

Mitigation Measures Table

10, 14 and 14A Stanhope Road, Killara

Table 1 Mitigation Measures

SEARS Item	Mitigation Measure
1 Statutory Context	No mitigation measures required.
2 Estimated Development Cost and Employment	No mitigation measures required.
3 Contributions and Public Benefit	No mitigation measures required.
4 Engagement	No mitigation measures required.
5 Design Quality	No mitigation measures required.
6 Built Form and Urban Design	No mitigation measures required.
7 Environmental Amenity	No mitigation measures required.
8 Visual Impact	No mitigation measures required.
9 Transport	- Detailed design should consider the following - A “No Right Turn – between 6AM – 10AM & 4PM – 7PM” signage for vehicles turning out of Stanhope Road. - The provision of accessible car parking space for use by visitors is to be considered - Pedestrian facilities to be implemented at the signalised intersection of Werona Avenue / Stanhope Road on the northern and eastern legs to support crossing movements
10 Noise and Vibration	Noise And Vibration Monitoring, Reporting and Response Procedures - Minimum glazing s required in accordance with Appendix C of the Noise Impact Assessment (Appendix 25) to reduce traffic noise intrusion - Noise and Vibration monitoring is only required in response to a complaint. This may be consistent of either consist of manned and/or unmanned measurements. Active monitoring may be undertaken during the construction work phase of the project if required in the event complaints are received from neighbours. - In the event that complaints are received from neighbours the following process should be considered: - Assessing impacts and determining the offending plant/equipment/process. - Locating the plant/equipment/process further away from the affected receiver(s) if possible. - Implementing additional acoustic treatment in the form of localised barriers, silencers etc. - Selecting alternative equipment/processes.

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	- Where monitoring is required and indicates exceedances of the predicted noise impacts immediate action should be taken to identify any further controls as required to reduce noise emissions so that the noise limits are complied with. Monitoring of the activities following the implementation of these additional controls will be undertaken to confirm compliance. Reporting Requirements - The following reporting may be required to be kept on site - A register of complaints received/communication with the local community shall be maintained and kept on site with information as detailed below. - Where noise/vibration complaints require noise/vibration monitoring, results from monitoring shall be retained on site at all times. - Any noise exceedances occurring including, the actions taken and results of follow up monitoring. - A report detailing complaints received and actions taken shall be presented. - All monitoring and reporting shall be conducted in conjunction with the conditions of consent. Response Procedures - Complaints associated with noise and vibration generated by site activities shall be recorded on a Noise Complaint Form. The person(s) responsible for complaint handling and contact details for receiving of complaints shall be established on site prior to construction works commencing. A sign shall be displayed at the site indicating the site manager and the general public and their contact telephone number. The Form should be in accordance with the Noise Impact Assessment prepared by Acoustic Logic (Appendix 25) Acoustic Barriers - Acoustic barriers should be used to provide shielding and are to be constructed from a material that has a noise reduction performance which is approximately 10dB(A) greater than the maximum reduction provided by the barrier screening Silencing Devices - Silencing devices should be investigated during plant and equipment identification Materials Handling/Vehicles - Trucks and forklifts in general use on site are to use non-tonal reversing beacon where possible (subject to OH&S requirements) to minimise potential disturbance of surrounding receivers. - Avoid careless dropping of construction materials in empty trucks. - Trucks, trailers and delivery vehicles are to turn off engines when idling to reduce noise impacts (unless required for concrete pumping or similar). Site practises - Site practises are to be established to reduce noise generation in accordance with the Noise Impact Assessment prepared by Acoustic Logic (Appendix 25) Minimum Safe Work Distances for Vibration Intensive Activities - Safe work distances are to be in accordance with the Noise Impact Assessment prepared by Acoustic Logic (Appendix 25)

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11 Water Management	- Stormwater drainage system designed in accordance with the requirements outlined in AS3500.3 and of Ku-ring-gai Council's Development Control Plan Part 24. - The stormwater management strategy including on-site stormwater detention, stormwater quality and stormwater drainage are designed in accordance with the relevant requirements of Ku-ring-gai Council Development Control Plan Part 24 and AS 3500.3.
12 Ground and Groundwater Conditions	- All excavated material transported off site should be classified in accordance with NSW EPA 2014 - Waste Classification Guideline Part 1; Classifying Waste. - A suitably qualified geotechnical engineer is to assess the condition of exposed material at foundation or subgrade level to assess the ability of the prepared surface to act as a foundation or as a subgrade. - Observation of the material within pile excavations should be undertaken at the start of piling works to confirm that material across the site is in accordance with the geotechnical model presented in this report. - Regular inspections of battered and unsupported excavations, where proposed, to confirm geotechnical conditions and to assess the suitability of design assumptions and to provide further advice with regards to excavation retention/ support and proposed construction methodologies, if required. - Where groundwater ingress is encountered during pile excavation, concrete is to be placed as soon as possible upon completion of pile excavation. Pile excavations should be pumped dry of water prior to pouring concrete, or alternatively a tremmie system could be used.
13 Contamination and Remediation	Prepare an unexpected finds protocol.
14 Trees and Landscaping	- Removal of trees T9 and T12 is recommended. - Retain trees T1 – T5, T8, T14 – T19 - For T6, T10, and T11 to remain viable, the following must be implemented as part of the proposal. - The Arborist initially recommended that the bulk soil cut be setback from such trees. This was not achievable given the design was already limited to locate a building footprint between the two patches of vegetation on #10 and #14A, and therefore the current building footprint proposed is the most viable footprint. - Where the Arborist could otherwise condition the building footprint to be less intrusive into the ground such as using ground cantilevering, the basement and lower ground floor plan mandate bulk soil cuts. - The Arborist does note the additional impact to trees from canopy encroachments which increases the incursions in Table 1 and could be deemed be significant impact (>10% of live canopy). - A root mapping investigation could be used to physically locate the number and size of roots for these trees and make more concrete conclusions on setbacks, but this would not minimise the canopy pruning to less than 10%. - The Arborist concedes that the removal of these three specimens may be the most feasible option for this submission. - Often on sites where the development activities are considered significant, retaining trees like these is in vain, as they are privy to both direct and indirect impacts given their proximity to building footprint. It

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	is considered better tree management to remove trees and commit to replacing them in the new landscape. - For T18, and access handle vegetation to remain viable, the following must be implemented as part of the proposal. - The demolition of any existing structures within TPZ of T18 such as the garage and rock retaining wall in No. 10, must be done so meticulously by hand to ensure that if any roots are encountered these are cleanly cut by the Arborist and treated. - For vegetation along the access handle, the Arborist recommends that the natural grounds be maintained, and that any renewal of surface be sympathetic to trees and not conflict with any trunks. This can include a decking to be found on screw piles that are located outside the SRZ of trees, or a permeable pavement such as a stabilised decomposed granite or porous pavers. - All stormwater works whether it be directional drilling, hand excavation or hydro excavation must be supervised by a Level 5 Arborist. - Retained trees are to be protected strictly in accordance with AS4970:2009. - Once a final design is approved, a Tree Protection Plan in accordance with the Australian Standards 4970:2009 must be provided for all retained trees on site, on Stanhope Rd and in the access handle. Such tree protection measures and strategies must be strictly adhered to. This should also include an updated health and condition report on all trees to be retained, considering the time between original assessment and pre - commencement.
15 Ecologically Sustainable Development	The following should be implemented during the Construction Certificate design phase. - Where practical, consider the use of Solar PV with Battery Energy Storage System (BESS). - Review material datasheets for in-service temperature range and allow for a nominal tolerance on peak temperatures based on today's values. Select materials which have a higher temperature tolerance if required. - Develop a Drought Management Plan. Water restrictions would likely be signposted well in advance. Consider alternative water supply. - Check the design includes overflow outlets in parapet. Add to design if required. - Check whether capacity of overflow slots and drainage system is sufficient to allow for increased rainfall intensity. Increase either/both if required. - Ensure secondary overflow system provided and check if systems can manage increased flows. Implement further measures if required. - Primary storm water drainage system to be designed to cater for a minimum of a 100- year storm. System to also have full backup of either piped overflow or overland flow designed to a higher storm intensity. Consider other feasible mitigation measures as required. - Consider options for protecting the mechanical plant in design. Implement if required. - Screen outlets with hail guards. - Check wind load thresholds in engineering for façade and glazing. Adopt heat treated glazing for greater impact strength if required. - Consider in design and highlight risk for building managers. Include wet weather management plan in facilities management contract.

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	Evacuation plan to be developed by FM company, including use of link to nearby hospitals for particularly vulnerable occupants. Consider use of non-latching outside air smoke detectors to shut down outside air systems in the event of a bushfire situation.
16 Biodiversity	Impact to resident fauna species in the development footprint - Clearing to be conducted under ecological supervision. - Adaptive management strategies to be employed such as pre-clearing surveys, relocation of individuals, care for injured wildlife, and euthanasia of feral species in accordance with appropriate licences and approvals. Potential impact to fauna species potentially occupying tree hollows or other habitat - Clearing to be conducted under ecological supervision and using a professional bee rescue service in accordance with appropriate licences and approvals. Potential impacts on native wildlife from humans and companion animals - Educational material is to be provided to all residents regarding the potential impacts to biodiversity of uncontrolled pets and human activity. - Residents to be encouraged to keep Cats indoors or within an enclosure at all times and not allowed to roam. Landscaping species becoming a nuisance in nearby bushland - The Landscape Plan to rely on planting species consistent with those that occur naturally in BGHF or those that are not known to have weed potential. - Regular sweeps for weeds and low impact controls to be implemented per the Landscape Plan and scheduled maintenance. Landscaped areas induce disruptions to foraging of birds - The Landscape Plan not to rely heavily on species (e.g. Grevilleas) known to favour Noisy Miners. Increased spill over noise, activity, scent and light into nearby bushland - Install external lighting only where necessary for safety. - Prohibit external uplights, lights directed into the retained trees, or any bright lighting that spills into nearby bushland. Introduction of soil borne pathogens - Standard hygiene controls are to be observed as part of the civil management works plan. - All plant material to be introduced to the site must be certified as disease-free. Increased soil nutrients from runoff - Weeds arising from this potential impact to be controlled by actions detailed in the Landscape Plan and as part of ongoing maintenance. Impacts on water quality in remaining native habitats - A carefully chosen planting palette using native species will require fewer chemical inputs. Therefore, it is important that the planting list in the Landscape Plan is appropriate to serve to mitigate this potential impact at its source.
17 Waste Management	The generation, storage, treatment, and the disposal of hazardous waste (including asbestos) will be conducted in accordance with relevant waste legislation administered by the NSW EPA and any applicable WH&S legislation administered by Work Cover NSW.

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	• All friable and non-friable asbestos-containing material shall be handled and disposed of off-site at an EPA licensed waste facility by an EPA licensed contractor in accordance with the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classifications Guidelines – Part 1 'Classifying Waste (EPA 2014) and any other instrument as amended. • All friable hazardous waste arising from the demolition process shall be removed and disposed of in accordance with the requirements of Work Cover NSW and the EPA, and with the provisions of: ○ Work Health and Safety Act 2011, ○ NSW Protection of the Environment Operations Act 1997 (NSW), and, ○ NSW Department of Environment and Climate Change Environmental Guidelines; Assessment, Classification and Management of Liquid and Non- Liquid Wastes. • During the demolition and construction stage of the project, an area will be set aside on the site as a compound for the on-site storage of materials prior to their removal from the site. This compound will provide for: - ○ Material sorting, ○ Segregation of materials that may be hazardous and which will be required to be disposed of, ○ Recovery equipment, such as concrete crushers, chippers, and skip bins, ○ Material storage, and, ○ Access for transport equipment. • Appropriate vehicular access will be provided on and off site, and to the compound, to enable the efficient removal of reusable, recyclable, and waste materials. • Prior to the commencement of demolition works, the developer will provide Council with a 'Site Plan for the On-Site Storage of Materials at Demolition'. This plan will show in detail the location of each area within the compound, set aside for the segregated storage of all materials involved in the demolition of all buildings on the site. • All excavated material removed from the site, as a result of the demolition of all buildings, must be classified in accordance with the Department of Environment, Climate Change and Water NSW Waste Classification Guidelines prior to their removal, transportation and disposal to an approved waste management facility. • Upon completion of all demolition works, construction of the building will commence with the excavation of the site for the basement levels of the building. All materials sourced from these activities will be disposed of in accordance with the information provided in Part 3.2 on pages 13, 14, 15, 16, 17, 18 and 19 of this WMP (Appendix 30). • Additionally, all materials used in the construction of the building that are not required to be incorporated into it, shall be recycled, reused or disposed of in accordance with these provisions, and the requirements of the Protection of the Environment Operations Act (1997). It will be the developer's overall responsibility to ensure compliance in this regard. • Mobile Bins of an appropriate size will be located on site for the collection of food scraps, beverage containers, and other waste generated on site by workers.

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	- Separate Waste and Recycling Compartments are provided in each residential floor - The Owners Corporation will be responsible for ensuring that all on-going waste management activities are carried out in accordance with the provisions of this Waste Management Plan All waste and recycling materials will be stored in approved receptacles of an appropriate size as specified in the WMP (Appendix 30). The lids of the bins shall be closed at all times to reduce litter, stormwater pollution, odour and vermin. - All waste management facilities will be maintained in a clean and hygienic condition that will promote the principles of health, safety and convenience.
18 Social Impact	- As per the Traffic Impact Assessment, recommended to include “No Right Turn – between 6AM – 10AM & 4PM – 7PM” signage for vehicles turning out of Stanhope Road. - Prepare a Green Travel Plan for the site prior to Construction Certificate. - Continue to provide information to the community throughout the construction stage. - Comply with the recommendations and mitigation measures identified in the Noise Impact Assessment. In addition to these measures, the contractor shall: - Prepare a management procedure to deal with noise and vibration complaints. - Make allowance for notification by letterbox drop for all occupied buildings within 50m of the construction site. Notification should provide detailed estimated duration of demolition, excavation and construction. - A Construction Traffic Management Plan (CTMP) shall be prepared prior to Construction Certificate. The purpose of the CTMP shall be to detail the construction vehicle routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated. At a minimum, the Plan shall consider: - Construction vehicle related movements and times - Impacts of construction vehicles on On-street parking - Impacts on neighbouring properties - Impacts on pedestrians - Cumulative construction traffic impact. - Prepare a Tree Protection Plan (TPP) in accordance with the Australian Standards prior to Construction Certificate. The TPP shall include an updated health and condition report on all trees to be retained.
19 Flood Risk	The site is flood free during all flood events, no mitigation measures required.
20 Bushfire Risk	The site is not bushfire prone, no mitigation measures required.
21 Aboriginal Cultural Heritage	Should any unexpected Aboriginal objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations. These may include notifying the Heritage NSW and Aboriginal stakeholders.

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22 Environmental Heritage	No Mitigation Measures required.
23 Public Space	No Mitigation Measures required.
24 Hazards and Risks	The site is within a highly urbanised area, surrounding by residential development. No hazardous or dangerous goods are in the surrounding area and therefore, no mitigation measures required.
Other	BCA and Access All works are to be in accordance with the relevant Australian Standards and requirements, in particular, those specified within the BCA Assessment prepared by Certatude.