



The University of Sydney Engineering Technology Precinct Stage 1 - Modification 2

Changes to landscaping and flooding conditions

State Significant Development Modification Assessment

(SSD 8636 MOD 2)

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Glossary

Abbreviation	Definition
AHD	Australian Height Datum
BCA	Building Code of Australia
CIV	Capital Investment Value
Council	City of Sydney
Department	Department of Planning, Industry and Environment
DDA	<i>Disability Discrimination Act 1992</i>
EESG	Environment, Energy and Science Group, DPIE
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPI	Environmental Planning Instrument
ESD	Ecologically Sustainable Development
FPL	Flood Planning Level
Heritage	Heritage NSW, Department of Premier and Cabinet
LEP	Local Environmental Plan
Minister	Minister for Planning and Public Spaces
OSD	On-Site Detention
Planning Secretary	Secretary of the Department of Planning, Industry and Environment
SEARs	Planning Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SLEP	Sydney Local Environmental Plan 2012
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
TfNSW	Transport for NSW

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1 Introduction

This report provides the NSW Department of Planning, Industry and Environment's (the Department's) assessment of an application to modify the State significant development (**SSD 8636**) consent for The University of Sydney Engineering and Technology Precinct Stage 1 development.

The modification application seeks approval for:

- the reduction of plant pot sizes and additional planting.
- landscape redesign, including incorporation of an awning in the Eastern Plaza and conversion of Basin D from a flood mitigation storage basin to an on-site detention (OSD) basin.
- deletion of condition B31 Planning Finished Floor Levels requiring access and entry points be protected from the one per cent Annual Exceedance Probability (AEP) flood levels and in compliance with Section 6 of Council's Interim Floodplain Management Policy.
- modification of:
 - condition B33 to refer to the one per cent AEP level in lieu of the flood planning level.
 - condition B34 to correctly reference conditions B32 and B33.
 - condition B36 to reference only new structures withstand flood waters.
- deletion of flood risk management conditions B37 and B38, which requires Basin D to be protected from the one per cent AEP flood event and provision of a surrounding fence.

The application was lodged on 24 June 2020, by SJB Planning on behalf of The University of Sydney (the Applicant) pursuant to section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Background

The University of Sydney (University) is located approximately three kilometres south-west of the Sydney central business district. The University campuses in Camperdown and Darlington cover a combined area of approximately 49 hectares and are divided by City Road. The University is characterised by various low-rise and multi-storey education and ancillary buildings and expansive open space areas.

The site is legally described as Lot 1 DP 790620 and within the City of Sydney local government area. The existing Electrical Engineering Building is situated on the eastern side of the Darlington Campus within the Engineering Precinct (see **Figure 1**).

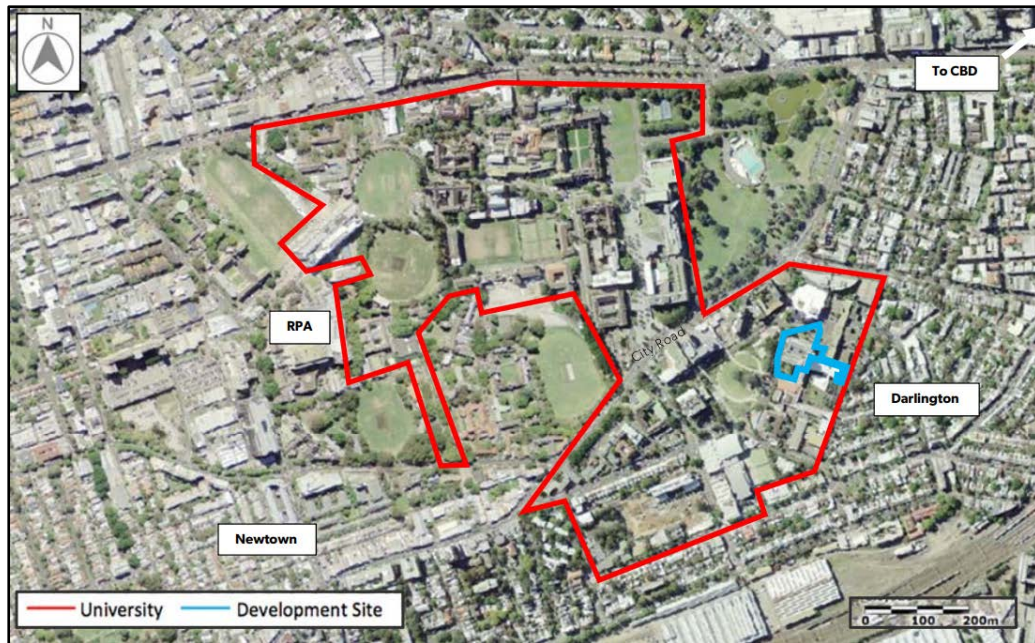


Figure 1 | Regional Context Map (Source: SSD 8636 Assessment Report)

The site fronts Maze Crescent to the west, on the opposite side of which is Cadigal Green, a large open space area incorporating the former Darlington Primary School (a locally listed heritage item under Sydney Local Environmental Plan 2012 (SLEP 2012)). Blackwattle Creek Lane is situated to the north, beyond which is the Seymour Centre, a performing arts centre owned by the University. A service corridor between the Link Building and Mechanical Engineering Building links the site to Shepherd Street on the east (see **Figure 2**).

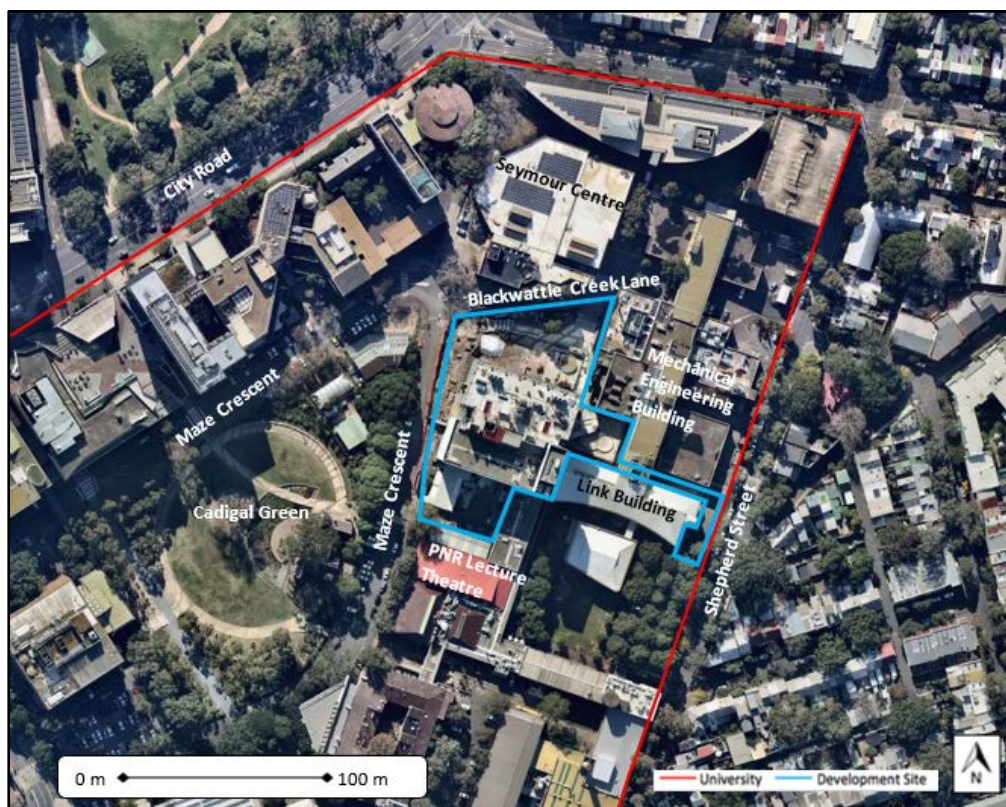


Figure 2 | Local Context Map (Source: Nearmap, 2020)

South of the site are other low scale buildings within the University including the PNR Lecture Theatre. Outside of the campus, on the eastern side of Shepherd Street is the residential area of Darlington, predominantly characterised by terrace form housing. The area is a conservation area under SLEP 2012.

1.2 Previous approvals and other relevant applications

SSD 8636 - Engineering and Technology Precinct Stage 1

On 14 February 2019, development consent was granted by the then Executive Director, Priority Projects for the development of the Engineering and Technology Precinct Stage 1 (SSD 8636). The development consent permits the following:

- site excavation and earthworks.
- upgrade of retained southern tower.
- construction of a new eight to nine level northern wing and integration with retained southern tower.
- integration with adjacent Link Building, including new loading dock and storage area.
- external gas storage areas.
- landscaping works including:
 - replacement of existing car park with the new southern plaza open space area.
 - embellishment and upgrading of existing open space areas adjoining the building.
 - tree removal and replacement planting.
- utilities and infrastructure connection works.

The development consent has been modified on one occasion for the extension of construction hours (see **Table 1**).

Table 1 | Summary of Modifications

Mod No.	Summary of Modifications	Type	Approval Date
MOD 1	Extension of construction hours	4.55(1A)	1 September 2020

SSD 6123 –University of Sydney - Campus Improvement Program (CIP) Concept Proposal

On 16 February 2015, the then Minister for Planning and Public Spaces approved an SSD application (SSD 6123) for the University's Campus Improvement Program (CIP) concept proposal. The CIP concept proposal approved new education establishment building envelopes of varying height and scale within six identified precincts. The CIP approval allows for a maximum additional gross floor area (GFA) of 264,650 sqm within the approved building envelopes, an increase of approximately 10,000 new students and 400 new staff.

The subject application is within Precinct C (Engineering Precinct) of the approved CIP precincts. The CIP approval allows for extension and refurbishment of the Electrical Engineering Building to a maximum height of RL 57, with existing taller elements to be retained.

The CIP approval has been modified on one occasion. On 9 June 2015, the then Director, Infrastructure, as delegate of the then Minister for Planning, approved a modification which clarified that approved additional GFA is contained within the approved precinct building envelopes and that the consent does not preclude other minor development within CIP precincts outside of the building envelopes.

2 Proposed modification

The application (as amended by the RtS and Supplementary RtS) seeks:

- revised conditions and plans relating to the redesign the public domain within the western boundary and the Southern, Northern and Eastern Plazas, including modification to condition B4(a) relating to size of tree plantings.
- deletion of conditions B31, B37 and B38 related to flooding.
- modification to conditions B33, B34 and B36 relating to flooding.

A detailed description of the modifications are described below.

Public Domain

The Applicant proposes to amend condition B4(a) to allow for a minimum tree pot size of 200L (rather than the required 400L), as currently a number of the chosen/approved tree species are not available in the 400L size to facilitate compliance with the project delivery timeframe.

In addition, the western boundary and Southern, Northern and Eastern Plazas are sought to be redesigned through amended landscape plans (further detailed in **Section 6**). The key changes are a new awning in the Eastern Plaza and redesign of the southern plaza converting a 300 cubic metres flood mitigation storage basin (Basin D) to a 30 cubic metre OSD basin.

Finished Floor Levels Conditions

The Applicant seeks to delete condition B31, which requires all accesses and entry points to the building to be protected from the relevant one per cent Annual Exceedance Probability (AEP) flood level plus 0.5m and compliance with Council's Interim Floodplain Management Policy. Compliance is not considered necessary given the Electrical Engineering Building is being renovated rather than demolished (thus, using existing floor levels) and no change of use is proposed.

The Applicant also seeks to modify conditions B33, B34 and B36. Condition B33 is sought to be modified to reference the one per cent AEP level rather than Council's flood planning levels and condition B34 is sought to be modified to correctly reference conditions B32 and B33. Condition B36 is also sought to be modified so only the structural integrity of new works are required to be certified for mitigation of flooding impacts.

Flood Risk Management Conditions

The Applicant proposes the deletion of conditions B37 and B38. Condition B37 states that the proposed wall around Basin D is to be designed to withstand the impact of hydraulic forces of floodwaters and debris up to the one per cent AEP flood event. Condition B38 requires the installation of a fence around Basin D to restrict access.

The redesign of the Basin D includes a 400-450mm seating wall (designed to withstand impacts from a flood event) around the basin. The basin has also been reduced in depth to 400mm and gradient of the slope has been reduced, making the requirement for a safety fence redundant.

The Application also originally proposed the deletion of flood related condition B35, which was subsequently removed from the application.

3 Statutory context

3.1 Scope of modifications

The Department has reviewed the scope of the modification application and considers that the application can be characterised as a modification involving minimal environmental impacts as the proposal:

- would not significantly increase the environmental impacts of the project as approved.
- is substantially the same development as originally approved.
- would not involve any further disturbance outside the already approved disturbance areas for the project.

Therefore, the Department is satisfied the proposed modification is within the scope of section 4.55(1A) of the EP&A Act and does not constitute a new development application. Accordingly, the Department considers that the application should be assessed and determined under section 4.55(1A) of the EP&A Act rather than requiring a new development application to be lodged.

3.2 Consent authority

The Minister for Planning and Public Spaces is the consent authority for the application under section 4.5(a) of the EP&A Act. However, under the Minister's delegation dated 9 March 2020, the Director, Social and Infrastructure Assessments, may determine the application as:

- the relevant local council has not made an objection.
- a political disclosure statement has not been made.
- clause 117(3B) of the Environmental Planning and Assessment Regulation 2000 does not require the application to be exhibited, therefore resulting in no public submissions by way of objection.

3.3 Mandatory matters for consideration

Section 4.55 of the EP&A Act requires the matters in **Table 2** to be assessed in respect of all applications which seek modifications to approvals.

Table 2 | Matters to be considered under section 4.55 of the EP&A Act

Matter	Consideration
Whether the proposed modification is of minimal environmental impact	The proposed modification seeks to redesign public domain to provide improved pedestrian amenity, improved landscaped planting and public domain as well as provide flood safe structures and materials. Subsequent modifications to landscape and flooding conditions are also

	proposed. Accordingly, the proposed amendments would result in minimal environmental impacts.
Whether the development to which the consent as modified relates is substantially the same development	The proposed modification does not seek to amend the building and only seeks to vary landscaping design, flood conditions and tree pot sizes. The approved development, as proposed to be modified, would remain substantially the same.
Whether notification has occurred and any submissions have been considered	In accordance with the EP&A Act and the EP&A Regulations, the modification request does not need to be notified. The application was made publicly available on the Department's website and referred to Council.
Any submissions made concerning the proposed modification has been considered	The Department has consulted with Council, which advised that the modification is acceptable subject to recommended changes to the modified conditions of consent. Details of the consultation are provided in Section 5 of this report.
Any relevant provisions of section 4.15(1) of the EP&A Act	<p>The Department conducted a comprehensive assessment of the project against the mandatory matters for consideration as part of the original assessment of SSD 8636.</p> <p>The Department considers this modification application does not result in significant changes that would alter the mandatory matters for consideration under section 4.15 of the EP&A Act and conclusions made as part of the original assessment.</p>
Consideration of the reasons for the granting of the consent that is sought to be modified	The Department has considered the findings and recommendations in the Department's Assessment Report for SSD 8636, including the key reasons for granting consent outlined in the Notice of Decision. The Department is satisfied that the key reasons for the granting of consent continue to be applicable to the development, as modified.

3.4 Consideration of Concept Approval

The Department has considered the consistency of the proposed modifications in relation to the relevant requirements of SSD-6123. A summary of the Department's consideration is provided at **Table 3**.

Table 3 | Consideration of Concept Proposal - University of Sydney Campus Improvement Program

Concept Plan Approval Requirement	Department's Consideration
<p>Built form and Urban Design</p> <p><i>Engineering Precinct</i></p> <p>g) Future built form within the Shepherd Street car park building envelope (No.1) fronting Shepherd Street shall be designed to ensure that the front row of existing mature eucalypt trees is retained and protected in the future development of the site. Prior to any detailed design an AQF Level 5 Arborist is engaged to determine suitable setbacks to trees (including street trees) to be retained, and an Aboricultural Impact Assessment report is submitted with any development application within this envelope.</p>	<p>The modification does not alter the front row of existing mature eucalypts along Shepherd Street.</p>
<p>Landscaping</p> <p>B8. All future development applications for new built form must include detailed landscape plans identifying the vegetation to be removed or relocated and the location of replacement and additional landscaping, and must be generally in accordance with the approved landscape concept in Condition A4 of Part A of Schedule 2 and The University of Sydney Grounds Conservation Management Plan, dated July 2014.</p> <p>Detailed landscape plans should include relevant details of the species to be used in the various landscapes areas (preferably species indigenous to the area), including details of the informal native and cultural avenue plantings, and other soft and hard landscape treatments, including any pavement areas and modular and sculptural seating.</p>	<p>The Department considers the proposed landscaping modifications, including details of species, planting, pavement and sculptural seating are generally in accordance with the approved landscape concept.</p>
<p>Stormwater and Flooding</p> <p>B29. Future development applications for new built form shall be accompanied by a stormwater management plan detailing an assessment of any flood risk on site and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), stormwater and drainage infrastructure, and details demonstrating that water sensitive urban design measures have been incorporated into the development.</p>	<p>Stormwater and flooding details have been provided.</p>

Disability Access

B30. Where relevant, future development applications shall include a Disability Access Review to demonstrate an appropriate degree of accessibility in accordance with the *Disability (Access to Premises - buildings) Standards 2010* (the Premises Standards).

The modification seeks to improve user access through the implementation of *Disability Discrimination Act 1992* (DDA) compliant surfaces and accessways. The modification application complies with this condition.

4 Engagement

4.1 Department's engagement

Clause 117(3B) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) specifies that the notification requirements of the EP&A Regulation do not apply to section 4.55(1A) modifications with minimal environmental impact applications. Accordingly, the application was not notified or advertised. However, it was made publicly available on the Department's website on the 29 June 2020 and was referred to Council for comment.

4.2 Summary of submissions and key issues

The Department received comments from Council. A summary of Council's comments is provided in **Table 4** below, and a link to the full copy of the submission is provided in **Appendix A**.

Table 4 | Summary of Council's submission

Council

Council reviewed the submitted modification report and provided the following comments and recommendations:

Tree pot size

- as some species can be sourced in larger pots sizes, its recommended that pot sizes only be reduced for those species that are not available in larger sizes to ensure the development still makes a positive contribution to the tree canopy in the locality.

Flooding conditions

Condition B31

- the removal of condition B31 is supported.

Condition B33

- the removal of condition B33 is not supported and all new works are to comply with requirements for flood compatible materials. The choice of materials has little impact on constructability or cost. The site remains subject to flood inundation and therefore, materials used should be able to withstand such conditions.

Condition B34

- the modification of condition B34 to correct cross referencing is supported. .

Condition B35

- all new works must still comply with the requirement for electrical features and mechanical equipment to be protected from flood water as they pose a significant threat to people when flooded. The requirement is also not dependant on changing floor levels and therefore should still be applied.

Condition B36

- new works that are likely to be immersed during a 100-year rainfall event need to comply, whilst existing structures that remain (not being demolished) need not comply.

Condition B37

- the application states the request for deletion of condition B37 is supported by additional flood modelling, however, the Flood Investigation – Basin D Removal report shows a significant increase in flood depth just outside the building. The report also notes that Basin D was for the purpose of both flood mitigation and water quality treatment and an alternative on-site detention (OSD) is now proposed for water quality treatment. There is insufficient information to conclude if it is capable of the same performance of the basin.
- the information provided for the removal of condition B37 is insufficient for Council to support.

Condition B38

- the removal of this condition is subject to the removal of condition 37.

4.3 Response to submissions

The Applicant submitted a Response to Submissions (RtS) on 14 August 2020, which was made available on the Department's website.

The RtS provided a formal response to concerns raised by Council and included:

- an updated tree schedule, supported by an email from treeiQ confirming the chosen alternate tree species are considered appropriate for the development/locality.
- revised landscape plans.
- southern courtyard design adjustment flood model update.
- stormwater and water quality drawings.

As part of the RtS the proposed modifications were altered slightly as a result of Council's comments. The changes to the modification include the following:

- alterations to the landscape basin to the south, which include:
 - a reduction in flood depth and risk through raising Basin D's profile and gradient, creating a shallower basin.
 - water quality management measures.
 - a seating wall to assist with protecting the existing building up to the one per cent AEP level plus approximately +145mm of freeboard.
 - access which is DDA compliant.
- amendments to condition B4(a) to accommodate the availability of pot sizes for the chosen trees.
- amendments to condition B33 to refer to the one per cent AEP level rather than the flood planning level in alignment with condition B35.
- amendments to condition B34 to align with Council's comments.
- retraction of the request to modify conditions B35, B36 and B37 with comments from Council accepted.

The RtS was forwarded to Council for review on 14 August 2020 with supplementary information provided on 27 August 2020 in relation to landscaping changes in the submitted plans.

Additional comments were received from Council and a summary is provided in **Table 5**. A copy of Council's submission is available at **Appendix A**.

Table 5 | Summary of Council's submission

Council

Council reviewed the Applicant's RtS and additional information and provided the following comments and recommendations:

Landscaping

- the Applicant should engage with other nurseries to obtain 400L *Melaleuca quinquenervia* (paperbark) trees for the Southern Plaza.
- replacement trees must be native species of a comparable mature size and within a garden bed area as detailed in the existing approved plans.
- the Southern Plaza bioretention/detention basin design varies from the approved design.
- the design of the Southern Plaza results in a reduction of planting from 10 to six trees and the proposed raised planting walls do not provide adequate soil depth to support healthy tree growth.
- the deletion of six street trees along Maze Crescent is not supported due to their shade benefits, which aid in combating the urban heat island effect.
- within the Northern Plaza, trees with a mature height of 15 metres should be provided to enable the 15 per cent canopy coverage in accordance with Council's requirements.
- consideration should be given to adequate soil availability and space (above and below ground) for all tree species to reach their full genetic potential.
- the addition of a new glazed awning (3.5-4m high) to the Engineering Walk for users accessing the bike racks segregates the landscape area from the building.
- it is unclear if the seating walls within the Eastern Plaza would be accessible for students to sit and learn outdoors or whether it's non-usable space.

Flooding conditions

- no objection is raised to the removal of conditions B37 and B38
- the flood planning level (FPL) should remain as 1% plus 0.5m as per the Floodplain Management Policy, and any new works below that level should still comply with clauses B33, B35, and B36.

4.4 Supplementary Information

On 21 September 2020, the Department received:

- revised landscape plans.
- detail of additional tree species and soil depths required for tree health.
- tree canopy coverage plans.
- detail of an additional eight trees, that would provide 52 trees overall.

- a new list of selected tree species now available in a 400L pot size.
- details of services that would impact proposed planting along Maze Crescent.
- confirmation that the Eastern Plaza would be usable space.
- confirmation that flood conditions are accepted based on Council's recommendations.
- a request for deletion of condition B37, as supported by Council.

Additional comments were received from Council and a summary is provided in **Table 6**. A copy of Council's submission is available at **Appendix A**.

Table 6 | Summary of Council's submission

Council

Council reviewed the Applicant's supplementary information and provided the following comments and recommendations in relation to the landscaping:

- the replacement of Jacaranda mimosifolia with Waterhousea floribunda are not comparable in size.
- Paperbark trees should be investigated and where unavailable, other large native tree species are preferred rather than small species.
- fewer trees of a larger size species than a greater number of smaller trees should be included to provide better shading and to reduce future tree removal due to trees being planted close together.
- the deletion of six trees along Maze Crescent is not supported.
- the tree schedule and landscape plans are to be reviewed to ensure chosen tree species are natives, reflect mature sizes and meet canopy coverage requirements in the SDCP 2012.
- trees are to be planted in garden beds or include permeable surface finishes as well as include water sensitive urban design aspects encouraging the direction of water into tree pits and garden beds.
- pavements with soil under paving (except for steps and substations) are to be permeable pavements laid on a flexible base.
- details of the awning are to be included in the architectural drawings.

5 Assessment

The modification application (as amended by the RtS and Supplementary RtS) seeks to modify and delete conditions relating to landscaping and flood planning provisions of the development consent for SSD 8363, as well as redesign the public domain along the western boundary and within the Southern, Northern and Eastern Plazas.

The Department has considered the modification application, issues raised in submissions and the RtS and Supplementary RtS documents in its assessment of the proposal. The Department considers the key issues associated with the proposed modification are landscaping and flooding, which are discussed in the following sections.

5.1 Landscaping

5.1.1 Tree species and pot sizes

As part of this modification, the Applicant requests to modify condition B4(a) to reduce the required tree pot size from 400L to 200L for specific species (referenced in **Table 3**), as 400L pot size trees are currently unavailable for certain approved species to meet the project delivery timeframe. The condition requiring mature trees with minimum pot sizes of 400L was required as part of SSD 8636 to ensure appropriate shading, canopy and amenity within the landscaped areas upon commencement of use.

In its comments on the modification application, Council recommended that the reduction only be applied to those species that are not currently available at the maturity of a 400L pot size. In response to Council's concerns, the RtS made further amendments to plant species and pot sizes, as presented in **Table 7**.

Table 7 | Tree species and pot size availability

Species	Size	Original Quantity	Proposed Quantity	Response	Location
Archontophoenix cunninghamiana (Bangalow Palm)	400L	8	0	Supply 200L largest in the market – ready Late 2020 or 75lt ready now 2.5m tall	Eastern Plaza
Archonotopheonex Alexandrae	200L	0	8	Supply 200L largest in the market – ready Late 2020 or 75lt ready now 2.5m tall	Eastern Plaza
Backhousia citriodora (Lemon Myrtle)	400L	6	11	Supply 200L ready now	Northern Plaza
Cupaniopsis anacardioides (Tuckeroo)	400L	11	7	Ready now	Northern Plaza

<i>Davidsonia Pruriens</i> (Davidsons Plum)	400L	4	0	No longer included	n/a
<i>Eucalyptus punctata</i>	300L	0	8		Northern Plaza
<i>Elaeocarpus reticulatus</i> (Blueberry Ash)	400L	5	6	Ready now	Northern Plaza
<i>Jacaranda mimosifolia</i> (Jacaranda)	400L	1	0	Supply 200L ready now	Northern Plaza (4) & Southern Plaza (5)
<i>Lophostemon confertus</i>	400L	0	1		Northern Plaza
<i>Melaleuca quinquenervia</i> (Broad-leaved Paperbark)	400L	6	0	No longer included	n/a
<i>Syzygium leuhmannii</i> (Riberry)	400L	3	0	Ready now	Northern Plaza
<i>Waterhousea floribunda</i> 'Amaroo'	400L	0	6	Ready now	Southern Plaza
<i>Tristanopsis laurina</i> 'Luscious'	400L	0	4		Northern Plaza (2) & Southern Plaza (2)
<i>Elaeocarpus eumundi</i>	400L	0	1		Southern Plaza
Total trees		44	52		Southern Plaza (9), Northern Plaza (35) & Eastern Plaza (8)

In response to the Applicant's change in tree species and pot sizes, Council recommended engagement with other nurseries to obtain 400L pot sizes for native trees within the Southern Plaza.

The Applicant confirmed that tree stock and availability has been pursued and as a result the tree schedule was revised, with an additional eight 300L pot trees now proposed. This includes the replacement of exotic species (Jacaranda) with natives.

In considering the comments from Council, the Department accepts the revised tree planting schedule, including sizes, and recommends that condition B4(a) be amended to stipulate the revised pot size requirements for the relevant species. Further, the Department supports the replacement of exotic species with the addition of native tree species. The Department is satisfied that even with the modification to condition B4(a) reducing pot sizes for some tree species, mature tree plantings would still be provided across the site and would maintain a suitable level of shading at the commencement of operation.

5.1.2 Landscape design and planting

The modification request includes updated landscape plans depicting changes in planting for the Northern, Southern and Eastern Plazas, as well as the western setback area. The original approval (see **Figure 3**) required the planting of 44 new trees, while the updated landscape plan redistributes these trees throughout the plazas and includes an additional eight trees, resulting in 52 trees being planted (see **Figure 4**).



Figure 3 | Approved landscape design (Source: SSD 8636 Assessment Report)

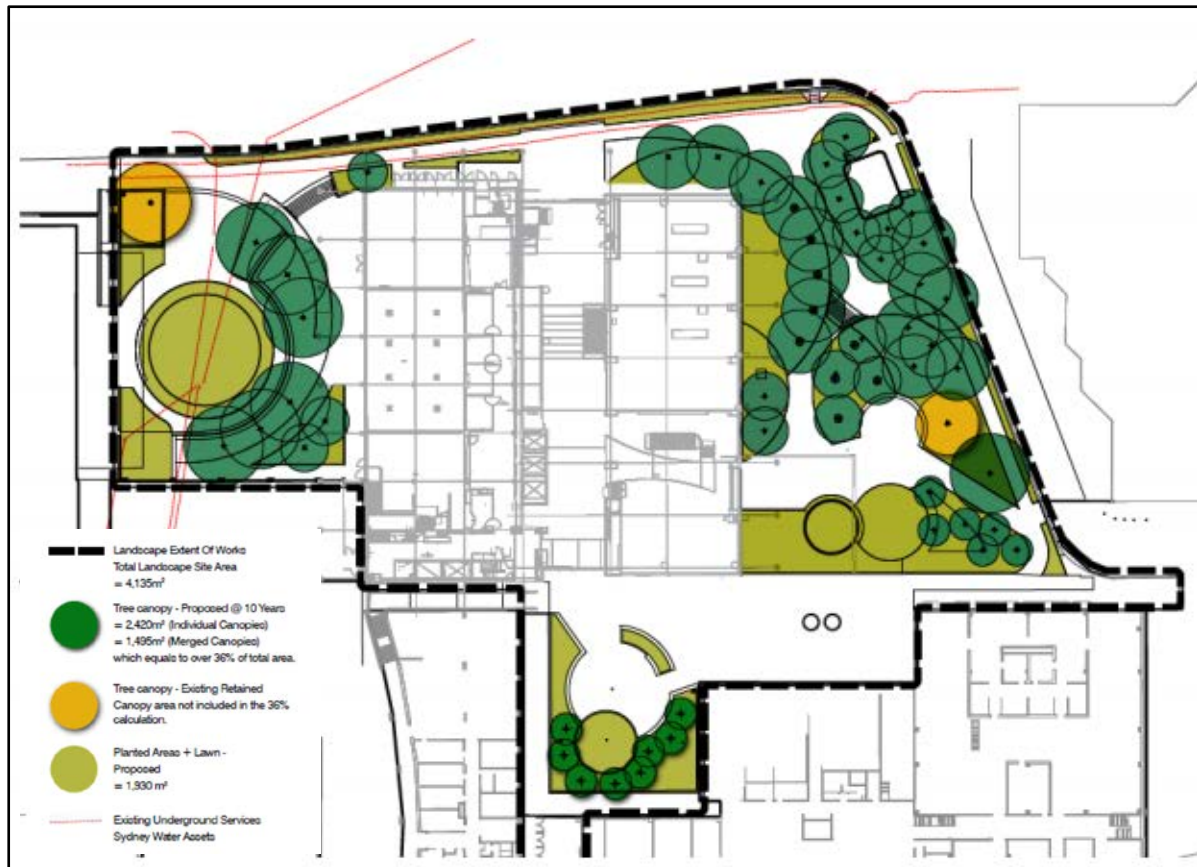


Figure 4 | Proposed and existing planting and tree canopy coverage (Source: Modification 2)

Council originally did not support the proposed landscape changes to layout, geometry, surface materials, and design quality of the plazas as they would dilute the approved indigenous strategy (Landscape design strategy prepared by TCL architects).

The Applicant responded to Council's concerns by stating that the proposed design would remain consistent with the original indigenous strategy (Wingara Mura) design principles and would provide a natural extension of the Cadigal Green constellation by providing circular designs, patterns, additional planting and less paving. The Applicant considered the new public domain design improved way finding and circulation across the site for persons with a disability and elderly people through the reduction of steps, simplified grading and a provision of a DDA compliant path network between buildings.

In considering the comments from Council and clarifications provided by the Applicant, the Department is satisfied that the proposed landscape changes remain considerate to the original design approach and would maintain compliance with the approved indigenous strategy through continued adoption of the Wingara Mura design principles.

Southern Plaza

The Applicant seeks to reduce the size of the bioretention basin known as Basin D within the Southern Plaza whilst remaining compliant with the flood management requirements. The proposed design incorporates a 400-450mm seating wall around the basin to ensure safety and flood detention capacity, ensuring the building is protected from the one per cent AEP flood level. The wall and reduction in basin depth would reduce the flood hazard category and increase the usable space in the

immediate surrounds with the removal of the need for a fence. The landscape design changes within the Southern Plaza include improved accessible access from Maze Crescent to the southern entry of the building as well as gathering spaces, meeting spaces, informal teaching and recreational spaces with the inclusion of inbuilt seating surrounding the bio-retention basin (see **Figure 5**).

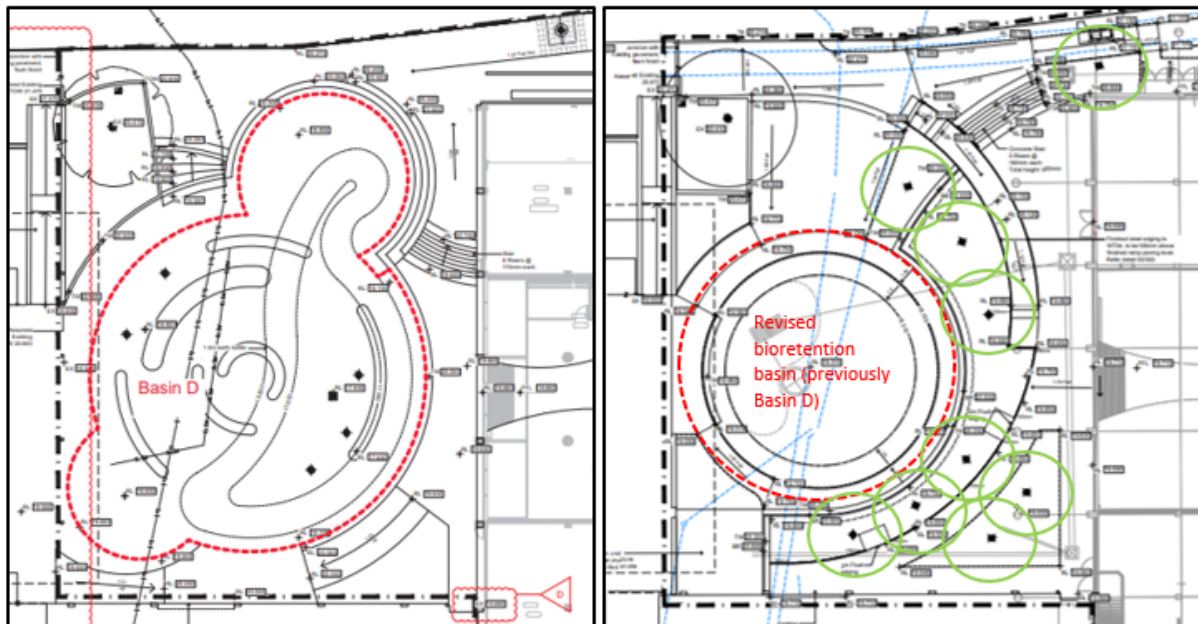


Figure 5 | Southern Plaza approved (left) and proposed redesign (right) (Base source: Modification 2)

Council reviewed the proposed modification and noted that the Southern Plaza design would be altered significantly from the approved design and that the symmetry of the outdoor space would be changed from the approved indigenous strategy. Additionally, Council noted there was a reduction in planting from 10 trees to six and considered that planters on slab would provide inadequate soil depth to support healthy tree growth.

In response to Council's concerns, the Applicant confirmed that *Waterhousea floribunda* 'Amaroo' native trees are proposed to replace Paperbark trees (due to the unavailability of the latter and the associated myrtle rust issues). In addition, the compacted gravel around tree planting would be replaced with porous material (20mm rock mulch with no fines, allowing a max soil volume of 1.2m deep x 1.2m diameter) in accordance with Council's 'Landscape Code'. The final tree canopy is anticipated to achieve over 36 per cent coverage within 10 years of project completion, which would be in compliance with the 15 per cent requirement of the Sydney Development Control Plan 2012 (SDCP 2012). The Applicant also clarified there would be no tree planters on slab within the Southern Plaza.

The Department is satisfied that the design alterations and landscaping within the Southern Plaza would result in activation, connectivity and accessibility improvements. The planting alterations would provide adequate shading in summer and appropriate sunlight during winter achieving a comfortable pedestrian experience. Whilst the revised planting schedule does not meet all of Council's requirements, the Department has included conditions requiring revised mature planting, locating trees to allow full maturity and ongoing maintenance details to ensure suitable canopy cover and shading across the site. The Department also acknowledges that the redesign of the basin would continue to provide adequate flood detention capacity and protection to the buildings and its occupants.

Northern Plaza

The proposed Northern Plaza is considered a natural extension of Cadigal Green's constellation of spaces by incorporating circular designs which contrast the rectangular building. The redesign (see **Figure 6**) seeks to improve circulation and wayfinding by providing three main spines connecting Maze Crescent, the Northern Electrical Engineering Building (J03) entry and the Engineering Walk. The landscape levels proposed are simplified which seeks to improve the access for persons with a disability.

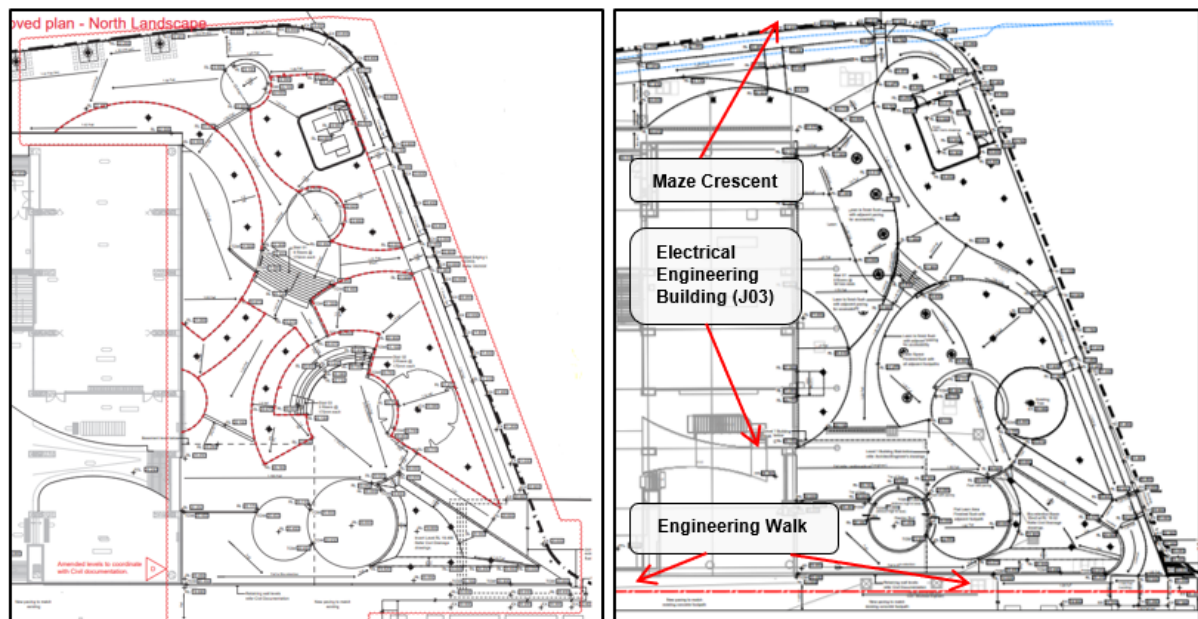


Figure 6 | Approved Northern Plaza (left) and proposed redesign (right) (Base source: Modification 2)

The Applicant proposes shade trees in spaces designed for informal gatherings, teaching and study. The proposed increase in soft landscaping reduces potential heat build-up, creating increased comfort levels for people using the plaza. The quantity of trees within the Northern Plaza would also increase from 27 to 35.

Within its submission on the modification application, Council recommended larger canopy trees (minimum mature height of 15m) be planted to achieve the 15 per cent canopy coverage required by the SDCP 2012. Council, in the comments on the Southern Plaza, noted the tree planters on slab would not provide adequate soil depth to support healthy tree growth.

In response to Council's concerns the Applicant's arborist confirmed that all nominated trees have the potential to achieve a 15m mature height with an accumulated canopy coverage of more than 36 per cent. Additionally, proposed trees would be either within a garden bed or on the lawn with a 1.2m soil depth as per **Figure 7**, highlighting sufficient planting depths would be provided.

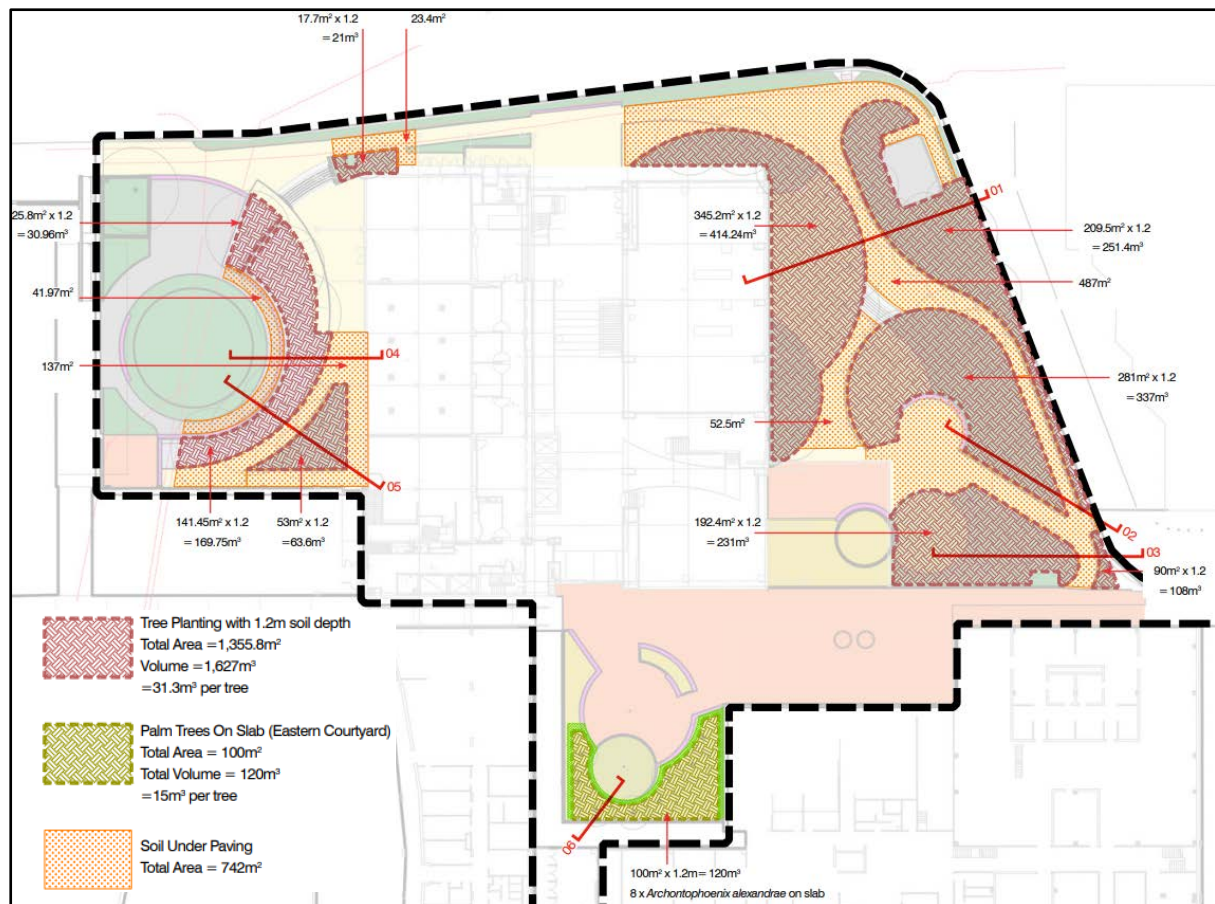


Figure 7 | Landscape soil depth (Source: Modification 2)

Whilst the additional tree planting does not meet all of Council's recommendations, the Department has recommended a condition addressing Council's concern to ensure permeable surface surrounding trees.

The Department is satisfied that the landscape redesign of the Northern Plaza appropriately manages a balance between soft and hard surfaces by providing appropriate soil depth for tree growth and substantial canopy for shade, resulting in increased pedestrian comfort. Additionally, the improved accessibility and gathering spaces provided between areas is supported.

Eastern Plaza

The changes proposed to the Eastern Plaza include the addition of an awning ranging in height from 3.8m to 4m and changes to the species of palm tree.

The glass awning has been proposed to improve user movements and provide weather protection to building entries and associated bike racks. The awning provides a continuation of the main pedestrian pathway known as the Engineering Walk (see **Figures 8 to 9**).

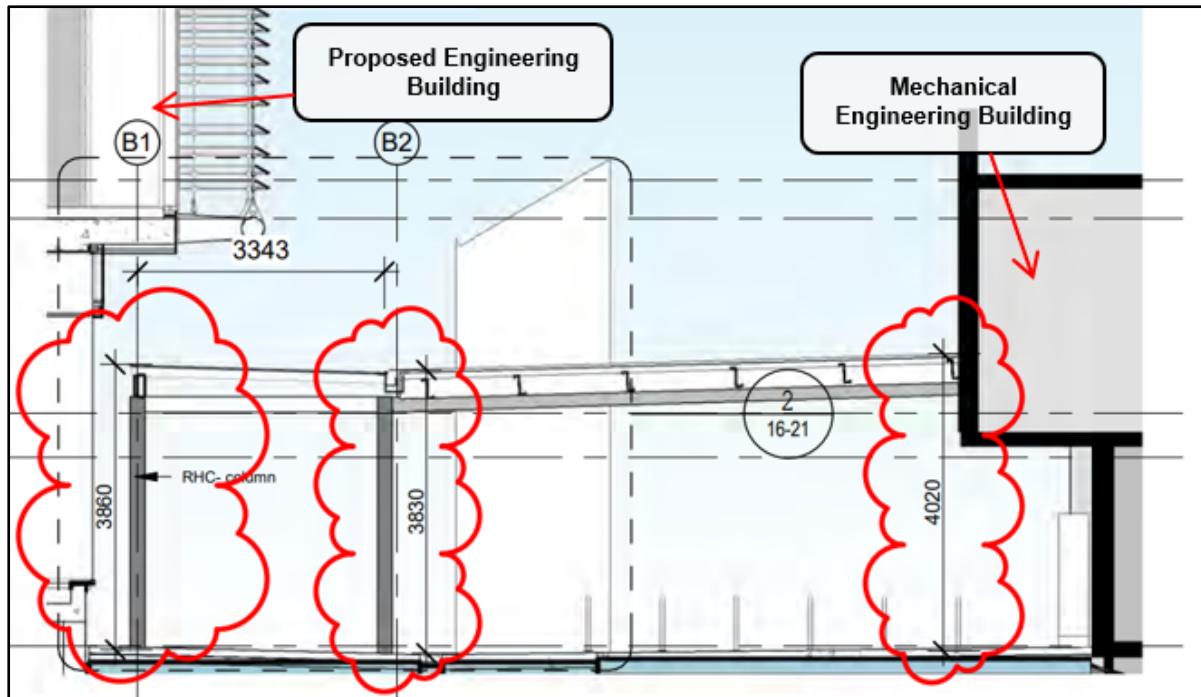


Figure 8 | View north of proposed awning (Source: Modification 2)

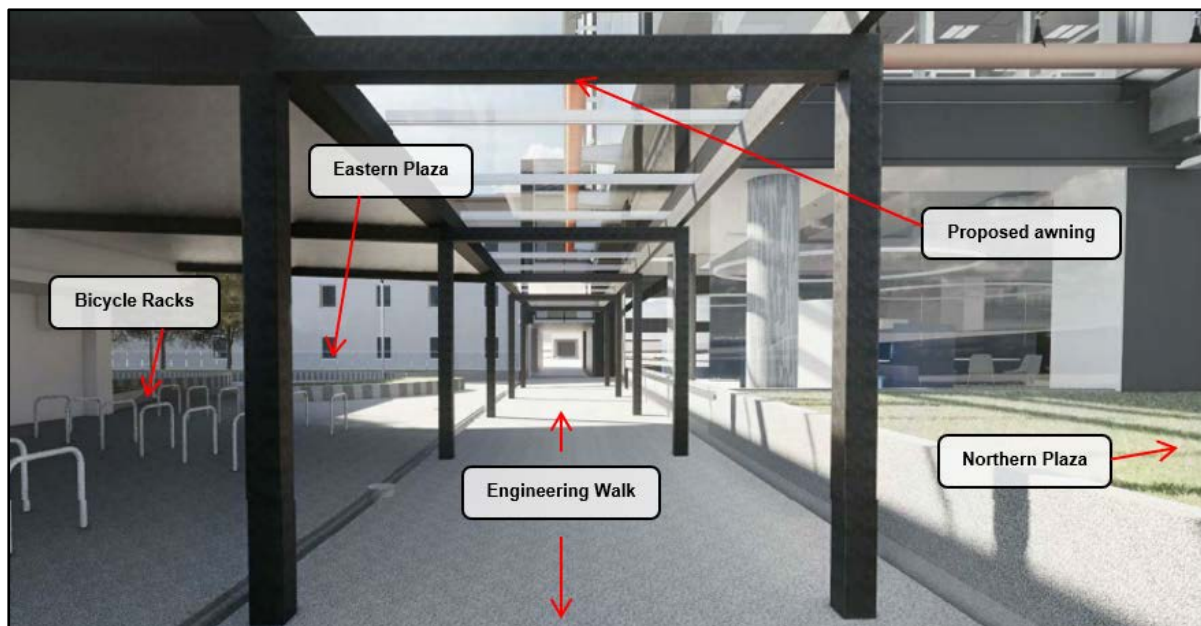


Figure 9 | View south of proposed awning (Source: Modification 2)

In response to Council's concerns, the Applicant confirmed that the Eastern Plaza would be an outdoor learning and social space with student access via the Engineering Walk, which connects all three plazas and provides access to the surrounding buildings, including the Engineering Building (J03), within the precinct.

The Department is satisfied that the design changes incorporating the awning within the Eastern Plaza, ground surface treatment changes and species substitution improve the pedestrian environment (i.e. seating and weather protection).

Western planting

The Applicant proposes to relocate the trees along Maze Crescent (western boundary) to ensure compliance with relevant clearance requirements for existing underground services. The Applicant states removal of these trees would reduce the shading along this portion of the building façade but would be offset by an improvement in amenity from the garden bed planting and soft landscaping (reducing the hard-paved areas). These alterations would reduce heat generation from hard surfaces and also separate Maze Crescent pedestrians from vehicle movements.

The Applicant has clarified that a Sydney Water and a Jemena gas main restrict the placement of trees along Maze Crescent (see **Figure 10**). The six trees along Maze Crescent are to be relocated, with four trees added to garden beds (and two trees within the Southern Plaza (see **Figure 11** yellow highlight).

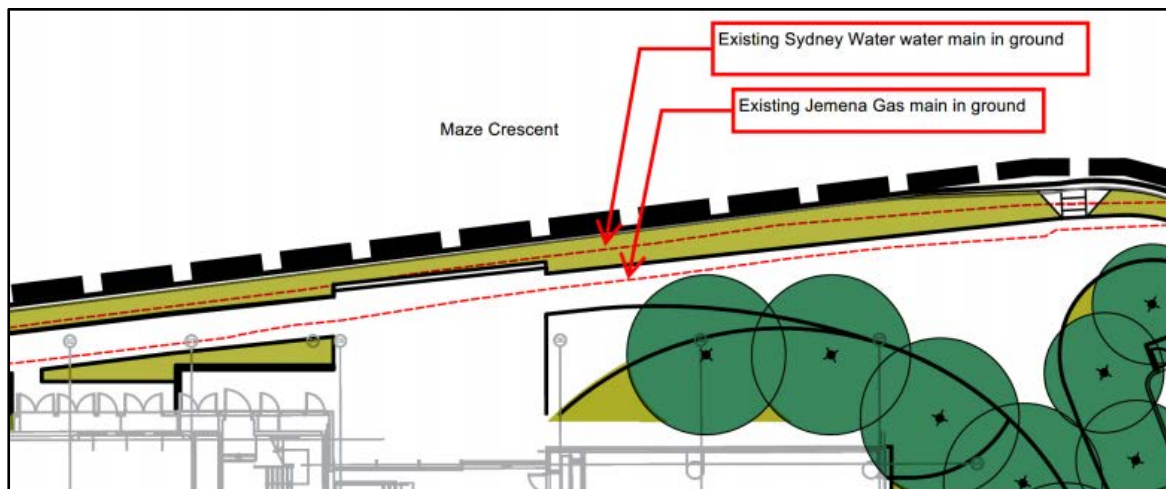


Figure 10 | Existing water and gas services (Source: Modification 2)



Figure 11 | Proposed tree planting plan (Source: Modification 2)

Council is not supportive of the deletion of these trees.

The Department is satisfied that the proposed trees and garden beds along Maze Crescent would ensure underground services are not disturbed and the reduction in hard paved areas would enable increased soft landscaping and clear pathways enhancing the pedestrian experience through movement and visual interest.

5.2 Flooding

Finished floor levels conditions B31, B33 and B34

The Applicant seeks to modify conditions relating to finished flood levels within the Electrical Engineering Building. The Blackwattle Bay Flood Study (WMAwater 2015) identified the Engineering Precinct and the carpark to the south (Southern Plaza now) as flood prone in the one per cent Annual Exceedance Probability (AEP) event. Condition B31 was imposed to protect entrance levels to the Electrical Engineering Building requiring floor levels of 20.54m AHD, slightly higher than the existing entrance level of 19.65m AHD. The Applicant has indicated that the building is to be refurbished and there would be no change to the existing use nor flood behaviour associated with the building and considers the requirement unnecessary. The Applicant informally agreed with Council that the flood level planning requirements of the Council's Interim Floodplain Management Policy could be relaxed, subject to conditions requiring:

- the potential adverse impact of flooding to life and properties be assessed.
- inclusion of measures to manage risk to life and properties from flooding.

As part of this modification, GRC Hydro undertook flood modelling and confirmed there would be no change to flood behaviour as there would be no change to the building structure. As such, the Applicant anticipated there would be no change to the flood impact to life and property. GRC Hydro also stated that building occupants would continue to be able to safely evacuate. Noting the negligible changes to the building structure, Council confirmed that the removal of this condition is acceptable.

Additionally, the modification application seeks to delete condition B33 in direct response to the deletion of condition B31. Council did not support the deletion and recommended that all new works comply with requirements for flood compatible materials due to the flood prone nature of the site.

Noting Council's position, the Applicant's RtS requested the condition refer to the one per cent AEP level in lieu of the flood planning level. The Applicant considered the development would be within the 'business' category rather than 'school or childcare facility', as it provides for adult education and research. Council's Interim Floodplain Management Policy identifies that flood planning level associated with a 'business' requires a merit based design approach with a minimum of the one per cent AEP flood level. The Applicant seeks to provide a level of flood protection to the existing building, via engineered means, equal to the one per cent AEP flood level, satisfying the flood planning level for a 'business'. This flood planning level is met through the landscaping modifications, which would provide freeboard of approximately 145mm above the one per cent AEP flood level. This additional freeboard would improve flood protection of the existing building and minimise the risk to life and property in flood events up to and including the one per cent AEP.

Within Council's RtS submission, the Applicant's request to have the development considered a 'business' under the Council's Interim Floodplain Management Policy was not supported.

Council maintains that the condition should refer to the flood planning levels in its policy, rather than the requested one per cent AEP as a 500mm freeboard is considered required for the use.

Additionally, the Applicant sought to correct references within condition B34. These corrections were supported by Council.

The Department supports the recommendations of Council and is satisfied that the conditions as modified would still mitigate adverse impacts to life and property and would ensure appropriate flood compatible materials are selected within the building. Council's view in relation to condition B33 is also supported and as such, the Department recommends no changes be made to condition B33.

Flood Risk Management conditions B35, B36, B37 and B38

Condition B36 requires structures to have their structural integrity certified for immersion and impact from hydraulic forces of floodwaters and debris confirmed up to the Probable Maximum Flood. The Applicant states this should no longer apply as Council have confirmed the requirements of the Interim Floodplain Management Policy can be relaxed. The Applicant's flood investigation by Bonacci Group (including flood study and modelling by GRC Hydro) indicated that the proposal does not result in an increase in flood affectation to the existing building as flood levels would be lowered compared to existing conditions during one per cent AEP flood events.

The flood level afflux is depicted in **Figure 12**, showing the flood depth outside the building has been addressed to satisfy Council's Interim Floodplain Management Policy, demonstrating no downstream impact as a result of the development.

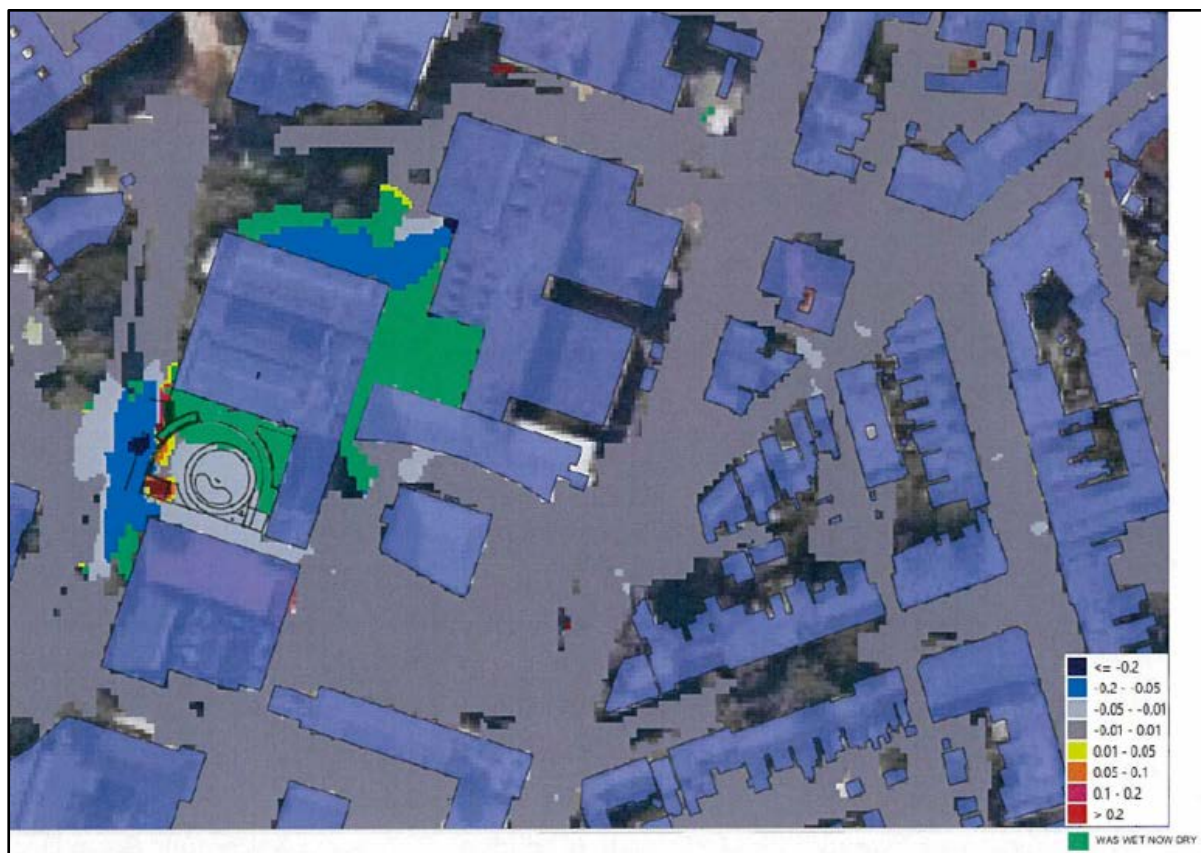


Figure 12 | One per cent AEP flood level afflux – Proposed (Source: Modification 2)

As such, the Applicant sought the removal of condition B36. Council's submission identified that new works that are likely to be immersed during a 100-year rainfall event need to comply and existing structures that remain need not comply. The Applicant accepted the condition be amended to reflect Council's submission.

In considering the Applicant's request and the comments from Council, the Department has recommended modifications to the condition to apply to new works given the proposal does not increase flood risk to existing structures.

Condition B37 and B38

The Applicant seeks to remove condition B37 requiring the construction of a wall around Basin D to withstand hydraulic forces to floodwaters and debris. Basin D was originally proposed as a flood mitigation storage basin with a volume of 300 cubic metres situated south of the existing Electrical Engineering Building. Council did not support the deletion of condition B37 and requested that the OSD include bio-retention for water quality treatment.

The Applicant indicated that the wall around Basin D would provide the proposed engineered means to protect the building from the one per cent AEP flood level. In addition, the Applicant stated that bio-retention is currently proposed to treat the overland flow water quality, however, the strategy has been altered to allow Basin D to be shallower in order to reduce flood risk.

The Applicant also detailed that the flood mitigation storage basin (Basin D) is to be replaced with a 30 cubic metre OSD basin to meet Sydney Water's pre-determined detention storage requirement in order to limit site discharge flow rates. The OSD basin would incorporate bio-retention to provide water quality treatment as per City of Sydney Council's water quality pollutant removal rates.

Due to the redesign of the basin, the Applicant confirmed the seating wall surrounding the OSD basin is the proposed engineered means to provide flood protection to the building and complies with condition B37, therefore the removal of the condition was requested.

The Applicant maintains the request to delete condition B38 as the redesign of the basin makes the need for a fence redundant due to the shallower basin. The inclusion of the seating wall provides the additional benefit of separating pedestrians from the basin, whilst achieving DDA compliant equitable access. Council reviewed the Applicant's statement and raised no objection to the removal of condition B38.

The Department considers that the redesign of the Southern Plaza has resulted in improved circulation, levels and gradients. The shallower Basin D provides OSD storage to address water quality requirements whilst also ensuring no downstream flooding impacts. Notwithstanding, the Department considers condition B37 should be retained. The Department considers that this condition ensures the seating wall structure would withstand pressures from hydraulic forces of floodwaters and debris and the deletion would potentially result in the compromised integrity of the structure, posing a threat to the building and pedestrians. Further, the Department is satisfied that the redesign of the Southern Plaza to incorporate a seating wall removes risk of tripping and given the reduced depth of Basin D, the deletion of condition B38 requiring a fence would not result in adverse safety issues.

6 Evaluation

The Department has reviewed the proposed modification and assessed the merits of the modified proposal, and all environmental issues associated with the proposal have been thoroughly addressed.

The Department's assessment concludes that the proposed changes to landscape design and the deletion/modification of flood and landscape conditions appropriately reflects the original approvals intent and results in an enhanced design outcome, benefitting the users of the site. The Department's modified conditions of consent would ensure that any environmental amenity impacts associated with the proposed changes are appropriately mitigated and managed.

The Department considers that the development as modified by this application would still be consistent with the objects of the EP&A Act, the Greater Sydney Regional Plan, State Infrastructure Strategy 2018-2038, NSW Future Transport Strategy 2056 and Greater Sydney Commission's Eastern City District Plan. The development as modified would be substantially the same as that originally approved.

The Department concludes the impacts of the proposed modification are acceptable, subject to amended conditions. Consequently, the Department considers the development is in the public interest and the modification application should be approved.

7 Recommendation

It is recommended that the Director, Social and Infrastructure Assessments, as delegate of the Minister for Planning and Public Spaces:

- **considers** the findings and recommendations of this report.
- **determines** that the application SSD 8636 MOD 2 falls within the scope of section 4.55(1A) of the EP&A Act.
- **forms the opinion** under section 7.17(2)(c) of the *Biodiversity Conservation Act 2016* that a biodiversity development assessment report is not required to be submitted with this application as the modifications will not increase the impact on biodiversity values of the site.
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the modification.
- **modify** the consent SSD 8636.
- **signs** the attached approval of the modification (**Appendix C**).

Recommended by:



Ingrid Berzins
Planning Officer
Social Infrastructure Assessments

Recommended by:



Megan Fu
Principal Planning Officer
Social Infrastructure Assessments

8 Determination

The recommendation is **adopted** by:



16 October 2020

Karen Harragon

Director

Social and Infrastructure Assessments

as delegate of the Minister for Planning and Public Spaces

Appendices

Appendix A – List of referenced documents

list of all the key documents relied on by the Department in its assessment

1. Modification Report

<https://www.planningportal.nsw.gov.au/major-projects/project/37856>

2. Submissions

<https://www.planningportal.nsw.gov.au/major-projects/project/37856>

3. Response to Submissions

<https://www.planningportal.nsw.gov.au/major-projects/project/37856>

4. Additional Information

<https://www.planningportal.nsw.gov.au/major-projects/project/37856>

Appendix B – Consolidated Consent

<https://www.planningportal.nsw.gov.au/major-projects/project/37856>

Appendix C – Modification Instrument

<https://www.planningportal.nsw.gov.au/major-projects/project/37856>