the site. This driveway is currently used to access the BLaKC underground car park which has relatively low volumes of traffic during peak periods. Minor modifications at the Rickard Road footpath crossover are proposed to allow a vehicle to enter while another is waiting to exit (see **Figure 47**). The splay has been designed with an unobstructed visibility splay of 65m to the edge of Rickard Road so that vehicles can safely exit onto Rickard Road (on the basis that the new tree canopies along Rickard Road do not obscure the driver's vision).

Figure 47 - Access route to basement car park



Source: Arup

The Appian Way, which runs along the eastern boundary of the site, will continue to provide access to the Bankstown Civic Tower car park in a one-way direction. The intention is for The Appian Way to be a shared zone, with drop-off and pickup facilitated on the eastern side of the road.

The vehicle footpath crossover along Rickard Road into The Appian Way is proposed to shift slightly east from its existing location while maintaining a clearance from the existing stormwater culvert. The construction of this lay-back is proposed as part of the Early Works DA package to facilitate construction vehicle movements into the site and is not subject to this SSD.

5.7.2. Parking

The reduced basement extent has resulted in a reduction in onsite car parking from 94 spaces to 87 spaces which Arup consider is adequate, given the use of the basement by staff only and proximity of the site to public transport.

The provision of 87 spaces includes 4 DDA compliant spaces, is equivalent to approximately 1 space per 337m² of GFA. It is recommended this rate is applied for the following reasons:

- The excellent accessibility of the site by public transport, including a new Sydney Metro station.
- The anticipated growth in dwellings in the CBD, 80% of which is targeted to be within the walking catchment of the CBD and, therefore within the walking catchment of the campus.
- Providing limited on-site car parking will reduce car travel by encouraging travel by sustainable modes while mitigating the impacts of the development on the surrounding road network;
- The WSU Parramatta and Liverpool City Campuses are excellent examples of similar developments. Based on the University's recent experience of relocating to those campuses, public transport becomes the primary modes of transport for users, with limited demand for parking.
- The proposed retail is of a relatively small size and therefore future businesses are expected to be of a nature that will service staff and visitors of the university or nearby land uses. Therefore, the ground floor retail uses are unlikely to generate significant visitor parking demands.

No parking is proposed to be provided on-site for students. Limiting access to car parking as a way of encouraging people to travel by other modes is a key feature of Bankstown Complete Streets. It is within private car park operator's control to manage their own sites, and if required, install boom gates to ensure their parking is used by their customers only. This may need to be considered in light of the Council strategy regardless of the university's presence in the CBD.

Absence of on-site student parking is a means to discourage student driving. This has been WSU's experience at the Parramatta and Liverpool campuses. Conversely, if more parking were provided, more students will likely drive, which is contrary to the vision laid out in Bankstown Complete Streets.

5.7.3. Loading and Servicing

As part of the proposed layout, there is provision for loading and servicing within the basement. The design of the dock allows for one medium rigid vehicle (MRV)/ waste vehicle and one small rigid vehicle (SRV)/ courier van on basement level 1.

The design of the loading dock areas is in accordance with AS 2890.2, with the driveway ramp having a maximum grade of 1 in 6.5. Swept path analysis of a MRV accessing and egressing the dock is provided within the TMAP.

5.7.4. The Appian Way Drop Off

A pick-up/drop-off facility, accommodating three spaces, is proposed along the eastern side of The Appian Way. The intention is for The Appian Way to continue acting as a shared zone and provide access to Civic Tower. The operation of the pick-up/drop-off facility has been assessed through swept path analysis.

In order to pick-up/drop-off on The Appian Way, vehicles will need to turn left from Rickard Road and egress via Civic Drive onto Jacobs Street. The facility can provide for the simultaneous pick-up/drop-off by three vehicles – i.e. forward manoeuvre into and out of each space.

Based on the volumes expected, general queuing theory was applied to the three parallel spaces to assess the adequacy of the facility. The following assumptions were applied:

- 30 second drop-off time
- During the AM peak, 286 staff and 828 students arrive (see TMAP section 5.3 for further explanation of this assumption)

- 50% of arrivals in a peak 15 mins
- Uniform arrival distribution

The capacity based on this calculation is 360 vehicles per hour. This will more than cater for the total of 50 vehicles generated by WSU with sufficient capacity available for surrounding land uses.

This equates to approximately one vehicle dropping off in the facility at any one time during the AM peak hour. As such, the facility is adequate to accommodate the expected peak drop-off volumes generated by the university campus.

Spare capacity in the facility may be used for nearby land uses but estimates of the demand associated with these have not be analysed. It is suggested that the university building management monitor the drop-off and pick-up and provide updates to Council monthly for the six months following occupation.

If the arrangement is causing queuing to the surrounding road network, it is expected that Council rangers will monitor the area and enforce any vehicles parking in the bays.

If the arrangement is congested and not sustainable, WSU will investigate alternative locations that can be used for drop-off and pick-up (including basement levels within the site.)

5.7.5. Mitigation Measures

WSU will prepare a Sustainable Travel Plan for the campus and would welcome the opportunity to provide input to the various transport and planning strategies being prepared for the Bankstown CBD.

No change is proposed to the mode share targets, vehicle trip generation or public transport assessment.

Monitor The Appian Way drop-off point and report back to Council after 6 months of operation.

5.8. FLOOD AND STORMWATER

The proposed building is in an overland flood flow path within the Salt Pan Creek Catchment. The revised design has balanced compliance with Council's flood freeboard requirements with maintaining DDA access to and from The Appian Way and retail spaces.

Bonacci has been engaged to assess the impact of the proposed building on flood conditions, with and without infrastructure upgrades Council is undertaking or planning to undertake.

Council engaged a third-party consultant DHI Pty Ltd who prepared *Bankstown CBD MIKE FLOOD model upgrade Western Sydney University Site Flood Assessment* (DHI 2019), which concluded that significant reductions in flood levels and flood hazards will be achieved near the site.

At a meeting with Council in March 2020, it was requested that Bonacci's flood modelling is updated to reflect the works planned by Council along Rickard Road and The Appian Way that DHI 2019 concluded would reduce the surface overland flows impacting the development.

To assist with this exercise Bonacci used Council's Salt Plan Creek TUFLOW Flood Model (prepared by DHI) as a base model to assess four scenarios. The model has been updated to incorporate the Council works underway, to present accurate current conditions reflecting the delivered infrastructure.

At a meeting with Council in July 2020, Bonacci presented the flood modelling results with 4 scenarios:

- Scenario 1: Existing Case
- Scenario 2: No Drainage Upgrade + WSU Building
- Scenario 3: Interim Upgrades + Council Rickard Road AFC + WSU Building

  The interim model represents the current site conditions accounting for the Council works that have been awarded and are underway within close proximity of the site.
- Scenario 4: Full Drainage Upgrades + Council Rickard Road AFC + WSU Building

  The full drainage upgrades model represents the upgrades proposed in the Council/DHI report throughout the Catchment including an additional culvert at North Terrace.

Scenario 1: Existing Case

Flood Hazard - The Bonacci 1% AEP flood hazard largely reflects the existing case flood hazard from the DHI 2019 report. Both model results show continuously high hazard pattern on The Appian Way.

Flood Depth and Level - The 1% AEP flood levels and depth largely reflects the existing case flood extent from DHI 2019 report. The existing flood levels at the frontage of the site on Rickard Road (RL 24.90) is lower than the one documented in DHI's report (RL 25.10).

The Bonacci flood extent and flood level are generally consistent with DHI's base case.

Scenario 2: No drainage upgrade and WSU Building

Flood Depth and Level – The Bonacci 1% AEP flood levels and depth reflects the flood condition outlined in DHI 2019 report. The existing flood levels at the frontage of the site on Rickard Road (RL 25.30) is slightly lower than the level documented in DHI's report (RL 25.35). However, the Bonacci flood extent and flood level are generally consistent with DHI's results.

Flood Hazard - The 1% AEP flood hazard largely reflects the WSU development with no drainage upgrade scenario hazard outlined in DHI 2019 report. Both model results show that the proposed WSU development increase the hazard on The Appian Way by narrowing the surface overland flow width. The Bonacci flood hazard pattern is generally consistent with DHI's results.

Scenario 3: Interim Upgrades

The interim model represents the current site conditions accounting for the Council works that have been awarded and are underway within close proximity of the site including:

- **Rickard Road Sydney Water Box Culvert Upgrades:** Sydney Water has supplied the drawings below, showing a 2.4m x 0.9m box culvert with length of 21.6m connecting the two pits (Pit 1 and Pit 2) across Rickard Road and conveying water down to The Appian Way. These works are currently under construction.
- **Council Drainage and Surface Upgrades:** Council have provided the construction drawings for the Drainage Improvement & Regional Road Resurfacing on Rickard Road. The Council works broadly include the construction of the continuous footpath treatment, and a raised threshold at the intersection of Rickard Road and The Appian Way. The raised threshold functions as a weir by intercepting water from going through The Appian Way and indirectly pushing more water into the massive inlet structure.

  Council has also provided a drawing package detailing the proposed pit upgrade north of Rickard Road.

Flood Depth and Level - The Bonacci 1% AEP flood hazard indicates the flood level and depth conditions with the proposed WSU development and interim upgrades. It can be seen that the flood levels have been lowered overall, flood level at the entrance from Rickard Road is reduced to RL 25.20 from RL 25.30 with no drainage upgrade.

The flood hazard on Rickard Road has been lowered to mostly medium to low hazard, except for small patches of high hazard near the massive inlet structure which dedicated to pond and collect water and a very small section near the north east corner of the building on The Appian Way.

The high hazard has been largely reduced, and conditions greatly improved within The Appian Way. Flood hazard can be quantified using velocity x depth product (**VD**), the VD product near the small patch of high hazard close to the north east corner of the building has been decreased from 1.24 m²/s to 0.788 m²/s.

Even though the small area of high hazard still exists, it is a discrete, non-continuous area and it is considered to have substantial lower risk than the continuously high hazard pattern before interim drainage upgrades.

The interim upgrades modelling results demonstrate that the culvert upgrades on Rickard Road and the planned Council resurfacing on The Appian Way will largely reduce the flood levels, depth and hazard on The Appian Way and Rickard Road compared to no drainage upgrades.

Scenario 3 reduces flood levels around the site and externally compared to Scenario 2 (WSU and no upgrade). Scenario 3 results in no adverse impact on external properties.

Scenario 4: Full Drainage Upgrades

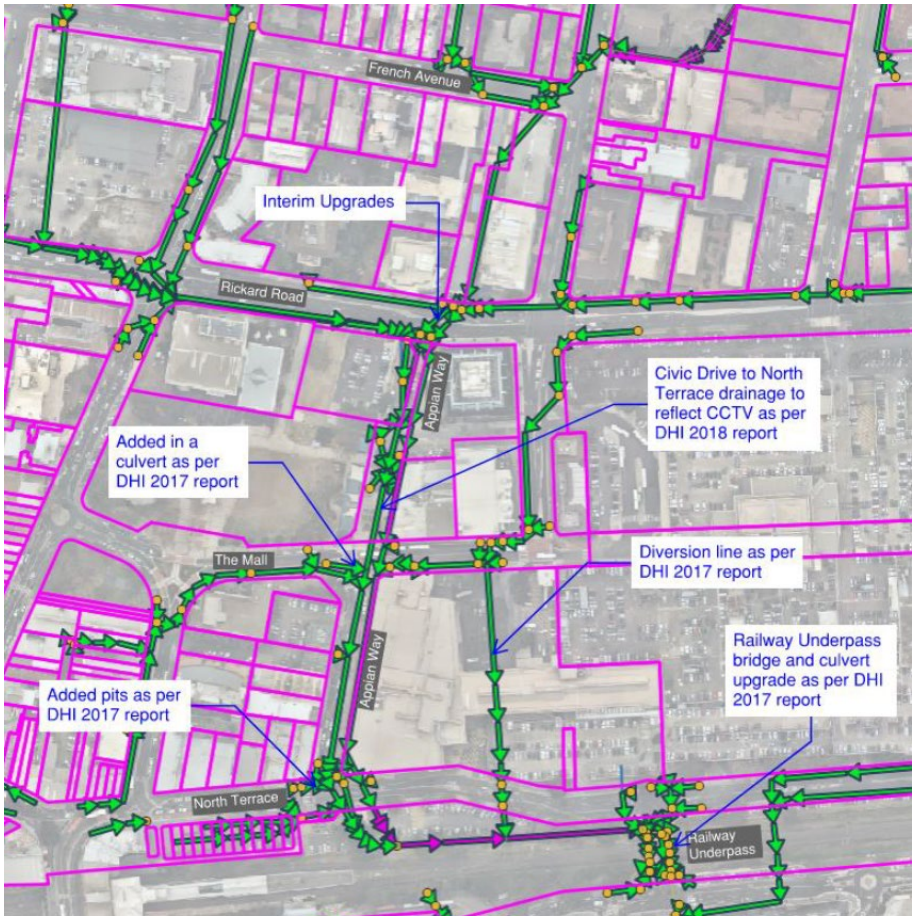
Scenario 4 within the Bonacci Assessment has incorporated modelling data extracted from DHI assessments commissioned by Council in 2017, 2018 and 2019. This modelling includes the proposed Council drainage network changes/upgrades.

The Full Drainage Upgrades scenario includes the following updates to the model, which largely reflects the OPTIONS scenario outlined in the DHI's reports:

- Added in a culvert at the intersection of The Mall and The Appian Way (as per DHI 2017 report)
- Updated railway underpass structures to reflect the bridge and culvert upgrade (as per DHI 2017 report)
- Added a diversion line from The Mall through Centro Shopping Center Corridor to Railway Corridor (as per DHI 2017)
- Additional pit inlets were added at the intersection of The Appian Way and North Terrace (as per DHI 2017)
- Civic Drive to North Terrace drainage updated to reflect CCTV survey (as per DHI 2018 report)

The Full Drainage Upgrades layout has is as shown in **Figure 48** below.

Figure 48 - Full Drainage Upgrades



Source: Bonacci

Flood Depth and Level – The Bonacci Scenario 4 illustrates the 1% AEP flood hazard, the flood level and depth conditions with the proposed WSU development and full drainage upgrades reflecting OPTION 2 in DHI's report. It can be seen that the flood levels have been lowered overall, flood level at the entrance from Rickard Road is reduced to RL 25.25 from RL 25.30 in the no drainage upgrades scenario. The result largely matches DHI's OPTION 2 flood depths and levels.

Flood Hazard – The Bonacci 1% AEP flood hazard largely reflects the OPTION 2 case flood hazard from DHI 2019 report. Both model results show high hazard on The Appian Way. The flood hazard pattern largely matches DHI's OPTIONS 2 results.

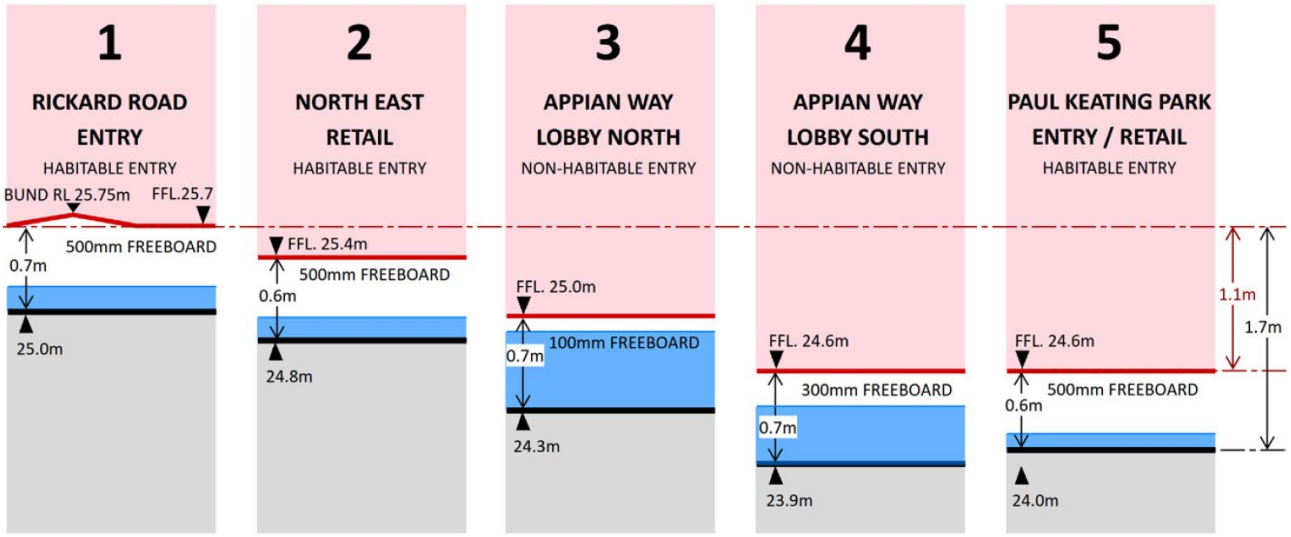
Afflux between overall drainage upgrade (Scenario 4) to no drainage upgrade (Scenario 2) indicates that the impact of the overall drainage upgrade largely reduces flood levels around the site.

Afflux map between overall drainage upgrade (Scenario 4) to interim upgrade (Scenario 3) indicates that the full drainage upgrade will further benefit the proposed WSU development by reducing the flood levels on The Appian Way by approximately an additional 50mm compared to the interim upgrade.

Conclusion

The flood levels around the entrance on Rickard Road from both interim upgrades and full drainage upgrades vary from RL25.10 to RL25.25, the entrance landing has been designed at RL 25.75 to achieve at least 500mm freeboard, which achieves Council's habitable floor freeboard requirements and complies with the Flood Prone Land relevant requirements.

Figure 49 - Revised design finished floor levels (FFL) in relation to flood levels



Source: Lyons

The interim upgrade scenario largely reduces the flood levels and hazard around the site in comparison to a no drainage upgrade condition. The flood levels are lowered by 100mm near Rickard Road building entrance and almost 200mm near The Appian Way building entrance compared to no drainage upgrade.

The high hazard has mostly been removed on The Appian Way, except for with a small patch of high hazard area near the building entrance on The Appian Way, however the high hazard patch is isolated, and the risk is largely reduced compared to the continuous high hazard pattern under no drainage upgrade scenario and predevelopment conditions. The flood levels and hazard reduction is generally consistent with DHI's results except for the location of the small patch of high hazard on The Appian Way that sits approximately 10m to the north for the Interim Upgrades scenario.

The small high hazard area that remains has been significantly improved, with the Velocity x Depth product lowered from 1.24 m²/s to 0.788 m²/s compared to the predevelopment condition. The reduction on flood level and hazard are considerably significant due to the interim upgrade and should satisfy relevant flood mitigation control requirements.

The full drainage upgrade scenario proposed in the DHI Report slightly reduces the flood levels on The Appian Way by approximately an additional 50mm over the Interim Upgrade and removes the small patch of high hazard on The Appian Way.

It is concluded that the building complies with Council's DCP (2015) Part B12 - Flood Risk Management, subject to completion of a range of infrastructure upgrades Council is undertaking and planning within the CBD. As part of the concurrent LEP amendment process, Council and the proponent are continuing to engage regarding those upgrades.

Refer to the Flood Assessment Report at **Appendix V** for further detail and modelling results.

Flood Emergency Response Plan

A Flood Emergency Response Plan (**Appendix T**) has been prepared by Bonacci and revised to address concerns raised by Council in their submission, with evacuation route and muster location have been revised.

As the majority of the site is at risk of flooding under the 100-year average rainfall incident design storm event and PMF, it is recommended to evacuate off-site to nominated refuge points during construction in the event of a major flood.

The builder will ensure to train staff as well as create a PSMP including evacuation plans for workers and equipment including contingency plans in the event of large rainfall events.

On-site refuge is not recommended during construction during large rainfall events and only considered feasible and recommended for this site once the building is commissioned and fully operating as a university. An on-site refuge would be acceptable, however, an alternative or additional option is for the University to use the external muster point nominated within the Flood Emergency Response Plan.

Mitigation Measures

The Flood Emergency Response Plan is to be revised following any future flood studies which impact the sites predicted flood affectation.

5.9. STRUCTURAL

Taylor Thomson Whitting (**TTW**) have prepared a Structural Design Report which outlines the revised structural design. The revised design rationalised the structural design approach resulting in reduced number of columns and therefore better outcome for public domain.

Key aspects of the structural design are summarised in the following subsections:

Foundations

The foundations for the columns/walls will be pad footings proportioned based on the allowable bearing pressures stated in the Geotechnical Assessment prepared by Douglas Partners (Appendix FF of the EIS).

Some columns or walls may be located directly on the shoring system, with the proposed shoring piles being sized to carry the loads to the medium and medium/high strength rock.

Basement slab

Douglas Partners have confirmed that the long term design water table is below the base of the lowest basement slab. Further they have confirmed that the basement slab does not need to be designed for long term hydrostatic pressures provided that a drainage system is installed under the slab to relieve any hydrostatic pressure build-ups.

The basement B2 slab has been designed as a slab on grade, and the addition of hydrostatic pressure relief valves or stand pipes at regular centres throughout the slab is recommended.

Shoring walls

Based on the Douglas Partners advice, TTW carried out a design of the site retention system.

The proposed retention system for the northern, eastern and southern elevations will be a drained ø600 mm soldier pile wall, with infill shotcrete panels spanning between the piles. The piles will be temporarily tied back with post tensioned ground anchors, sized to minimise the movement of the wall.

Soldier piles have been sized assuming a maximum 2.4 m spacing. The western wall cannot have temporary ground anchors and has therefore been designed as ø900 mm cantilever soldier pile wall with socket into rock sized to suit.

It should be noted that soldier pile walls may appear wet due to localised water penetration. It is recommended that drywall be placed in front of the soldier pile with an appropriate dish drain at each slab level to collect any water seepage. The proposed design of the basement allows for a such a wall to be constructed.

The temporary lateral restraint to the shoring walls will be provided by two rows of post tensioned ground anchors. These anchors will be destressed once the permanent structure is built, that provides the lateral restraint to the soldier pile walls.

The portion of the shoring wall next to the ramp along the south boundary is proposed to be restrained by the slab and ramp systems at the Basement 1 level, resulting in the typical spacing of the piles being maintained.

Superstructure

The building has been designed primarily as a concrete frame with traditionally reinforced walls and columns with post-tensioned suspended floors.

Vertical Structure

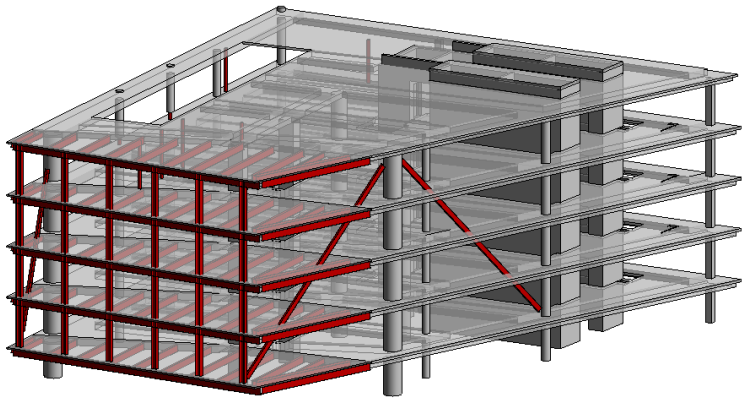
Reinforced concrete columns have been adopted throughout the building and generally aligned through the building height to minimise the requirements for transfer structures. Typically, the columns for the basement slabs will be constructed internally to the shoring line. As the suspended slab is post tensioned this option reduces the restraint that would be provided by the shoring wall, enabling a more efficient design of the slab and reducing the risk of cracking.

All core walls are specified as reinforced concrete and generally retain the same geometry over the full height of the building.

Tower Cantilever

A significant feature of the design is the substantial cantilevered floor area above level 14, which consists of composite slabs supported by steel beams and a steel vierendeel truss on the western elevation. The floor is tied back to the main structure by inclined steel tension members. Horizontal forces are transferred through the floor edge beams back through the structure to the concrete core.

Figure 50 Structural Design - Cantilever



Source: TTW

Mitigation Measures

The basement B2 slab has been designed as a slab on grade. To prevent hydrostatic pressure build-ups a drainage system is to be installed under the slab this could be in the form of hydrostatic pressure relief valves or stand pipes at regular centres throughout the slab.

As soldier pile walls can appear wet due to localised water penetration. It is recommended that drywall be placed in front of the soldier pile with an appropriate dish drain at each slab level to collect any water seepage. The proposed design of the basement allows for a such a wall to be constructed.

In general, all loads and load combinations shall comply with AS/NZS 1170 Parts 0 to 4 structural Design Actions. Live load reductions will be applied as permitted by AS/NZS 1170.1. The design loads are outlined within Section 6 of the TTW Structural Design Report.

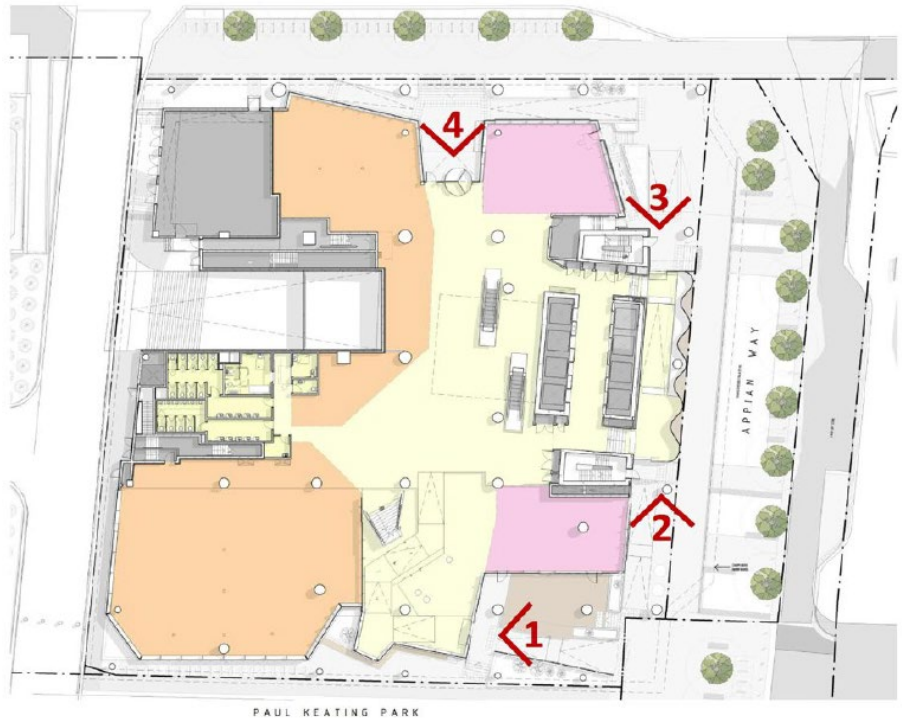
Items to be further coordinated in the design development phase are listed below:

- To ensure temporary ground anchors are clear from the zone of influence of Council and Sydney Water assets, detailed checking and verification of survey information is required during the construction stage. This is being undertaken as part of the Early Works, which are subject to a separate DA assessment.
- A detailed assessment of ground movements is being carried out by Douglas Partners, in particular to review the extent and impact of ground movements on the Sydney Water assets that surround the site.

5.10. BCA AND ACCESSIBILITY

WSU's project brief sought compliance with AS1428.2, providing an enhanced equitable and navigable environment for all users. This objective has informed the detailed design of undercover ramps as the primary means of access from Rickard Road, The Appian Way, and Paul Keating Park. Stairs are integrated to provide alternative means to access all building entrances and commercial tenancies.

Figure 51 - Ground Level Accessible Entries



Source: Lyons

5.11. PEDESTRIAN WIND

A Wind Assessment (**Appendix X**) memo has been prepared by Windtech as an addendum to the Pedestrian Wind Environment Study submitted with the EIS. Based on the results of the initial wind tunnel testing, it is expected that the majority of trafficable outdoor locations within and around the building will be suitable for their intended uses. However, some areas are expected to experience strong winds which will exceed the relevant criteria for comfort and/or safety.

The following in-principle treatments were recommended by Windtech and have been included and/or retained in the revised design, to ensure suitable wind conditions can be achieved in all assessed pedestrian trafficable areas:

- Retain proposed densely foliating, evergreen trees along The Appian Way and Paul Keating Park.
- Inclusion of a cluster of densely foliating, evergreen shrubs at the south-western building corner on the Ground Level.
- Inclusion of 3m high screens (impermeable or up to 20-30% porosity) near the south-eastern corner entrance on the Ground Level.
- Retention of proposed revolving door at the northern entrance on the Ground Level.
- Retention of proposed planters and undergrowth near the north-eastern and south-eastern entries on the Ground Level.
- Inclusion of a 1.6m high, impermeable balustrade along the perimeter of the balcony located on Level 02.
- Inclusion of an impermeable, full-height screen along the eastern perimeter of the north-eastern corner terraces located on Levels 05 and 16.

- Inclusion of an impermeable, full height screen along the northern perimeter of the north-eastern corner terrace located on Level 11.
- Inclusion of a 2.1m high impermeable balustrade along the perimeter of the southern terrace located on Level 14.
- Inclusion of strategically located densely foliating evergreen landscaping along the southern perimeter of the southern terrace on Level 14.
- Inclusion of a 1.2m high impermeable balustrade along the southern perimeter of the terrace located on Level 18.

With the inclusion of these treatments to the final design, it is expected that wind conditions for all outdoor trafficable areas within and around the development will be suitable for their intended uses.

Mitigation Measures

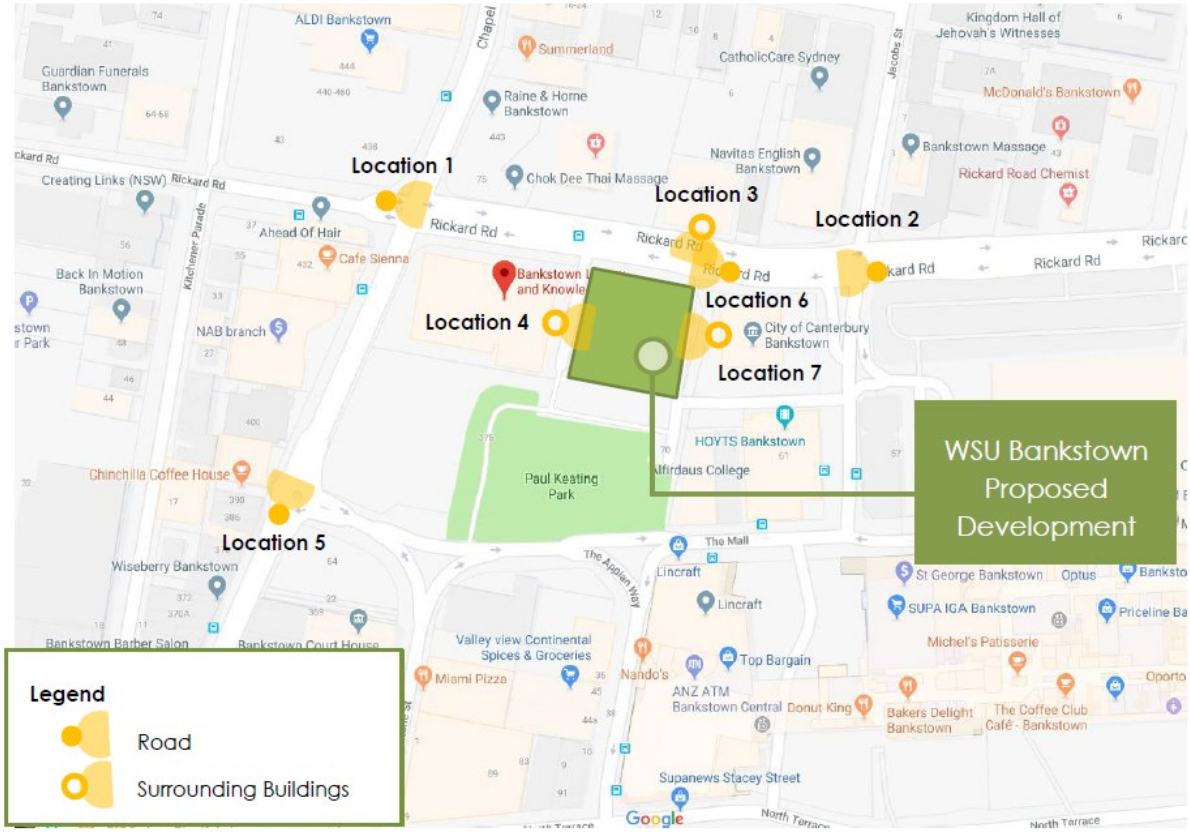
The final design is to incorporate the recommendations of the Windtech Memo WE691-06F01 (30 July 2020).

5.12. REFLECTIVITY

A revised external glare study has been undertaken by Inhabit (**Appendix AA**) to determine the impact of the revised design façade solar reflections onto roads and existing buildings surrounding the site.

A computational glare assessment was undertaken at 7 critical view locations (**Figure 52**) around the proposed building, located on roads where motorists vision may be impacted and at nearby surrounding buildings. Façade materials have been assigned representative of revised design intent, with the façade glazing modelled to represent an external reflectivity of 14%.

Figure 52 - Reflectivity assessment locations



Source: Inhabit

The eastern façade green wall has been removed and replaced with a curtain wall with diagonal sun shading comparable to the western façade.

The façade development and design changes have largely unaffected the external reflectivity outcome from the EIS design. Locations 1, 2, 5 and 6 show no change in the percent of annual daylight hours exceeding

the performance criteria. Location 4 representative of visitors to BLaKC, shows worsened glare results, whilst location 5 representative of a motorist travelling north on Chapel Road shows an improved result now within the performance criteria. These similarities and differences are summarised in **Table 8** below.

Table 8 - Summary of intolerable glare results – previous and revised façade design

Location	**Previous Design**		**Revised design**		**Comment**
	Hours exceeded (%)	Nominal frequency	Hours exceeded (%)	Nominal frequency	
1. Motorist heading east on Rickard Road.	1.8	Low Frequency	1.8	Low Frequency	No Change
2. Motorist heading west on Rickard Road.	0	-	0	-	No Change
3. Residents at 63 Rickard Road.	4.2	Medium Frequency	4.2	Medium Frequency	No Change
4. Occupants at Bankstown Library and Knowledge Centre.	2.4	Low Frequency	4.2	Medium Frequency	Glare exceeds the performance criteria for an additional 1.8% of the year. This change is due to changes to the façade design, most significantly the addition of another level in the second stack (Levels 4-7).
5. Motorist heading north on Chapel Road.	0.6	Low Frequency	0	-	Glare within the performance criteria for the current design.
6. Motorist heading west on Rickard Road – before James Street	0	-	0	-	No Change
7. Occupants of Bankstown Community Services Centre	1.8	Low Frequency	1.8	Low Frequency	No change. Despite the removal of the green wall on the eastern aspect which previously showed favourable reflected glare results, the inclusion of diagonal sunshades appears to be effective in limiting incident solar rays on the glazed curtain wall façade.

Source: Inhabit

Results for locations 2, 5 and 6 are all within the performance criteria.

At location 1, facing east on Rickard Road, glare exceeds the performance criteria at 6pm in summer months, as well as 5pm in October. This glare issue is present for approximately 1.8% of annual daylight hours throughout the year. Intolerable glare is mostly present when the observer is exposed directly to the sun. This suggests that in these instances, reflected glare from the proposed building facade is not the primary cause of glare.

Results show that surrounding buildings (locations 3, 4 and 7) will be impacted by reflected glare. It is expected that architectural details not accounted for in the model, such as blinds, balconies and shading devices, will greatly reduce the impact of this glare. Glare intensity reduces significantly when the glare source is in a viewer's peripheral vision, while these results have assumed that the view is looking directly at the façade.

Mitigation Measures

Material finishes on the building façade must have reflectivity values equal to or lesser than those specified in Section 4.5 of the Reflectivity Analysis (Rev: 04, August 2020) including glazing with an external reflectivity below 14% and façade louvres, framing and external shading devices with a matte finish.

5.13. ECOLOGICAL SUSTAINABLE DEVELOPMENT

A revised Sustainable Design Statement has been prepared by Umow Lai (**Appendix Y**),which provides an overview of the proposed ecological sustainable development (**ESD**) measures incorporated into the revised design.

National Construction Code Section J Energy Efficiency

Section J of the National Construction Code (**NCC**) stipulates the minimum energy efficiency requirements for residential (Class 1, 2, 3 & 4) and non-residential buildings (Class 5 to 9) within all states and territories of Australia where Section J has been mandated.

The previous iteration of the building design (at the time of DA lodgement) targeted NCC 2016 compliance. The revised design is targeting compliance under the NCC 2019 Part J requirements and as such is required to achieve a higher level of greenhouse gas emissions reduction than applied previously.

Section J is comprised of eight parts, each specifically outlining minimum deemed-to-satisfy criteria. Those sections that are applicable within New South Wales cover the performance of the building fabric, glazing, building sealing, HVAC systems, artificial lighting and power and access for maintenance. It is proposed that the building will exceed the minimum NCC2019 Part J energy requirements.

Green Star

As a result of the ESD initiatives incorporated, the building is expected to achieve a 5 Star Green Star Design and As Built (**DAB**) version 1.3 certified rating. The project requires 60 points out of 100 available to achieve the target 5 Star 'Australian Excellence' rating. Currently the building is sitting at 65.0 points as detailed in **Table 9**, which includes a point 'buffer'.

Green Star DAB has undergone 3 major reviews since its release with the current version of the tool being version 1.3. Version 1.3 is a new version that was specifically created to deal with greenhouse gas emissions credits due to the introduction of NCC 2019. Current projects that are using NCC 2016 are to use Green Star DAB v1.2 while projects that are applying NCC 2019 must use Green Star DAB v1.3. The only changes between Green Star DAB v1.2 and v1.3 relate to the Energy and Greenhouse Gas Emissions credits that utilise NCC Part J as a benchmark.

The previous design was targeting 65.5 points under Green Star DAB version 1.2.

Table 9 - Green Star and As Built version 1.3 Target

Category	Available Points	Targeted Points	'Potential/ Alternative Points'
Management	14	13	1

Category	Available Points	Targeted Points	'Potential/ Alternative Points'
Indoor Environment Quality	17	11	4
Energy	22	7	1.4
Transport	10	10	0
Water	12	5	1
Materials	14	5	7.5
Ecology	6	2	1
Emissions	5	3	0
Innovation	10	9	0
Total	**110**	**65**	**15.9**

Source: Umow Lai

ESD changes:

- NCC 2019 and Green Star DAB v1.3 as opposed to NCC 2016 and Green Star DAB v1.2
- Revised glazing recommendation for ground floor retail spaces.
- Greater than 40% of the total floor area receives a Daylight Factor equal or greater than 2% in comparison to 45% within the previous design due to the revised massing.
- A decrease in roof top solar PV capacity from an array size of up to 99kW and yield of 133,000 kWh to an array size of up to 40kW and yield of 54,000 kWh due to the reduced roof area. Note that the renewable energy component in Green Star DAB v1.3 has changed so that the Solar PV must contribute at least 15% of the total energy consumption before a point can be awarded. Previously the extent of Solar PV proposed was able to achieve more than 1 point in Green Star DAB v1.2. The revised design does not achieve a point for Renewable Energy.
- The revised design includes additional cyclist and end of trip facilities which will meet the Green Star requirements via performance based approach.

The sustainability measures implemented in the design will ensure that the building has enhanced energy efficiency, thus minimising the associated greenhouse gas emissions. Potable water use will be minimised through water conservation measures, including Water Sensitive Urban Design initiatives. The building also includes measures to minimises waste going to landfill through the construction and operational stages, while increasing the rate of material reuse and recycling.

5.14. ACOUSTIC IMPACTS

An Acoustic Services report has been prepared by Norman Disney Young (NDY) (**Appendix S**) to address the revised design and respond to SSDA submissions.

Noise survey and site inspection were conducted to determine the existing background/ ambient noise levels at the nearest sensitive receivers. The noise survey was carried out over a period of 8 days, between the 16 to 24 May 2019. It was noted that these original measurements were affected by wind and rain and therefore additional noise monitoring was conducted from 28 February to 12 March 2020, an additional 13 days. The noise measurements locations are shown in **Figure 53**.

Following additional noise monitoring conducted it was determined that the site-specific noise levels were within acceptable tolerances with the previous findings, and hence the original noise monitoring was validated.

Figure 53 - Location of noise receivers

Source: NDY

These guidelines were used to recommend noise and vibration mitigation methods and assess whether there would be any acoustic impacts caused by the development.

During the assessment of acoustic impacts, the standard construction hours were considered to be 7:00-18:00 Monday to Friday and 8:00 to 13:00 on Saturdays.

Daytime: 0700 to 1800 hrs.

Evening: 1800 to 2200 hrs.

Night-time: 2200 to 0700 hrs.

Operational Noise

The *NSW Noise Policy for Industry* (**NPfI**) provides assessment methods for controlling intrusive noise impacts and maintaining noise amenity. This was applied to the closest residential receivers to assess the acceptable amenity and intrusive noise levels.

Building services and plant rooms have been laid out across the building with consideration for a range of issues:

- Operational and maintenance access to plant facilities, including both short- and long-term replacement needs.

- Integrating plant and maintenance facilities into the overall volume of the building, including incorporating access and ventilation requirements into a cohesive façade design.
- Services flexibility and efficiency, with consideration given to the zoning and metering of services to suit floor plate sizes and potential tenancy fitout and space use, and minimising loss of floor space to accommodate riser voids.

Based on these issues plant spaces are located on a number of levels of the building, including:

- Basement 2 Floor Plan – Mechanical plant room on West side
- Basement 1 Floor Plan – Primary Mechanical, Fire and Electrical plant on the north and west sides, with gas and water meters at the North East corner.
- Ground Floor Plan – Substation at North West corner with Substation ventilation louvres and Mechanical intake on the West façade (Library Driveway).
- Level 1 Floor Plan – Water tanks and Mechanical exhaust south of the Lift core.
- Level 13 Floor Plan – Mechanical plant room south of the Lift core.
- Level 15 Floor Plan – Mechanical plant room south of the Lift core.
- Level 17 Floor Plan – Mechanical plant room north of the Lift core.
- Level 18 Floor Plan – Mechanical plant room north and west of the lift core, with emergency generator louvres on the north façade and west facades. Plant attached to these louvres includes an attenuator to mitigate plant noise. The cooling tower enclosure has an open louvred façade for ventilation on the north façade. This floor level is approximately 40m above the roof of 61-63 Rickard Road.

All mechanical services noise emissions from the building will be designed to satisfy the boundary noise requirements of the NPfI (e.g. using internally lined ductwork, attenuators and/or barriers where required). These will be reviewed in detail as the design progresses. To achieve requirements under the NPfI, a limiting aggregate sound power level of 80dB(A) is required.

Whilst some plant is located on the north facing side of the building, the direct sound path from the plant areas to the residential apartments at 61-63 Rickard Road is minimal, noting that the roof level of this building aligns with Level 8 of the proposal. Acoustic attenuation measures including plant room enclosures, addressing both noise transmission to adjacent or external spaces, and managing noise reverberation within plant spaces has been incorporated into the revised design. The performance of the plant room enclosures, including floors, walls, ceiling and openings, addresses both acoustic design advice from the Services and Acoustic consultant, and performance requirements identified in planning and development approvals.

Wall Construction

The building envelope, internal partitions and building services equipment will be designed in general accordance with recommended internal design sound levels as per AS/NZS2107:2016 and Development Near Rail Corridors and Busy Roads – Interim Guideline.

Based upon current assessment of the building it is recommended that 6mm monolithic glazing/12mm Airgap/10mm monolithic curtain wall glazing, with a minimum transmission loss of Rw37, will be suitable for the acoustic requirements for an education facility.

It should be noted that these recommendations are to meet the acoustic requirements only, and may be subject to potentially more stringent structural, thermal and façade requirements.

Balcony Use

Based upon preliminary findings (using a worst case scenario), the use of the balcony spaces for open air activities should be limited to the day and evening periods only. It is recommended that these spaces on the northern façade are closed between 10pm and 7am.

For general management it is recommended that the number of people accessing the balcony is limited to smaller gatherings where possible. The use of balconies for after-hours (past 10pm) functions is not recommended as it would result in exceedances of the night-time criteria.

However, given the university will be holding functions and the like, it is requested that this limitation not be required as part of any SSDA consent, and that the use of balconies be permitted during the hours of 7am and 11pm when visitors are permitted into the building.

Operational Traffic/ Car Park Noise

Operational traffic noise was assessed against proposed parking spaces. The only time where car park use could potentially exceed the Project Noise trigger levels is during the night (10pm to 7am), but this scenario is not typical and highly unlikely as the car park will only be accessible to staff.

Operational traffic on the site will not result in exceedances of the project specific trigger levels and therefore, no mitigation measures are required for traffic noise.

Construction Noise and Vibration

The findings of Acoustic Services assessment have determined that construction works, undertaken during standard hours will not exceed the Highly Noise Affected criteria of 75dB(A) or greater during construction works. Hence it is not anticipated that a construction noise and vibration management plan will be required for these works.

The findings have proposed that construction noise is managed through feasible and reasonable noise mitigation measures, outlined in the *NSW Interim Construction Noise Guideline* and *Australian Standards 2436-2010*. Additional site and noise management practices have been provided in Appendix B of the Acoustic Services report for guidance purposes.

The assessment of acceptable vibration levels was based upon the *German Standard DIN 4150-3 Structural Vibration Part 3: Effects on building and Structures.*

Construction vibration estimations are not considered to cause any damage of the closer receiver buildings during the most onerous activity piling, which is being assessed separately as part of the Early Works DA. Additional findings of the Acoustic Services report have determined that construction works during non-standard hours will exceed Construction Noise Management Levels and that any proposed work outside standard construction hours would require additional approval by the NSW EPA.

Construction Road Traffic Noise

Predicted changes in traffic noise were determined not to result in significant increase in traffic noise on Rickard Road. It is anticipated that future traffic flows as post completion will result in worst-case increases of up to +0.5 dB(A) overall. Hence the proposed university is predicted to comply with the NSW RNP criteria. Due to existing traffic flows, it is anticipated that increased traffic noise during construction, will be largely negligible during site related activity, with only marginal increases in traffic noise predicted.

Mitigation Measures

Noise and vibration mitigation measures set out in the revised Acoustic Assessment are to be adopted for the construction of the building. All potential noise and vibration impacts of the building as described in the acoustic report have been mitigated through design and the construction methodology to minimise the impact on adjoining properties. These mitigations measures are in full accordance with industry standards, guidelines and legislation.

5.15. CONSTRUCTION MANAGEMENT

A Preliminary Construction Management Plan (pCMP) has been prepared by Walker Corporation (**Appendix R**) to address the revised design and respond to submissions. The project programme is subject to authority approvals but is expected to have a 20 month duration.

Main site working hours will be governed by the final SSDA consent conditions, however the following is proposed for the preliminary CPTMP:

- Mondays to Fridays inclusive: 7am–5pm
- Saturdays: 7am–1pm
- Sundays and public holidays: No work

5.15.1. Construction Methodology

Site works:

- A-class hoardings will be installed on the western and southern perimeters amount the site. B-Class hoardings will be installed on the northern boundary (along Rickard Road) and the eastern boundary (adjacent Bankstown Library and Knowledge Centre).

- The Project Hoardings will identify the site and separate it from the public. The hoardings will be constructed to a minimum 2400mm height and painted to Council specifications.

Structure:

- Work will commence at the lowest level in the new basement (B2) and progressively work upwards.
- Construction of this phase will include:
  - Sub surface perimeter shoring and retention to consolidate the boundary and ensure the integrity of the perimeter enclosure and adjacent property;
  - Rough-ins of in-ground services in the basement and areas dedicated to future installation of plant and the utility authorities;
  - Construction of the basement floor levels;
  - Construction of the new service core and infill structure and elements to the perimeter of the site; and
  - Construction of new multi storey levels.

Building Envelope:

- Access for external finishes work and installation of the façade will be through trailing decks attached to the perimeter screens. The sequence of this work will be coordinated to maintain the same floor-to-floor cycle as the structure.
- Construction of this phase will include:
- Installation of new structural connections to the perimeter of the new floor slabs in the tower to accept points of fixing for new façade; and
- Staged installation of new facades working from the ground up.

Services Rough in and Base Building Works

- Services rough-in and wet trades will commence in the basement level when the floors are clear of back propping from the proposed structural works.
- Closure of the façade will minimise exposure to inclement weather and allow the dry trades, including major installation of major plant and equipment, to follow the wet trades progressively up the building.

Fit out and Finishes

- Fit out of the basement and podium level lobbies, retail base building and amenities, will be scheduled as a priority to commence after substantial completion of the base building works.
- This will allow the basement to be used for materials storage during the project, additional site amenities and handover of the retail tenancies for fit out.
- The quality and expectations for the installation of fit out to the “front of house” ground floor lobby and public areas necessitate early commencement to ensure installation is executed in accordance with the design. Fit out of the balance of the lobbies and amenities to the balance of the typical floors will be scheduled to follow the dry trades as they are completed.

5.15.2. Management Plans

All management plans are site specific action plans, and will be kept on site at all times and be available to all staff.

Noise, Vibration and Disruption Management;

A Noise, Vibration and Disruption Management Plan will be developed by the builder to address the construction generated noise and vibration that will occur during the project and the measures to mitigate these occurrences.

The following noise mitigation measures will be used during site project activities:

- Staging of site works to maximise use of the existing site features/facilities as acoustic barriers.

- Noise and vibration awareness training for all site staff including subcontractors as part of general site induction.
- Strict adherence of the approved works times.
- Works will be scheduled when possible to avoid simultaneous noisy activities occurring on site.
- Vehicles will not be left idling at the site. In addition, machines or equipment used intermittently during construction activities (i.e. cranes, excavators, bobcats, lifting equipment, etc) will be shut down in the period between works activities.
- The duration of noise-intensive works will be minimised through a regular review of the program and construction methodologies during project team meetings.
- Piling, shoring and underpinning works will be undertaken using non-percussive methods when achievable.
- Regular plant and equipment maintenance will be completed and documented throughout the project and documented to ensure all machinery is in good working order and use does not generate excess noise/vibration.
- All plant, machinery and works vehicles will have an efficient muffler design in accordance with the manufacturer's specifications.
- Radio or music audible in areas external to the building/vehicles will not be permitted on site.
- Where noise and/or vibration levels at the sensitive receiver/receptor location exceed the nominated goals, additional feasible and reasonable measures available will be implemented to either reduce noise emissions. This may include:
  - Evaluation of the works activity and subsequent use of alternative methodologies and/or equipment;
  - Installation of equipment silencing devices such as shrouding, industrial silences fitted to exhaust systems; and,
  - Installation of temporary sound barriers/ shielding.

Site Safety Management

A Site Safety Management Plan will be developed by the Contractor to demonstrate the commitment of the project to Occupational Work Health & Safety (WHS). The plan is required to identify the scope of work to be undertaken, the hazards associated with the work and the risk assessment processes and risk control measures to be used in the execution of the plan.

The Site Safety Plan will include all mitigation measures outlined within the PCMP.

Construction Waste Management

A Construction Waste Management plan (CWMP) will be developed by the builder to address the creation, disposal and minimisation of waste created by the construction of the project.

The CWMP will include all mitigation measures outlined within the PCMP including disposal of waste that cannot be recovered, reused or recycled and requires land filling is to be safely recovered and disposed to licensed landfills. All documentation of materials disposed, landfill receipts, contracts and waste plans will be retained and maintained to meet the data collection requirements of this project.

Environmental Management

An Environmental Management Plan **(EMP**) will be developed by the builder to address the environmental issues that will occur during construction.

Environmental issues and controls that will occur during construction include the following:

- Noise and dust emissions;
- Stormwater and sediment emissions;
- Waste disposal, reduction and recycling;
- Management of hazardous and dangerous materials;

- Return of excess materials, cleaning of site and paths of delivery and exit.

Regular review, audit and reporting of the EMP will be undertaken during construction to minimise environmental impacts.

Project Management Plan

The project management plan will consist of a variety of components as outlined in the CMP including:

- Consultation and communication strategy
- Stakeholder communication
- Quality assurance/ quality control plan

5.15.3. Construction Traffic Management

A preliminary Construction Pedestrian and Traffic Management Plan (CPTMP) has been prepared.

The proposed construction vehicle access is at the northern boundary of the site, via Rickard Road (entry and exit – one-way route) as illustrated in **Figure 54**. This arrangement minimizes disturbances to existing accesses.

Figure 54 - Construction truck arrival and departure routes

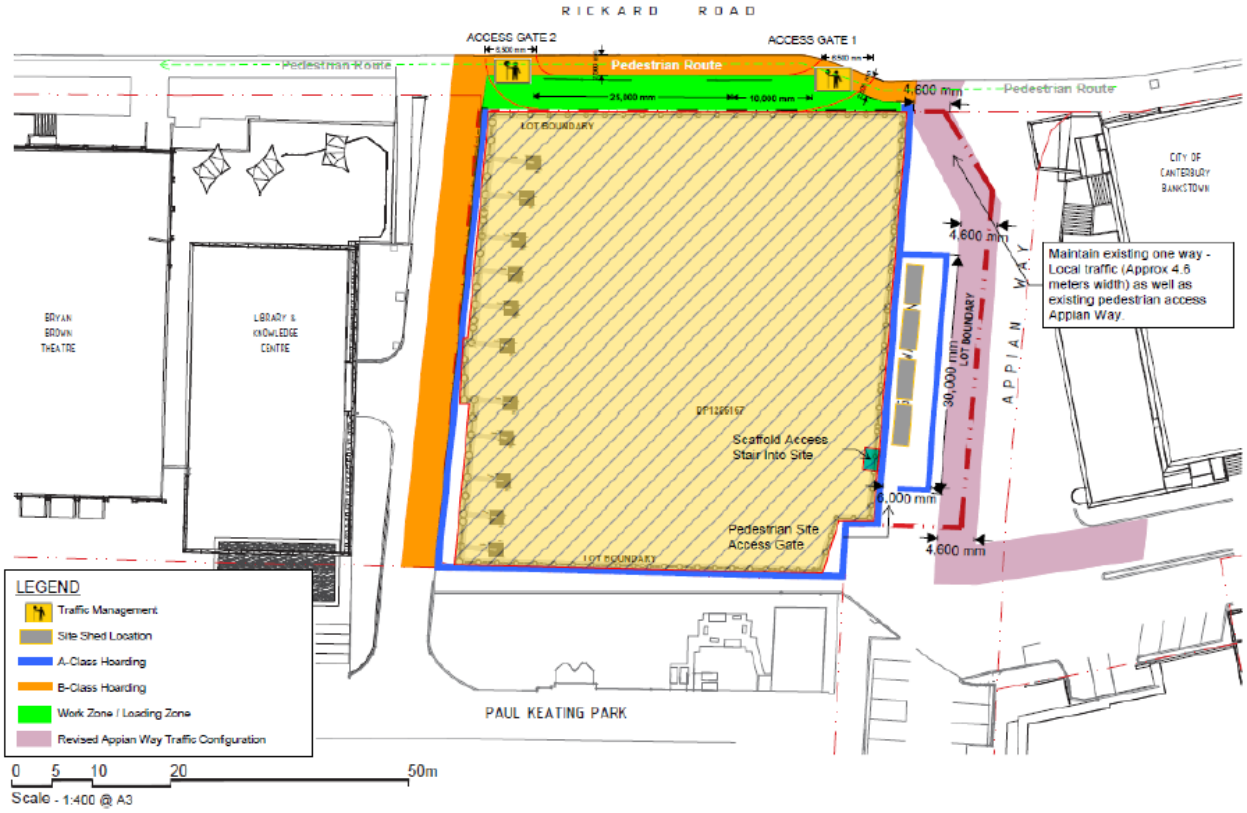
Source: Arup

Initially, no on-site parking will be provided for construction staff and construction staff will be encouraged to use public transport. Any staff driving will need to avail of public parking in the surrounding area. Following the construction of the basement levels, this could be potentially be used for construction parking during later construction stages (subject to the builder's staging and methodology).

It is expected that the western access road to the BLaKC and The Appian Way/Civic Drive will continue to be operational as per the existing situation. Any changes to the CTMP will be subject to Council approval prior to implementation.

RMS certified traffic controllers are proposed be in place at site access and egress point to ensure the safe interaction of pedestrians and construction traffic (see **Figure 55**).

Figure 55 - Construction Access



Source: Arup

In terms of traffic staging and pedestrian access, the following has been considered:

- Continued pedestrian access along Rickard Road, Jacobs Street, The Appian Way and along the northern boundary of Paul Keating Park;
- Continued vehicle access to the BLaKC car park;
- Continued function of The Appian Way for both vehicles and pedestrians;
- Continued access to Civic Drive, including vehicle access to the Council car park and any remaining parking spaces;
- Traffic controllers in place at two key locations:
  - At the site entry (at Rickard Road)
  - At the exit from site (at Rickard Road)
- The traffic controllers will ensure the safe interaction between pedestrians and construction vehicles at the three locations listed above. If required, expandable barriers will be in place at these locations to temporarily hold pedestrians while construction vehicles are entering and exiting only.

Construction vehicle traffic generation is expected to be approximately 75 trucks per day during the peak construction stages and 8 trucks per hour. This reduces to approximately 50 trucks per day during other stages.

A final CTMP will be developed by the builder and submitted to Council for approval following liaison with relevant stakeholders such as Council, TfNSW, RMS and neighbouring land owners and tenants.

5.16. UTILITY INFRASTRUCTURE

An Infrastructure Management Plan has been prepared by NDY which outlines the outcomes of initial Authority consultation, to determine the capacities of existing services and utilities available for the university building.

Potable Water

The university building will make connection into the DN150 Sydney Water potable water main located along Rickard Road.

A Sydney Water Section 73 Assessment has been undertaken and within the notice of requirements Sydney Water have confirmed that the existing DN150 Sydney Water main has sufficient capacity to service the potable water and firefighting demands of the proposal.

NDY have received the pressure and flow information from Sydney Water for the DN150 water main and the water main size is deemed adequate as per the Water Supply Code of Australia.

There are no existing or proposed Sydney Water easements within the site.

Sewer Drainage Services

The site has frontage to the following Sydney Water sewer mains:

- DN150 Sydney Water sewer main within Rickard Road; and
- DN300 Sydney Water sewer main traversing the site along the southern boundary of the site.

The site has an existing DN225 sewer drainage connection connecting into the DN300 Sydney Water sewer main traversing the southern portion of site.

The existing DN300 Sydney Water sewer main traversing the site is reticulating within the proposed building footprint. Further to the Sydney Water section 73 assessment, within the notice of requirements Sydney Water have requested the sewer main to be amplified and diverted to cater for future loads.

The water servicing coordinator has prepared the sewer main amplification and diversion design (case number 177945WW). The sewer diversion works will form part of a separate early works development application and the design will be lodged with Sydney Water once development consent is received for the Early Works by the South Sydney Planning Panel.

Stormwater Drainage Services

Stormwater runoff currently, sheet flows across the site from the north to south, from Rickard Road towards Paul Keating Park. Part of this runoff is captured by kerb inlet pits located near the southern site boundary. Runoff on The Appian Way is captured by a sag pit at the south eastern corner of the site. These pits drain towards the 2.4m x1.5m box culvert running parallel to The Appian Way.

As the site is flood affected (refer to Flood Assessment for further details), the 2.4m x1.5m culvert forms a major channel conveying much of the flood waters past the site.

The university building will incorporate a new grated drain along The Appian Way where it connects to the existing Council pits via a new junction pit.

Discharge Rates:

- 5 Year ARI: 0.077m³ PSD - .086m³ /s
- 20 Year ARI: 0.095m³ PSD - .122m³ /s
- 100 year ARI: 0.112m³ PSD - .157m3/s

Volume of OSD Tank: 35m³

Refer to **Section 5.7.5** for further discussion regarding flood and stormwater management.

Natural Gas

The site has frontage to a DN75 NY 7kPa Jemena Natural Gas main. Natural gas is proposed to be used within the university building for the following:

- Retail Tenancies (assumed food and beverage);
- Domestic Hot Water System; and
- Mechanical Heating System.

NDY have liaised with Jemena regarding the capacity of the existing natural gas main and Jemena have confirmed that the existing 7kPa natural gas main within Rickard Road does not have sufficient capacity to service the proposed development.

Jemena have confirmed that the university building can be serviced by extending a new natural gas main off the 210kPa natural gas main located at the corner of Kitchener Parade and Rickard Road. The length of extension is approximately 250m. The natural gas main extension will be completed by Jemena once the connection application is lodged post receipt of the development approval.

There are no existing or proposed Jemena easements within the site.

Electrical High Voltage

The maximum demand for the university building is approximately 3500kVA. Therefore one (1) chamber substation with a 3 x 1500kVA transformer arrangement is required.

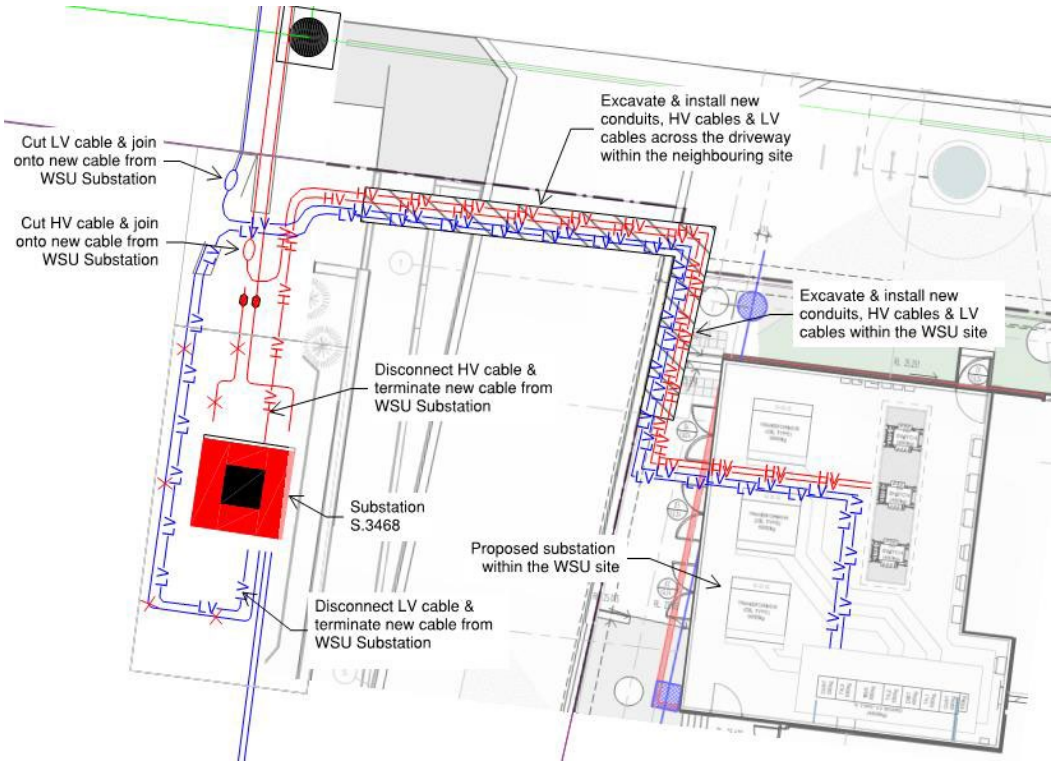
The WSU substation will be located on ground floor in the north-west corner of the site, adjacent to the existing Ausgrid Substation S.3468 that is located approximately 20m west from the proposed WSU substation, on the BLaKC site.

Ausgrid's Design Info Pack AN-20271, nominates HV Feeder Pa.29 ex. Greenacre Zone as the HV point of connection for the WSU substation.

There are 11kV underground cables along the northern footpath of Rickard Road. New High and Low Voltage cabling will need to be installed within the site, the neighbouring site and the Rickard Rd road reserve (footpath) to connect the WSU substation to Ausgrid existing surrounding network.

The maximum demand of 3500kVA requires an additional 184A at 11kV from the existing network, to supply the site. These works are a proposal only, the final 11kV network arrangement will be determined during the detailed design phase. The proposed construction works are shown in **Figure 56**.

Figure 56 - Proposed HV/ LV Electrical Connections.



Source: NDY

The following electricity related easements will be incorporated on the sites title prior to the occupation of the university building:

- Substation easement;

- Cable easement from the property boundary to the substation; and
- Right of Way to access to the substation.

Communication Services

The site has 50pr of copper lead-in cables from The Appian Way, however these copper cables are confirmed dead by Telstra DBYD and will not be used as there are NBN services are available in the area. The removal of this obsolete infrastructure will form part of the Early Works DA and subject to a separate consent.

Currently, there is no lead-in fibre cables to the site. It is proposed that Carrier fibre is run underground from the closest existing pit on Rickard road to the site.

Integrated Water Management Plan

An Integrated Water Management Plan is included in the Infrastructure Management Plan (**Appendix W**), which outlines the proposed alternative water supplies, proposed end uses of potable and non-potable water, and Water Sensitive Urban Design (WSUD) for the university building.

The objective is to encourage building design that minimises potable water consumption during operations. The following lists the major items that contribute to minimising the potable water consumption:

- Water Efficiency - Sanitary fixture and tapware will be WELS rated in accordance will be within one star of the following WELS ratings:
  - 6 Star (taps, urinals and dishwashers)
  - 5 Star (toilets and clothes washing machines)
  - 3 star (showers)
- Non-Potable Water Services – the proposed university building includes a 45kL rainwater tank that captures the roof drainage. Rainwater will be re-used for toilet flushing and irrigation.
- Fire Water Re-use – the fire protection system test water is reconnected to the fire services tanks located in the basement. A minimum of 80% of fire services test water is captured for re-use.
- WSUD – the proposed development shall demonstrate WSUD and further improvements to water quality by meeting the water quality targets specified above by Green Building Council of Australia. The entire roof area drains to a 45kL rainwater tank where treatment is provided in the form of rainwater reuse. Overflow from the rainwater tank will be routed to the OSD tank before discharging to an enviropod located on The Appian Way and then discharged out of the site.

5.17. OPERATIONAL WASTE

An Operational Waste report has been prepared by Elephants Foot Recycling Solutions (**Appendix U**) to address the revised design and respond to submissions.

The university building has been designed to achieve a 5-star Green Star rating under the Green Star Design and ‘As Built V1.3’ tool. The required waste management facilities are in place to collect and separate distinct waste streams and meet best practice access requirement for collection by the relevant waste contractor, in accordance with the Green Star Criteria Assessment.

The following table shows the estimated volume (L) of garbage and recycling that will be generated by the building in operation. A five-day operating week has been assumed. It has also been assumed that all operations within the university building will share bins, waste room and collection service.

Table 10 - Estimated Waste Generation

Building Area	NLA (m^2)	Garbage Generation Rate (L/100m^2/day)	Generated Garbage (L/week)	Recycling Generation Rate (L/100m^2/day)	Generated Recycling (L/week)
Food and Beverage Retail Tenancies	300	175	2,625	690	10,350
Ground Level Open Space (University Street)	1,331	5	322.25	10	665.5
University Operations	19,149	25	23,936.25	3	2872.35
Conference Facilities	986	70	3,451	225	11,092.5
Offices for University/ Education Use	4,590	16	3,672	12	2,754
Total	**26,356**		**34,017**		**27,734.35**

Source: Elephants Foot

The recommended bins for the site are as follows:

- General Waste: 8 x 1100L MGBs collected daily (5 times weekly)
- Co-Mingled Recycling: 3x 1100L MGBs collected three times weekly
- Carboard Recycling: 3x 1100L MGBs collected three times weekly
- Paper Recycling: 3x 1100L MGBs collected three times weekly
- Imaging consumables: 1x Imaging consumables collection box as required.

The waste storage room on basement level 1 accommodates the required bin provision. The collection of waste by a private contractor will allow the removal of waste to be tailored to suit the final operational characteristics of the building. As such no adverse impacts are anticipated as a result of waste storage and collection from the site.

In order to appropriately manage and mitigate any adverse impacts arising from waste, the different components of the WMP should be implemented during the operation of the university building. In particular the waste room will be required to contain facilities to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

6. AMENDED RISK ASSESSMENT

The SEARs require an environmental risk analysis to identify potential environmental impacts associated with the proposal.

This analysis comprises a qualitative assessment consistent with AS/NZS ISO 31000:2009 *Risk management–Principles and guidelines* (Standards Australia 2009). The level of risk was assessed by considering the potential impacts of the university building prior to application of any mitigation or management measures. Comment on residual risk (the remaining level of risk following implementation of mitigation and management measures) is also provided within this section.

Risk comprises the likelihood of an event occurring and the consequences of that event. For the proposal, the following descriptors were adopted for 'likelihood' and 'consequence'.

Table 11 - Risk Descriptors

Likelihood	**Consequence**
A Almost certain	1 Widespread, significant impact
B Likely	2 Extensive but reversible (within 2 years) impact or irreversible local impact
C Possible	3 Local, reversible (within 2 years) impact
D Unlikely	4 Local, reversible, short term (<3 months) impact
E Rare	5 Local, reversible, short term (<1 month) impact

The risk levels for likely and potential impacts were derived using the following risk matrix.

Table 12 - Risk Matrix

		LIKELIHOOD				
		A	B	C	D	E
CONSEQUENCE	1	High	High	Medium	Low	Very Low
	2	High	High	Medium	Low	Very Low
	3	Medium	Medium	Medium	Low	Very Low
	4	Low	Low	Low	Low	Very Low
	5	Very Low	Very Low	Very Low	Very Low	Very Low

The results of the environmental risk assessment are presented in **Table 13** below.

We note that while this analysis has been undertaken in accordance with the SEARs, this methodology was designed principally in relation to processes impacting on natural ecological systems and is highly dependent upon 'reversibility'. In an urban context where buildings are designed to be relatively permanent, rankings are skewed upwards, and of questionable real meaning.

Changes to the risk assessment in response to the proposed design changes are marked in **bold text** highlighting the changes and ~~strikethrough~~ for deletions.

Table 13 - Risk Assessment

Aspect	Potential Impact	Likelihood	Consequence	Risk Level
Built Form and Urban Design	The built form will detract from the amenity of the area.	D	1	Low
Overshadowing	Increase in shadowing to surrounding public domain, including Paul Keating Park	~~D~~ **B**	4 **4**	~~High~~ **Low**
Visual Impact	Visual impact to views to and from the site and adjoining heritage items.	~~B~~ **C**	~~1~~ **2**	~~High~~ **Medium**
Traffic and Transport	Increased traffic generation and demand for on street parking	C	3	Medium
Infrastructure and Utilities	Adequate connection to infrastructure and utilities. Impacting on existing infrastructure below the site.	E	4	Very Low
Contamination	Exposure of contamination or hazardous materials during construction and operation.	D	3	Low
Flooding	Increased flood affectation of surrounding properties. Risk to users of the building.	~~C~~ **D**	2	~~Medium~~ **Low**
BCA and Accessibility	Risk of inadequate fire protection measures or access for people with a disability.	~~D~~ **E**	4	~~Low~~ **Very Low**
Soils and Water	Potential stormwater impacts. Potential geotechnical impacts and instability of future development.	D	4	Low
Structural	Structural instability of the built form.	~~C~~ **D**	2	~~Medium~~ **Low**
Heritage and Aboriginal Cultural Heritage Impacts	Impact on heritage value of identified heritage items in the vicinity of the site and/ or Aboriginal cultural heritage impacts.	E	3	Very Low
Noise and Vibration	Increase in noise levels during construction activities. Adverse noise impacts on proposed uses, such as traffic noise. Adverse noise impacts from proposed uses on surrounding receivers.	C	4	Low

Aspect	Potential Impact	Likelihood	Consequence	Risk Level
Waste	Generation of waste and pollutants.	D	5	Very Low
Reflectivity	Detrimental impact on pedestrians and users of adjoining developments.	C	3	Medium
Aeronautical	Detrimental impact on the safe functioning of proximate airports.	~~D~~ **E**	1	~~Low~~ **Very Low**
Social Impacts	Crime and decreased public safety whilst operational. General disruption to community associated with large scale construction. Over utilisation of adjoining public open space (PKP).	D	2	Low
Economic Impacts	Economic benefits to the local community not captured.	D	3	Low
Rental Market	Rental market impacts due to increased demand caused by WSU students.	D	3	Low
Wind Impacts	Adverse wind environment and pedestrian discomfort.	~~C~~ **D**	3	~~Medium~~ **Low**
Construction Impacts	Noise, dust, air quality and traffic impacts.	B	4	Low
Biodiversity	Loss of biodiversity.	E	3	Very Low
Dangerous Goods	Potential environmental or safety issues associated with the storage and use of Hazardous substances.	D	4	Low
Lighting	Light spill into any surrounding sensitive receivers.	D	3	Low

7. MITIGATION MEASURES

The collective measures required to mitigate the impacts associated with the proposed university building and associated works are outlined below. These measures have been derived from the previous assessment in the Amended DA and RTS Report and Environmental Impact Statement, as relevant, and those detailed in consultants' reports.

- **Built form and Urban Design**: Ongoing consultation and engagement with Council in relation to relevant strategic design projects underway in the vicinity of the site. These include but are not limited to the creation of an Urban Design Framework for the Northern CBD Core, strategies around engagement with the future Sydney Metro station, aligning with Bankstown Complete Streets, and the Paul Keating Park Masterplan.
- **Traffic and Transport**: the potential impacts on the local road network have been assessed, including likely traffic generation for heavy and light vehicles. Mitigation measures include preparation of a Green Travel Plan in conjunction with Council, ongoing monitoring of The Appian Way drop off zone, preparation of a Loading Dock Management Plan and upgrades to the vehicular crossings at Rickard Road.
- **Contamination**: the potential for site contamination has been identified through an intrusive soil assessment and analysis. The potential for contamination is considered low. However, an unexpected finds protocol should be followed and a waste classification assessment should be carried out prior to disposal of any fill material off site. Hazardous building materials should be managed in accordance with the requirements of the NSW Work Health and Safety (WHS) Act 2011 (WHS Act), NSW WHS Regulation 2017 (WHS Regulation) and relevant Codes of Practice, Australian Standards and guidelines.
- **Flooding**: The flood levels around the entrances on The Appian Way and Rickard Road from both interim upgrades and full drainage upgrades vary from RL25.10 to RL25.25, the entrance landing has been designed at RL 25.75 to achieve at least 500mm freeboard. On-site refuge (i.e. first level or above) is recommended for during operation of the University.

  A Flood Emergency Response Plan has been prepared to promote a satisfactory awareness of expected flood behaviour and risks, identify measures to become flood prepared and recommend a course of action during and after flood events. While there is a low risk of flooding, future tenants should incorporate flood management procedures in their standard emergency risk management plans. The Flood Emergency Response Plan should be revised if the flood study for the subject site is revised to capture changes in the catchment since the last study.
- **Hazard and Risk**: Safety and structural recommendations within the Dangerous Goods Assessment will be incorporated into the proposal prior to issue of a Section 6.28 Certificate. These include the formulation of appropriate emergency response procedures and equipment (protective gear and a wash down areas) along with the formulation of appropriate transport procedures.
- **Aeronautical**: A Controlled Activity Permit for the infringement of the Bankstown Airport Obstacle Limitation Surface (OSL) and Procedures for Air Navigation Surfaces – Aircraft Operations surface (PAN-OPs) has been issued by the Department of Infrastructure, Transport, Cities and Regional Development for both the built form and a crane during construction.
- **Stormwater**: Appropriate mitigation measures have been incorporated to manage water quality and quantity, including an OSD basin. Sediment and erosion control measures will be implemented during the demolition and construction phases to avoid downstream impacts.
- **Geology**: Excavation and shoring are subject to a separate Early Works DA which will implement the ongoing recommendations of Douglas Partners. Proper vibration mitigation measures will be required to mitigate risk damage to adjoining buildings and survey monitoring of the shoring walls and adjacent buildings should be carried out to measure the vertical and lateral movements. The monitoring should be carried out using precise levelling techniques to 0.5 mm accuracy, with measurements taken on a weekly basis during the basement construction period.
- **Groundwater Measures**: As the proposed basement level is below the groundwater level temporary support for excavation will be required to prevent groundwater inflow to the site to prevent the risk of large groundwater inflows which would require disposal off site and potentially drawdown of groundwater surrounding the site. During construction, dewatering, possibly by 'sump-and-pump' methods, will be required. Due to expected groundwater uplift pressure dewatering will need to continue until the dead load of the structure is sufficient to restrain the structure from upward movement.

- **Structural**: All recommendations of the Structural Engineer TTW should be implemented including:
  - The basement B2 slab has been designed as a slab on grade. To prevent hydrostatic pressure build-ups a drainage system is to be installed under the slab this could be in the form of hydrostatic pressure relief valves or stand pipes at regular centres throughout the slab.
  - As soldier pile walls can appear wet due to localised water penetration. It is recommended that drywall be placed in front of the soldier pile with an appropriate dish drain at each slab level to collect any water seepage. The proposed design of the basement allows for a such a wall to be constructed.
  - In general, all loads and load combinations shall comply with AS/NZS 1170 Parts 0 to 4 structural Design Actions. Live load reductions will be applied as permitted by AS/NZS 1170.1. The design loads are outlined within Section 6 of the TTW Structural Design Report.
  - To ensure temporary ground anchors are clear from the zone of influence of Council and Sydney Water assets, detailed checking and verification of survey information is required during the construction stage. A detailed assessment of ground movements is being carried out by Douglas Partners, in particular to review the extent and impact of ground movements on the Sydney Water assets that surround the site.
- **Infrastructure Requirements**: the existing utility services are adequate and/or can be extended to accommodate the needs of the proposed development.
- **Heritage**: There are no constraints on the site associated with European Heritage. The mature vegetation around the Council Chambers will be retained and the landscaping on the proposed building will be maintained to ensure it aligns with the existing vegetated nature of the area.
- **Aboriginal Cultural Heritage**: the ACHA states there is very little potential for Aboriginal objects to be present on the site and no cultural heritage value was identified. Mitigation measures have been included to manage any unexpected finds during the early Works, as well as additional consultation with the local indigenous community throughout the construction process.
- **BCA and Accessibility**: A detailed BCA assessment along with an integrated Section J compliance assessment will be required prior to Construction Certificate along with referral to the NSW Fire Brigade due to Category 2 Fire Safety Provisions considered as a performance solutions.
  Further development and refinement of detailed DDA design requirements, such as internal fit-out design, and details of stairs, ramps, lifts, sanitary facilities and other access features will be required prior to Construction Certificate and assessed prior to Crown Building Approval Stage/Construction Certificate Stage. In addition to meeting statutory DDA requirements, the proposed building will integrate enhanced access provisions, universal design principles and additional guidelines (WSU Design Standards) to further the objectives of the DDA.
- **Noise and Vibration**: Noise and vibration mitigation measures set out in the revised Acoustic Assessment are to be adopted for the construction of the building. Including limiting the use of outdoor areas to between 7am and 10pm unless an acoustic assessment is conducted that considers additional noise control measures. All potential noise and vibration impacts as described in the acoustic report have been mitigated through design and the construction methodology to minimise the impact on adjoining properties. These mitigations measures are in full accordance with industry standards, guidelines and legislation.
- **Reflectivity**: The façade development and revised design have improved the external reflectivity outcome compared to the EIS façade concept. The resultant glare experienced by neighbouring buildings will be further reduced by the existing architectural details including existing sun-shades, balconies and blinds. Regarding further mitigation of potential glare impacts, material finishes on the building façade must have reflectivity values equal to or lesser than those specified in Section 4.5 of the Reflectivity Analysis (Rev: 04, August 2020) including glazing with an external reflectivity below 14% and façade louvres, framing and external shading devices with a matte finish.
- **ESD**: compliance with the NCC 2019 and a minimum 5 Star Green Star DAB v1.3 rating.
- **Waste**: the construction phase has been assessed in detail, with recommended measures to re-use, recycle and dispose of waste.
- **Construction Impacts**: the preliminary construction management measures are considered appropriate to manage potential impacts on the site and locality during the construction phase. The preliminary CMP

will be updated by the builder once appointed to incorporate any conditions of consent imposed on the SSD DA.

Each of the recommended mitigation measures has been reviewed in detail and it is considered that they can be incorporated as conditions of consent for the SSD DA and implemented during the construction and operational phases to avoid unacceptable environmental impacts.

8. CONCLUSION

This Amended DA and RtS Report has been prepared to address the matters raised by government agencies, the public and community organisation groups during public exhibition of the proposed Bankstown City Campus Development (SSD-9831).

Construction and operation of the university campus will not result in any unreasonable impacts on or as a result of flood risk, noise generation, waste generation, technological hazards or stormwater quality as demonstrated in this EIS.

The university campus is expected to result in positive social and economic impacts on the region as a result of employment generation and the provision of essential business infrastructure to support a robust economy and to satisfy economic demand. The proposal will provide a financial return for reinvestment in the ongoing operation of a world class university.

Having regard for the biophysical, economic and social considerations, including the principles of ecologically sustainable development, the proposed university is justified for the following reasons:

- It is permissible with consent on the site under the provisions of *Bankstown Local Environment Plan 2015* and satisfactorily responds to the aims and matters for consideration listed within the LEP;
- It is consistent and compatible with the strategic land use and transport policies and will deliver a substantial investment in Western Sydney with significant construction and ongoing employment opportunities close to the growing residential population;
- It has been sited and designed to satisfactorily address State and local environmental planning instruments and guidelines, including compliance with relevant local strategic plans;
- The environmental impacts associated with the construction and operational phases have been comprehensively assessed and can be appropriately mitigated to avoid unacceptable impacts to the site or locality;
- It will provide positive local, regional and national economic impacts through the provision of employment and essential education infrastructure;
- It can be adequately serviced by essential infrastructure without unreasonable demands on existing networks; and
- The issues identified during the stakeholder consultation have been incorporated into the revised design and can be implemented in the construction and operation phases of the proposed development.

As outlined throughout this report, the proposed university campus as sought within the SSD DA is in the public interest and should be approved subject to appropriate conditions. Therefore, the proposal in its current form is considered appropriate for the location and should be supported by the consent authority.

9. DISCLAIMER

This report is dated 24 August 2020 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd **(Urbis)** opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of WESTERN SYDNEY UNIVERSITY **(Instructing Party)** for the purpose of Response to Submissions Report **(Purpose)** and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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

APPENDIX A DETAILED RESPONSE MATRIX – COUNCIL & GOVERNMENT AGENCY SUBMISSIONS

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