APPENDIX A

MACQUARIE UNIVERSITY
NEW UNIVERSITY OFFICE & LABORATORY BUILDING (SSD 9313)
8-12 UNIVERSITY AVENUE, MACQUARIE UNIVERSITY

RESPONSE TO DPIE KEY ISSUES AND AGENCY AND COUNCIL SUBMISSIONS

Department of Planning, Industry & Environment Key Issues
The following sets out our response to the Department's key issues as included in its letter dated 4 March 2019.

Issue	Response
State Environmental Planning Policy No.55 – Remediation of Land	
The proposal involves a change of use on a type of land specified in clause 7(4)	Clause 7(4) states as follows: *The land concerned is:* *(a) land that is within an investigation area,* *(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,* *(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land:* *(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and* *(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).* (a) The land is not within an investigation area. (b) Table 1 uses / activities are listed as follows: • acid/alkali plant and formulation • agricultural/horticultural activities • airports • asbestos production and disposal • chemicals manufacture and formulation • defence works • drum re-conditioning works • dry cleaning establishments • electrical manufacturing (transformers) • electroplating and heat treatment premises • engine works • explosives industry • gas works • iron and steel works • landfill sites • metal treatment • mining and extractive industries • oil production and storage

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

	• paint formulation and manufacture • pesticide manufacture and formulation • power stations • railway yards • scrap yards • service stations • sheep and cattle dips • smelting and refining • tanning and associated trades • waste storage and treatment • wood preservation The site is not strictly a change of use as it is continuing as an education use within a Mixed Use zone. The education use of the site is well over 50 years in existence. The former car parks are long-established and ancillary to the educational establishment. Prior to the university's establishment in the 1960s, the site was most likely used as an orchard or market garden. Only a minor contamination risk arises in this regard. (c) the use is an ongoing education use.
Given that the subject site is mapped as heritage item 10 under Ryde LEP 2014, any remediation work is classified as Category 1 remediation in accordance with clause 9(e)(ii), and thus development consent is required.	As set out in detail in the submitted EIS, and as previously accepted by DPIE, the site is not listed as being a heritage item identified under the LEP. Whilst the map shows the majority of the campus to be a 'heritage item', the listing is in fact solely in relation to the "Macquarie University - Ruins" as identified in Schedule 5 of the LEP. The "Ruins" are remote from the site as articulated in the EIS and the DA's Heritage Impact Assessment. A strict interpretation would not indicate the site to be a heritage item or as articulated by clause 9(e)(ii) an *area or a zone* identified as *conservation or heritage conservation.*
Accordingly, the applicant is to address the issues identified by the EPA with the submitted Stage 2 detailed site investigation and submit a remedial action plan (RAP) in accordance with *Managing Land Contamination Planning Guidelines SEPP 55 – Remediation of Land* for assessment.	Notwithstanding the above, a draft RAP has been prepared by JK Environments for the development – See **Appendix B**. This draft RAP and the prior Stage 2 Environmental Site Assessment have been reviewed by Senversa (independent and interim auditing). The comments or Senversa are found at **Appendix C**. JK Environments has responded to these comments – **Appendix D** and provided an addendum Stage 2 Environmental Site Assessment. At this stage the RAP can only remain in draft form until consent is granted and further intrusive testing is able to be carried out under the existing slabs at the site. The RAP would then be completed to address existing information gaps with Senversa's input and auditing role.
Parking	
Provide a revised Transport Assessment to address: - The recommendations of the TfNSW submission; and	A revised Transport Assessment has been prepared by JMT Consulting addressing TfNSW comments and the perceived deficit of parking at the MQU campus.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

- The deficit in parking spaces at the time of the closure of the existing car parks on-site until the opening of the new car park proposed by the subject application.	The revised Transport Assessment is attached to this RtS as **Appendix E**. The following is noted: - The temporary car park extension opened in 2017 with the intent of further offsetting the loss of car parking from the demolition of the subject site. Overall, this temporary car park added a further 1,360 spaces on the campus. - Overall parking on the campus will remain consistent with levels from 2017 following the demolition works as a loss of 1,050 spaces results. There remains a net gain of 310 spaces until the development is completed and its new car parking becomes available. The opening of the Metro in May 2019 has significantly enhanced public transport access to the site and therefore further reduced reliance on private car use as demonstrated in Figure 10 of the Transport Report which shows only 24% of trips to the campus are by private car versus 52% by public transport (as at 2017). Given the MOD 1 approval to the Concept Plan and further increase in mode share objectives and targets towards public transport use, any progressive reduction in car parking is consistent with that requirement.
Landscaping	
A proposed planting schedule is to be provided	A planting plan and schedule was provided with the EIS package for DA - refer drawing ASP-812UA-LA-DWG-014, rev D. A detailed planting plan and schedule will also be provided for Construction or Crown Certificate approval prior to construction.
Preliminary Hazards Analysis	
In regards to the Preliminary Hazard Analysis (PHA) at Appendix X, the following additional information and clarification is required:	Benbow has reviewed DPIE's commentary and prepared an addendum letter - Clarification of Dangerous Goods Storage Details dated 24 July 2020. See **Appendix G**. This has been informed in part by a revised Lower Ground and Basement 2 plan as prepared by Kann Finch | Sissons which shows this area of the building to accommodate laboratory gas storage within a separate approx. 45m2 room and a removed and separate Dangerous Goods Store of approx. 25m2 – see **Appendix F**. See further below. In general, Benbow advises that hazards were considered to be adequately addressed in the original PHA. However, subject to design refinements arising from refined details regarding the project and the DPIE's queries, the events that could give rise to hazards are now substantially reduced.
The PHA Table 3.1 Quantities of Dangerous Goods Expected to be stored, indicates 4,000 L of Class 3 PGII/III to be stored 'external' or in carpark or internal (within laboratories)'.	Benbow advises that no Class 3 Dangerous Goods would be stored outside. A fire-rated storage area, mechanically ventilated and bunded in accordance with the requirements of

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Please provide clarification if Class 3 will be stored outdoors. Also for all other DGs proposed to be stored externally, provide indicative storage location(s) on a site layout diagram(s) showing locations of DGs by Class and verify that the storage and handling of DGs will comply with all relevant Australian Standards.	AS1940-2017 *The storage and handling of flammable and combustible liquids* will be provided. The revised Lower Ground and Basement 2 plan as prepared by Kann Finch | Sissons shows the layout of where this storeroom would be located.
The PHA Table 3.1 and Table 3.2 indicates 4,000 L of Class 2.1 Flammable gases. Please provide the specific chemicals under DG Class 2.1 which will be stored and handled, along with the relevant safeguards to address the specific hazards of those chemicals.	There would be no bulk storage of any classes of dangerous goods. Table 3-1 and Table 3-2 of the PHA have therefore been updated and are attached in the Benbow advice. The original PHA was prepared at a time in the design of this development when there was uncertainty as to the extent of the dangerous goods storage. Since the receipt of the correspondence from DPIE, firm decisions have now been made. Now excluded are the following: • Storage of dangerous goods in bulk either external or internal within the building. Diesel fuel for a standby diesel generator would be within a fuel tank attached to the diesel generator. Similarly, if there are fire water pumps, these would have diesel fuel tanks as an integral part of the pump which are often diesel powered. Table 3-1 has been revised and is provided as an attachment. As stated above, no classes of dangerous goods would be stored outside. There would however be a gas cylinder store located in the same basement carpark. This storeroom is also fire rated and mechanically ventilated. This storeroom would be constructed to comply with AS4332-2004 (R2016) *The storage and handling of gases in cylinders*.
The following statement under Section 3.2 Dangerous Goods Screening against SEPP 33 Thresholds states that, 'the Class 3 Dangerous Goods will be stored on site within buildings' does not align with Table 3.1. Please provide clarification. Also, please clarify where/what site 'boundary' is being referred to in the following statement: "it is therefore within 1m or 4m of the site 'boundary'?	The quantities now to be stored do not trigger the screening thresholds in applying SEPP33. Formal approval in relation to hazards is therefore not required. The storage within the building will be confined to the following: • As stated above, two fire-rated, mechanically ventilated stores designed and constructed in accordance with the relevant Australian Standards. • Within the floors of the building, approved storage cabinets will be used. • On shelves, storage would be strictly limited in accordance with the document provided with the PHA – Attachment 2, Laboratory Safety Standards for the Storage of Dangerous Goods.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

	• The Class 8 quantity has been substantially reduced to 1.005 tonnes. The packaging sizes are usually: • 2 L glass Winchester type laboratory bottles • 500 mg and 5 kg plastic packaging • Liquids may be up to 20 L in plastic packaging. The reference to the boundary was to the (Page 4) boundary of the building. For the campus, risk of a fire needs to be reduced regardless of whether the separation distance would adequately reduce the heat of radiation and the risk to adjoining buildings would be the sensible viewpoint to take. The response to the DPIE question has enabled Benbow to recommend fire rated storage rooms so that the risk of fire causing building damage or a BLEVE of a gas cylinder would be minimised by following the design guidelines of relevant Australian Standards.
The PHA Table 3.2 Comparison of Screening Threshold Quantities by SEPP 33, Class 3 PGII and PGIII indicates a quantity of 8 T, however Table 3.1 identified 4,000 L. Please provide clarification on the unit of measurement, maximum packaging sizes, location, and quantity storage detail of the 8 T and corresponding bunding proposed.	As set out above, the packaging sizes are usually • 2 L glass Winchester type laboratory bottles • 500 mg and 5 kg plastic packaging • Liquids may be up to 20 L in plastic packaging. The units of measurement were included in the table of the PHA. In the column labelled "Quantity", "L" is used for litres. In Table 3-2 in the column labelled "Quantity to be stored" two units are used, "L" for litres and "T" for tonnes.
The PHA Table 3.2 lists a quantity of 4,000 L of Class 2.2 non-flammable gases to be stored. Class 2.2 may include gases with sub-class 5.1, oxidising gases, please indicate break down of the Class 2.2 and include storage quantities and location for these.	The class 2.2 would be equally shared with the gases now listed in a revised Table 3-1.
Also, Table 3.2 indicates 4 T of proposed Class 5.1 to be stored. Please provide site layout showing location and quantity of Class 5.1 to be stored.	The layout is now as per the revised Lower Ground and Basement 2 plan as prepared by Kann Finch | Sissons.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Agency and Council Submissions

The following sets out our response to the Agency and Council submissions received by the Department.

Transport for NSW	
Issue	**Response**
Right turn movement from University Avenue onto Herring Road	
Comment: The Transport Assessment report makes reference to the Macquarie University Gateway Project that includes the removal of right turn movements from University Avenue onto Herring Road. This movement is currently restricted with "Buses Only" permitted. Recommendation: It is requested that if any further restriction or change is proposed at this intersection, an analysis of traffic and transport impacts, in particular buses, must be carried out and a TCS plan (incorporating any proposed changes) would need to be submitted to Roads and Maritime Services for formal approval.	MQU is currently in discussions with RMS in relation to the intersection design and continues to work closely with all relevant authorities. An in-principle agreement has been reached in relation to the proposed layout and its interface with the Bus Priority Infrastructure Program. This is subject to a separate application and is unrelated to this project given no direct nexus arises between 8-12 University Ave and the Gateway project.
Macquarie University Concept Plan	
Comment: Table 5 of the Transport Assessment report states the condition (Condition B5 of the Macquarie University Concept Plan) relating to the provision of adequate setbacks along Balaclava Road and Waterloo Road to facilitate additional capacity improvements and bus priority is closed out. It is noted that a modification (MP 06_0016 MOD 1) was determined in November 2018 and Condition B5 has been amended. Recommendation: The current Condition B5 requires the relevant drawing of University Avenue Revised Concept Plan be endorsed by Council. It is requested that the applicant should consult Council, as the local Roads Authority, to confirm if this condition has been adequately addressed.	City of Ryde Council has previously provided endorsement of the relevant drawing on 18 December 2018 (refer copy of email attached at **Appendix H**).
Comment: The Transport Assessment report makes reference to a 40% non-car mode share to be adopted for the academic and non-academic uses on the site. This target is considered to be outdated. It is noted from the documentation of the current Concept Plan (MP 06_0016 MOD 1) that a revised non-car mode share target of 62% is recommended to ensure that any future development and the University Travel Plan consider the sustainable transport requirements to support the higher non-car mode share target. Recommendation: It is requested that the Transport Assessment report be revised and updated to reflect the non-car mode share target as recommended in the current Concept Plan (MP 06_0016 MOD 1).	The current level of public transport usage for academic uses now significantly exceeds the original 40% non-car mode share target established in the Macquarie University Concept Plan. In line with the targets set out in Modification 1 to the Concept Plan (MP 06_0016 MOD 1) a non-car mode share of 62% for uses within the 8-12 University Avenue building has been adopted. Section 5.2 of the revised transport assessment report has considered these updated mode split forecasts.
Bus services on University Avenue	
Comment: Bus services are operating along University Avenue and bus stops are also located on this site frontage. The proposed changes along University Avenue have the potential to impact the existing bus service and operation. Recommendation:	The updated CTMP (Appendix A of the revised transport assessment) now notes that, where practical, construction traffic movements to and from the site will be made on University Avenue during peak hours to minimise impacts to bus operations. In short, it advises that

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

It is requested that minimal construction traffic movements to and from the site during peak hours and to avoid the use of construction vehicles along University Avenue. It is also requested that any bus stop closures or bus service changes required throughout the proposed works period should be done in consultation with the Sydney Coordination Office within TfNSW.	construction traffic impacts are likely to be less than the existing impacts of 1,050 cars interfacing with existing bus operations over the course of a day. Any bus stop closures or bus service changes required throughout the proposed works period will be done in consultation with the Sydney Coordination Office within TfNSW.
Construction Traffic Impact and Management	
Comment: The Transport Assessment report includes a preliminary Construction Traffic Management Plan that outlines the how the demolition and construction activities will be managed. It is noted that several construction projects within Macquarie Park precinct are likely to occur at the same time as the proposed development. The cumulative increase in construction vehicle movements from these projects could have the potential impact on general traffic and bus operations, as well as the safety of pedestrians and cyclists particularly during the commuter peak periods. Recommendation: It is requested that the applicant be conditioned to prepare a detailed Construction Pedestrian and Traffic Management Plan to identify potential issues and propose mitigations as necessary.	Following the appointment of a contractor and prior to construction works commencing, a more detailed Construction Pedestrian and Traffic Management Plan will be prepared for the project. This will include additional details around the construction timeframe and measures to mitigate impacts to the transport network.
Framework Green Travel Plan	
Comment: It is considered that the Framework Green Travel Plan (FGTP) provides limited, non-specific measures to meet mode share targets. The FGTP states that its primary purpose is to achieve the target mode split for journey to work trips of 40% public transport /60% private vehicle. These mode share targets are considered to be outdated and should be revised according to the target as recommended in the latest Concept Plan. Recommendation: It is recommended that the applicant be conditioned to develop a comprehensive Workplace Travel Plan prior to occupancy. The Workplace Travel Plan need to stand as a discrete document and the content relating to potential measures should be developed in collaboration with the occupants.	The updated framework travel plan (Appendix B of the revised transport assessment) notes a revised mode share target of 62% of trips to the site via non-car travel modes, in line with the Concept Plan as recently modified. A more specific travel plan can be prepared prior to occupancy of the building once details of future users / specific tenant requirements are more defined.
Documentation consistency	
Comment: Section 4.5 of the Transport Assessment report indicates that cars enter the basement car park via the existing roundabout on University Avenue at the eastern end of the site. However, in Section 5.3 and Figure 15 of the report, it is indicated that a new roundabout would be provided at the site access point at the eastern end of the site whereas there is no indication of changes would be made to the existing roundabout where University Avenue and Research Park Drive meet. This information is not consistent with that shown in the DA drawings. Recommendation: It is requested that the above be clarified and documentation revised as necessary.	Section 4.5 and Figure 13 as well as Section 5.3 and Figure 14 of the revised traffic assessment notes that service vehicles will enter the basement car park at the western end of the site via an existing and currently active access road. Cars entering the basement car park at its eastern end will access the site via a new roundabout on University Avenue, directly opposite the existing driveway access to the Cochlear Building. The two existing roundabouts on University Avenue would be removed to accommodate the new roundabout servicing the eastern edge of the site.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Recommended Conditions of Consent - Road Safety Audit	
Prior to issue of construction certificate, an independent Detailed Design Road Safety Audit (RSA, refer to NSW Centre for Road Safety Guidelines for Road Safety Audit Practices) shall be undertaken of the proposed modified access points and pedestrian crossing on University Avenue. The proposed design shall address any deficiencies identified within the RSA.	This is noted and accepted.
Recommended Conditions of Consent – Workplace Travel Plan	
Prior to occupancy, a comprehensive Workplace Travel Plan (WTP) should be developed. The WTP should include specific measures to address progressive mode share targets that promote an increased proportion of travel by sustainable modes of transport. The content of the WTP relating potential measures should be developed in collaboration with known occupants. The WTP must be implemented accordingly and updated annually.	This is noted and accepted.
Recommended Conditions of Consent – Construction Traffic and Pedestrian Management Plan	
Prior to the commencement of any construction works, a detailed Construction Traffic and Pedestrian Management Plan (CTPMP) shall be prepared, in consultation with the Sydney Coordination Office (SCO) within Transport for NSW, approved by Council and submitted to the satisfaction of the Certifying Authority. The CTPMP should be endorsed by SCO prior to any construction activity on site and take into account the potential impacts of the proposed works on bus operations adjacent to the site. The CTPMP must specify, but not be limited to, the following: • Traffic and public transport customer management in the vicinity of the development; • Location of all proposed work zones; • Construction vehicle access arrangements; • Proposed construction hours; • Estimated number and type of construction vehicle movements including volume, time of day and truck routes. • Construction program highlighting details of peak construction activities and proposed construction 'Staging'; • Any potential impacts to general traffic, cyclists, pedestrians and bus services within the vicinity of the site from construction vehicles during the construction of the proposed works; • Cumulative construction impacts of projects in the Macquarie Park precinct including other developments within Macquarie University. Should any impacts be identified, the duration of the impacts; • Details/staging of construction of the new roundabout on University Drive and how bus services will be managed; • Measures proposed to mitigate any associated general traffic, public transport, pedestrian and cyclist impacts should be clearly identified and included in the CPTMP.	This is generally noted and accepted, however, rather than the plan be approved by Council we refer to other recent SSD consents at the campus (eg SSD 8755 for the Central Courtyard project – Condition B18) where the plan (as a sub-plan of a CEMP) is prepared in consultation with Council, but is ultimately approved by the Certifying Authority, and then furnished to DPIE. This arrangement is requested be continued for consistency.
RMS	
Issue	**Response**
Roads and Maritime has reviewed the submitted information and raises no objection to the proposed development, subject to Department's approval and the following comments being included in the any consent issued by the Department: 1. A Construction Traffic Management Plan (CTMP) detailing construction vehicle routes, number of trucks, hours of operation, access arrangements and traffic control should be	Noted. Please see the above comment as per the more detailed TfNSW proposed condition.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

prepared in consultation with Sydney Coordination Office (SCO) of the Transport for NSW and submitted to Council for approval prior to the issue any Construction Certificate.	
Sydney Metro	
Issue	**Response**
The proposed Macquarie University New Office and Laboratory Building is a State Significant Development and not located within the Sydney Metro Northwest corridor. Accordingly, Sydney Metro has no comments on this development application.	Noted.
Office of Environment & Heritage	
Issue	**Response**
Landscaping	
… it is recommended that the number of replacement trees to be planted in relation to the development be at a ratio of greater than the proposed 1:1 (111 trees) to better meet strategic planning objectives to mitigate the urban heat island effect, improve and increase tree canopy cover across Sydney, and improve biodiversity and habitat. OEH recommends the landscaping for this SSD uses a diversity of native trees, shrubs and groundcover species from the relevant local native vegetation communities that once occurred in this location to improve biodiversity rather than use exotic species and non-local native species. The AIA indicates the original vegetation community is mapped as Turpentine Ironbark Margin Forest and that this endangered ecological community is dominated by *Eucalyptus punctata* and *Syncarpia glomulifera (*page 8). OEH recommends the development plants advanced size local native trees from minimum 200L containers, or greater to replace the trees already approved for removal, as the removal of the existing trees and the benefits they provide, can take decades for a juvenile tree to replace. Enough area needs to be provided on site to allow the planted trees to grow to full maturity.	To reconfirm, tree removal is already approved under the prior demolition REF – a copy of which has been provided to DPIE. The REF states, … *to offset the loss of the mature trees on site, replacement tree planting is to be carried out at a ratio greater than 1:1. Seed is to be collected from existing trees located within the Macquarie University grounds and propagated to ensure such trees maintain a local provenance.* Aspect Studios confirms the proposed design includes the provision for 174 new trees to be planted on the site, which is significantly above the 1:1 ratio (111 required) for replacement trees for those removed as approved in the REF. The tree and understory species include a mix of local native species and exotics, contributing to not only the local ecology, but also the university's arboretum tree planting strategy and biodiversity across the university. Trees are proposed to be planted in minimum 200L pot size or larger, achieving a semi-mature scale and providing a contribution to reducing the effects of heat island effect at installation. A detailed planting plan and schedule will be provided for approval for Construction or Crown Certificate prior to construction.
Habitat Improvement	
OEH recommends installing nest boxes and bee hotels at the site to improve habitat. It is also suggested that tree trunks (greater than approx. 25-30cm in diameter and 3m in length) from the trees to be removed are salvaged and where possible used in landscaped areas on the site and/or elsewhere within the university grounds to improve habitat.	This is generally accepted. Inclusion of bee hotels and nest boxes within the landscape, and reuse of a reasonable number of large tree trunks within appropriate areas of the landscape on the campus is supported. It is suggested that bee hotels and nest boxes be located within less pedestrian trafficked areas of the landscape (eg Macquarie Walk west). Large tree trunks may be located within riparian creek zones.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Building Design	
OEH repeats the recommendation from its submission on the SEARS that the proposed development incorporates a Green Roof or Cool Roof into the building design. The benefits of Green Roofs and Cool Roofs are outlined in the OEH (2015) Urban Green Cover in NSW Technical Guidelines. Green roofs can have a strong regulating effect on temperature of roofs and building interiors, reducing the energy needed for cooling and the impact of the Urban Heat Island Effect. The provision of green roofs would increase habitat and biodiversity at the site, particularly if local native plant species are used from the relevant native vegetation community.	An important aspect of the building design is that it will incorporate 'cool roof' elements that reduce the temperature and improve the comfort of the internal and external spaces below. The exposed roof structure, louvres and cladding will be light in colour to reflect heat and the roof overhang and louvres provide shade to maximise the 'cool roof' effect. There is also provision for photovoltaic panels on the roof which would provide additional shade. Consequently, there is insufficient roof area to concurrently accommodate a 'green roof'.
Aboriginal Cultural Heritage	
OEH notes that the SEARs require an ACHAR be prepared. The EIS has submitted a Due Diligence Aboriginal Heritage Assessment which was undertaken in 2012. The SEARs have not been complied with as the Due Diligence is not a substitute for undertaking an ACHAR. Due Diligence is a legal defence against harm under the NP&W Act 1974 and is inadequate to assess the impacts of the proposed development on Aboriginal archaeological and cultural values at the subject land. OEH recommends that an ACHAR is prepared in relation to the proposed development.	Extent, the authors of the recently issued campus-wide ACHAR, have completed the Site 1 Addendum which focusses on this site within its campus context – see **Appendix I**. Supplementary consultation for this Addendum ACHAR was undertaken from March 2020 to May 2020. This garnered one response, being in support of the findings. In general, the findings are that the site is of nil to very low archaeological potential, but that an unexpected finds protocol be employed during works, amongst other things.
Flood	
The report adequately addresses 1% AEP flooding concerns related to the new university office and laboratory building.	Noted.
It is noted that the Station North Site is within the PMF extent but no maps of the PMF extent are shown to confirm this.	The 8-12 University Ave site is not within the Station North Precinct at the university. The flood maps provided with the EIS – see Appendix A to the TTW flood report which was Appendices Y3 and Y4 of the EIS package – show the site to be outside of the PMF. This is based on the City of Ryde / Bewsher mapping provided.
The Ryde DCP states all basement car parking must be protected from the PMF. As the extent of the PMF is not shown this cannot be confirmed for the Dow Corning basement car park.	As above, the site is unaffected by the PMF. The site is not located near the Dow Corning building which would be differently affected. In any case, this DCP would not apply to the development in a strict sense.
The Flood Mitigation Strategy (approved via the earlier Part 5 REF which is assumed) includes a creek diversion and in detailed design stage a construction staging plan should be developed addressing flooding as creek diversion is constructed.	The creek works are long in place and operational since at least 2011/12. These resulted in enhanced stormwater performance along this creek. This is not considered relevant or necessary in the circumstances.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Recommended Conditions of Consent	
Landscaping Landscaping / street planting shall use diversity of local provenance species (trees, shrubs, and groundcovers) from the native vegetation community that once occurred on the site to improve biodiversity (rather than use exotic plant species or non-endemic native species). A Landscape Plan should be prepared for the site and include details on: • The native vegetation community (or communities) that once occurred on the site; • A list of local provenance trees, shrub and groundcovers to be used in the landscaping, the quantity and location; • The pot size of the local native trees to be planted; • The planting area for trees. Sufficient area needs to be provided to allow the trees to grow to full maturity; • Plant maintenance. The planted vegetation should be regularly maintained and watered 12 months following planting. Should any plant loss occur during the maintenance period the plants should be replaced by the same plant species.	Refer to the previously stated comments above. Detailed planting plans and schedule, and maintenance schedule will be provided for the Construction or Crown Certificate phase of the development.
Biodiversity Habitat features such as nest boxes and bee hotels shall be installed at the site to improve biodiversity. Tree trunks (greater than approx. 25-30cm in diameter and 3m in length) from the trees to be removed shall where possible be salvaged and used in landscape areas on the site and/or elsewhere within the university grounds to improve habitat.	As stated above, this is generally accepted. Inclusion of bee hotels and nest boxes within the landscape, and reuse of a reasonable number of large tree trunks within appropriate areas of the landscape on the campus is supported. It is suggested that bee hotels and nest boxes be located within less pedestrian trafficked areas of the landscape (eg Macquarie Walk west). Large tree trunks may be located within riparian creek zones.
Green Roofs and Cool Roofs The proposal shall incorporate green roofs and/or cool roofs into the design.	As addressed above, an important aspect of the building design is that it will incorporate 'cool roof' elements that reduce the temperature and improve the comfort of the internal and external spaces below. The exposed roof structure, louvres and cladding will be light in colour to reflect heat and the roof overhang and louvres provide shade to maximise the 'cool roof' effect. There is also provision for photovoltaic panels on the roof which would provide additional shade. Consequently, there is insufficient roof area to concurrently accommodate a 'green roof'.
NSW EPA	
Issue	**Response**
General comments / Preamble	
(a) the need for a detailed assessment of potential site contamination, including a detailed assessment of the footprint and surrounds of existing buildings, surface infrastructure and in ground utilities following their demolition; (b) construction phase noise impacts (including recommended standard construction hours and intra-day respite periods for highly intrusive noise generating work) on noise sensitive receivers such as surrounding residences;	See detailed commentary below with respect to each topic / matter.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

(c) construction phase dust control and management, (d) construction phase erosion and sediment control and management; (e) operational noise impacts on noise sensitive receivers (especially surrounding residences on adjoining and adjacent holdings) arising from operational activities such as waste collection services and mechanical services (especially air conditioning plant); (f) practical opportunities to implement water sensitive urban design principles, including stormwater re-use; and (g) practical opportunities to minimise consumption of energy generated from non-renewable sources and to implement effective energy efficiency measures.	
Construction Phase – Site Contamination	
The architectural drawings accompanying the EIS indicate that the project involves construction of three levels of basement parking and thus significant bulk earthworks to accommodate those parking levels. EIS Appendix U indicates that the proponent undertook soil samples from 17 boreholes instead of the minimum 25 sampling points anticipated by the EPA Sampling Design Guidelines for a development site with an area of approximately 15,000 square metres. Table 5.3 EIS Appendix U further acknowledges data gaps arising from sampling not being able to be undertaken "... beneath the existing security and substation building". Whilst the EIS Appendix U 'Executive Summary' also mentions similar data gaps in respect of sampling not undertaken at "... 3rd car park to the east (E1) ..." Section 11.1.2 to EIS Appendix U confirms the presence of asbestos containing material in fill material on the development site and that "... more asbestos could be encountered during earthworks." However, the proponent's planning and environmental consultants differ in their opinion of whether site remediation works should be classified as Category 1 or Category 2. Accordingly, the EPA considers that the proponent should engage a site auditor accredited under the Contaminated Land Management Act to provide a Section A site audit statement (SAS) and accompanying site audit report (SAR) certifying suitability of the land for the proposed land use.	JK Environments advises that the Stage 2 ESA undertook soil sampling from 22 locations, not the 17 locations as indicated by the EPA. However, additional sampling and analysis will be required to better define the extent of asbestos contamination at the site and to address the minimal data gaps. The scope and information for this additional investigation is outlined in the draft RAP at included at **Appendix B**.
Site Contamination Recommendations	
1. The proponent be required to ensure that prior to commencing any work on the development site, an appropriate procedure: (a) is prepared and implemented to identify and deal with unexpected finds of site contamination, including asbestos containing materials and PCBs (associated with the former substation); and (b) details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved. 2. The proponent be required to ensure that (following demolition of any existing structures, parking infrastructure, and underground utilities) further detailed investigation be	JK Environments has advised as follows: • An unexpected finds protocol will be included as part of the validation aspect of the project; • Contamination post-demolition will be covered off by the additional investigation. This investigation and sampling will ideally be completed post-demolition phase of the project; • All the required guidelines in the NEPM and SEPP 55 will be met; • Should any triggers be encountered the EPA will be notified;

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

undertaken of soil and groundwater contamination within the footprint of those structures, that infrastructure and those utilities prior to undertaking any site preparation, bulk earthworks or construction. 3. The proponent be required consider the guidance material provided in the National Environment Protection (Assessment of Site Contamination) Measure as well as the following EPA documents when undertaking further site assessment and validation - - Technical Note: Investigation of Service Station Sites, 2014, - NSW EPA Sampling Design Guidelines, - Guidelines for the NSW Site Auditor Scheme (3rd edition) 2017, and - Guidelines for Consultants Reporting on Contaminated Sites, 2011. 4. The proponent be required to ensure that the processes outlined in State Environmental Planning Policy 55 - Remediation of Land (SEPP55) are followed in assessing the suitability of the land and any remediation required in relation to the proposed use. 5. The proponent be required to ensure that the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site to result in significant contamination. 6. The proponent be required to notify the EPA should any contamination of the development site be identified which meets the triggers in the Guidelines for the Duty to Report Contamination. 7. The proponent be required to engage a site auditor (accredited under the Contaminated Land Management Act 1997) to: (a) review the adequacy of contamination assessment reports, any asbestos management plan and unexpected finds procedure, and (b) provide a Section A Site Audit Statement (SAS) and accompanying Site Audit Report (SAR) certifying the suitability of the development site for the proposed use. 8. The proponent be required to ensure: (a) further details of the proposed remediation and validation strategy are provided to the site auditor in a Works Plan and a Validation Sampling and Analysis Quality Plan (VSAQP) for review by the site auditor prior to remediation commencing; (b) an Asbestos Works Management Plan (AWMP), including stringent controls on dust emissions, is prepared and submitted to the site auditor for review and the scope of that investigation detailed in a sampling and analysis quality plan to be provided to the site auditor for review; 9. The proponent be required to satisfy the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 'asbestos wastes'.	• The site auditor is to be engaged by Macquarie University Property (the client); and • The requirements for the VSAQP and AWMP will be included in the RAP and quantified during the validation aspect.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Note: The EPA provides additional guidance material at its web-site http://www.environment.nsw.gov.au/waste/asbestos/index.htm. 10. The proponent be required to consult with Safework NSW concerning the handling of any asbestos waste that may be encountered during the course of the project.	
Site Contamination Polychlorinated Biphenyl (PCB) Materials and Waste	
Table 5.3 to EIS Appendix U indicates that sampling had not been able to be undertaken "... beneath the existing security and substation building." The data gap investigation required to be undertaken following demolition of existing structures may identify the presence of PCBs in and around the footprint of the substation building. The Polychlorinated Biphenyl (PCB) Chemical Control Order 1997 sets out requirements for managing PCB materials and wastes, including activities such as – - processing, - storage, - transport, and - disposal The Control Order is made under the Environmentally Hazardous Chemicals Act 1985. The proponent may readily obtain a copy of the Order on the EPA web site via the following link – https://www.epa.nsw.gov.au/your-environment/chemicals/chemical-control-orders	Sampling for PCBs will be included in the additional investigation works, including sampling around or beneath the substation will be conducted if practical. The draft RAP resolves this matter in consultation with Senversa.
Site Contamination Polychlorinated Biphenyl (PCB) Materials and Waste Recommendation	
The proponent be required to ensure that any PCB material or waste kept on the development site – (a) is stored and handled in accordance with the Polychlorinated Biphenyl (PCB) Chemical Control Order 1997, and (b) is assessed, classified and managed in accordance with the EPA "Waste Classification Guidelines Part 1: Classifying Waste" November 2014 and the 2016 Addendum thereto.	As above.
Construction Phase - Noise and Vibration	
The EPA anticipates that demolition, site preparation (including tree clearing), bulk earthworks, construction and construction-related activities are likely to have significant noise and vibration impacts on surrounding residences and the nearby Baptist aged care facility. The EPA emphasises that demolition, site preparation, bulk earthworks, construction and construction-related activities should be undertaken during the recommended standard construction hours. The EPA anticipates that those demolition, site preparation, bulk earthworks, construction and construction-related activities generating noise with particularly annoying or intrusive characteristics (such as those identified as particularly annoying in section 4.5 of the Interim Construction Noise Guideline) would be subject to a regime of intra-day respite periods where – (a) they are only undertaken after 8.00 am,	Acoustic Logic has prepared an updated Acoustic Assessment to address comments made by the EPA. This is attached at **Appendix J** along with a letter addressing individual comments made in that submission.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

(b) they are only undertaken over continuous periods not exceeding three hours with at least an hour respite every three hours, and (c) 'continuous' means any period during which there is less than an uninterrupted 60 minute respite between temporarily halting and recommencing any of the intrusive and annoying work referred to in Interim Construction Noise Guideline section 4.5. The EPA emphasises that intra-day respite periods are not proposed to apply to those demolition, site preparation, bulk earthworks, construction and construction-related activities that do not generate noise with particularly annoying or intrusive characteristics. The EPA is aware from previous major infrastructure projects that community concerns are likely to arise from noise impacts associated with the early arrival and idling of construction vehicles (including concrete agitator trucks) at the development site and in the residential precincts surrounding that site. The EPA has identified the noise from 'beeper' type plant movement alarms to be particularly intrusive and is aware of feasible and reasonable alternatives. Transport for NSW, Barangaroo Delivery Authority/Lend Lease and Leighton Contractors have undertaken safety risk assessments of alternatives to the traditional 'beeper' alarms. Each determined that adoption of 'quacker' type movement/reversing alarms instead of traditional beepers on all plant and vehicles would not only maintain a safe workplace but also deliver improved outcomes of reduced noise impacts on surrounding residents. Interim Construction Noise Guideline Appendix C provides additional background material on this issue.	
Noise and Vibration Recommendations	
The proponent be required to ensure that as far as practicable all demolition, site preparation, bulk earthworks, construction and construction-related activities likely to be audible at any noise sensitive receivers such as surrounding residences are only undertaken during the standard construction hours, being: (a) 7.00 am to 6.00 pm Monday to Friday, (b) 8.00 am to 1.00 pm Saturday, and (c) no work on Sundays or gazetted public holidays.	Noted. As detailed in section 7 of the DA acoustic assessment a detailed construction noise and vibration management plan should be undertaken by the main contractor, once equipment selections and duration of works is known. A preliminary review of the use of bulk excavation equipment, the loudest activity likely to be associated with the proposed works, has been conducted assuming standard construction hours, refer to section 6.2 of the DA acoustic assessment. It is noted that other recent MQU SSD DA consents do allow for non-standard hours, including up to 7pm Mondays to Fridays and up to 4pm Saturdays. This is consistently applied to the Arts Precinct and Central Courtyard consents. It is requested that these same hours apply in this instance for consistency.
The proponent be required to schedule intra-day 'respite periods' for construction activities identified in section 4.5 of the Interim Construction Noise Guideline as being particularly	Section 4.5 of the Interim Construction Noise Guideline states the following…

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

annoying to noise sensitive receivers, including surrounding residents.	*A number of activities have proven to be particularly annoying to nearby residents:* *• Use of 'beeper' style reversing or movement alarms, particularly at night-time* *• Use of power saws, such as used for cutting timber, rail lines, masonry, road pavement or steel work.* *• Grinding metal, concrete or masonry* *• Rock drilling* *• Line drilling* *• Vibratory rolling* *• Rail tamping and regulating* *• Bitumen milling or profiling* *• Jackhammering, rock hammering or rock breaking* *• Impact piling* *If any of these activities are to be undertaken they should be factored into the quantitative assessment by* ***adding 5 dB to the predicted noise levels****.* As detailed in section 6.2 of the DA acoustic assessment predicted noise levels from hydraulic hammer/rock saw is 60-65 dB(A) Leq. With the addition of 5dB, predicted noise levels would continue to be below the highly affected noise level of 75 dB(A) Leq, as such intra-day respite periods would not be required. Notwithstanding the above, a detailed construction noise and vibration management plan should be undertaken by the main contractor, once equipment selections and duration of works is known.
The proponent be required to ensure construction vehicles (including concrete agitator trucks) involved in demolition, site preparation, bulk earthworks, construction and construction-related activities do not arrive at the project site or in surrounding residential precincts outside approved construction hours.	Noted.
The proponent be required to consider undertaking a safety risk assessment of site preparation, bulk earth works, construction and construction-related activities to determine whether it is practicable to use audible movement alarms of a type that would minimise the noise impact on surrounding noise sensitive receivers, without compromising safety.	Noted.
Construction Phase – Dust Control and Management	
The EPA considers dust control and management to be an important air quality issue during demolition, site preparation, bulk earthworks and subsequent construction.	Noted.
Dust Control and Management Recommendation	
The proponent be required to minimise dust emissions on the site, and prevent dust emissions from the site.	Noted. This will be achieved through the final Construction Management Plan.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Construction Phase – Sediment Control	
Managing Urban Stormwater Soils and Construction, 4th Edition published by Landcom (the so-called 'Blue Book') provides guidance material for achieving effective sediment control on construction sites. The proponent should implement all such feasible and reasonable measures as may be necessary to prevent water pollution in the course of developing the site. The EPA emphasises the importance of – (a) not commencing demolition, site preparation, bulk earthworks, construction and construction-related activities until appropriate and effective sediment controls are in place, and (b) daily inspection of sediment controls which is fundamental to ensuring timely maintenance and repair of those controls.	Noted.
Construction Phase – Waste Control and Management (general)	
The proponent should manage waste in accordance with the waste management hierarchy. The waste hierarchy, established under the Waste Avoidance and Resource Recovery Act 2001, is one that ensures that resource management options are considered against the following priorities: **Avoidance** including action to reduce the amount of waste generated by households, industry and all levels of government **Resource recovery** including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources **Disposal** including management of all disposal options in the most environmentally responsible manner. All wastes generated during the project must be properly assessed, classified and managed in accordance with the EPA's guidelines to ensure proper treatment, transport and disposal at a landfill legally able to accept those wastes. The EPA further anticipates that, without proper site controls and management, mud and waste may be tracked off the site during the course of the project.	Noted. This will be achieved through the final Construction Management Plan.
Waste Control and Management (general) Recommendations	
The proponent be required to ensure that: (1) all waste generated during the project is assessed, classified and managed in accordance with the EPA "Waste Classification Guidelines Part 1: Classifying Waste", November 2014 and the 2016 Addendum thereto; (2) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to prevent any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and (3) mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site, is removed before the vehicle, trailer or motorised plant leaves the premises.	Noted. This will be achieved through the final Construction Management Plan / Construction Traffic Management Plan.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

Construction Phase – Waste Control and Management (concrete and concrete rinse water)	
The EPA anticipates that during the course of the project concrete deliveries and pumping are likely to generate significant volumes of concrete waste and rinse water. The proponent should ensure that concrete waste and rinse water is not disposed of on the project site and instead that – (a) waste concrete is either returned in the agitator trucks to the supplier or directed to a dedicated watertight skip protected from the entry of precipitation, and (b) concrete rinse water is directed to a dedicated watertight skip protected from the entry of precipitation or a suitable water treatment plant.	Noted. This will be achieved through the final Construction Management Plan.
Waste Control and Management (concrete and concrete rinse water) Recommendations	
The proponent be required to ensure that concrete waste and rinse water are not disposed of on the development site, and prevented from entering waters, including any natural or artificial watercourse.	Noted. This will be achieved through the final Construction Management Plan.
Operational Phase – Noise and Vibration	
The EPA highlighted in its comments concerning the draft SEARs that the operational noise impact assessment should be undertaken in accordance with the Noise Policy for Industry 2017. However, the SEARs required the proponent to undertake its assessment in accordance with the defunct Industrial Noise Policy. The EPA is aware of a number of complaints about 'offensive noise' from various operational activities on the University campus. The EPA notes with concern the proximity of noise sensitive receivers (especially residences in Saunders Close and the nearby Baptist aged care facility) and is aware from long experience of the need for appropriate operational noise mitigation and management measures, particularly regarding: (a) the design and location of waste storage facilities; (b) time restrictions on waste collection services; (c) design, selection and operation of mechanical ventilation plant and equipment; and (d) time restrictions on grounds maintenance using powered equipment (e.g. leaf blowers, brush cutters and lawn mowers).	See commentary below as derived from Acoustic Logic.
Operational Phase – Background Noise Measurement	
The EPA emphasises that properly establishing background noise levels in accordance with guidance material in the New South Wales Noise Policy for Industry (NPI), and the now defunct Industrial Noise Policy, is fundamental to a consistent approach to the quantitative assessment of noise impacts of development. The NPI specifies that at least a 'week's worth' of monitoring data is required to establish background noise levels and that noise levels measured during rainfall should be excluded when deriving those background levels. However, the EPA notes that EIS Appendix H omits any details of background noise monitoring undertaken by the proponent and instead presents results that may or may not	See commentary below as derived from Acoustic Logic, noting the updated Acoustic Report now addresses this matter.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

represent the Rating Background Level for the each of the assessment periods (i.e. day, evening and night).	
Background Noise Measurement Recommendation	
The proponent be required to provide a detailed report of background noise monitoring undertaken for the purposes of the project in accordance with the guidance material in Fact Sheet B to the Noise Policy for Industry, 2017 to confirm inter alia – (a) when unattended and attended monitoring was undertaken, (b) where unattended and attended monitoring was undertake, (c) whether prevailing meteorological conditions throughout the duration of monitoring were suitable for background noise monitoring, and (d) what equipment was used to undertake unattended and attended monitoring.	The DA acoustic assessment provides details of background noise monitoring within section 4 and appendix A of the report – see **Appendix J** to this RtS package.
Operational Phase – Mechanical Plant and Equipment	
Section 6.1.3 to EIS Appendix H states that " ... plant selections and locations are not finalised."	Noted.
Mechanical Plant and Equipment Recommendation	
The proponent be required to: (a) provide a comprehensive quantitative assessment of operational noise impacts of mechanical plant and equipment (especially ventilation/ air conditioning plant and equipment) on surrounding noise sensitive receivers, especially surrounding residences and aged care facilities; (b) ensure mechanical plant and equipment installed on the development site does not generate, (either individually or cumulatively) - (i) noise emissions that exceed the Project Trigger Noise Levels (day, evening and night) measured at the noise sensitive receiver premises adjoining the University campus, and (ii) noise emissions that exhibit tonal or other annoying characteristics.	As noted in section 6.1.3 of the DA acoustic assessment, detailed mechanical layouts and equipment selections for the project have not been prepared at this stage of the project, as is typical. Noise emission criteria, which any plant and equipment installed on site would need to meet to surrounding land uses, are summarised in section 5.1 of the DA acoustic assessment. The acoustic review and assessment of noise emissions from mechanical plant is typically formulated as a consent condition prior to the issue of the relevant construction certificate. All mechanical plant has the capacity to comply with EPA noise emissions goals at all receiver boundaries with the implementation of typical acoustic treatments. Given the significant distance between the site location and the receivers, the likely plant associated with the development, and the background noise levels in the area, compliance is predicted at all times, assuming typical treatments
Operational Phase – Waste Collection Services	
The EPA notes numerous reports of community concern arising from waste collection services undertaken at other educational establishments, especially during evening and night times.	All waste collection at the campus is carried out at night to avoid conflicts arising during the day, not the least to enhance staff and student safety and security. This is done to limit noise impacts upon students and staff, including researchers. There are also inherent efficiencies for waste collection carried out campus-wide at the same time for the waste collection service provider.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

	The issue of intrusive impacts during work hours is particularly relevant to work carried out at the Australian Hearing Hub and Cochlear which are sensitive to both noise and vibration. This building would be no different.
Waste Collection Services Recommendation	
The proponent be required ensure waste collection services are not undertaken outside the hours of 7.30 am to 6.00 pm Monday to Friday.	As above.
Operational Phase – Grounds Maintenance using powered equipment	
The EPA notes numerous reports of community concern arising from grounds maintenance involving the use of powered equipment (example: leaf blowers, lawn mowers, brush cutters) at the University during early morning.	This is noted and accepted.
Grounds Maintenance using powered equipment Recommendation	
The proponent be required ensure grounds maintenance involving the use of powered equipment is not undertaken outside the hours of 7.30 am to 6.00 pm Monday to Friday.	This is accepted.
Operational Phase – Waste Management	
The proponent should manage waste in accordance with the waste management hierarchy outlined earlier.	As per the relevant corresponding commentary included above.
Waste Management Recommendation	
The proponent be required to identify and implement feasible and reasonable opportunities for the reuse and recycling of waste, including food waste.	There would be no objection to this as this is presently carried out as part of the Central Courtyard project and can be applied here.
Operational Phase – WSUD and Energy Conservation and Efficiency	
The EPA acknowledges that EIS Appendix N comprises an environmentally sustainable development report that proposes – (a) a range of water sensitive urban design measures, including water efficient fixtures; and (b) a range of measures to maximise energy efficiency and minimise energy consumption.	Noted.
Sydney Water	
Issue	**Response**
Water Servicing	
• The existing 300mm water main in Balaclava Road has the capacity to service this development. • The assumption is that each building has its own service connection to the nearest Sydney Water water main. • The development site is under the Mobbs Hill-Marsfield Water Supply Zone.	Noted.
Wastewater Servicing	
• The existing 225mm sewer mains parallel to the south boundary of the site has capacity to service this development. • The assumption is that each building has its own service connection to the nearest Sydney Water sewer. • The development is under the North Head Wastewater System.	Noted.
Sydney Water Servicing	
A Section 73 Compliance Certificate under the Sydney Water Act 1994 must be obtained from Sydney Water.	Noted and will be applied for post-approval.
Building Plan Approval	
The approved plans must be submitted to the Sydney Water Tap in™ online service to determine whether the development will affect any Sydney Water sewer or water main, stormwater	Noted.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

drains and/or easement, and if further requirements need to be met.	
Trade Wastewater Requirements	
If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must obtain Sydney Water approval for this permit before any business activities can commence. It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.	An application requesting permission to discharge trade wastewater to Sydney Water's sewerage system will be made.
Backflow Prevention Requirements	
Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply. All properties connected to Sydney Water's supply must install a testable Backflow Prevention Containment Device appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum. Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.	A testable Backflow Prevention Containment Device is likely to be required and installed.
Water Efficiency Recommendations	
Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.	The submitted ESD report addresses water efficiency matters.
Contingency Plan Recommendations	
Under Sydney Water's customer contract Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs. Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned. Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority. Have you thought about a contingency plan for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.	MQU has two separate water supplies into the university, each on a ring main arrangement. Accordingly, should there be a Sydney Water outage on one supply, the other will still maintain supply to buildings via the ring main. Accordingly, there is an existing water contingency plan.
City of Ryde Council	
Issue	**Response**
Traffic Report	
Council's Traffic Engineer has commented there are inconsistencies and contradictory advice provided throughout	As set out earlier, Section 4.5 and Figure 13 as well as Section 5.3 and Figure 14 of

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

the Traffic Report regarding which roads are to be closed and which roundabouts are to be demolished.	the revised traffic assessment notes that service vehicles will enter the basement car park at the western end of the site via an existing and currently active access road. Cars entering the basement car park at its eastern end will access the site via a new roundabout on University Avenue, directly opposite the existing driveway access to the Cochlear Building. The two existing roundabouts on University Avenue would be removed to accommodate the new roundabout servicing the eastern edge of the site.
Executive Summary states that the two existing roundabouts on University Avenue are to be removed, with one roundabout relocated to facilitate access. It reiterates on page 20 of the Traffic Report that the existing two roundabouts on University Ave will be removed, with a new roundabout providing access to the basement carpark of the proposed development as well as the existing Cochlear basement carpark. However then on page 23, it states that cars will enter the basement car park via the eastern end of the site using the existing roundabout on University Ave. Both according to the previous statements this roundabout is to be removed. On page 26 it shows an aerial of University Ave, with only one roundabout to be demolished, one to be constructed and the eastern roundabout remaining.	
There is contradictory advice provided throughout the Report as to how many roundabouts are to be actually demolished and whether or not the existing roundabout at the eastern end of University Ave is to be retained or not. If retained, then the new roundabout that will service the Cochlear basement car park is only 25m away, two roundabouts in such close proximity is not recommended.	
Page 7 states that Research Park Drive near University Ave will be closed. Page 29 using Figure 17 then shows the proposed access and egress trip distribution routes. However, it appears that they are using Research Park Drive which on Page 7 was to be closed.	Figure 16 of the revised transport assessment report has been updated to show all vehicles using University Avenue to access the site, with no vehicles access via the (now closed) Research Park Drive.
Page 6 of the CTMP shows the construction routes using University Ave and Research Park Drive as part of its route, except page 7 of the main document indicated that this road would be closed near University Ave.	The diagram on Page 5 of the CTMP has been updated to show construction vehicles would use University Avenue to exit the precinct and not the closed section of Research Park Drive.
Page 15 – Herring Road south of Epping Road is a local road, not regional as shown in Figure 8.	Figure 7 of the updated transport assessment has been revised to note that Herring Road is a local road south of Epping Road.
Traffic Report needs to be updated and further clarification is required by Council in relation to this matter.	The transport assessment has been updated to address the issues raised by Council.
Development Contributions	
A VPA exists between the City of Ryde Council and MQU in regards to Developer Contributions. The VPA includes arrangements retaining to developer contributions. However, Council requests that any consent for the current SSD should contain a condition that references the VPA that has been entered into. Reference to this VPA has been made in the application under Section 7.2 of the Planning Report.	Agreed and noted.
Urban Design – Deep Soil	
The proposed basement levels have almost 100% site coverage, which eliminates the opportunity to provide deep soils to support mature tree growth. The landscape plans indicate large tree planting in the diagonal pedestrian link and the atrium. However, the Landscape Plans and Statement provide no information regarding whether the proposal is able to provide adequate soil depth for planting on structure. It is questionable whether the proposed tree planting is likely to be successful.	There is additional floor to floor height over the carpark area below the diagonal pedestrian link to accommodate recessed planter boxes with sufficient soil depth for the proposed tree planting. In other locations there are large above slab planters incorporating perimeter seating, the soil is mounded to increase depth and to suit proposed planting.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

	Aspect Studios has advised that all trees on basement slab are planted within raised planters, and soil mounded to ensure that all trees have a minimum of 9m3 to establish to maturity. For trees growing to larger mature size, the soil volume provided is greater than 13m3. Refer attached plan indicating slab SSL's and planter volumes – see **Appendix K**.
The design of the basement car park may need to be amended to accommodate pockets of deep soil at selected locations to support mature tree planting. The pedestrian link is an important open space linking the Common and the future Cochlear Plaza. Its landscape character should not be compromised by the lack of deep soil and failed tree planting.	See commentary included above. No amendment to the basement car park levels is warranted.
Urban Design - Overshadowing	
The proposal will cause overshadowing impact upon the future Cochlear Plaza at winter solstice (drawing DA04.01). As a minimum, the proposal should maintain 50% of the future Cochlear Plaza for 2 hours around lunch time.	The proposed building height and envelope is consistent with the approved Macquarie University Concept Plan and its Design Guidelines. The resulting building envelope overshadows the proposed Cochlear Plaza by slightly more than 50% in mid-winter but for most of the year there is little or no overshadowing around lunchtime. Overshadowing was not raised as an issue during the previous UDRP (Ryde Council) and SDRP (GANSW) design review process. In fact, recent work by Cochlear seeks to create shading for its ground floor café space and external seating addressing this courtyard emphasising the relative need for shading in this location.
The diagonal pedestrian link should be open to the sky to reduce overshadowing impact on the future Cochlear Plaza. Built form solutions such as redistributing building height from LOT E2 to LOT E3 and/or providing setbacks above the street wall may be applied to improve the design outcome.	The pergola style 'roof' over the diagonal link is predominately open to the sky. Refer notes above regarding development control compliance of proposed building envelope and previous design review process.
Urban Design – Roof form	
The proposed roof structure presents a continuous and flat roof line that will significantly increase the visual bulk of the development. The proposed roof structure spans five buildings and presents a building mass of approximately 160m long and 75m wide. The adjacent buildings such as the Hearing Hub, Cochlear and the library, have well-articulated building components that each presents a building length between 75m to 85m and a building width of 27m to 31m only. The building mass of the proposal is substantially out of scale when viewed in context with the surrounding built form due to the roof design.	The roof feature has been designed to encompass the collection of buildings below into one coherent form. This design idea was previously endorsed by the UDRP who commented that ……. *'The interesting architectural concept of five buildings under one roof is developing positively'*. Similarly, the UDRP endorsed the continued development of the façade articulation which provides a distinct identity for each building/facade in response to the differing height, use, function, orientation, context, etc.

_planning Pty Ltd
Oliver Klein BA MURP MPIA CPP (Registered Planner)
ABN 25 620 516 583
ACN 620 516 583
Phone: 0437 259 581
Email: oliverklein1968@gmail.com

	The overall building length on the east and west facades is broken into 3 separate elements of 25/18/25 m length by the lift/services cores which are recessed from the glazed facades and have a different materiality and strong vertical articulation which contrasts with the horizontal expression of the glazed facades. Similarly, the north and south façade are broken into multiple elements of max. 42m length by the secondary stair/services cores. In particular the UDRP commented that … '*the design of the long southern façade has been further articulated by expressing the secondary cores as strong vertical elements which are elegantly detailed with vertical ribbons of various materials'.* Refer also to façade design sketches, details and images contained in the Design Report presented to the UDRP on 06.09.18
The 'Drums' buildings without the oversized roof structure, will present a lower height and finer 'grain' to the surrounding space. This will achieve a better visual relationship with the library building and the Common. The development does not require an oversized roof structure to unify and frame the project. This can be achieved through using landscape treatments, materials and furniture selection to create a consistent character on the ground plane to enhance pedestrian experience.	As above.
The roof form should be physically broken up and allow the diagonal pedestrian link to be open to the sky. Sun shade over the pedestrian link is not essential as the space is often in shade even at summer solstice, as shown in the applicant's shadow study. The roof form of each building should help articulate the built form, reflect the scale of surrounding buildings in the context and add visual interest. The Novartis building at 54 Waterloo Road is a good example for reference.	As above.
Urban Design – Architectural features	
The regular form of the laboratory and commercial buildings responds to the surrounding built form, however, the typical building façade treatment applied across the buildings does not create any individual character for each building.	Whilst the form and façade articulation of the office and laboratory building is similar there are also numerous differences which provide a subtlety different character / appearance for each building. These differences include floor to floor height % office floor / 4 laboratory floors within same height), full height glazing to office building, horizontal louvre band below transom to laboratory building, expressed mullions to laboratory building. Refer also to façade design sketches, details and images contained in the Design Report presented to the UDRP on 06.09.18

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While maintaining a consistent design language in the façade system, the individuality of each building can be expressed through the details (eg sun shades) to give each building a recognisable identity.	As above.

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