THE UNIVERSITY OF SYDNEY

Department of Planning Industry and Environment
4 Parramatta Square
12 Darcy Street
Parramatta NSW 2150

Attn: Mr David Gibson – Team Leader Social Infrastructure

13 August 2020

**Re: University of Sydney- Engineering and Technology Precinct – Mod 1 (SSD - 8636_Mod_2)**

Dear Mr Gibson,

We refer to your letter of 16 July 2020 to Mr Stephane Kerr requesting additional information and a response to the comments provided by the City of Sydney in response to the notification of the application.

We note that the University and its consultants have engaged directly with the City of Sydney staff to help clarify their concerns. A meeting was also convened with the City of Sydney staff to present options to resolve their concerns particularly in relation to management of flood risk, accessibility and landscape treatment.

Responding directly to the matters raised by the DPIE arising from the preliminary assessment and the City of Sydney submission is the following additional information:

- Attachment 1 – response to City of Sydney submission
- Attachment 2 – Bonacci letter confirming the consistent performance of the alternate flood mitigation measures
- Attachment 3 – Comparison landscape plans package prepared by Cox Architecture
- Attachment 4 - Stormwater design and water quality treatment strategy
- Attachment 5 - Updated Tree Schedule
- Attachment 6 - TreeIQ confirmation of alternate species

In summary, in response to the initial assessment and the submission from Council the design of the basin to the south has been further revised. The revised design:

- Demonstrates accessible access in to the landscaped basin
- Demonstrates through sections and levels that fences are not required
- Reduces the flood depth and therefore flood risk of the area
- Includes water quality management measures; and

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- Through the design refinement, the bund wall treatment now is used to assist with DDA compliance access whilst providing protection to the existing building up to the 1% AEP level plus approximately +145mm of freeboard.

For clarity the conditions sought to be amended in the modification application are pressed in the following manner

**Condition B4(a)**

An amendment to condition B4(a) is continued to be sought. As detailed in Attachment 1, the sourcing of all plantings at 400litre pot sizes cannot be achieved. The evidence of the efforts made are provided in Attachments 5 and 6.

Condition B4 is requested to be amended as follows:

> (a) ensure that all new trees are of the minimum pot sizes specified in the table below at installation

| SPECIES | SIZE | QTY |
|---|---|---|
| Archonotopheonex Alexandrae | 200L | 8 |
| Backhousia citriodora | 200L | 11 |
| Cupaniopsis anacardioides | 400L | 7 |
| Elaeocarpus reticulatus | 400L | 5 |
| Jacaranda mimosifolia | 200L | 9 |
| Waterhousea floribunda | 200L | 2 |

**Condition B31**

Removal of the condition is supported by the CoS.

**Condition B33**

The application seeks to pursue the amendment of the condition to refer to the 1% AEP level in lieu of the flood planning level. This puts the level of protection in alignment with Condition B35.

**Condition B34**

As the amendment of condition B33 is requested in lieu of deletion, the amendment to condition B34 as recommended by the City of Sydney is accepted.

**Condition B35**

The deletion of Condition B35 is no longer pressed subject to the modification of condition B33 as sought.

**Condition B36**

The deletion of this condition is no longer pressed.

**Condition B37**

The deletion of this condition is no longer pressed.

**Condition B38**

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Deletion of the condition is pressed. The redesign of the basin makes the need for a fence redundant as batter slopes are no greater than 1 in 4 and risk has been minimised through the revised design of basin D.

The amendments as described are sought in accordance with Clause 55 of the Environmental Planning and Assessment (EP&A) Regulation 2000.

We trust that the additional information and amended documentation addresses the issues raised and is sufficient to enable you to complete your assessment and determination of the application.

Should you wish to discuss any of the above matters, please do not hesitate to contact me on 0411 126 060 or by email at seamus.oconnell@sydney.edu.au.

Yours sincerely

Seamus O'Connell
Project Director
University Infrastructure

Encl.

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# Attachment 1 Response to Issues Raised by CoS

## 1. Condition B4(a) Variations to tree pot sizes

It is confirmed that the Jacaranda Mimosifolia is not currently available in 400L as outlined in Table 1, section 4.3 Justification of our application. Extract below.

| SPECIES | SIZE | QTY | RESPONSE |
|---|---|---|---|
| Archontophoenix cunninghamiana | 400L | 8 | Supply 200L largest in the market – ready Late 2020 or 75lt ready now 2.5m tall |
| Backhousia citriodora | 400L | 11 | Supply 200L ready now |
| Cupaniopsis anacardioides | 400L | 7 | Ready now |
| Elaeocarpus reticulatus | 400L | 5 | Ready now |
| Jacaranda mimosifolia | 400L | 9 | Supply 200L ready now |
| Syzygium leuhmannii | 400L | 2 | Ready now |

Table 1: Tree size availability

Further, since the application was prepared there has been a further reduction in stock and as a consequence further amendment is sought to include the following substitute tree species which have been confirmed as available in 200L and supply:

- Archonotopheonex Alexandrae in lieu of the Archontopheonix Cunninghamiana
- Waterhousea floribunda in lieu of the Syzgium luehmannii

The alternative species have been confirmed acceptable by TreeIQ. Refer to Attachment 6 – updated tree schedule and attachment 7 – TreeIQ confirmation of alternate species

The University therefore propose the following amendment to Condition B4(a) which is consistent with the current stock availability which has been reconfirmed.

> B4(a) ensure that all new trees are of the minimum pot sizes specified in the table below at installation

| SPECIES | SIZE | QTY |
|---|---|---|
| Archonotopheonex Alexandrae | 200L | 8 |
| Backhousia citriodora | 200L | 11 |
| Cupaniopsis anacardioides | 400L | 7 |
| Elaeocarpus reticulatus | 400L | 5 |
| Jacaranda mimosifolia | 400L | 9 |
| Waterhousea floribunda | 200L | 2 |

## 2. Flooding Conditions

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**Condition B31**

The City of Sydney's (CoS) response dated 15 July 2020 to condition B31 has *"agreed that it is unreasonable to insist on changes to floor levels if the building is not being rebuilt"* on the basis that;

- The building is existing; and
- Refurbishment only of the retained building is proposed.

This position is consistent with the meeting that UoS and CoS representatives had on 11th September 2019. This was subsequently reverse briefed in a letter from Steve Gray from GRC Hydro dated 26th November 2019 requesting formal confirmation. The confirmation was received by from the CoS via email response from Shah Alam dated 17 January 2020.

The removal of Condition B31 highlights some inconsistencies with other flood related consent conditions and were therefore included in the S4.55 modification application under the same premise of condition B31 that the building is existing and undergoing refurbishment only.

**Condition B33 & B35**

The existing ground floor of the building contains an existing main switch room, existing lifts and existing building materials that are being retained.

The University notes that the underlying logic of the B31 clause removal, in the context of the State's Flood Policy as articulated in the Floodplain Development Manual (NSW, 2005) (FDM), is that; the refurbishment should ultimately not increase flood risk but should keep flood risk neutral or reduce it.

It is also noted that a key aim of the CoS interim floodplain management policy (dated May 2014) is to minimise the risk to human life and property and also to apply a merit based approach to all development decisions taking into account ecological, social and environmental considerations.
Based on the wording in the flooding related conditions of consent, it is understood that the CoS defines the Flood Planning level (FPL) of the development under schools and childcare facilities within the Industrial or Commercial category of their interim floodplain management policy.The University understands that this is driving the FPL of 1%AEP + 0.5m freeboard. The development is not a school or childcare facility and the University notes that the policy does not define anything for tertiary education facilities. The FPL is conservative as it is aimed toward developments that are designed for children. It must be noted that the development is for adult education and research which is closer attributed to the 'business' category which requires a merit based approach with a minimum of the 1%AEP flood level.

Provided below is an extract from page 13 of CoS's Interim Floodplain Management Policy (dated May, 2014) which confirms this approach for business facilities.

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| Development | | Type of flooding | Flood Planning Level |
|---|---|---|---|
| Residential | Habitable rooms | Mainstream flooding | 1% AEP flood level + 0.5 m |
| | | Local drainage flooding (Refer to Note 2) | 1% AEP flood level + 0.5 m or Two times the depth of flow with a minimum of 0.3 m above the surrounding surface if the depth of flow in the 1% AEP flood is less than 0.25 m |
| | | Outside floodplain | 0.3 m above surrounding ground |
| | Non-habitable rooms such as a laundry or garage (excluding below-ground car parks) | Mainstream or local drainage flooding | 1% AEP flood level |
| Industrial or Commercial | Business | Mainstream or local drainage flooding | Merits approach presented by the applicant with a minimum of the 1% AEP flood level |
| | Schools and child care facilities | Mainstream or local drainage flooding | Merits approach presented by the applicant with a minimum of the 1% AEP flood level + 0.5m |
| | Residential floors within tourist establishments | Mainstream or local drainage flooding | 1% AEP flood level + 0.5 m |
| | Housing for older people or people with disabilities | Mainstream or local drainage flooding | 1% AEP flood level + 0.5 m or a the PMF, whichever is the higher |
| | On-site sewer management (sewer mining) | Mainstream or local drainage flooding | 1% AEP flood level |
| | Retail Floor Levels | Mainstream or local drainage flooding | Merits approach presented by the applicant with a minimum of the 1% AEP flood. The proposal must demonstrate a reasonable balance between flood protection and urban design outcomes for street level activation. |
| Below-ground garage/car park | Single property owner with not more than 2 car spaces. | Mainstream or local drainage flooding | 1% AEP flood level + 0.5 m |

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Figure 1: Extract CoS Floodplain Management Policy

The solution proposed is to provide a level of flood protection to the existing building (including the existing main switch room and existing lifts), via engineered means, equal to the 1% AEP flood level. This approach improves on the existing situation and minimises the risk to life and property in flood events up to and including the 1% AEP.

The proposed changes to the landscape detailed in Attachment 3 achieves a freeboard of approximately 145mm above the 1%AEP flood level.

In summary, and in response to the City's correspondence dated 15 July 2020, the University requests the following:

- Amend Condition B33 for flood compatible materials below the 1% AEP level in lieu of the flood planning level. This puts B33 in alignment with the level of protection sought by Condition B35 which is no longer requested to be deleted.

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This approach results in:

- Ready compliance with Condition B35; and
- This in turn allows for activation and equitable access to the building within the southern landscape plaza and improved design outcomes for the ground floor of the development.
- Improved and equitable connection between the north and south landscape plaza areas

**Condition B34**

The University accepts the CoS's recommended amendments to condition B34 subject to the outcome to the proposal to amend B33 as detailed above

**Condition B35**

The University accepts the CoS's recommended amendments to condition B35 subject to the outcome to the proposal to amend B33 as detailed above.

**Condition B36**

The University accepts the CoS's recommended amendments to condition B36

**Condition B37**

The University proposes to retract the modification of condition B37 as the wall around Basin D is the proposed engineered means under our request to alter B33 as detailed above.

The following detail responds to the commentary provided under Condition B37 in the CoS's letter dated 15 July 2020 requesting further clarification and information. It is understood that the CoS is seeking clarity on;

- Flood depth just outside the building; and
- Changes to Water quality treatment

The flood model has been updated to include the revised basin and landscape design as shown in attachment 3 and changes described in detail below under Condition B38. To provide clarity regarding the changes to the flood level, the flood level afflux is shown below. The conclusion remains that there is no downstream impact traceable to the development. The flood depth that was previously shown outside the building has been addressed in our response to B38 below.

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BON068


**BON068: 1% AEP FLOOD LEVEL AFFLUX PROPOSED - EXISTING**

Figure 2: Extract from attachment 2

With regard to the 2nd point about water quality treatment, bio-retention is still proposed to treat the water quality of the overland flow. However, there are some alterations to the strategy sought to allow Basin D to be shallower in order to reduce the flood risk as detailed in Condition B38 below. Please refer to attachment 4 for details of the storm filter cartridge chamber of the proposed water quality treatment strategy for the stormwater collected from the building.

## Condition B38

The University is seeking the deletion of condition B38 which requires a fence around Basin D. By improving the profile of the basin and the introduction of 1 in 4 batters to eliminate sharp changes in level and associated trip and fall hazards the need for fencing is avoided.

The CoS has stated that the removal of this clause is subject to the removal of the condition 37 where further clarification is requested. The CoS goes on to request further details of the proposed changes to the landscape and its effect to flood risk. The following details have been provided to assist provide clarity. It is understood from the commentary in their letter dated 15 July 2020 that the CoS is looking for the following:

- Plans with sufficient levels and gradients for the pavements, sections and details to confirm DDA compliant equitable access on the surrounding paths; and
- The risk of people tripping or falling into the basin has been 'designed out' of the scheme'

Regarding the first point for plans with sufficient levels and gradients, please refer to Attachment 3 for the revised plans of the basin. Note that the updated plans incorporate a seating wall which forms a 'wall around Basin D' as the engineering means to protect the building from a 1% AEP flood event. This wall provides the benefit of additionally separating pedestrians and pavement users from the basin. The

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updated sketch includes the necessary detail along with sections to demonstrate the design is capable of achieving DDA Compliant equitable access.

As part of the redesign of the plaza, Basin D's profile and gradients have been raised to create a shallower basin whilst maintaining the OSD storage and water quality requirements for the development and maintaining no downstream impact to flooding.

The flood hazard for the proposed altered design compared to the approved design has therefore been reduced from high to low (as categorised by NSW Flood plain development manual appendix L3, figure L1). Refer to the flood map extract below from attachment 2

**BON068**

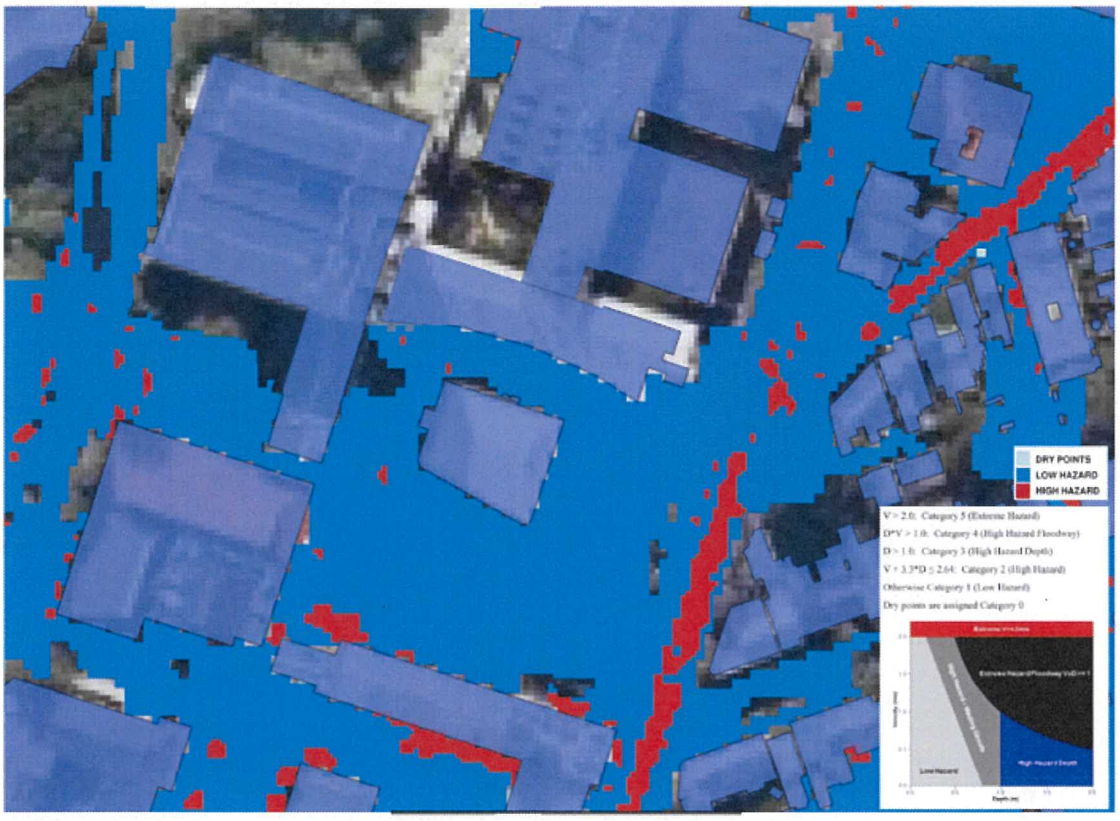


Figure 3: Extract from attachment 2

Furthermore, the revised landscape design's improved circulation, gradients, levels and edging has improved circulation and further 'designed out' risks of tripping or falling into Basin D. The revised bio-retention basin D has incorporated batters that are traversable (maximum 1 in 4 grade) further designing out any ability to 'fall' into the basin.

In summary, the altered design as detailed in this letter has successfully reduced the hazard rating of the south landscape plaza and has improved circulation, levels and gradients. It is the University's view that the risk of tripping or falling into the basin has been successfully 'designed out'. This supports the proposed removal of fencing.

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# Attachment 2 - Supplementary letter from Bonacci

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# Attachment 3 - Comparison plan package prepared by Cox Architecture

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# Attachment 4 – Stormwater design and water quality treatment strategy

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# Attachment 5 – Updated Tree Schedule

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# Attachment 6 – TreeIQ confirmation of alternate species

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