



Department of Planning, Industry and Environment
2 Darcy St
Parramatta

Attn: Rodger Roppolo

5 July 2021

Re: Section 4.55(2) Modification SSD 7942 Pod B, P5 Car Park, Hill Road, Sydney Olympic Park (Lot 71 DP 1191648)

Dear Roger,

Please find enclosed the applicant's response to the submissions (RtS) to the exhibition of the subject modification application. This RtS prepared by Urbnsurf responds to the items identified by the Department of Planning, Industry and Environment (DPIE), as well matters raised in submissions from agencies and the general public. The RtS is supported by the following information:

- An Acoustic Letter of Compliance and updated Acoustic Report prepared by Stantec (Appendix 1 and 2);
- External Lighting Statement of Compliance prepared by Northrop (Appendix 3);
- An amended Landscape Site Plan and Landscape Advice prepared by Oculus (Appendix 4 and 5) providing further details of tree planting;
- Ecological advice prepared by Applied Ecology Pty Ltd (Appendix 6) regarding additional trees proposed for removal;
- An architectural statement and accompanying amended drawings (Appendix 7) prepared by Clarke Hopkins Clarke detailing amendments to the materiality of the proposal in response to comments from SOPA; and
- Advice from Progressive Risk Management (PRM) (Appendix 8) responding to the EPA's submission regarding remediation of the site.

We trust the RtS is adequate to enable the finalisation of the assessment and determination of the modification application.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J. McGuinness'.

Associate

Encl. Response to Submissions, Urbnsurf

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS

ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
R01	DPIE	<p>Hours of Operation</p> <p>The Department considers the proposed extension to the morning opening hours and the night-time operating hours of the surf park has not been justified. Justification and the reasoning for the extension of the operating hours shall be provided.</p>	<ul style="list-style-type: none"> - The Proponent confirms that this proposal does not intend to extend the hours of operation for events beyond the current approved hours of 10pm. Applications for events within the park beyond 10pm will be pursued via a separate approval process. - The following justifications are submitted for consideration of the Department and other stakeholders with regard to the extension of trading hours: <p>Extension to Morning Hours to 5am</p> <ul style="list-style-type: none"> - A 1-hour extension to the park opening hours has been requested to provide access to users who are unable to attend the park during regular daytime hours. - This will allow demographics such as tradespeople who typically would not have access to surfing and recreation prior to starting work, to do so. - This extension aligns with other facilities within Sydney Olympic Park (i.e., Sydney Olympic Park Aquatic Centre) that open for use at 5am. - The extension is also required to boost trading for local/domestic participation due to Covid19 travel restrictions significantly decreasing the international and interstate markets. <p>Extension to Night-Time Hours to 12am Friday & Saturday</p> <ul style="list-style-type: none"> - Similarly, to the morning hours the requested 2-hour extension to the surf park operating hours is to provide access to users who are unable to attend the facility during regular daytime hours. - This extension will allow members of the public who may be shift workers, tradespeople, or those with extended commute times, access to surfing, recreation and the amenity offered by the facility. - The extension in night-time trading hours is equally required to boost trading for local/domestic participation due to Covid19 travel restrictions significantly decreasing the international and interstate markets. <p>Supporting Documentation</p> <ul style="list-style-type: none"> - It should be noted that advice was received from the Biodiversity and Conservation division of the Environment, Energy and Science department in DPIE confirming that the proposed modification is unlikely to impact the natural hazards in the area. - Refer Appendix 1: “AC_RE_001_F_Acoustic Report (17 June 2021)”; and Refer Appendix 2: “AC-LE-001_Acoustic Letter of Compliance (dated 25 June 2021)”. <ul style="list-style-type: none"> o The Proponent notes that an acoustic report has been submitted with the modification which confirms full noise compliance within the most sensitive night-time hours. This report has been updated to reinforce that compliance can be achieved without the need for mitigation measures. A cover letter has also been provided for certainty. - Refer Appendix 3: “EL11-1_Statement of Compliance_External Lighting Design”. <ul style="list-style-type: none"> o A detailed lighting assessment has also been conducted confirming that light spill from the development does not exceed the most sensitive night time requirements. An updated compliance letter by Northrop Consulting Engineers has also been provided to clearly validate this assessment.
R02	DPIE	<p>Tree Removal</p> <p>The application does not address how many trees are being removed, the species or their significance. Further discussion regarding the proposed additional tree removal and replacement within the car park shall be provided, including any potential biodiversity impacts and BDAR requirements.</p>	<p>Tree Removal Plan</p> <ul style="list-style-type: none"> - The Proponent notes that a tree removal plan was included in the modification submission (Refer Landscape Plan L300). All trees within the primary lease hold area (Site Boundary) have been approved for removal under the current Development Application (SSD 7942) consent. <p>Tree Removal & Re-planting</p> <ul style="list-style-type: none"> - The proponent would like to acknowledge that the reconfiguration of the Southern Carpark to is required achieve compliance with the relevant Australian Standards (AS) in accordance with the conditions of the existing approval. - Regarding the eight (8) trees noted for removal in the Southern carpark, the Proponent submits the updated landscape site plan (Appendix 4) highlighting the proposed tree planting in the carpark as part of the final landscape plan for the site. <ul style="list-style-type: none"> o Please note that a minimum of four (4) trees will be retained in the carpark outside of the areas requiring reconfiguration to achieve compliant parking and vehicle swept paths.

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
			<ul style="list-style-type: none"> ○ A total of twelve (12) new trees will be planted in replacement of the eight (8) that will be removed from the carpark to facilitate the reconfiguration required to achieve 159 compliant parking spaces. <p>Supporting Statements</p> <ul style="list-style-type: none"> - It should be noted that advice was received from the Biodiversity and Conservation division of the Environment, Energy and Science department in DPIE confirming that the proposed modification is unlikely to impact the natural hazards in the area. - Refer Appendix 5: “SSD-7942 MOD 1-OCULUS-Landscape Architecture Letter” - Oculus Landscape Architecture have provided details of the tree species on site and proposed new planting species. - Refer Appendix 6: “AE-29062021-Ecology Assessment Letter” - Applied Ecology who undertook the biodiversity assessment on the site for the original DA submission and approval, has provided advice regarding the ecological significance of the trees proposed to be removed from the car park. The advice confirms the trees are not ecologically significant to the area and their removal will not impact biodiversity. Applied Ecology noted that the following observations with regard to existing site conditions and ecological value of the existing and planned flora planting: <ul style="list-style-type: none"> ○ Generally, the vegetation throughout the study site is in poor condition, lacking the normal structural components such as a shrub layer and a comprehensive understorey layer. This is not surprising given the history of the site. As well, many of the trees on site, at the time of site inspections, showed signs of stress that probably resulted from their location in the middle of a hot, dry, windy, sealed carpark. ○ Tree selection for the carpark will be drawn from a mix of native and endemic trees including: <ul style="list-style-type: none"> ▪ <i>Eucalyptus paniculata</i> - Narrow leaf Ironbark ▪ <i>Eucalyptus punctata</i> - Grey Gum ▪ <i>Eucalyptus tereticornis</i> - Forest red Gum ▪ <i>Syncarpia glomulifera</i> - Turpentine ▪ <i>Angophora costata</i> - Smooth-barked Apple ▪ <i>Araucaria heterophylla</i> - Norfolk Island Pine ○ These species are generally consistent with plantings in areas near the subject site. The ecological value of the existing trees on site is low and subsequent plantings will also have low ecological value once established simply because of the scale of degrading process in the immediate area.
R03	DPIE	<p>Landscaping</p> <p>As recommended by Council, consideration shall be given to the provision of substantial shade tree planting to reduce the heat island effects within the hardstand areas. In this regard, additional trees shall be planted within the car parking area, in addition to those being planted to offset additional tree loss.</p>	<p>Shading to the Carpark</p> <ul style="list-style-type: none"> - The Proponent submits the updated landscape site plan (Appendix 4 - LA-USS-000- 005.T1_ SITE PLAN GROUND FLOOR Rev.T1) for the review and approval of the Department. The proposed tree planting in the carpark will consist of twelve (12) <i>Eucalyptus Paniculate</i>, which will reach a mature height of 30m and a mature spread of 8m. - The landscape planting scheme will provide considerable natural shading to carpark, thereby reducing the heat island effect in this important entry and visitor area. - Refer Appendix 5: “SSD-7942 MOD 1-OCULUS-Landscape Architecture Letter” - Oculus Landscape Architecture have provided details of the tree species on site and proposed new planting species. - We note that that landscape documentation has been updated since the submission of the DA and the reconfiguration of the exiting carpark is to accommodate the required parking spaces to achieve Australian Standards compliance. We are proposing to retain four (4) existing trees within the site boundary of the reconfigured carpark and are proposing to install an additional twelve (12) trees within newly created planting islands. This results in a net gain of trees within the carpark area (eight (8) removed) and with new tree planting proposed throughout the site and on the embankments, this will assist with biodiversity, support wind mitigation and a reduction of heat island effect, as well as improve visual amenity.
R04	DPIE	<p>Special Events</p> <p>Further information shall be provided on the number and type of events (small, medium, and large events) that are expected to take place during the proposed extended operating hours.</p>	<ul style="list-style-type: none"> - The Proponent confirms that this proposal does not intend to extend the hours of operation for events beyond the current approved hours of 10pm. Applications for events within the park beyond 10pm will be pursued via a separate approval process. - The proponent notes that the current consent conditions as part of the development approval (SSD 7942) require specific event management plans to be developed and approved in consultation with SOPA’s Director, Planning and Environment, prior to obtaining the Final Occupation Certificate. <p>Events Offering</p>

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
			<p>The Proponent acknowledges that consistent with the current approval, the facility will host small, medium, and large events. Depending on the size and nature of the event, normal admission may be restricted in priority to the scheduled event.</p> <p>“Small” Events</p> <ul style="list-style-type: none"> - As part of usual business activity, the facility will host regular Small Events (classified as a total of <500 patrons on the premises at any one time), including a wide variety of private functions, including for local school groups and sporting clubs, tour groups and corporate meetings, presentations, team building events and “off-sites”. Having regard to the facility’s size, capacity and services, the Proponent envisages being able to accommodate several Small Events concurrently without disrupting other guests, or creating any additional noise, traffic or lighting impacts. Small Events will be held at the facility during normal business hours. <p>“Medium” and “Large” Events</p> <ul style="list-style-type: none"> - On a less frequent basis (i.e. monthly, quarterly or annually), the Proponent expects to host larger public events of a more regional or State significance. Such events may include art exhibitions, cultural fairs, food festivals, and surfing competitions. In keeping with Sydney Olympic Park’s reputation as a world-class destination for major sporting and cultural events, the Proponent intends to partner with: <ul style="list-style-type: none"> o Other tenants and operators within Sydney Olympic Park; o Sydney Olympic Park Authority (SOPA); o Relevant private and public organisations (e.g., Surfing NSW, Sport NSW, Surf Life Saving NSW) and charities; and o Other relevant authorities and community groups, to develop Medium and Large events that are of high-quality and offer high levels of engagement. - Medium Events (classified as between 500-1,000 patrons on the premises at any one time) will require event specific parking, amenity facilities, park operations management plans, noise management plans, risk assessments and management plans, traffic management plans, security and health and safety management plans. - Large Events (>1,000 patrons on the premises at any one time) at the Facility will require (in addition): <ul style="list-style-type: none"> o Event specific parking, facility, noise, risk, traffic, security and health and safety management plans o Coordination and programming with SOPA to ensure any potential conflicts are managed. - Save for exceptional circumstances, the Proponent envisages Large Events will also be held at the Facility. Any infrequent Large Events will: <ul style="list-style-type: none"> o Comply with applicable statutory regulations and the relevant noise criteria prescribed in the Acoustic Report with the exception of a special permit exemption being granted; and o Maximise positive public outcomes, including guest enjoyment, tourism expenditure, media coverage and efficient use of public infrastructure. - With respect to noise, Noise Management Plans will be developed for Medium and Large Events to ensure appropriate monitoring and mitigation measures are employed so that the relevant noise criteria as prescribed in the relevant Acoustic Report are complied with (and potential impacts to sensitive receptors are appropriately managed). This is not expected to be a significant issue given normal operational conditions were shown to have no significant impact and the distance of the nearest residence is approximately 390 metres away.
R05	DPIE	<p>Noise</p> <p>The Acoustic Report states that it contains recommendations for noise mitigation measures, however, these have not been provided. The mitigation measures shall be detailed within the updated Acoustic Report.</p>	<p>Updated Acoustic Report & Letter</p> <ul style="list-style-type: none"> - <i>Refer Appendix 1: “AC_RE_001_F_Acoustic Report (17 June 2021)”;</i> and Refer Appendix 2: “AC-LE-001_Acoustic Letter of Compliance (dated 25 June 2021)”. <ul style="list-style-type: none"> o The Proponent submits an updated acoustic report and supporting advice prepared by Stantec which confirms that no mitigation measures are required to be implemented as the noise outputs from the site were compliant during the most sensitive night-time hours at the closest receivers.
R06	SOPA	<p>Tree Removal</p> <p>SOPA considers that the removal of the eight trees in the car park to the south of the site to facilitate additional car parking is not justified in this instance. The proposal already includes significant tree loss to facilitate the wave park. Whilst the loss of trees were considered justified in the assessment of the original SSD,</p>	<p><u>PLEASE REFER TO R02 ABOVE FOR RESPONSE</u></p>

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
		<p>the removal of eight additional trees in this modification to facilitate additional car parking without significant off-set or retention is contrary to current and draft policies for Sydney Olympic Park, Greater Sydney and NSW. Of note, the following policies are relevant and should be taken into consideration in the assessment and justification of this SSD modification:</p> <ul style="list-style-type: none"> - Master Plan 2030 – 3.6 Landscape Planning Principles. - Greater Sydney Commission Objective 30 – Urban Tree Canopy. - NSW Government Architect – Greener Places Urban Greening Policy. - Premier’s Priority 11 - Greener Places. - Premier’s Priority 12 - Greening our City <p>The proponent should seek to adopt a maximum tree retention methodology for the car park and review the car-parking layout to maximise tree retention. Furthermore, the removal of any additional trees at the site should be fully supported by an Arborist Report and where tree retention is unavoidable; replacement tree planting measures should be detailed.</p>	
R07	SOPA	<p>Design Modifications</p> <p>SOPA considers that the modifications to the approved development will continue to incorporate an acceptable building form and massing appropriate to development within Sydney Olympic Park.</p> <p>However, SOPA considers that the materiality and colour of the proposed building facade, given the location of the development site within Sydney Olympic Park Parklands, should be more reflective of the site’s location and incorporate natural materials and neutral colours. In particular, the dark tones and large amounts of the proposed modified cladding and loss of the warm-toned timber cladding is not appropriate to the setting.</p> <p>Moreover, the SOPA Design Review Panel Advice Sheet (2 February 2017) for the original SSD notes the following positive aspects of the proposed design:</p> <ul style="list-style-type: none"> - ‘Breezy, permeable relaxed’ concept approach and use of sustainable materials is generally supported; and - The facility has a good visual fit with in the established native parkland setting as ‘built forms in landscape’. <p>Further SEPP SPP, Clause 30 Design Excellence, requires that the consent authority considers whether a proposal exhibits design excellence, having regard to:</p> <ol style="list-style-type: none"> a) whether a high standard of architectural design, materials and detailing appropriate to the building type and location will be achieved; and b) whether the form and external appearance of the building will improve the quality and amenity of the public domain, <p>Accordingly, SOPA considers the modified design in relation to materials and colours of the façade are unacceptable and the original colours and materials should be revisited.</p>	<p>Design Materiality</p> <ul style="list-style-type: none"> - The Proponent acknowledges the comments regarding the materiality and colour palette of the façade and confirms the following: <ul style="list-style-type: none"> o The Type A construction classification of the building prohibits the use of flammable materials on the building façade. Timber and other natural materials are unable to be specified as a result of this classification. o To achieve consistency with the comments raised by the SOPA Design Review Panel, updates have been made to the colour palette of the building façade, as well as the texturing or brick and blockwork patterns. This is able to be achieved via advanced staining techniques in combination with non-flammable façade batten panels. o Clarke Hopkins Clarke the project architect has provided updated renders and building materiality elevation plans to highlight the key changes. o The project Architect has included a letter to provide context on the updates and commentary on the consistency with the comments expressed by the SOPA Design Review Panel. <i>Please refer: Appendix 7 - A-USS-S.455_Architectural Amendments.</i>

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
R08	SOPA	<p>Hours of Operation</p> <p>SOPA does not support the proposed extension of operating hours from 10pm to midnight due to the impact from noise and light spill on the residents of Newington who are the nearest sensitive receivers.</p> <p>Furthermore, the proposed facility is located within the Millennium Parklands and sits on a nocturnal flight path between Haslams Creek and Newington Nature Reserve. Consequently, night-time noise and light impacts need to be sensitively managed so as to not impact on nocturnal fauna.</p> <p>Noise and light restrictions within the Parklands are therefore required to be more rigorous than in the town centre. Currently, there are no uses operating in the Parklands beyond 10pm and the documentation submitted with the modification request does not sufficiently demonstrate that the light and noise impacts from the extended operating hours can be satisfactorily mitigated.</p>	<p><u>PLEASE REFER TO R01 ABOVE FOR RESPONSE.</u></p> <p>In addition to the responses noted above the Proponent acknowledges the following with regard to light spill and noise management.</p> <p>External Lighting for S4.55 modification:</p> <ul style="list-style-type: none"> - A detailed external lighting compliance assessment was conducted which confirmed the light spill for all external lighting to be within compliant levels during the most sensitive night-time hours (Refer Attachment 3). - It should be noted that all external light fittings will have back shields to ensure all light is directional and the spill lighting is significantly reduced to within compliant levels. - Furthermore, all sports lighting in the lagoon is programmable, meaning the lighting levels can be adjusted (dimmed) during more sensitive curfew hours to further limit light spill. All adjustments and dimming will be balanced between the safety of patrons and minimisation of spill lighting. <p>Noise:</p> <ul style="list-style-type: none"> - Two noise assessments have been conducted for the development, the first during the original development application which was subsequently approved and the second for this modification based on the updated design and elements. - It is noted that the proposed modifications were found to be compliant against the requirements of the consent conditions, as well as all applicable codes and standards during the most sensitive night-time hours at the closest receivers (Refer Attachments 1 & 2).
R09	SYDNEY WATER	<p>Sydney Water provided acknowledgement of the development modification and confirmed the lodgement and processing status for the Section 73 connection application.</p> <p>No objections were raised.</p>	<p>The Proponent acknowledges the comments raised by Sydney Water in response to the submission.</p> <ul style="list-style-type: none"> - Section 73 application and approval will be sought separately, in accordance with the existing approved development consent conditions.
R10	NSW HEALTH	<p>The Centre for Population Health does not have any objections to the proposal or the proposed modification but have included some comments below in regard to water quality design implications for consideration by the proponent.</p> <ul style="list-style-type: none"> - The Proponent will need to ensure that the facilities located within the surf park are designed so that they can be maintained in accordance with the Public Health Act 2010 and Regulation 2012 requirements for public swimming pools. Water chemistry and disinfection requirements for public swimming pools are listed in Schedule 1 of the Public Health Regulation 2012. - These requirements are extended not just to the wave pool lagoon but also to the rack pool (dependent on design/depth/water source), toddler pool, hot tub and splash zone along the south-eastern edge of the lagoon beach (as mentioned in 3.1.3 Modifications to the Lagoon and adjacent facilities). - It is strongly recommended that each ‘pool’ has its own separate circulation and disinfection system and that there is a connection to sewer for disposal of backwash water or other wastewater in accordance with Sydney Water trade waste requirements. - I also note that there is a mention of the relocation of rainwater tanks. I'm unclear on what the proposed usage for the rainwater collected on site is however NSW Health recommends that rainwater should not be used for topping up public swimming pools and that within Sydney, the Sydney Water (town water), supply should only be used for this purpose. - If rainwater or a recycled water source is proposed to be used for toilet flushing or irrigation or other non-potable end use then the proponent should consult further with NSW Health. It is likely that a risk assessment and development of a Water Management Plan (including some 	<p>The Proponent acknowledges the comments raised by NSW Health (Centre for Population Health) in response to the submission and confirms compliance will be achieved against the relevant public policies and regulations as part of the project certification process.</p> <p>The Proponent confirms that on-going meetings and liaison will occur with NSW Health & the Centre for Population Health prior to project completion and the final handover certificate being issued. These meetings will resolve all maintenance and water quality requirements to ensure all compliance conditions are met.</p>

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
		treatment of the water) may be required or if not recommended depending on source, storage and type of usage.	
R11	DPIE – ENVIRONMENT, ENERGY & SCIENCE (BIODIVERSITY & CONSERVATION)	To assist DPIE, EES has reviewed the Modification Report and relevant documents and considers that the proposed modification is unlikely to impact on the natural hazards.	Noted – No further action required.
R12	TRANSPORT for NSW	TfNSW has reviewed the application and advises that the proposed modification will have a negligible impact on the surrounding classified road network. As such, TfNSW has no objections regarding the application and has no further comments.	Noted – No further action required.
R13	TRANSPORT for NSW - ROADS & MARITIME SERVICES (RMS) DIVISION	TfNSW has reviewed the application and advises that the proposed modification will have a negligible impact on the surrounding classified road network. As such, TfNSW has no objections regarding the application and has no further comments.	Noted – No further action required.
R14	CITY OF PARRAMATTA COUNCIL	<p>Tree Removal</p> <p>It is acknowledged that additional tree removal is proposed from the existing carpark area. No specific concerns are raised regarding removal of these additional trees, however it is strongly recommended that further consideration be given to the provision of substantial shade tree planting in order to reduce the heat island effects within the hardstand areas. In this regard, it is recommended that additional trees be planted within the car parking area.</p> <p>Noise Impacts</p> <p>The submitted Acoustic Report states that it contains recommendations for noise mitigation measures for the proposed development in order to meet the relevant criteria when compliance is not achieved. These recommendations for operational noise could not be found within the report.</p> <p>Whilst no objection in principle is raised to the extended hours of operation, given the proximity to residential properties, consideration should be given to the imposition of appropriate conditions to control and monitor noise impacts. These may include the following:</p> <ul style="list-style-type: none"> - Post operational noise testing for monitoring purposes. - Trial period for late night operations. - Engagement of security personnel for late night operations to ensure that patrons do not cause nuisance, or annoyance to the quiet and good order of the neighbourhood - Standard noise related conditions in respect to the following: <ul style="list-style-type: none"> o The use of the premises not giving rise to transmission of unacceptable vibration to any place of different occupancy. o The use of the premises not giving rise to a sound pressure level measured at any point on the boundary of any affected 	<p>Tree Removal</p> <ul style="list-style-type: none"> - <u>PLEASE REFER TO R02 ABOVE FOR RESPONSE</u> - Note attached updated Landscape Plan (<i>Appendix 4 - LA-USS-000- 005.T1_ SITE PLAN GROUND FLOOR Rev.T1</i>) confirming shading provisions in the development, including updates to the carpark. <p>Noise Impacts</p> <ul style="list-style-type: none"> - <u>PLEASE REFER TO R05 ABOVE FOR RESPONSE TO NOISE IMPACTS.</u> - Note attached updated Acoustic report and advice confirming the site achieves full acoustic compliance during the most sensitive night-time hours at the closest receivers, without the need for noise mitigation measures (Refer Attachments 1&2) - The Proponent acknowledges the comments raised by City of Parramatta Council with regard to the potential noise mitigation strategies. In consideration of the comments: <ul style="list-style-type: none"> o A noise management plan will be developed to satisfy the approved development consent conditions prior to operation. This plan will be developed in coordination with the relevant stakeholders (i.e., SOPA). o Post operational observation will be undertaken as required to ensure compliance with approved noise levels. o Security will be engaged as and when required to strengthen the patron management provided by the park lifeguards during operation of the surfing lagoon. o The on-site food and beverage providers within the main building will provide appropriate policies for the management of patrons within this amenity. o It should be noted that use of external speakers will be required to ensure patron safety and any amplified music will be played in accordance with the approved consent conditions. o Specific noise mitigation measures will be developed as required for events within the park. o Applications for events and amplified music within the park beyond 10pm will be pursued via a separate approval process.

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
		<p>residential premises that exceeds the background noise level by more than 5 dB(A).</p> <ul style="list-style-type: none"> ○ The proprietors of the venue being responsible at all times for the orderly dispersal of Patrons from the venue. ○ Noise and vibration from the use and operation of any plant and equipment and/or building services associated with the premises shall not give rise to 'offensive noise' as defined by the Protection of the Environment Operations Act 1997. ○ No external speakers being permitted at the premise. 	
R15	ENVIRONMENTAL PROTECTION AGENCY (EPA)	<p>The EPA notes that the proposed development is sited over part of the Haslam's Reach North landfill which is presently used as a car park. This landfill was historically used for uncontrolled tipping of power station ash, demolition waste and other wastes. The landfill was remediated in the 1990s, however impacted material remains onsite. Sydney Olympic Park Authority (SOPA), the landowner is responsible for maintaining integrity of landfill form and management of leachate in accordance with the Sydney Olympic Park Remediated Lands Management Plan (SOPA, 2009).</p> <p>The Development Consent granted on 20 December 2017 appears to acknowledge the presence of the landfill, requiring that suitable measures are adopted to protect the integrity of a containment cell in the southern portion of the site (Conditions C6 & D4), and the consent requires that remediation works are to be undertaken under the supervision of a suitably qualified and experienced expert (or experts) in accordance with the Remedial Action Plan (dated October 2017) (Condition D3). The Consent does not clarify what metrics are to be used to confirm suitable qualifications of the remediation expert. It is also unclear if the remediation strategy has been endorsed by a site auditor. Asbestos has been identified onsite as discussed in the modification submission.</p> <p>In consideration of the above, the EPA makes the following recommendations:</p> <ol style="list-style-type: none"> 1. It is strongly recommended that the Applicant considers engaging a contaminated site auditor accredited by the NSW EPA to review and endorse contamination assessment reports and plans for the development, and to issue Section A Site Audit Statement and Report on completion of the development to certify suitability of the land for the proposed use. This is particularly recommended as the site will be used for recreational purposes as a wave pool facility, being more sensitive land use than its current configuration as a sealed car park. 2. The EPA recommends use of "certified consultants" to prepare contamination assessment reports, remediation and management plans. Please note that the EPA's Contaminated and Consultant Certification Policy supports the development and implementation of nationally consistent certification schemes in Australia, and encourages the use of certified consultants (http://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/18520-contaminated-land-consultant-certification-policy.pdf?la=en). 3. The Applicant must liaise with the landowner, SOPA, to ensure the integrity of the landfill is not compromised and can be continued to be managed appropriately. The EPA recommends the Applicant provides the 	<p>The Proponent submits the attached letter by accredited environmental consultant Progressive Risk Management in response to the submission comments raised by the Environmental Protection Agency (EPA). Refer Appendix 8: P034987_LTR2_URBNSURF_NSW DPIE_NSW EPA</p> <p>The following responses are provided to the items raised by the EPA:</p> <ol style="list-style-type: none"> 1. Section A Site Audit Statement and Report <ol style="list-style-type: none"> a. The following explanatory notes regarding the requirement for a Site Audit, applicable land use and site setting are provided: <ol style="list-style-type: none"> i. NSW State Environmental Planning Policy 55 Remediation of Land 1998 refers to the Contaminated Land Management Act 1997 for when a Site Audit is required. Part 47(c) of the CLM Act defines a Statutory Site Audit as "a requirement imposed by State Environmental Planning Policy No 55—Remediation of Land or by any other environmental planning instrument made under the Environmental Planning and Assessment Act 1979 or by any development consent or approval given under that Act". ii. The proposed development is consistent with the Public Recreation (RE1) zoning currently. Currently the site is publicly accessible and comprised of an asphalt carpark, footpaths, and landscaped areas. The proposed development will comprise of the lagoon structure, hardstand areas, secure perimeter fence and landscaped areas contained by engineered capping layers. The final site condition will result in a "sealed" configuration equivalent to or improved from the existing configuration. Aquatic facilities do not necessarily meet either definition for "public open space" or "commercial/industrial" land use as defined by NEPM 2013 guidance. The URBNSURF facility is considered more comparable to a commercial land use (i.e. controlled) as opposed to a public open space land use such as ovals, footpaths and parks. iii. The proposed development will be subject to an ongoing environmental management plan to prevent potential exposure of contamination to site users which will be administered by URBNSURF throughout the operational phase. b. Acknowledging the requirement for a Statutory Site Audit is currently being contemplated by DPIE, there is reason to suggest this requirement would not be necessary to achieve the remediation objectives for the development. With consideration to the proposed land use, final site condition and ongoing environmental management outlined in the points above; the remediation approach currently approved within the existing development consent is sufficient to remediate and demonstrate the site as being a suitable proposed commercial land use in accordance the applicable regulatory provisions. 2. NSW EPA Contaminated Land Certification Policy <ol style="list-style-type: none"> a. PRM confirm that the validation report and environmental management plan documenting the final site condition will be prepared in consultation with and approved by a Chartered Environmental Practitioner Site Contamination (CEnvP SC) specialist. 3. Liaison with Sydney Olympic Park Authority <ol style="list-style-type: none"> a. Ongoing compliance with SOPA's Remediated Lands Management Plan, protection of surrounding landfill in the Haslams Reach Precinct and provision of environmental reports is agreed. 4. Pre-existing Contamination

SECTION 1.0 – AUTHORITY & ORGANISATION – RESPONSES TO SUBMISSIONS			
ITEM	STAKEHOLDER	SUBMISSION / COMMENTS	RESPONSE
		<p>landowner with all environmental reports and plans produced for the proposed development.</p> <p>4. The Applicant must ensure the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination [note that this would render the proponent the ‘person responsible’ for the contamination under section 6(2) of Contaminated Land Management Act 1997].</p> <p>5. The EPA must be notified under section 60 of the Contaminated Land Management Act 1997 for any contamination identified on the development area, which meets the triggers in the Guidelines for the Duty to Report Contamination (www.epa.nsw.gov.au/resources/clm/150164-report-land-contamination-guidelines.pdf)</p> <p>6. All excavated material, including asbestos containing material, and wastewater generated during the investigation works must be classified, handled, transported and disposed of offsite at a licensed facility that is authorised to accept the material in accordance with the Protection of the Environment Operations (Waste) Regulation 2014.</p>	<p>a. Implementation of the proposed remediation approach in accordance with the existing development consent should not interfere with known sources of existing contamination including SOPA’s compliance with NSW EPA Maintenance of Remediation Notice (reference: 28040 dated 23 January 2009) and Remediated Lands Management Plan.</p> <p>5. Duty to Report</p> <p>a. Contaminated Land Management Act 1997 (CLM Act) grants powers to the NSW EPA to regulate contaminated sites, including the establishment of guidelines regarding the duty to report contamination. The criteria used to assess contamination to determine whether reporting is required is provided in the Guidelines on the Duty to Report Land Contamination under the Contaminated Land Management Act 1997 (published 2015). Under the guidelines, a site must be reported with respect to contamination in soil if:</p> <ul style="list-style-type: none"> i. Contamination on the site exceeds designated trigger values and a person has been or foreseeably will be exposed to the contamination; OR ii. Contamination has or foreseeably will enter an adjacent property at concentrations above designated trigger values and will foreseeably remain above the trigger value; OR iii. Friable asbestos is identified above designated trigger values in or on the soil and a person has been or foreseeably will be exposed to potential inhalation of fibres. <p>b. The trigger values used to assess the contamination are the HILs and HSLs provided in NEPM (2013), selected for the current or approved use of the site, or the neighbouring site for off-site contamination. The duty to report asbestos contamination under Section 60 is required if:</p> <ul style="list-style-type: none"> i. Friable asbestos is present in or on soil on the land; AND ii. The level of asbestos (% weight for weight) in an individual soil sample is equal to or above the health screening level of friable asbestos in soil (0.001%) specified in Section 4.8, Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 2013); AND iii. A person has been, or foreseeably will be, exposed to elevated levels of asbestos fibres by breathing them into their lungs. <p>c. In consideration of the above, there is no evidence to suggest that anyone has been or foreseeably will be exposed to the asbestos contamination provided control measures prescribed within the CEMP, RAP and Asbestos Management Plan are implemented. As such, the requirement to notify contamination under section 60 of the CLM Act 1997 is not required.</p> <p>6. POEO (Waste) Regulation</p> <p>a. Compliance with the Protection of the Environment Operations (Waste) Regulation 2014 for all excavated material, asbestos containing material and wastewater generated during the project is agreed. Provisions relating to waste management have been included in the waste management plan prepared for the project. The approved remediation strategy should result in minimal quantities of asbestos contaminated waste requiring offsite disposal.</p>
R16	ROYAL AGRICULTURAL SOCIETY (NSW)	The Royal Agricultural Society (RAS) NSW and submitted a statement of support for the development and acknowledges the need to fast-track construction of the Parramatta Light Rail Stage 2 (PLR2).	<p>Noted – No further action required.</p> <p>Green Travel Plan</p> <p>The Proponent notes that as a requirement of the current development consent conditions a Green Travel plan will be developed to promote non-private vehicle transport for both employees and visitors to the park. This plan will look to leverage upcoming public transport infrastructure such as the Parramatta Light Rail Stage 2, which is currently shown to run directly adjacent to the site. This among other green travel initiatives will be encouraged by the Proponent.</p>

SECTION 2.0 – PUBLIC – RESPONSES TO SUBMISSIONS			
ITEM	CATEGORY	DESCRIPTION	RESPONSE
PR01	ENVIRONMENTAL IMPACTS – LOCAL FAUNA	<p>Public comment was raised regarding the developments impacts to the local environment and specifically regarding the existing fauna in the area. The key areas raised for response include:</p> <ul style="list-style-type: none"> - Conservation of native habitat surrounding the development. - Impacts to local fauna. 	<p>The Proponent would like to acknowledge that extensive environmental investigations of the proposal were provided with original development application approval (SSD 7942), including a flora and fauna assessment undertaken by Applied Ecology. These investigations were assessed and determined to be satisfactory for existing environmental conditions subject to compliance with conditions of consent.</p> <p>Requirements of Consent Conditions</p> <ul style="list-style-type: none"> - Operational Management Plans. <ul style="list-style-type: none"> o As a requirement of the approved development consent conditions provided by the Department of Planning, Industry and Environment, a detailed Operational Management Plan (OPM) will be prepared in consultation with the landowner, Sydney Olympic Park Authority (SOPA). This plan will be submitted for approval to the Certifying Authority prior to the issue of the Final Occupation Certificate. The plan will detail procedures for periodic review and update as required to facilitate diligent management of the development in the context of the local environment. The OPM will address/include, but not be limited to: <ul style="list-style-type: none"> ▪ Detail how the environmental performance of the development will be monitored and managed, and identify what actions will be taken to address potential impacts; ▪ A Water Management Plan. ▪ A Noise Management Plan. ▪ A Traffic Management Plan. ▪ A Green Travel Plan. ▪ A Landscaping Management Plan. ▪ A Waste Management Plan. ▪ A Major Events Management Plan. ▪ A Long-Term Environmental Management Plan. ▪ Community consultation and complaints management. ▪ Event Management Plan. <p>Requirements During Construction</p> <ul style="list-style-type: none"> - Construction Environment Management Plan <ul style="list-style-type: none"> o Prior to the commencement of any construction works a detailed Construction Environmental Management Plan (CEMP) will be prepared and implemented. The CEMP will to be prepared in accordance with the <i>Department's Guideline for the Preparation of Environmental Management Plans 2004</i>. o The CEMP will contain and number of detailed sub-plans that will ensure diligent and responsible environmental management during construction. o The CEMP will include, but not be limited to: <ul style="list-style-type: none"> ▪ An outline of all environmental management practices and procedures that are to be followed during construction. ▪ A description of activities to be undertaken during construction of the proposal (including staging and scheduling). ▪ The hours of work permitted for construction activities under the consent. ▪ A description of the roles and responsibilities for relevant employees involved in the construction of the proposal, including emergency and out-of-hours contact details, relevant training, and induction provisions for ensuring that employees, including contractors and sub-contractors, are aware of their environmental and compliance obligations under these conditions of approval. ▪ An environmental risk analysis to identify the key environmental performance issues associated with the construction phase. ▪ A Soil and Water Management Plan. ▪ A Groundwater and Leachate Management Plan. ▪ A Major Events Management Plan.

			<ul style="list-style-type: none"> ▪ A Traffic and Pedestrian Management Plan prepared in consultation with SOPA, TNSW, Council and RMS, to ensure traffic and access controls are implemented to avoid or minimise impacts on traffic, pedestrian and cyclist access, and the amenity of the surrounding environment. ▪ A Noise and Vibration Management Plan prepared in consultation with SOPA, to detail how construction noise and vibration impacts will be minimised and managed. ▪ An Air Quality Management Plan to detail how construction impacts on local air quality will be minimised and managed. This Plan must include identification of potential sources of airborne pollutants and how these will be monitored and managed. ▪ A Waste Management Plan to detail how waste (including contaminated waste and potential acid sulphate soils) would be managed, classified, handled, reused and disposed of during construction. ▪ An Asbestos Management Plan to detail procedures should asbestos be detected on site. ▪ An Unexpected Finds Protocol to establish a response should unexpected waste and/or contamination (including landfill gas) be encountered; ▪ A Fauna Management Plan which incorporates all relevant recommendations and mitigation measures outlined in the Flora and Fauna Assessment in Attachment 10 of the EIS, particularly in relation to the minimisation and management of potential impacts on fauna using swales on site and the Green and Golden Bell Frog; and ▪ Community consultation and complaints management measures, including measures to consult with TNSW's Parramatta Light Rail Team and ensure the team is updated on key construction milestones. ▪ The CEMP must include procedures for its periodic review and update (including updating the required sub-plans), as necessary. ▪ The CEMP must be submitted for the approval of the SOPA, prior to the commencement of works. A copy of the approved CEMP must be provided to SOPA and the Secretary.
PR02	LIGHT SPILL & NOISE	Public comment was raised in relation to the noise and lighting generated by the development and particularly during sensitive night-time hours.	<p>The Proponent would like to acknowledge that detailed lighting and noise assessments have conducted as part of both the original development application which was subsequently approved and the current modification. The Proponent confirms that all noise and lighting assessment for the site were measured against the most sensitive night-time criteria.</p> <p>External Lighting for S4.55 modification:</p> <ul style="list-style-type: none"> - A detailed external lighting compliance assessment was conducted which confirmed the light spill for all external lighting to be within compliant levels during the most sensitive night-time hours (Refer Attachment 3). - It should be noted that all external light fittings will have back shields to ensure all light is directional and the spill lighting is significantly reduced to within compliant levels. - Furthermore, all sports lighting in the lagoon is programmable, meaning the lighting levels can be adjusted (dimmed) during more sensitive curfew hours to further limit light spill. All adjustments and dimming will be balanced between the safety of patrons and minimisation of spill lighting. <p>Noise:</p> <ul style="list-style-type: none"> - Two noise assessments have been conducted for the development, the first during the original development application which was subsequently approved and the second for this modification based on the updated design and elements. - It is noted that the proposed modifications were found to be compliant against the requirements of the consent conditions, as well as all applicable codes and standards during the most sensitive night-time hours at the closest receivers (Refer Attachments 1 & 2). <p>Updated Supporting Documentation</p> <ul style="list-style-type: none"> - Updated Acoustic Report & Letter - Refer Appendix 1: “AC_RE_001_F_Acoustic Report (17 June 2021)”; and Refer Appendix 2: “AC-LE-001_Acoustic Letter of Compliance (dated 25 June 2021)”.

			<ul style="list-style-type: none"> ○ The Proponent notes that an acoustic report has been submitted with the modification which confirms full noise compliance within the most sensitive night-time hours. This report has been updated to reinforce that compliance can be achieved without the need for mitigation measures. A cover letter has also been provided for certainty. - Refer Appendix 3: “EL11-1_Statement of Compliance_External Lighting Design”. <ul style="list-style-type: none"> ○ A detailed lighting assessment has also been conducted confirming that light spill from the development does not exceed the most sensitive night time requirements. An updated compliance letter by Northrop Consulting Engineers has also been provided to clearly validate this assessment.
PR03	EXTENSION OF OPERATING HOURS	Comments were submitted in relation to both the 1-hour extension of morning hours and 2-hour extension of night-time hours.	<ul style="list-style-type: none"> - The Proponent confirms that this proposal does not intend to extend the hours of operation for events beyond the current approved hours of 10pm. Applications for events within the park beyond 10pm will be pursued via a separate approval process. - The following justifications are submitted for consideration of the Department and other stakeholders with regard to the extension of trading hours: <p>Extension to Morning Hours to 5am</p> <ul style="list-style-type: none"> - A 1-hour extension to the park opening hours has been requested to provide access to users who are unable to attend the park during regular daytime hours. - This will allow demographics such as tradespeople who typically would not have access to surfing and recreation prior to starting work, to do so. - This extension aligns with other facilities within Sydney Olympic Park (i.e., Sydney Olympic Park Aquatic Centre) that open for use at 5am. - Required to boost trading for local/domestic participation due to Covid19 travel restrictions significantly decreasing the international and interstate markets. <p>Extension to Night-Time Hours to 12am Friday & Saturday</p> <ul style="list-style-type: none"> - Similarly, to the morning hours the requested 2-hour extension to the surf park operating hours is to provide access to users who are unable to attend the facility during regular daytime hours. - This extension will allow members of the public who may be shift workers, tradespeople, or those with extended commute times, access to surfing, recreation and the amenity offered by the facility. - The extension in night-time trading hours is equally required to boost trading for local/domestic participation due to Covid19 travel restrictions significantly decreasing the international and interstate markets. <p>Supporting Documentation</p> <ul style="list-style-type: none"> - It should be noted that advice was received from the Biodiversity and Conservation division of the Environment, Energy and Science department in DPIE confirming that the proposed modification is unlikely to impact the natural hazards in the area. - Refer Appendix 1: “AC_RE_001_F_Acoustic Report (17 June 2021)”; and Refer Appendix 2: “AC-LE-001_Acoustic Letter of Compliance (dated 25 June 2021)”. <ul style="list-style-type: none"> ○ The Proponent notes that an acoustic report has been submitted with the modification which confirms full noise compliance within the most sensitive night-time hours. This report has been updated to reinforce that compliance can be achieved without the need for mitigation measures. A cover letter has also been provided for certainty. - Refer Appendix 3: “EL11-1_Statement of Compliance_External Lighting Design”. <ul style="list-style-type: none"> ○ A detailed lighting assessment has also been conducted confirming that light spill from the development does not exceed the most sensitive night time requirements. An updated compliance letter by Northrop Consulting Engineers has also been provided to clearly validate this assessment.
PR04	WATER SUPPLY	Comments were raised with regard to the water supply connection for the development with specific reference to supply during times of drought.	<p>Water Supply</p> <ul style="list-style-type: none"> - The Proponent notes that a detailed application has been lodged with Sydney Water and will be subject to a detailed assessment of the development. Sydney Water are responsible for the diligent management of the water resources in Sydney and will consider all sensitive water impacts including operation of the facility during periods of draught.



			<ul style="list-style-type: none">- The Proponent would also like to acknowledge that the development will also be connected to the SOPA Recycled Water Network and has on site rainwater storage tanks to limit reliance on mains infrastructure for non-essential requirements in the park.
PR05	TRAFFIC, PARKING & PUBLIC TRANSPORT	<p>Comments provided in response to the submission addressed the following areas:</p> <ul style="list-style-type: none">- Increased local traffic.- Overflow parking onto nearby streets.- Parking fees- Public Transport	<p>Traffic Impact Assessment</p> <ul style="list-style-type: none">- The Proponent notes that a traffic impact assessment was provided in the original development application. The traffic impact assessment was reviewed and approved as part of the original consent for the development.- As identified in The Transport Planning Partnership (TTPP) traffic and parking assessment there is no material change in predicted traffic volume arising from the proposed modification to the allocation of staff carparking.- TTPP noted that the proposed modifications remain consistent with the approved development consent and appropriately respond to anticipated changes to the staffing levels of the facility based on the Proponent’s operational requirements at the Tullamarine surf park in Victoria. <p>Parking Fees</p> <ul style="list-style-type: none">- Parking adjoining the facility will be provided at a reduced rate for visitors to discourage car parking on nearby streets. <p>Green Travel Plan</p> <ul style="list-style-type: none">- The facility is located within close proximity to existing and planned public transport infrastructure. The Proponent notes that as a requirement of the current development consent conditions a Green Travel plan will be developed to promote non-private vehicle transport for both employees and visitors to the park. This plan will look to leverage upcoming public transport infrastructure such as the Parramatta Light Rail Stage 2, which is currently shown to run directly adjacent to the site. This, among other green travel initiatives, will be promoted by the Proponent.

Appendices

- Appendix 1 – AC-LE-001_Acoustic Letter of Compliance
- Appendix 2 – AC_RE_001_F_Acoustic Report
- Appendix 3 – EL11-1_External Lighting Statement of Compliance
- Appendix 4 – LA-USS-000-005.T1_ SITE PLAN GROUND FLOOR Rev.T1
- Appendix 5 – SSD-7942 MOD 1-OCULUS-Landscape Architecture Letter
- Appendix 6 – AE-29062021-Ecology Assessment Letter
- Appendix 7 – A-USS-S.455_Architectural Amendments
- Appendix 8 – P034987_LTR2_URBNSURF_NSW DPIE_NSW EPA_PRM



Appendix 1 – AC-LE-001_Acoustic Letter of Compliance

28 June 2021

Enquiries: Jonathan Salim
Project No: 30730

URBNSurf Sydney
Attention: Jon Howell

Dear Jon

**RE: URBNSurf Sydney
Acoustic Report for Development Application**

As part of the S4.55 DA modification process, Stantec have been reengaged by URBNSURF to provide a noise and vibration assessment for the proposed changes to the surf-park development located in Hills Road, Sydney Olympic Park, NSW.

In accordance with the noise assessment outlined on our acoustic report for the development application (AC-RE-001-F), revision 06, dated 17/06/2021), the proposed changes do not have any significant impact towards the nearest sensitive receivers and show the compliances with the most stringent noise limits (i.e. night-time criteria) without requiring any specific noise mitigation measures.

Stantec note that a detailed acoustic assessment will be conducted for the project prior to completion to ensure compliance with the noise trigger levels established in acoustic report (AC-RE-001-F, Rev 06 - Dated 17/06/21)

Yours sincerely

Stantec Australia Pty Ltd



Jonathan Salim
Acoustic Engineer



Appendix 2 – AC_RE_001_F_Acoustic Report

URBNSURF Sydney

Acoustic Report

Development Application

Prepared for: URBNSURF Group

Attention: Jonathan Howell

Date: 17th June 2021

Prepared by: Jonathan Salim

Ref: 30730

Stantec Australia Pty Ltd

Level 6, Building B, 207 Pacific Highway, St Leonards NSW 2065

Tel: +61 2 8484 7000 Web: www.stantec.com

\\WGE-SYD-FS-01\PROJECTS\30730\PROJECT DOCUMENTATION\ACOUSTICS\DESIGN\REPORTS\AC_RE_001_F.DOCX

Revision

Revision	Date	Comment	Prepared By	Approved By
001	23/01/2017	For Review	JS	ORFG
002	08/03/2017	Traffic Update	JS	ORFG
003	27/03/2017	Client's Comments	JS	ORFG
004	25/10/2017	Construction Noise & Vibration	JS	ORFG
005	26/03/2021	Drawing Update and extended hours	JS	MST
006	17/06/2021	Client's Comments	JS	MST

Contents

1.	Introduction	1
1.1	Information sources	1
2.	Project Overview	2
2.1	Site Description	2
3.	Noise Survey	3
3.1	Instrumentation	3
3.2	Attended Noise Survey Results	3
3.3	Unattended Noise Survey Results	4
4.	Noise and Vibration Criteria	6
4.1	Internal Noise Levels (Airborne Noise Intrusion)	6
4.2	Site Noise Emission	7
4.3	Traffic Noise Generation Criteria	10
4.4	Construction Noise Criteria	11
4.5	Construction Vibration Criteria	13
5.	Noise Impact Assessment	16
5.1	Noise Emissions	16
5.2	Road Traffic Noise Assessment	18
6.	Preliminary Construction Noise & Vibration Assessment	19
6.1	Construction Noise Assessment	19
6.2	Construction Vibration Assessment	19
7.	Conclusion	21
	Appendix A Glossary of Acoustic Terms	22
	Appendix B SoundPlan Noise Models	24

1. Introduction

As part of the DA documentation process, Stantec have been engaged by URBNSURF to provide a noise and vibration assessment for the proposed surf-park development located in Hills Road, Sydney Olympic Park, NSW.

The proposed development will consist of a sports and recreation venue with approximately 1,950 m² of built form amenities over a 1,350m² footprint. The location of the proposed development is located within the Sydney Olympic Park sports and recreation zoning.

This assessment discusses the likely noise impact from the development on the potentially nearest most-affected receivers of the development.

This assessment has been prepared considering the following documents:

- Sydney Olympic Park Master Plan 2030.
- NSW Government – State Environmental Planning Policy (State and Regional Development, 2011).
- AS/NZS 2107:2016 – Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors.
- NSW Noise Policy for Industry 2017 (NPI 2017)

This report provides:

- A statement of compliance with the relevant statutory criteria for the proposed surf-park development within the vicinity of the nearest potentially affected receivers.

This noise assessment is based on noise data collected by a combination of unattended and attended noise measurements at representative locations around the site over 8 days during December 2016.

This report is based on our understanding of the proposed project, application of the relevant state guidelines and professional experience within the acoustic field.

1.1 Information sources

The following documentation has been used for the preparation of this report:

- Site drawings presenting the location of the proposed development in relation to the nearest receivers;
- Noise data collected on site through the use of noise loggers and a hand held spectrum analyser;
- AECOM Environmental Noise Assessment – Melbourne Wave Park, Tullamarine, dated 14th January 2016.
- Architectural drawings for S4.55 Application by ClarkeHopkinsClarke, dated 12th March 2021.
- Traffic information provided by The Transport Planning Partnership via email correspondence on 6th March 2017.

2. Project Overview

2.1 Site Description

The URBNSURF surf-park site is located on the south-eastern end of the corner of Hill Road and Holker Busway. The proposed development site is bound by existing carparks to the South/West and North/East, the Hill Road and bushlands to the North, Sydney BMX Track to the East, and bushland to the North.

The most sensitive receivers are the residential area which located approximately 350m to the North/West of the proposed development site.

The site location, measurement positions and surrounding residential and commercial receivers are shown in Figure 1.

The current proposed operational park hours are as follows:

- Sunday – Thursday: 5am – 10pm
- Friday – Saturday: 5am – 12am

2.1.1 Acoustic Issues

The acoustic issues relating to the development are as follows:

- Noise intrusion from vehicle movements along the Hills Road;
- Noise intrusion from active recreational area (Sydney BMX Track) which located approximately 50m to the South/East of the development site;
- Noise emissions from patron and mechanical plant from the development to the surrounding receivers.



Source: nearmap.com

Figure 1: Overview of the site and measurement locations

3. Noise Survey

3.1 Instrumentation

The following equipment was used for the noise surveys:

- ARL Environmental Noise Logger ARL EL-215 S/N 194677;
- ARL Environmental Noise Logger ARL EL-215 S/N 194444;
- Hand-held sound spectrum analyzer B&K 2250, S/N 2709742;
- Sound Calibrator B&K Type 4231, S/N 2709826;
- Hand-held sound spectrum analyzer NTi – XL 2, S/N A2A-11555-E0.

All equipment was calibrated before and after the measurements and no significant drift was found. All equipment carries current traceable calibration certificates that can be provided upon request.

3.2 Attended Noise Survey Results

Several 15 minute attended noise measurements were conducted using a Brüel & Kjær 2250 Hand-held Analyser which is fully compliant with AS IEC standard 61672-1 “Electro acoustics—Sound level meters Part 1: Specifications”. These measurements were conducted in order to characterise the acoustic environment for noise intrusion into the development and to determine any noise impact on the surrounding receivers.

This instrument was calibrated before and after measurements using a 94 dB(A), 1kHz calibration tone, with no significant drift occurring.

A summary of the attended noise measurements taken at site are shown in Table 1. Refer to Figure 1 for measurement locations.

Table 1: Attended noise measurements

Measurement Location	Measurement Time	$L_{Aeq, 15mins}$ dB(A)	L_{A90} dB(A)	L_{Amax} dB(A)	Comments
P1	5/12/2016 – 12:09	51.8	41.1	70.2	Ambience and aircraft noise
P2	5/12/2016 – 11:22	65.3	55.6	83.9	Traffic background noise
P3	5/12/2016 – 11:02	54.4	45.2	72.1	Ambience and aircraft noise
P3	13/12/2016 – 14:00	51.3	48.8	84.7	Ambience, heavy machinery, and aircraft noise

3.3 Unattended Noise Survey Results

This assessment will consider the method for determining the RBL background for each period of the day in accordance with the NSW EPA Noise Policy for Industry (NPI). The NPI defines background and ambient noise for the daytime, evening and night time periods as follows:

Day: is defined as 7:00am to 6:00pm, Monday to Saturday and 8:00am to 6:00pm Sundays & Public Holidays.
Evening: is defined as 6:00pm to 10:00pm, Monday to Sunday & Public Holidays.
Night: is defined as 10:00pm to 7:00am, Monday to Saturday and 10:00pm to 8:00am Sundays & Public Holidays.

A noise logger was placed at position L1 as shown in Figure 1 to measure the background and ambient noise that is representative of the surrounding residential receivers. Logger L1 was installed from the 5th to the 12th of December 2016. The results for the unattended background noise surveys are shown in Table 2 below (for the day, evening and night periods).

A noise logger has also been placed at position L2 as shown in Figure 1 to measure the background and ambient noise that is representative of the development site. Logger L2 was installed from the 5th to the 12th of December.2016 The results for the unattended background noise surveys are shown in Table 2 below (for the day, evening and night periods).

Table 2: Unattended noise measurements L1

Location	Equivalent Continuous Noise Level L _{Aeq,period} - dB(A)			Background Noise Level RBL - dB(A)		
	Day	Evening	Night	Day	Evening	Night
L1	55	54	54	44	45	39
L2	60	60	50	45	45	37

Note: that any rain affected data during the period of logging has been excluded from the calculations.

The local ambient noise environment is dominated by traffic noise throughout the majority of the day, evening and night periods. Refer to Figure 2 and Figure 3for the noise data.

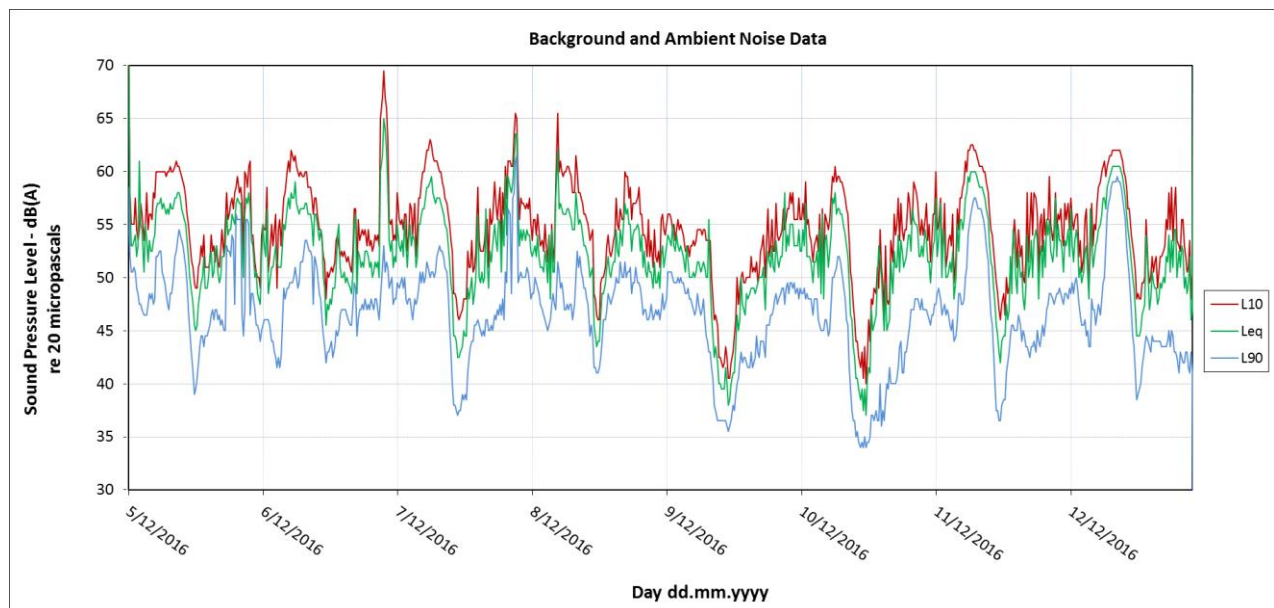


Figure 2: Unattended noise monitor data L1

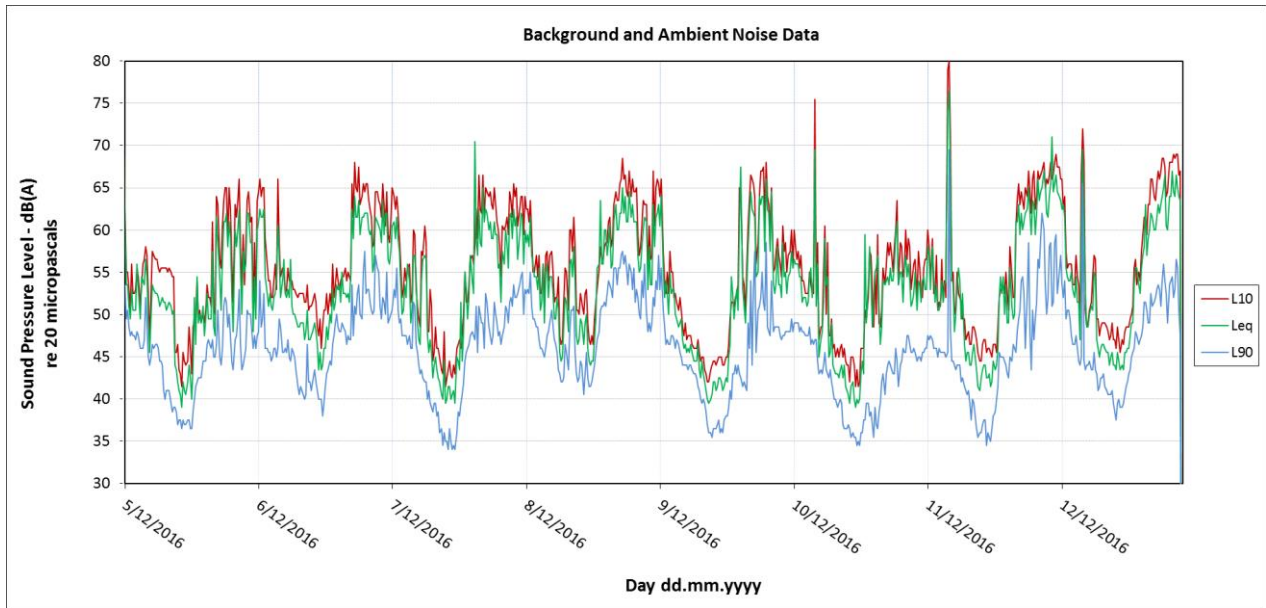


Figure 3: Unattended noise monitor data L2

4. Noise and Vibration Criteria

4.1 Internal Noise Levels (Airborne Noise Intrusion)

This section details the criteria used to define the internal noise goals for spaces in the development in regards to external noise intrusion from traffic and other airborne noise factors affecting the development.

4.1.1 Sydney Olympic Park Master Plan 2030 (SOPA-MP 2030)

The General Controls and Guidelines Section of the Sydney Olympic Park Master Plan 2030 is applicable to this development. Section 4.6.15 of the SOPA-MP 2030 states the following in regards to internal noise levels:

1. *New development is to acknowledge that it will be located within a major sport and entertainment events precinct that may be subject to high noise events from time to time. This will be achieved by creating a 'Section 88D' instrument (on Sydney Olympic Park land) or a 'Section 88E' instrument (on non – Sydney Olympic Park land) on title advising of likely noise levels in the precinct*
2. *Applicants for a new development must prepare a report by a suitably qualified acoustic consultant assessing the possibility of land use conflicts as a result of the development. The land use conflict could be, for example, from an entertainment venue on the closest residential receiver or it could be the result of a new residential development possibly restricting the use of an existing entertainment venue. The suitability of the development for the site is the responsibility of the applicant who is required to assess the noise impact and to incorporate appropriate measures into the development.*
6. Design commercial development to comply with the maximum internal noise criteria set out in Table 3 below:

Table 3: Maximum Noise Criteria - Office Development

Internal Space	Noise Criteria	Time Period	Parameter
Office	45 dB(A)	Day & Evening	LA,eq 15min

4.1.2 Australia Standard (AS) 2107:2016

Australian Standard (AS) 2107:2016 – 'Acoustics- Recommended design sound levels and reverberation times for building interiors' specifies target noise levels for internal spaces to the development. Refer to Table 4 for the values corresponding to the non-residential spaces that are expected to be within the development.

Table 4: Recommended noise levels according to AS/NZS 2107:2016

Type of occupancy / activity	Design Sound Level, L _{Aeq} , dB(A)	Design Reverberation Time, T, s
Small retail stores (general)	<50	Note 1
Restaurant/Coffee bars	40 – 50	Note 1
Cafeterias/food court	40 – 50	Note 1

Note:

1. Reverberation time should be minimised for noise control.

4.2 Site Noise Emission

The following section presents the criteria applicable for noise emissions from the development.

4.2.1 Sydney Olympic Park Master Plan 2030 (SOPA-MP 2030)

Section 4.6.15 of the SOPA-MP 2030 states the following in regards to external noise emissions:

3. *All noise impact assessments require ambient noise levels measured at the noise sensitive premises during representative periods to ensure all major intermittent noises are measured and quantified. This particularly applies to outdoor concerts, sporting events and late night parties. The results of the noise measurements should be used to design noise mitigation measures relevant to the proposed development.*
4. *All plant rooms shall be designed to meet the requirements of the NSW Industrial Noise Policy.*

4.2.2 NSW EPA Noise Policy for Industry

Note that since the first iteration of the DA in 2017, the NSW EPA Industrial Noise Policy (INP) has been replaced with the new guideline, the Noise Policy for Industry (NPI 2017).

The NSW Environmental Protection Authority (EPA) Noise Policy for Industry (NPI) sets out noise criteria to control the noise emission from industrial noise sources. Mechanical and operational noise from the development shall be addressed following the guideline in the NSW NPI.

The calculation is based on the results of the ambient and background noise unattended monitoring, addressing two components:

- Controlling intrusive noise into nearby residences (Intrusiveness Criteria)
- Maintaining noise level amenity for particular land uses (Amenity Criteria)

Once both criteria are established the most stringent for each considered assessment period (day, evening, night) is adopted as the project noise trigger level (PNTL).

Intrusiveness Criteria

The NSW EPA NPI states the following:

“The intrusiveness of an industrial noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the L_{Aeq} descriptor), measured over a 15-minute period, does not exceed the background noise level measured in the absence of the source by more than 5 dB(A).”

The intrusiveness criterion can be summarised as $L_{Aeq, 15 \text{ minute}} \leq \text{RBL background noise level plus } 5 \text{ dB(A)}$.

Table 5: EPA NPI intrusiveness criteria

Period	Noise Descriptor – dB(A)	Noise Criteria – dB(A)
Daytime 7am – 6pm	$L_{Aeq, 15 \text{ min}} \leq \text{RBL} + 5$	49
Evening 6pm – 10pm	$L_{Aeq, 15 \text{ min}} \leq \text{RBL} + 5$	50
Night 10pm – 7am	$L_{Aeq, 15 \text{ min}} \leq \text{RBL} + 5$	44

Amenity Criteria

The NSW NPI states the following:

“To limit continuing increases in noise levels, the maximum ambient noise level within an area from industrial noise sources should not normally exceed the acceptable noise levels specified in Table 2.1 of the INP. Meeting the acceptable noise levels in table 2.1 will protect against noise impacts such as speech interference, community annoyance and to some extent sleep disturbance. These levels represent best practice for assessing industrial noise sources, based on research and a review of assessment practices used overseas and within Australia.”

The applicable parts of Table 2.1: Recommended L_{Aeq} Noise Levels from Industrial Noise Sources – dB(A) which are relevant to the project are reproduced below:

Table 6: Amenity criteria for external noise levels

Type of Receiver	Indicative Noise Amenity Area	Time of Day	Recommended L_{Aeq} Noise Level, dB(A)	Project Amenity Noise Level ¹ , $L_{Aeq, 15mins}$, dB(A)
Residential	Urban ²	Day	60	58
		Evening	50	48
		Night	45	43
Active recreation area	All	When in use	55	53

Notes:

1. Project amenity noise level is Recommended Noise Level minus 5 dB(A) plus 3 dB(A) to convert from period level to a 15-minute level.
2. Urban area as defined in EPA NSW NPI Table 2.3
3. Existing noise level already exceeds amenity criteria.

Modifying Factor' Adjustments

The NSW NPI also states:

“Where a noise source contains certain characteristics, such as tonality, impulsiveness, intermittency, irregularity or dominant low-frequency content, there is evidence to suggest that it can cause greater annoyance than other noise at the same noise level.”

In order to take into account, the potential annoying character of the noise an adjustment of 5 dB(A) for each annoying character aspect and cumulative of up to a total of 10 dB(A), is to be added to the measured value to penalise the noise for its potentially greater annoyance aspect.

Table 4.1 of Chapter 4 of the NSW DECCW NPI (see Table 7 below) provides procedures for determining whether an adjustment should be applied for greater annoyance aspect.

Table 7: Table 4.1 NSW DECCW NPI – Modifying factor corrections

Factor	Assessment / Measurement	When to Apply	Correction ¹	Comments
Tonal Noise	One-third octave or narrow band analysis	Level of one-third octave band exceeds the level of the adjacent bands on both sides by: - 5 dB or more if the centre frequency of the band containing the tone is above 400 Hz - 8 dB or more if the centre frequency band containing the tone is 160 to 400 Hz inclusive - 15 dB or more if the centre frequency of the band containing the tone is below 160 Hz	5 dB ²	Narrow-band frequency analysis may be required to precisely detect occurrence.
Low Frequency Noise	Measurement of C-weighted and A-weighted level	Measure / assesses C- and A-weighted levels over same time period. Correction to be applied if the difference between the two levels is 15 dB or more	5 dB ²	C-weighting is designed to be more responsive to low-frequency noise, especially at higher overall levels
Impulsive Noise	A-weighted fast response and impulsive response	If difference in A-weighted maximum noise levels between fast response and impulse response is greater than 2 dB	Apply difference in measured levels as the correction, up to a maximum of 5 dB.	Characterised by a short rise time of 35 milliseconds (ms) and decay time of 1.5 s.
Intermittent Noise	Subjectively assessed	Level varies by more than 5 dB	5 dB	Adjustment to be applied for night-time only .
Duration	Single-event noise duration may range from 1.5 min to 2.5 h	On event in any 24-hour period	0 to – 20 dB(A)	The acceptable noise level may be increased by an adjustment depending on duration of noise.
Maximum Adjustment	Refer to individual modifying factors	Where two or more modifying factors are indicated	Maximum correction of 10dB(A) ² (excluding duration correction)	

Notes:

1. Corrections to be added to the measured or predicted levels.
2. Where a source emits tonal and low-frequency noise, only one 5 dB correction should be applied if the tone is in the low-frequency range.

4.2.3 Project noise trigger levels (PNTL)

The following criteria is applicable for the external noise emissions from the development, as detailed below in Table 8. These project noise trigger levels are in accordance with the requirements of the NSW NPI, and shall be assessed to the most affected point on or within the residential boundary.

Table 8: Project noise trigger levels

Period	Descriptor	PNTL dB(A)
Residential receivers		
Day (7:00am to 6:00pm)	L _{Aeq,15min}	49
Evening (6:00pm to 10:00pm)	L _{Aeq,15min}	48
Night (10:00pm to 7:00am)	L _{Aeq,15min}	43
Active recreation receivers (BMX Track)		
When in use	L _{Aeq,duration}	53

Where necessary, noise mitigation measures will be incorporated in the design to ensure that noise levels comply with the recommended noise emission criteria noted above.

4.3 Traffic Noise Generation Criteria

The L_{Aeq} noise level or the “equivalent continuous noise level” correlates best with the human perception of annoyance associated with traffic noise.

Road traffic noise impact is assessed in accordance with the introduced NSW Road Noise Policy (Office of Environment and Heritage July 2011) which supersedes the *NSW Environmental Criteria for Road Traffic Noise* (ECRTN, Department of Environment Climate Change and Water 1999). The criterion (Table 3 – Road Traffic Noise Assessment Criteria for Residential Land Uses) divides land use developments into different categories and lists the respective criteria for each case. The category that is relevant to the proposed use of the site is shown below:

Table 9: NSW Road Noise Policy – Traffic noise assessment criteria

Road Category	Type of project/land use	Assessment Criteria – dB(A)	
		Day (7am – 10pm)	Night (10pm – 7am)
Sub-arterial roads	Existing residences affected by additional traffic on existing local roads generated by land use developments	L _{Aeq,1 hour} 60 (external)	L _{Aeq,1 hour} 50 (external)

In the event that the traffic noise at the site is already in excess of the criteria noted above, the NSW RNP states that the primary objective is to reduce the existing level through feasible and reasonable measures to meet the criteria above.

If this is not achievable, Section 3.4.1 Process for applying the criteria – Step 4 states that for existing residences affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise should be limited to 2 dB above that of the corresponding ‘no build option’.



4.4 Construction Noise Criteria

The noise criteria for construction sites are established in accordance with the Interim Construction Noise Guideline (ICNG July 2009) by the NSW Office of Environment & Heritage (NSW OE&H) currently under The NSW Environment Protection Authority (EPA).. This document is referred to as OEH's standard policy for assessing construction noise on new projects.

The key components of the ICNG 2009 incorporated into this assessment include:

1. Use of LAeq as the noise metric for measuring and assessing construction noise

In recent years, NSW noise policies including OEH INP and the NSW Environmental Criteria for Road Traffic Noise (ECRTN) have selected the LAeq to be the primary noise metric when measuring and assessing construction noise. Consistent with ICNG 2009, the use of the LAeq as a key descriptor for measuring and assessing construction noise may follow a 'best practice' approach.

2. Application of feasible and reasonable noise mitigation measures

As stated in the ICNG 2009, a noise mitigation measure is feasible if it is capable of being put into practice, and is practical to build given the project constraints. Selecting reasonable mitigation measures from those that are feasible requires one to determine whether the overall noise benefit of applying the measure outweighs the overall social, economic and environmental effects, including the cost of the measure.

3. Quantitative and qualitative assessment

The ICNG 2009 provides two methods for assessment of construction noise, being either a quantitative or a qualitative assessment.

A quantitative assessment is recommended for major construction projects of significant duration, and involves the measurement and prediction of noise levels, and assessment against set criteria.

A qualitative assessment is recommended for small projects with a short-term duration where works are not likely to affect an individual or sensitive land use for more than three weeks in total. It focuses on minimising noise disturbance through the implementation of feasible and reasonable work practice, and community notification.

Given the significant scale of the construction works proposed for this Project, a quantitative assessment is carried out herein, consistent with the ICNG 2009 requirements.

4. Management levels

Table 1 below (based on the ICNG criteria and the Conditions of Consent construction hours) sets out the noise management levels and how they should be applied. The guidelines intend to provide respite for residents exposed to excessive construction noise outside the recommended standard hours whilst allowing construction during the recommended standard hours without undue constraints.

The rating background level (RBL) is used when determining the management level. The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours).

In undertaking the assessment of potential noise intrusion associated with the proposed construction activities, Chapter 4 of the NSW EPA ICNG (July 2009) were specifically referenced. The noise limits are presented in Table 10, and are applicable to the development.

Table 10: NSW ICNG Construction noise criteria

Time of Day	Management Level $L_{Aeq,15min}^*$	How to Apply
Recommended Standard Hours:	Noise Affected	The noise affected level represents the point above which there may be some community reaction to noise.
Mon – Fri (7am – 6pm)	RBL + 10dB	<ul style="list-style-type: none"> Where the predicted or measured $L_{Aeq,15min}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residences of the nature of works to be carried out, the expected noise levels and duration as well as contact details.
Sat (8am – 1pm)	Highly Noise Affected	The highly noise affected level represents the point above which there may be strong community reaction to noise.
No work on Sunday & Public Holidays	75 dB(A)	<ul style="list-style-type: none"> Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur in, taking into account: Times identified by the community when they are less sensitive to noise (such as before and after school, for works near schools, or mid-morning or mid-afternoon for works near residences) If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside Recommended Standard Hours	Noise Affected	<ul style="list-style-type: none"> A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB(A) above the noise affected level, the proponent should negotiate with the community. For guidance on negotiating agreements see section 7.2.2. of NSW EPA ICNG (July 2009).
	RBL + 5dB	

Note: Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

Source: Chapter 4 (Table 2 Sec 4.1.1) of NSW EPA ICNG

Table 11: NSW EPA ICNG Construction Noise Criteria at Other Sensitive Land Uses

Land Use	Management Level, $L_{Aeq,15min}$ – applies when land use is being utilized
Classrooms at schools and other educational institutions	Internal noise level 45 dB(A)
Hospital wards and operating theatres	Internal noise level 45 dB(A)
Places of worship	Internal noise level 45 dB(A)
Active recreation areas	External noise level 65 dB(A)
Passive recreation areas	External noise level 60 dB(A)

Land Use	Management Level, $L_{Aeq,15min}$ – applies when land use is being utilized
Community centres	Depending on the intended use of the centre. Refer to the 'maximum' internal levels in AS/NZS 2107:2000 for specific uses.

Table 12 below (reproduced from Sec 4.1.3 (Chapter 4) of the ICNG 2009) sets out the noise management levels for commercial and industrial use developments. The external noise levels should be assessed at the most-affected occupied point.

Table 12: NSW EPA ICNG Construction Noise Criteria at Commercial and Industrial Premises

Land Use	Management Level, $L_{Aeq,15min}$ – applies when land use is being utilized
Industrial premises	External noise level 75 dB(A)
Offices, retail outlets	External noise level 70 dB(A)

4.5 Construction Vibration Criteria

NSW Department of Environmental and Conservation now EPA developed a document, "Assessing vibration: A technical Guideline" in February 2006 to assist in preventing people from exposure to excessive vibration levels within buildings. The guideline does not however address vibration induced damage to structures or structure-borne noise effects. Vibration and its associated effects are usually classified as continuous, impulsive or intermittent.

4.5.1 Human Comfort – Continuous and Impulsive Vibration Criteria

Structural vibration in buildings can be detected by occupants and can affect them in many ways including reducing their quality of life and also their working efficiency. Complaint levels from occupants of buildings subject to vibration depend upon their use of the building and the time of the day.

Maximum allowable magnitudes of building vibration with respect to human response are shown in Table 13. It should be noted that the human comfort for vibration are more stringent than the building damage criteria.

Table 13: Preferred and maximum weighted RMS values for continuous and impulsive vibration acceleration (m/s^2) 1-80Hz

Location	Assessment period ¹	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Continuous vibration					
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and place of worship	Day or night time	0.020	0.014	0.040	0.028
Impulsive vibration					
Residences	Daytime	0.30	0.21	0.60	0.42
	Night time	0.10	0.071	0.20	0.14



Offices, schools, educational institutions and place of worship	Day or night time	0.64	0.46	1.28	0.92
---	-------------------	------	------	------	------

Human Comfort – Intermittent Vibration Criteria

Disturbance caused by vibration will depend on its duration and its magnitude. This methodology of assessing intermittent vibration levels involves the calculation of a parameter called the Vibration Dose Value (VDV) which is used to evaluate the cumulative effects of intermittent vibration. Various studies support the fact that VDV assessment methods are far more accurate in assessing the level of disturbance than methods which is only based on the vibration magnitude.

Table 14: Acceptable Vibration Dose Values for Intermittent Vibration (m/s^{1.75})

Location	Daytime (7:00am to 10:00pm)		Night-time (10:00pm to 7:00am)	
	Preferred value	Maximum value	Preferred value	Maximum value
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and place of worship	0.40	0.80	0.40	0.80

4.5.2 Structural Damage – Vibration Criteria

Ground vibration criteria are defined in terms of levels of vibration emission from infrastructures or from the construction activities which will avoid the risk of damaging surrounding buildings or structures. It should be noted that human comfort criteria are normally expressed in terms of acceleration whereas structural damage criteria are normally expressed in terms of velocity.

Most commonly specified structural vibration levels are defined to minimize the risk of cosmetic surface cracks and are set below the levels that have the potential to cause damage to the main structure. Structural damage criteria are presented in German Standard DIN4150-Part 3 “Structural vibration in buildings – Effects on structures” and British Standard BS7385-Part 2: 1993 “Evaluation and Measurement for Vibration in Buildings”. Table 15 indicates the vibration limits presented in DIN4150-Part 3 to ensure structural damage doesn’t occur.

Table 15: Guideline value of vibration velocity, v_i , for evaluating the effects of short-term vibration

		Vibration velocity, v_i , in mm/s			
Line	Type of Structure	Foundation			Plane of floor of uppermost full storey
		At a frequency of			
		Less than 10Hz	10 to 50Hz	50 to 100*Hz	All Frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15

3	Structures that, because of their particular sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8
*For frequencies above 100Hz, at least the values specified in this column shall be applied					

Table 16 presents guide values for building vibration, based on the lowest vibration levels above which cosmetic damage has been demonstrated as per BS7385-Part 2:1993.

Table 16: Transient vibration guide values for cosmetic damage

Type of Building	Peak Particle Velocity in frequency range of predominant pulse (PPV)	
	4 Hz to 15 Hz	15 Hz and above
Residential or light commercial type buildings	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above

4.5.3 Vibration Objectives

Table 17 indicates the vibration criteria for the nearest residential and commercial properties to the development.

Table 17: Construction vibration criteria summary

Human Comfort Vibration Objectives					
Location	Period	Continuous mm/s ² (RMS)		Intermittent m/s ^{1.75} (VDV)	Building damage Objectives – Velocity (mm/s)
		z-axis	x- and y-axis		
Residential	Daytime	10 - 20	7 - 14	0.20 - 0.40	5
	Night time	7 - 14	5 - 10	0.13 - 0.26	5
Commercial	Any time	20 - 40	14 - 28	0.40 – 0.80	20

5. Noise Impact Assessment

A 3D acoustic modelling for external noise intrusion from the surrounding roads was conducted using the software SoundPlan (Version 8.1). Noise levels from the road were calculated in accordance with the Calculation of Road Traffic Noise (CRTN) methods and calibrated to measurements and logger data from around the site. This model is recognised by regulatory authorities around Australia and is endorsed by the NSW EPA for the use in projects of this scale. The acoustic modelling was undertaken considering no specific meteorological characteristics such as dominant wind direction and speed or temperature therefore it was considered under neutral conditions.

5.1 Noise Emissions

A 3D acoustic modelling for noise emissions was conducted using the software SoundPlan (Version 8.1). Noise emissions from the operational noise sources were calculated for the nearest and potentially most affected residential and commercial receiver locations with consideration of the adjacent natural environmental values. The noise emissions from the development were determined by modeling the noise sources, receiver locations, and topographical features.

The following noise sources are associated with the site operation, and details about expected noise levels from these sources are given in the ensuing sub-sections. Noise sources from general operations at the site typically include mechanical services noise from air-conditioning equipment and exhaust fans etc. servicing the residential units, retail and car parks. These noise sources have been used to predict the worst-case scenario noise impact of the proposed use of the site to the surrounding residential receivers.

The main sources associated with the development will include:

- **Waves:** waves were modelled based on the noise levels provided by WaveGarden of the WaveGarden Demo facility in Aizarnazabal. It is assumed that there will be 2 waves breaking at one time on each sides of the pier.
- **Wave generating plants:** Plant and equipment located at the wave-driving and wave-receiving stations.
- **General building services (eg. A/C Units):** Rooftop plant associated with the facility will be selected so that the total Sound Power Level of no more than 75 dB(A) per facility building is achieved.
- **Patron noise:** The patron area was assumed to be located at the southern side of the facility buildings. With assumption of maximum patron capacity (500 patrons) were present at the same time, and 50% of the patron were speaking loudly.
- **Ambient music noise:** It is assumed that 80dB(A) background music were used inside the function centre, which would be a typical of loud music played in the function centre.
- **Patron activities within the cabanas:** It is assumed that all patron noise activities (inc. background music) does not exceed an overall of 85dB(A) sound power level.

In order to assess the worst case scenario, the night time criterion was used as the noise target at the boundary of the nearest residential receivers for the project as it is the most stringent period for the noise generated by the operation of URBNSURF Sydney.

Table 18 presented the proposed sound power levels associated with the proposed development. Note that should the noise level exceed the nominated sound power level, acoustic mitigation measures such as acoustic barriers, attenuators, acoustic louvres, and internal acoustic lining may be required to meet the noise emission criteria.

Table 18: Sound Power Levels used in the acoustic modelling of the URBNSURF

Noise Source	Sound Power Level ¹ , in dB(A)	Comments
Waves	83 (per linear metre)	Modelled as a line noise source
Wave Generating Plant	75 (per linear metre) ²	Modelled as a line noise source as an approximation of multiple point source along the wave generation plant line. Independent point sources are to be encapsulated so noise levels are generally inaudible below the wave noise.
General Building Service Plant (A/C Units)	75	Individual point noise sources modelled 1m above roof height of the facility buildings
Patron Noise	104	Modelled as an area source spread over the entire patron area south and east of the lagoon
Patron Activities in Cabanas	85	Individual point noise sources modelled 1.5m above ground level.
Music from Function Centre	80 (per square metre)	Modelled as an area source spread over the function area to the south and east of the lagoon

Notes:

1. Based on the noise data presented on AECOM's Environmental Noise Assessment Report for Melbourne Wave Park.
2. Based on WGE Melbourne's conversation with URBNSURF Group on July 2016 and the latest wave generating plant technology proposed for the development.

5.1.1 Predicted Noise Levels

Based on the 3D acoustic modelling for noise emissions the noise levels due to the proposed URBNSURF Sydney towards the nearest residential receiver can be predicted.

Operation Noise

In accordance with the 3D models as shown on Appendix 2, it is shown that with all of the noise sources operating simultaneously, the effective noise level of less than **32 dB(A)** is expected at the nearest residence or between **44-46 dB(A)** at the nearest active recreational areas (BMX ground). This includes the noise generated from the following sources:

- Waves
- Wave-generating plant
- General building plant
- Crowds
- Music

Noise level of **<32 dB(A)** at the nearest residential and between **44-46 dB(A)** at the nearest active recreational areas (BMX Ground) are in compliance with the most stringent criteria for each respective receivers (i.e. night time period for residential and when in use for active recreational areas). It is also noted that when the URBNSURF Sydney operate during the night-time period (10pm-7am), the crowd attendance would be significantly lower, which would result in lower noise levels. Therefore, this assessment demonstrates a very conservative approach in which the worst-case scenario of maximum expected patronage occurring during evening period.

Note that this is a preliminary solution as the design is yet to be finalized. A detailed acoustic assessment will be conducted during the design stage as more information becomes available regarding performance data of specific equipment or any further mechanical design information. Acoustic treatment will be proposed to ensure compliance with the project noise trigger levels established in Section 4.2.3.

5.2 Road Traffic Noise Assessment

This assessment has considered the generation of traffic noise from the proposed development, as detailed by The Transport Planning Partnership, onto the local road. This data has been used to calculate the expected noise increase due to traffic associated with the development. As presented in the traffic report, the existing land use generates significantly more traffic than the proposed development.

The noise assessment has been conducted and the relevant information regarding peak hour vehicle movements on Hill Road has been summarized in Table 19.

Table 19: Existing and predicted traffic flow volumes (peak hour)

Traffic Volume	Existing vehicles			Predicted Increase			Noise Level Increase (dB)		
	AM	PM	Weekends	AM	PM	Weekends	AM	PM	Weekends
Hill Road, between Site Access (W) and Holker Street	1,232	1,428	948	1,256	1,444	1,008	0.1	0.0	0.3
Hill Road, between Holker Street and Site Access (E)	1,696	1,936	1,246	1,714	1,955	1,295	0.0	0.0	0.2

As shown in Table 19 the relative increase in noise is at most 0.3dB during the peak hours, which is less than the 2dB increase criteria, therefore the proposed development is expected comply with the requirements of the NSW RNP.

6. Preliminary Construction Noise & Vibration Assessment

6.1 Construction Noise Assessment

6.1.1 Proposed Works & Equipment

The works will comprise two parts which are the early works and construction works. Table 20 below summarises the equipment that could possibly be used for the works as well as their indicative sound power levels.

Table 21: Indicative sound power levels for construction and demolition equipment

Scenario	Equipment	Number of operating equipment	Indicative Sound Power Levels dB(A) re 1 pW
Early works	23t Excavator (rockbreaker)	2	112
	22t Excavator	2	105
	29t Tip truck	3	107
	Bobcats	4	86
	31t Wheeled Loader	1	112
Construction works	Concrete mix truck	1	103
	Concrete pumps	3	105
	29t Tip truck	4	107
	Bobcats	4	86
	Piling rig	3	95

6.1.2 Acoustic Modelling

The noise emissions generated by both the early works and construction works has been modelled using SoundPLAN version 8.1 with the equipment that could possibly be used provided in Table 21. The results of noise emission modelling show that the predicted noise level at the façade of the nearest residential receivers will range between 50-54 dB(A) and 62-68dB(A) at the nearest active recreational boundaries. Please refer to Appendix 2 for the predicted noise emission contour maps for both the early works stage and construction stage.

The noise emissions generated during the early works stage and construction stage are predicted to comply with the criteria provided in Table 10 and Table 11 based on the preliminary assumptions provided in Section 6.1.1.

6.2 Construction Vibration Assessment

The vibration associated with construction is dependent on a number of variables including the types of machinery, the proximity to the nearby receivers as well as the ground type. Due to the lack of information regarding this at the early stages of the development, an accurate calculation of the vibration impacts cannot be predicted.

It is required that a Construction Noise and Vibration Management Plan (CNVMP) is conducted prior to construction in order to manage construction noise/vibration as well as to perform high level predictions to avoid non-compliances with the vibration criteria. In addition, the use of noise and vibration monitoring during construction will be essential in order to ascertain the extent of vibration and noise generated in and around the site.

Further to the above, generic safe working distances for vibration impacts associated with various types of machinery at given distances are presented within the “*Construction Noise Strategy*” document (issued by the Transport Infrastructure Development Corporation, dated November 2007). This document presents the safe construction working limits for Cosmetic Damage to adjacent structures and Human Comfort. It is recommended that the indicative safe working distances should be maintained from vibrating equipment which could be used during demolition and construction tasks.

Table 22: Recommended indicative safe working distances

Plant Item	Rating / Description	Safe Working Distance (m)	
		Structural Cosmetic Damage	Human Comfort
Vibratory Roller	< 50 kN (Typically 1 – 2 tonnes)	5	15 - 20
	< 100 kN (Typically 2 – 4 tonnes)	6	20
	< 200 kN (Typically 4 – 6 tonnes)	12	40
	< 300 kN (Typically 7 – 13 tonnes)	15	100
	> 300 kN (Typically more than 13 tonnes)	20	100
Small hydraulic hammer	300 kg, typically 5 – 12 tonnes excavator	2	7
Medium hydraulic hammer	900 kg, typically 12 – 18 tonnes excavator	7	23
Large hydraulic hammer	1600 kg, typically 18 – 34 tonnes excavator	22	73
Vibratory pile driver	Sheet piles	2 – 20	20
Pile boring	≤ 800 mm	2	N/A
Jackhammer	Hand held	1	Avoid contact with structure (including slab reinforcements)

Please note these safe distances should be confirmed and updated in a Construction Noise and Vibration Management Plan based on the following information:

- Details of the demolition and construction tasks (including scope and duration).
- List of equipment to be used in each demolition and construction task.

Finally, the following amelioration measures shall be taken into account in order to minimise the transmitted vibration around the site:

- Monitor vibration levels using attended/un-attended methods during construction in order to manage potential excessive vibration.
- Manage construction program so as to minimise heavy machinery operating concurrently.
- Prepare dilapidation reports on adjacent structures and monitor the effects.
- As far as practical, locate heavy machinery away from nearby sensitive receivers



7. Conclusion

An acoustic assessment for the proposed mixed-use development at the proposed development site, URBNSURF Sydney has been conducted. This document forms part of the documentation package to be submitted to local authorities as part of the DA process.

This report has provided criteria, in-principle treatment and design requirements which aim to achieve the statutory criteria discussed in Section 4. In terms of noise criteria, we have provided the following:

- Internal noise levels in accordance AS2107:2016 for the retail/office spaces, provided in Section 4.1;
- Noise criteria for emissions from the development to residential receivers in accordance with Sydney Olympic Park Master Plan 2030 and the NSW NPI, provided in Section 4.2;
- Construction noise criteria provided in Section 4.4 in accordance with the ICNG;

The location of the proposed development is consistent with the Sydney Olympic Park sports and recreation zoning.

In accordance with the model, the predicted noise emission from the operation of the URBNSURF Sydney shows the compliances with the most stringent noise limit (i.e. night-time criteria). Therefore, it is in our opinion that the operation of the URBNSURF Sydney will not cause a significant impact on the surrounding community and sensitive faunas located within the Narrawang Wetlands (located north of Hill Road).

The predicted noise level from peak hour vehicle movement from the proposed development is not expected to exceed the requirements in regard to the NSW Road Noise Policy.

The predicted noise emissions generated during the early works stage and construction stage are expected to comply with the criteria provided in Table 10 and Table 11.

Even though no assessment can be considered as being thorough enough to preclude all potential environmental impacts, having given regard to the above listed conclusions, it is the finding of this assessment that the development application should not be refused on the grounds of excessive noise generation.

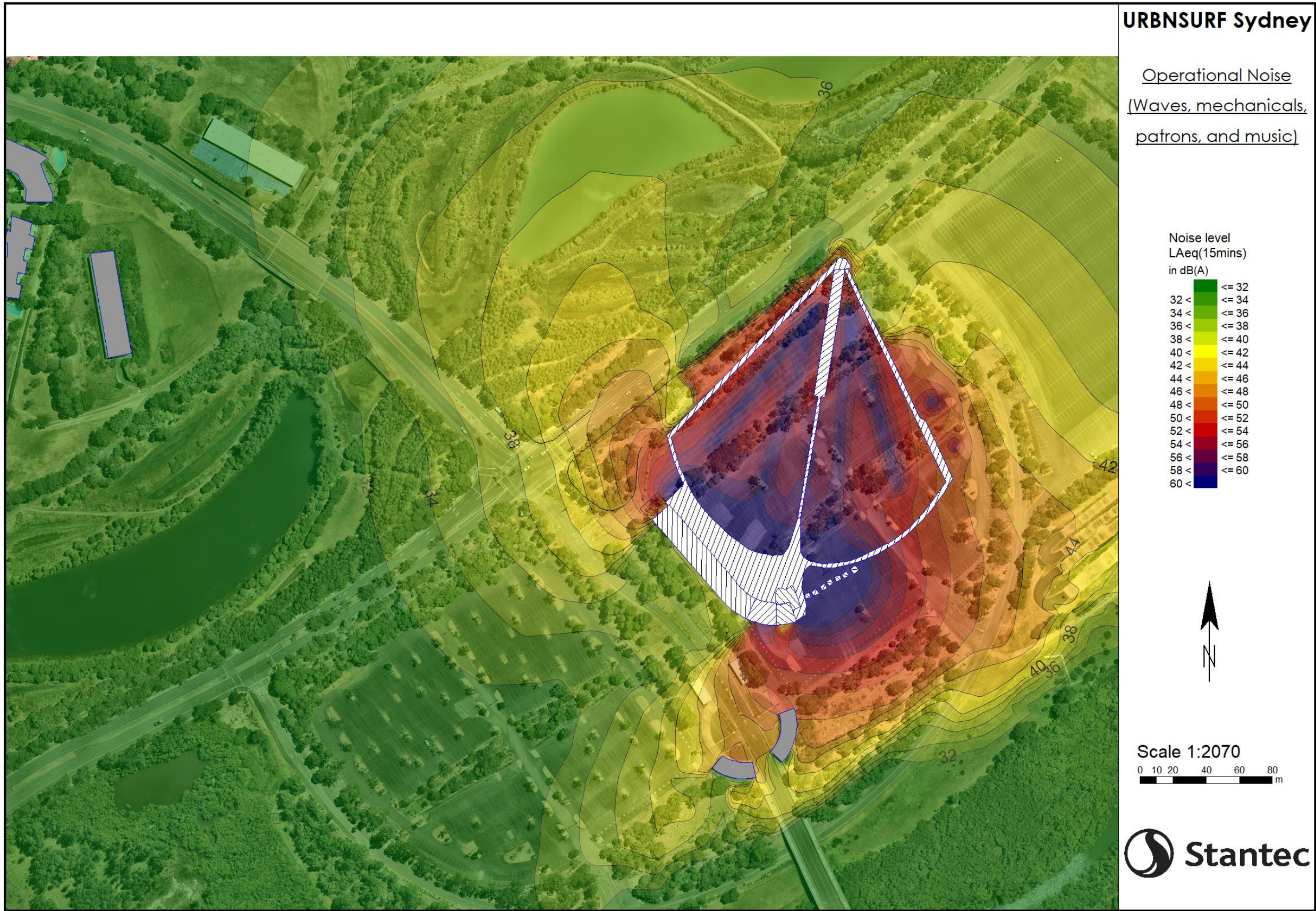
The information presented in this report shall be reviewed if any modifications to the features of the development specified in this report occur, including and not restricted to selection of air-conditioning units, layout of equipment, modifications to the building and introduction of any additional noise sources.

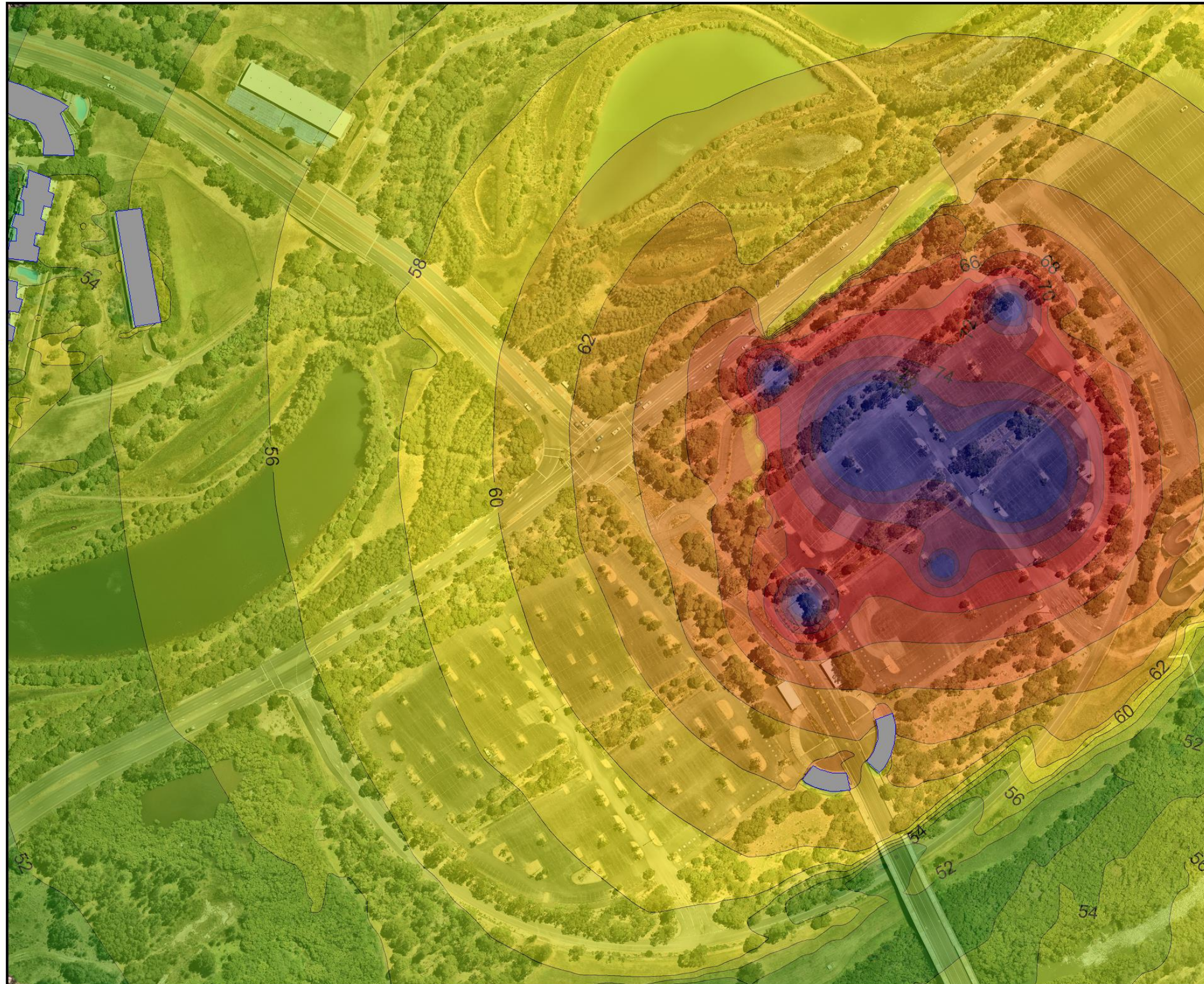
Appendix A Glossary of Acoustic Terms

NOISE	
Acceptable Noise Level:	The acceptable LAeq noise level from industrial sources, recommended by the EPA (Table 2.2, NPI). Note that this noise level refers to all industrial sources at the receiver location, and not only noise due to a specific project under consideration.
Adverse Weather:	Weather conditions that affect noise (wind and temperature inversions) that occur at a particular site for a significant period of time. The previous conditions are for wind occurring more than 30% of the time in any assessment period in any season and/or for temperature inversions occurring more than 30% of the nights in winter).
Acoustic Barrier:	Solid walls or partitions, solid fences, earth mounds, earth berms, buildings, etc. used to reduce noise.
Ambient Noise:	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment Period:	The period in a day over which assessments are made.
Assessment Location	The position at which noise measurements are undertaken or estimated.
Background Noise:	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level.
Decibel [dB]:	The units of sound pressure level.
dB(A):	A-weighted decibels. Noise measured using the A filter.
Extraneous Noise:	Noise resulting from activities that are not typical of the area. Atypical activities include construction, and traffic generated by holidays period and by special events such as concert or sporting events. Normal daily traffic is not considered to be extraneous.
Free Field:	An environment in which there are no acoustic reflective surfaces. Free field noise measurements are carried out outdoors at least 3.5m from any acoustic reflecting structures other than the ground
Frequency:	Frequency is synonymous to pitch. Frequency or pitch can be measured on a scale in units of Hertz (Hz).
Impulsive Noise:	Noise having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent Noise:	Level that drops to the background noise level several times during the period of observation.
L_{Amax}	The maximum A-weighted sound pressure level measured over a period.
L_{Amin}	The minimum A-weighted sound pressure level measured over a period.
L_{A1}	The A-weighted sound pressure level that is exceeded for 1% of the time for which the sound is measured.
L_{A10}	The A-weighted sound pressure level that is exceeded for 10% of the time for which the sound is measured.
L_{A90}	The A-weighted level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{Aeq}	The A-weighted "equivalent noise level" is the summation of noise events and integrated over a selected period of time.

LAeqT	The constant A-weighted sound which has the same energy as the fluctuating sound of the traffic, averaged over time T.
Reflection:	Sound wave changed in direction of propagation due to a solid object met on its path.
R-w:	The Sound Insulation Rating R-w is a measure of the noise reduction performance of the partition.
SEL:	Sound Exposure Level is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound Absorption:	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound Level Meter:	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound Pressure Level:	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound Power Level:	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise:	Containing a prominent frequency and characterised by a definite pitch.

Appendix B SoundPlan Noise Models

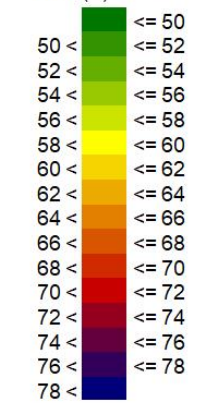




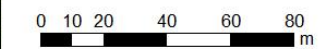
URBNSURF Sydney

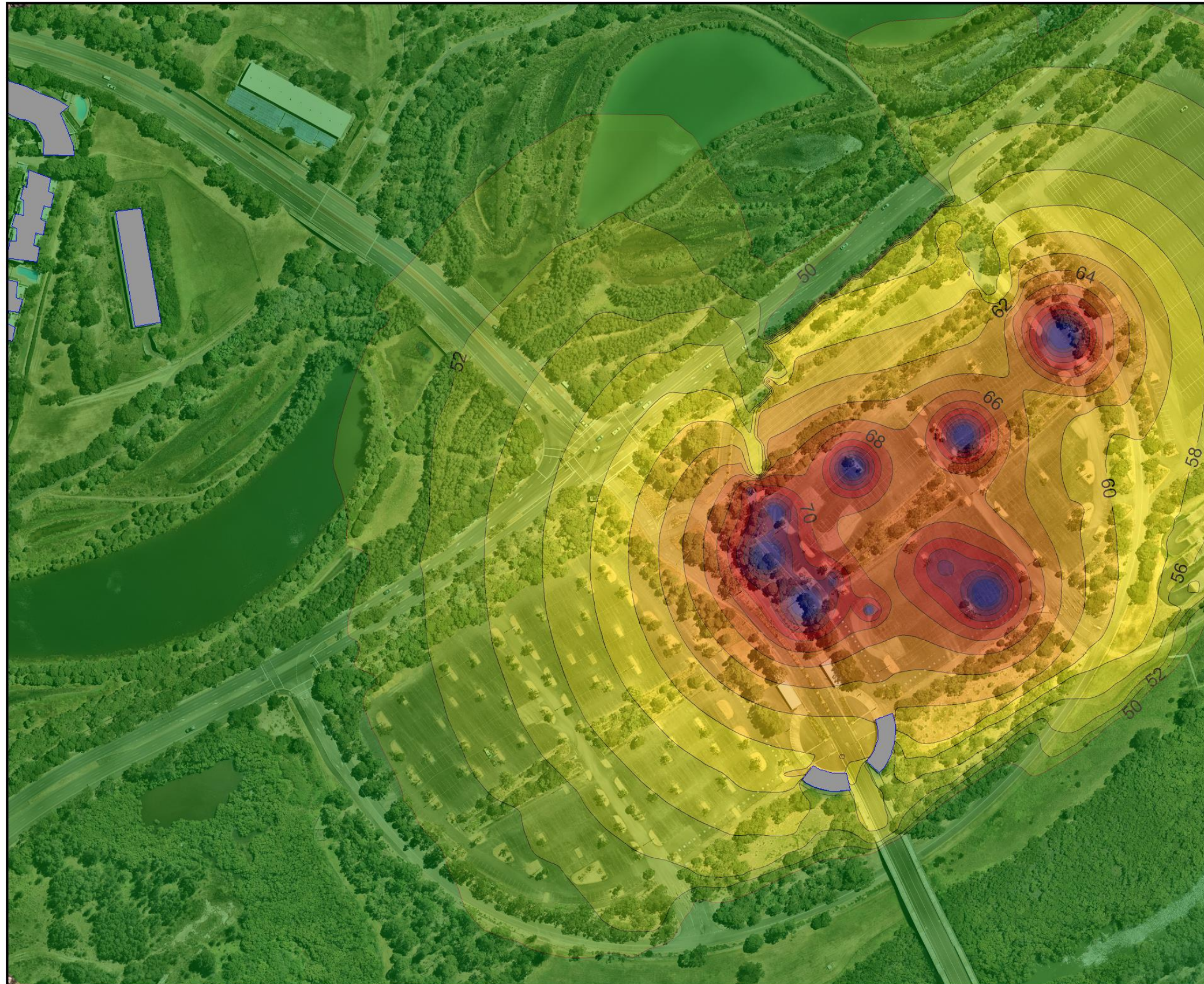
Noise Models
(Early Works)

Noise level
LAeq(15mins)
in dB(A)



Scale 1:2035





URBNSURF Sydney

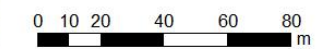
Noise Models (Construction Works)

Noise level
LAeq(15mins)
in dB(A)

<= 50
50 < <= 52
52 < <= 54
54 < <= 56
56 < <= 58
58 < <= 60
60 < <= 62
62 < <= 64
64 < <= 66
66 < <= 68
68 < <= 70
70 < <= 72
72 < <= 74
74 < <= 76
76 < <= 78
78 <



Scale 1:2035



Design with
community in mind

Level 6, Building B
207 Pacific Highway
St Leonards NSW 2065
Tel +61 2 8484 7000

For more information please visit
www.stantec.com





Appendix 3 – EL11-1_External Lighting Statement of Compliance

07.04.2021

Ref: SY191314-EL11-1

Urbnsurf Group
Jonathan Howell

Jonathan@urbnsurf.com

Dear Jonathan,

Re: Urbnsurf Sydney – Basin Lighting Statement of Compliance

Subject Premises: Holker Busway, Sydney Olympic Park NSW 2127
Development Application: SSD 7942

Northrop Consulting Engineers, the lighting designers for URBNSURF Development states that the external lighting, especially the sports lighting for the basin, has been designed with careful consideration to the surrounding environment especially local fauna and wildlife.

With our lighting design we not only comply with the requirements of AS/NZS 4282:2019 by limiting glare and upward light ratio, low level spill light and reducing luminaire brightness, but introducing sophisticated digital lighting control system which helps to accommodate multiple selective lighting scenes and light levels both in pre-curfew and curfew intervals.

I hereby certify that the URBNSURF basin lighting design is in accordance with current lighting engineering practice and meets the requirements of Condition F26 of the Consent.

1.1 Sports Lighting for URBNSURF basin

Sports lighting for URBNSURF basin has been designed in accordance with the following requirements as listed in F26 of the Consent:

- a) The design achieved 0.1% upward light ratio (UWLR = 0.1%). Refer to Basin lighting calculation results and the Obtrusive Lighting Compliance reports on how the design limits the obtrusive effect of basin sports lighting to surrounding areas.
- b) The proposed Sylvania Raptor LED sports lighting floodlights will be fitted with cut-off fixtures and back shields to limit spill light outside URBNSURF boundary. The floodlights are directed downward and aimed at the basin.
- c) The basin lighting will operation hours are:
Sunday-Thursday: 5am-10pm.
Friday-Saturday: 5am-12am.
The facility's operation will extend beyond the AS/NZS 4282:2019 stated curfew hours. The basin lighting has been designed to comply with the lighting technical parameters stated in AS/NZS 4282:2019 for curfew hours which are maximum 5lux limiting light level and 25,000 candela brightness at the test boundary.
- d) All outdoor and security lights are selected with only downward light beams. External and display lighting will have downward light beams only. These lights will be turned off when the facility is closed, only security lights are turned off. Lighting control is via digitally

programmable lighting control system which allows URBNSURF to pre-program the lighting scenes.

- e) The external illuminated signs will be internally illuminated and will be timer controlled.
- f) Outdoor lighting will not impact the nearby nature reserve and nearby residences as indicated on the Obtrusive lighting compliance reports.

1.2 Applicable standards

- AS 4282:2019 – Control of the Obtrusive Effects of Outdoor Lighting

We prepared our lighting calculations in accordance with AS/NZS 4282:2019 and run a compliance test. Test results were carried out for pre-curfew and curfew times and the results are indicated on drawing LC2 – Obtrusive Lighting Calculation Test Results.

We have run the test at the eastern side of Hill Road at the nature strip line.

We have not taken into account the existing street lighting on Hill Road.

Our calculations were based on Sylvania Shreder 1240W LED Raptor floodlights on 30m high poles. The Raptor LED floodlights are widely used for energy efficient sports lighting.

I am an appropriately qualified and competent person in this area and as such can certify that the design and performance of the design systems comply with the above and which are detailed on the following drawings.

Reference	Description	Revision
LC-1	URBNSURF – Basin lighting level calculations	1
LC2	Test results for limiting the obtrusive effect of basing high mast lighting to surrounding areas	1

I possess Indemnity Insurance to the satisfaction of the building owner or my principal.

Full Name of Designer:	Ibby Kanalas
Qualifications:	BEng, FIES,
Address of Designer:	Level 11, 345 George Street, Sydney NSW 2000
Business Telephone No:	02 9241 4188
Name of Employer:	Northrop Consulting Engineers Pty Ltd

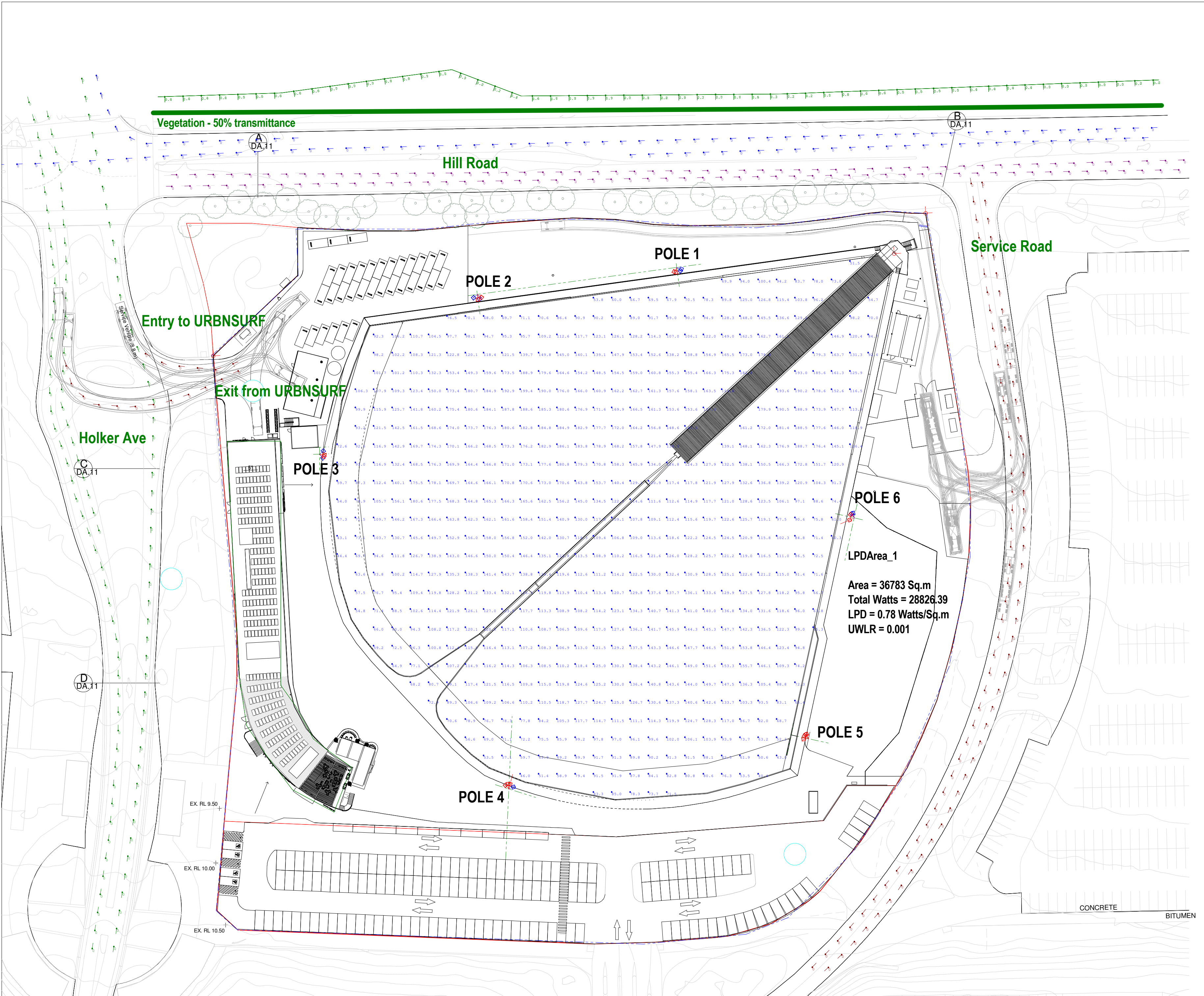
We confirm that in preparing the Electrical services documentation for this development, we have exercised due diligence and care, in accordance with standard practice. This Certificate, however, does not relieve other parties from their responsibilities.

Yours faithfully,

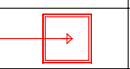
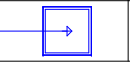


Ibby Kanalas
Senior Electrical Engineer
Northrop Consulting Engineers Pty Ltd

Date	Rev	Issue	Author	Verifier
07.04.2021	1	Preliminary	I.Kanalas	S.Parajuli
13.04.2021	2	Preliminary	I.Kanalas	S.Parajuli
26.06.2021	3	Preliminary	I.Kanalas	S.Parajuli



BASIN - HORIZONTAL ILLUMINANCE CALCULATION AND OBTRUSIVE LIGHTING CALCULATION POINTS

Luminaire Schedule						
Label	Symbol	Qty	Description	LLF	Lum. Lumens	UWLR
SR4H740		15	SR4H740A1LG2 & SR4HBACKSHIELD	0.800	141139	0.00
SR4H740		9	SR4H740A2LG2 & SR4HBACKSHIELD	0.800	134195	0.00

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Max/Avg
BASIN HORIZONTAL	Illuminance	Lux	123.5	199.4	40.4	1.61
SPILL LIGHT TO NATURE RES	Obtrusive Light - Cd	N.A.	N.A.	1056	0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Cd	N.A.	N.A.	1076	0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Cd	N.A.	N.A.	1084	0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Cd	N.A.	N.A.	1686	0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Cd	N.A.	N.A.	1374	0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Il	Lux	N.A.	0.6	0.0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Il	Lux	N.A.	1.0	0.0	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Il	Lux	N.A.	1.4	0.1	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Il	Lux	N.A.	2.3	0.2	N.A.
SPILL LIGHT TO NATURE RES	Obtrusive Light - Il	Lux	N.A.	1.2	0.0	N.A.
TI Entry to URBNSURF	Obtrusive Light - TI	%	N.A.	1	0	N.A.
TI Exit from to URBNSURF	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Hill Road - North boun	Obtrusive Light - TI	%	N.A.	1	0	N.A.
TI Hill Road - North boun	Obtrusive Light - TI	%	N.A.	1	0	N.A.
TI Hill Road - South boun	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Hill Road - South boun	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Holker Ave - East boun	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Holker Ave - East boun	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Holker Ave - West	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Service Road	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI Service Road _1	Obtrusive Light - TI	%	N.A.	0	0	N.A.
TI_2	Obtrusive Light - TI	%	N.A.	0	0	N.A.



SYLVANIA LIGHTING - RAPTOR LED SPORTS FLOODLIGHT ON 30M HIGH MAST

All dimensions must be varified on site. This drawing to comply with relevant local authority regulations. Any variations to specifications and drawings must be authorised by the designer. Copyright. These designs, drawings and specifications are copyright and are the property of Northrop Consulting Engineers. They must not be used, reproduced or copied wholly or in part without the written permission of the owners.

The follwing values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur. Guarantee claims for luminaire data are excluded. Northrop Consulting Engineers and the luminaire manufacturers accept no liability for the consequential damage and damage which is occasioned to the user or the third parties.

REVISION	DATE	STATUS
1	07.04.2021	PRELIMINARY ISSUE



Sydney

Level 11, 345 George Street, Sydney NSW 2000
Ph (02) 9241 4188 Fax (02) 9241 4324
Email: sydney@northrop.com.au ABN 81 094 433 100

PROJECT URBNSURF SYDNEY			DWG NAME BASIN - HORIZONTAL ILLUMINANCE CALCULATION				DRAWING NO LC1	
CLIENT URBNSURF			ADDRESS SYDNEY OLYMPIC PARK					
PROJECT NO 191314	DATE 07.04.2021	SCALE @ A1 NTS	DRAWN IK	CHECKED IK	ISSUE 1	REV 1	STATUS	

Obtrusive Light - Compliance Report

AS/NZS 4282:2019, A4 - High District Brightness, Curfew
Filename: 6 pole option 30M 4000K RAPTOR NEW BASIN LIGHTING
13/04/2021 1:54:52 AM

Illuminance

Maximum Allowable Value: 5 Lux

Calculations Tested (5):

Calculation Label	Test Results	Max. Illum.
SPILL LIGHT TO NATURE RESERVE_III_Seg1	PASS	0.6
SPILL LIGHT TO NATURE RESERVE_III_Seg2	PASS	1.0
SPILL LIGHT TO NATURE RESERVE_III_Seg3	PASS	1.4
SPILL LIGHT TO NATURE RESERVE_III_Seg4	PASS	2.3
SPILL LIGHT TO NATURE RESERVE_III_Seg5	PASS	1.2

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 2500 Cd

Calculations Tested (5):

Calculation Label	Test Results
SPILL LIGHT TO NATURE RESERVE_Cd_Seg1	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg2	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg3	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg4	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg5	PASS

Threshold Increment (TI)

Maximum Allowable Value: 20 %

Calculations Tested (12):

Calculation Label	Adaptation Luminance	Test Results
TI_2	10	PASS
TI Hill Road - South bound 1	10	PASS
TI Hill Road - South bound 2	10	PASS
TI Hill Road - North bound 2	10	PASS
TI Hill Road - North bound	10	PASS
TI Service Road	10	PASS
TI Service Road_1	10	PASS
TI Holker Ave - West	10	PASS
TI Entry to URBNSURF	10	PASS
TI Exit from to URBNSURF	10	PASS
TI Holker Ave - East bound_1	10	PASS
TI Holker Ave - East bound	10	PASS

Upward Waste Light Ratio (UWLR)

Maximum Allowable Value: 3.0 %

Calculated UWLR: 0.1 %
Test Results: PASS

AS/NZS 4282: 2019 COMPLIANCE TEST RESULT
CURFEW HOURS

Obtrusive Light - Compliance Report

AS/NZS 4282:2019, A4 - High District Brightness, Non-Curfew L1
Filename: 6 pole option 30M 4000K RAPTOR NEW BASIN LIGHTING
13/04/2021 1:59:00 AM

Illuminance

Maximum Allowable Value: 25 Lux

Calculations Tested (5):

Calculation Label	Test Results	Max. Illum.
SPILL LIGHT TO NATURE RESERVE_III_Seg1	PASS	0.6
SPILL LIGHT TO NATURE RESERVE_III_Seg2	PASS	1.0
SPILL LIGHT TO NATURE RESERVE_III_Seg3	PASS	1.4
SPILL LIGHT TO NATURE RESERVE_III_Seg4	PASS	2.3
SPILL LIGHT TO NATURE RESERVE_III_Seg5	PASS	1.2

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 25000 Cd

Calculations Tested (5):

Calculation Label	Test Results
SPILL LIGHT TO NATURE RESERVE_Cd_Seg1	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg2	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg3	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg4	PASS
SPILL LIGHT TO NATURE RESERVE_Cd_Seg5	PASS

Threshold Increment (TI)

Maximum Allowable Value: 20 %

Calculations Tested (12):

Calculation Label	Adaptation Luminance	Test Results
TI_2	10	PASS
TI Hill Road - South bound 1	10	PASS
TI Hill Road - South bound 2	10	PASS
TI Hill Road - North bound 2	10	PASS
TI Hill Road - North bound	10	PASS
TI Service Road	10	PASS
TI Service Road_1	10	PASS
TI Holker Ave - West	10	PASS
TI Entry to URBNSURF	10	PASS
TI Exit from to URBNSURF	10	PASS
TI Holker Ave - East bound_1	10	PASS
TI Holker Ave - East bound	10	PASS

Upward Waste Light Ratio (UWLR)

Maximum Allowable Value: 3.0 %

Calculated UWLR: 0.1 %
Test Results: PASS

AS/NZS 4282: 2019 COMPLIANCE TEST RESULT
NON-CURFEW HOURS

All dimensions must be varified on site. This drawing to comply with relevant local authority regulations. Any variations to specifications and drawings must be authorised by the designer. Copyright. These designs, drawings and specifications are copyright and are the property of Northrop Consulting Engineers. They must not be used, reproduced or copied wholly or in part without the written permission of the owners.

The follwing values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur. Guarantee claims for luminaire data are excluded. Northrop Consulting Engineers and the luminaire manufacturers accept no liability for the consequential damage and damage which is occasioned to the user or the third parties.

REVISION	DATE	STATUS
1	07.04.2021	PRELIMINARY ISSUE



Sydney

Level 11, 345 George Street, Sydney NSW 2000
Ph (02) 9241 4188 Fax (02) 9241 4324
Email: sydney@northrop.com.au ABN 81 094 433 100

PROJECT URBNSURF SYDNEY			DWG NAME OBTRUSIVE LIGHTING CALCULATION TEST RESULTS				DRAWING NO LC2	
CLIENT URBNSURF			ADDRESS SYDNEY OLYMPIC PARK					
PROJECT NO 191314	DATE 07.04.2021	SCALE @ A1 NTS	DRAWN IK	CHECKED IK	ISSUE 1	REV 1	STATUS	



Appendix 4 – LA-USS-000-005.T1_ SITE PLAN GROUND FLOOR Rev.T1



Appendix 5 – SSD-7942 MOD 1-OCULUS-Landscape Architecture Letter

OCULUS

UrbnSurf**Jon Howell**

Development Project Manager

jonathan@urbnsurf.com

0400 128 318

Date:

28 June 2021

Project Ref:

S19-023

CC: Roger Roppolo

Your reference: SSD-7942 MOD 1

Key Sites Assessments

Department of Planning, Industry
and Environment

4 Parramatta Square, 12 Darcy
Street

PARRAMATTA NSW 2150

Canberra

Room 2, Pavilion Studios

14 Kendall Lane

Canberra

+613 9002 2411

Sydney

Level 1, 5 Wilson Street

Newtown, NSW

+61 2 9557 5533

Melbourne

Level 2, 33 Guildford Lane

Melbourne, VIC

+61 3 9670 0699

Washington

Level 3, 1611 Connecticut Ave

Washington, D.C.

+1 202 588 5454

RE: UrbnSurf SOPA Submission**RESPONSE TO EXHIBITION STATE SIGNIFICANT**

DEVELOPMENT 7942-MOD-1 Construction and operation

of an open water surf sports lagoon facility

Pod B, P5 Car Park, Hill Road, Sydney Olympic Park (Lot 71
DP 1191648)

We note the following comments from SOPA's review and
make to following response:

Tree Removal

*SOPA considers that the removal of the eight trees in the
car park to the south of the site to facilitate additional car
parking is not justified in this instance. The proposal
already includes significant tree loss to facilitate the wave
park. Whilst the loss of trees were considered justified in
the assessment of the original SSD, the removal of eight
additional trees in this modification to facilitate additional
car parking without significant off-set or retention is
contrary to current and draft policies for Sydney Olympic
Park, Greater Sydney and NSW.*

Response

We note that that landscape documentation has been
updated since the submission of the DA and with specific
reference to the carpark that with the reconfiguration of the
existing carpark 8 no. trees will need to be removed to
accommodate the required reconfiguration. These trees
were planted as part of the original Hill Road carpark and
are a mix of Grey Box *Eucalyptus moluccana* and Forest
Red Gum *Eucalyptus tereticornis* planted to reflect species
normally associated with Cumberland Woodland. We are
proposing to retain 4 trees additional within the site
boundary of the carpark and are proposing to install an
additional 12 trees within newly created planting islands
within the reconfigured carpark. This results in a net gain of
trees within the carpark and with new tree planting
proposed throughout the site and on the embankments this
will increase biodiversity, assist with wind mitigation and
reduction of heat island effect and improve the visual
amenity.

We also note that the proposed landscape associated with the wave park has been designed in concert with its setting within Millennium Parklands to provide Sydney Olympic Park with a new and highly activated development for the public which is consistent with the ideals and aspirations for a re-imagined precinct at Homebush.

The landscape scheme includes new tree planting that includes a mix of native and endemic trees including;

Eucalyptus paniculata	Narrow leaf Ironbark
Eucalyptus punctata	Grey Gum
Eucalyptus tereticornis	Forest red Gum
Syncarpia glomulifera	Turpentine
Angophora costata	Smooth-barked Apple
Araucaria heterophylla	Norfolk Island Pine

Should you wish to discuss this further, or require any additional information, please do not hesitate to contact me.

Kind regards,




Roger Jasprizza
Associate Director
AILA FAILA 000531

1/5 Wilson Street Newtown NSW Australia
P.O Box 307 Newtown NSW Australia 2042
t +61 2 9557 5533
m +0439362478
e roger@oculus.info



Appendix 6 – AE-29062021-Ecology Assessment Letter



APPLIED ECOLOGY PTY LIMITED
ACN: 140394716 ABN:
18140394716
UrbnSurf
Jon Howell
Development Project Manager
jonathan@urbnsurf.com
29th June 2021

RE: Tree Removal

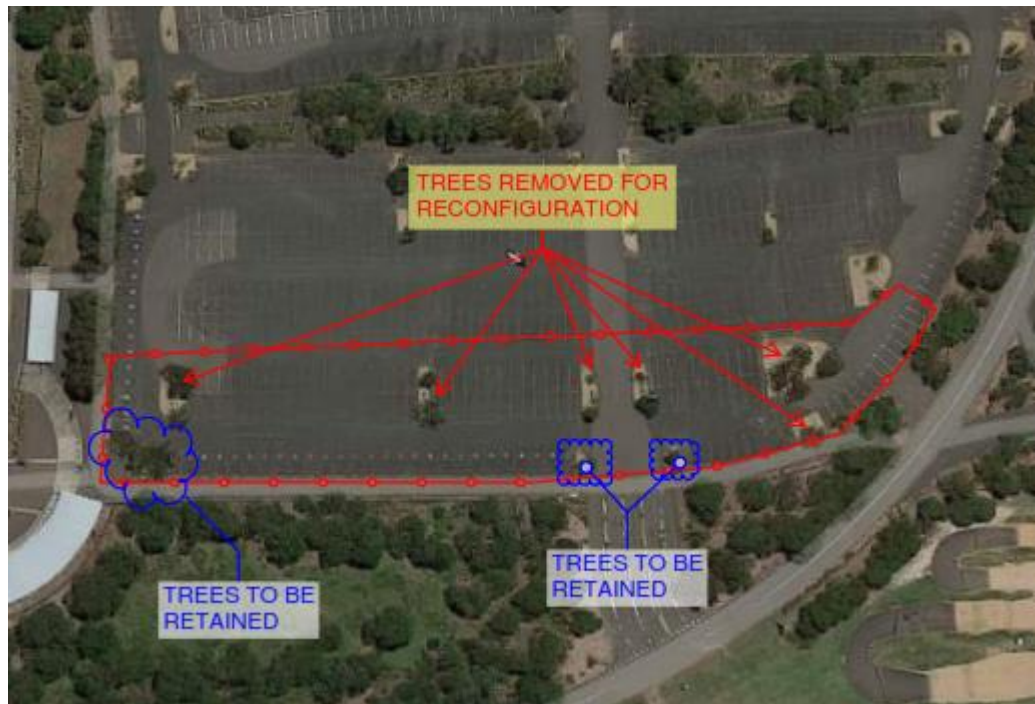
SOPA considers that the removal of the eight trees in the car park to the south of the site to facilitate additional car parking is not justified in this instance. The proposal already includes significant tree loss to facilitate the wave park. Whilst the loss of trees were considered justified in the assessment of the original SSD, the removal of eight additional trees in this modification to facilitate additional car parking without significant off-set or retention is contrary to current and draft policies for Sydney Olympic Park, Greater Sydney and NSW. Of note, the following policies are relevant and should be taken into consideration in the assessment and justification of this SSD modification:

- *Master Plan 2030 – 3.6 Landscape Planning Principles*
- *Greater Sydney Commission Objective 30 – Urban Tree Canopy*
- *NSW Government Architect – Greener Places Urban Greening Policy*
- *Premier’s Priority 11 - Greener Places*
- *Premier’s Priority 12 - Greening our City*

The proponent should seek to adopt a maximum tree retention methodology for the car park and review the car-parking layout to maximise tree retention. Furthermore, the removal of any additional trees at the site should be fully supported by an Arborist Report and where tree retention is unavoidable; replacement tree planting measures should be detailed.

Response

Our understanding is an additional twelve trees have been added to the landscape plan. These trees will be planted in beds within the car park that wraps around the south and south eastern perimeter of the site. Removal is necessary to accommodate the current carpark configuration. Four trees have been retained in this area (see figure overleaf). The trees that are proposed for removal have little ecological value. Generally, the vegetation throughout the study site is in poor condition, lacking the normal structural components such as a shrub layer and a comprehensive understorey layer. This is not surprising given the history of the site. As well, many of the trees on site, at the time of site inspections, showed signs of stress that probably resulted from their location in the middle of a hot, dry, windy, sealed carpark.



Tree selection for the carpark will be drawn from a mix of native and endemic trees including:

- *Eucalyptus paniculata* Narrow leaf Ironbark
- *Eucalyptus punctata* Grey Gum
- *Eucalyptus tereticornis* Forest red Gum
- *Syncarpia glomulifera* Turpentine
- *Angophora costata* Smooth-barked Apple
- *Araucaria heterophylla* Norfolk Island Pine

These species are generally consistent with plantings in areas near the subject site. The ecological value of the existing trees on site is low and subsequent plantings will also have low ecological value once established simply because of the scale of degrading process in the immediate area.

DR MEREDITH BRAINWOOD

Ph.D (Ecohydrology), M.Sc(Hons) (Integrated Catchment Management), B.App.Sc. (Env. Science)

Senior Environmental Scientist, Project Manager



38 Bridge Street, RYDALMERE, NSW 2116
7/150 Keppel Street, BATHURST, NSW 2795
PO BOX 397, KATOOMBA, NSW 2780

P (02) 63377229
F (02) 47824862
M 422857086|0428131796

contact@appliedecology.com.au www.appliedecology.com.au

Review of environmental factors	Aquatic ecology
Ecological assessments	Terrestrial restoration plans
Environmental design response	Vegetation management plans
GIS mapping	Flora & fauna surveys
Legislative requirements & approvals	Water quality assessment
Plans of management	Arboriculture assessment
Environmental Training & Workshops	Riparian restoration plans



Appendix 7 – A-USS-S.455_Architectural Amendments

S4.55 Amendments

Date: 30th June, 2021

Project: URBNsurf Sydney

Proposal: Construction and operation of an open water surf sports lagoon facility

Reference: SSD-7942 MOD 1

Subject: Key Summary of amendments between S4.55 set (Rev a, dated 12/03/2021) and amended plans (Rev b, dated 30/06/2021)

In response to the comments on design modifications, we have revised the materiality of the built form.

In keeping with the concept of creating a coastal village aesthetic, we have proposed to maintain the lighter textural elements of the white bagged brickwork and blockwork, primarily on the ground plane. We have replaced the darker cladding elements on the lower section of the south-western façade with blockwork and have proposed to implement a pattern with colour variation to promote a natural movement within the façade.



1. Indicative 3D imagery of material update

As our proposed building is 3 storey's in height with Class 9 areas, the materiality is required to meet the BCA standards for Type A construction. Because of this, unfortunately, we are unable to incorporate natural timber cladding on the exterior of the building due to fire risk and the requirement of exterior cladding to be non-combustible. However, to complement the site's natural setting we have reduced the use of darker cladding on the first floor façade and have incorporated a non-combustible timber-look cladding on the first floor which will offer the warmth of natural timber.



2. Indicative 3D imagery of material update

Summary of key changes are listed below:

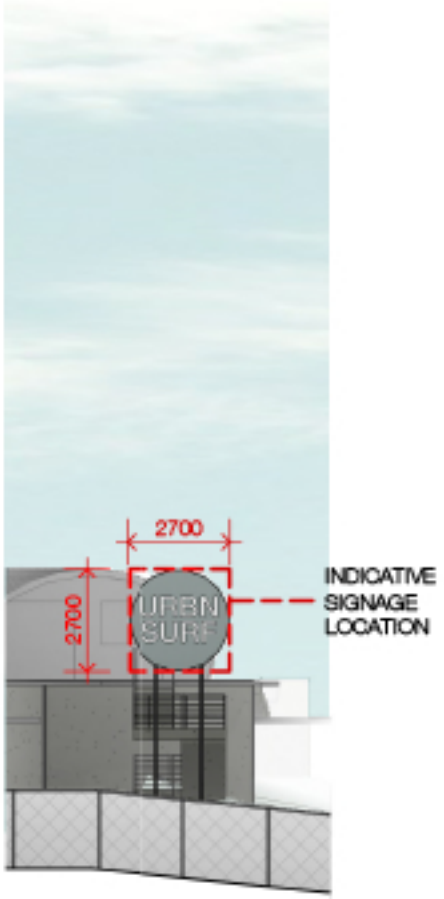
1. Extension of blockwork across the lower storey of the south-western façade
2. Incorporation of non-combustible timber-look cladding to the first floor façade
3. Integration of white battens within the façade treatment

1. Summary of amendments per drawing:

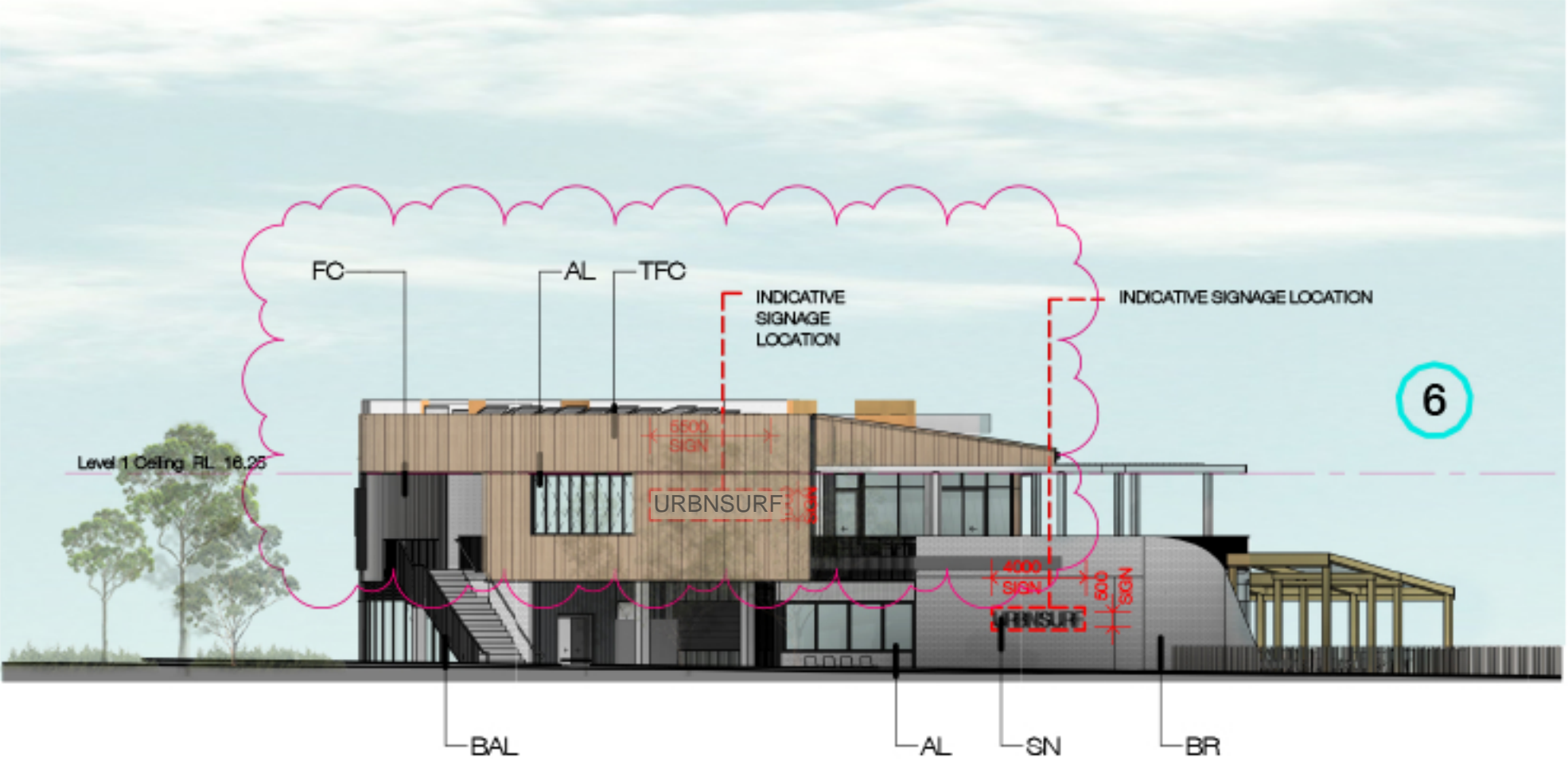
SHEET NUMBER	SHEET NAME	AMENDMENT	NOTES
All Drawings			
DA.25	Proposed GA Elevations	<i>Updated elevations to reflect change of materiality</i>	Reflects Key Change 1,2.
DA.26	Proposed GA Elevations	<i>Updated elevations to reflect change of materiality</i>	Reflects Key Change 2,3.
DA.30	External Materials Schedule	<i>Updated material schedule to include materiality updates</i>	Reflects Key Change 2,3.
DA.31	3D Concept Imagery - Overall Site	<i>Replaced 3D image to reflect change of materiality</i>	Reflects Key Change 2,3.
DA.32	3D Concept Imagery - Entrance	<i>Replaced 3D image to reflect change of materiality</i>	Reflects Key Change 2.
DA.33	3D Concept Imagery - Food & Beverage	<i>Replaced 3D image to reflect change of materiality</i>	Reflects Key Change 2.

NOTE:
SIGNAGE DIMENSIONS &
DESIGN ARE INDICATIVE
ONLY

MAX. PROPOSED BUILDING HEIGHT	12300 mm
MAX. APPROVED BUILDING HEIGHT	12800 mm



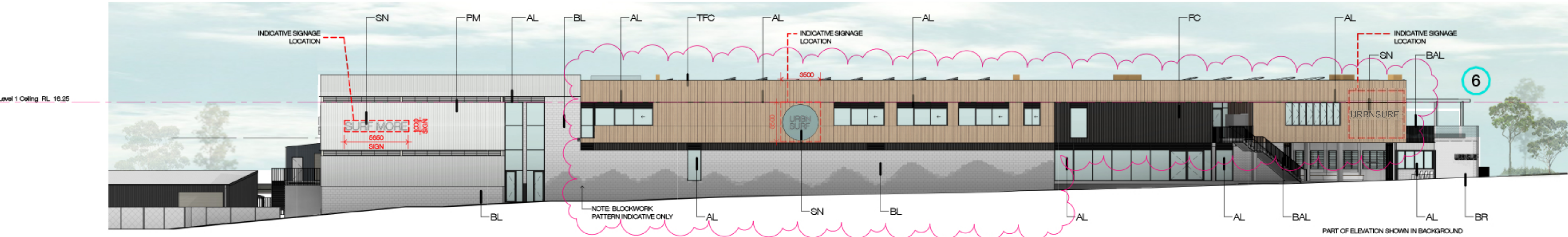
1. North-East Signage
Scale 1 : 200



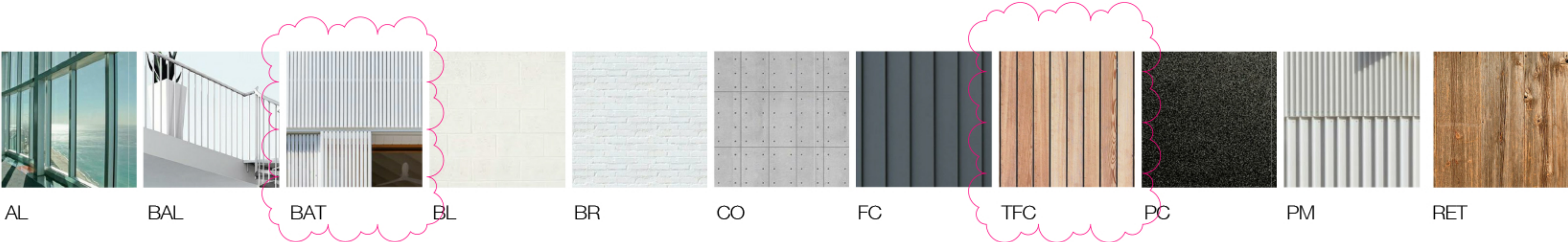
2. South-East Elevation
Scale 1 : 200

CHANGES FROM PREVIOUS DA

- 1 Redesign of maintenance areas for better connection between servicing & operation
- 2 Creation of a Food & Beverage Precinct with public landscape connections
- 3 Updated Retail, Ticketing & Amenities for best user experience
- 4 Introduction of flexible Multi-purpose space for potential events
- 5 Redesign of Staff Facilities for better amenity
- 6 Exterior redesign of materiality to create a neutral coastal vibe which is inkeeping with URBNSurf brand

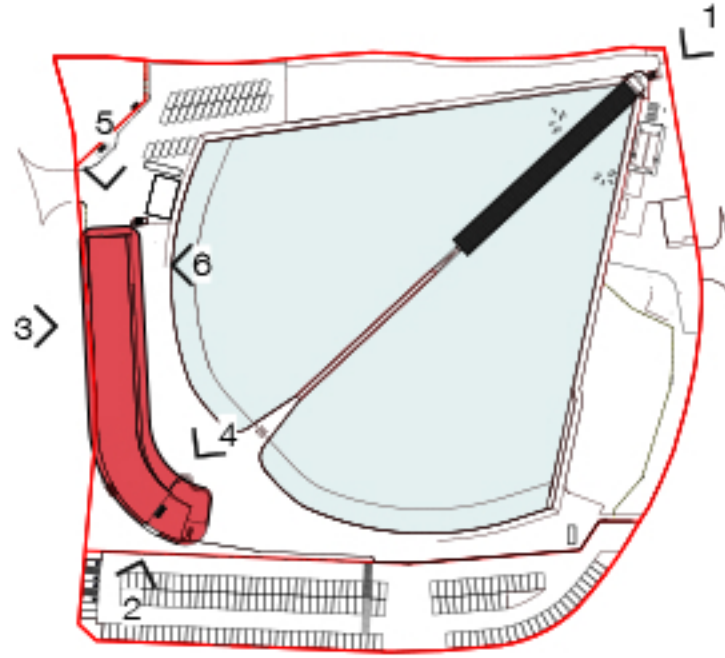


3. South-West Elevation
Scale 1 : 200

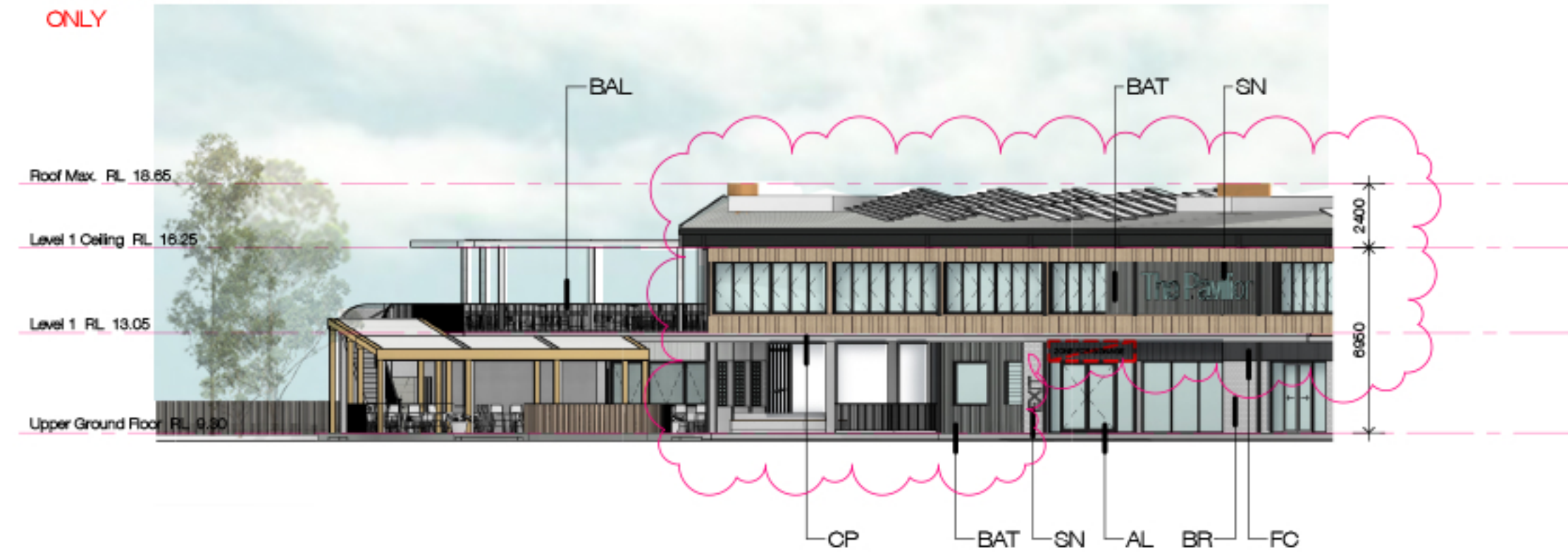


Legend - Abbreviations

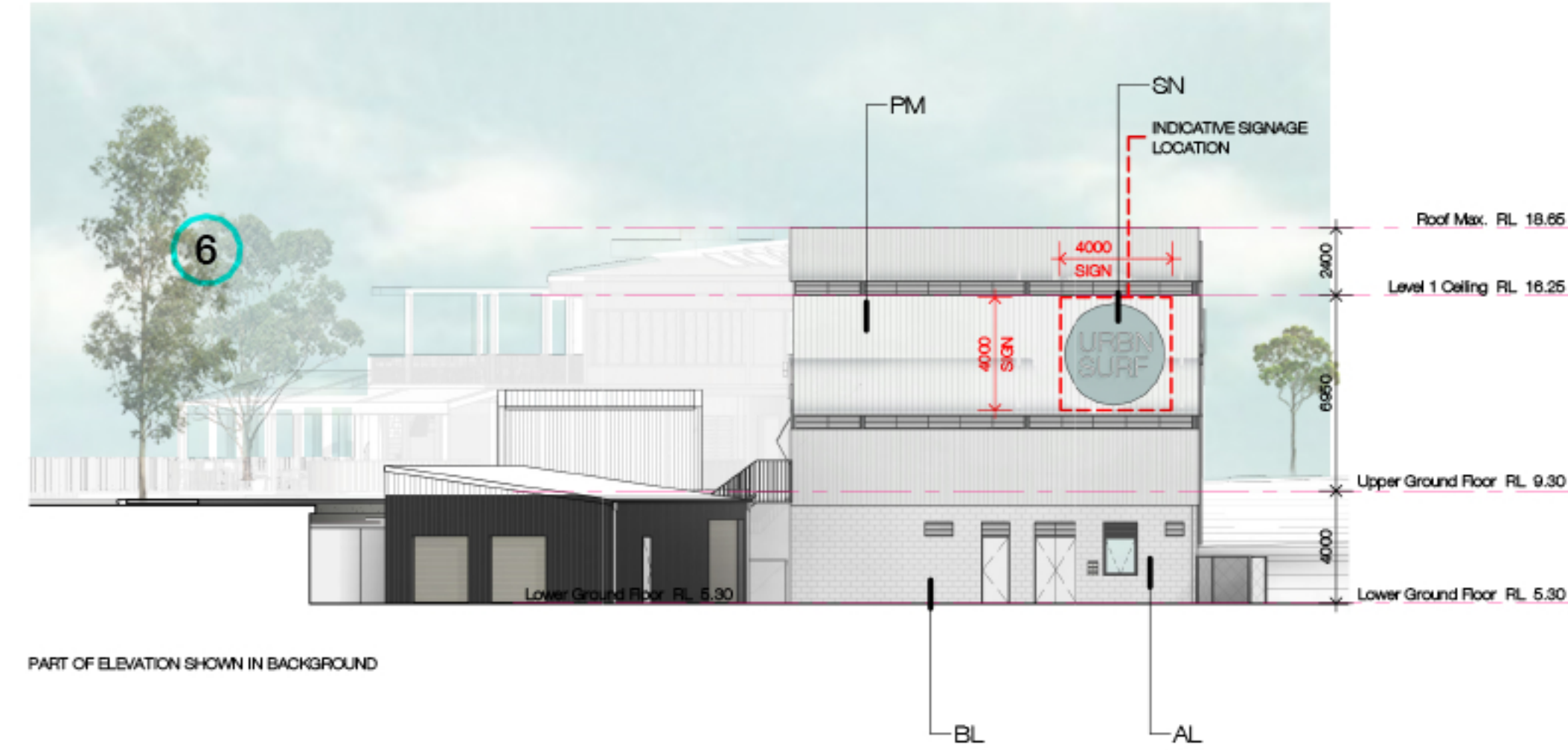
AL	ALUMINUM FRAMED DOORS & WINDOWS
BAL	PAINTED ALUMINUM BALLUSTRADE
BAT	TIMBER LOOK BATTENS
BL	FACE BLOCKWORK
BR	WHITE BAGGED BRICK WALL
CO	EXPOSED IN-SITU CONCRETE
FC	VERTICAL FC CLADDING
TFC	TIMBER LOOK FC CLADDING
PC	POWDER COATED FINISH
PM	PROFILE METAL SHEET
RET	RECYCLED TIMBER



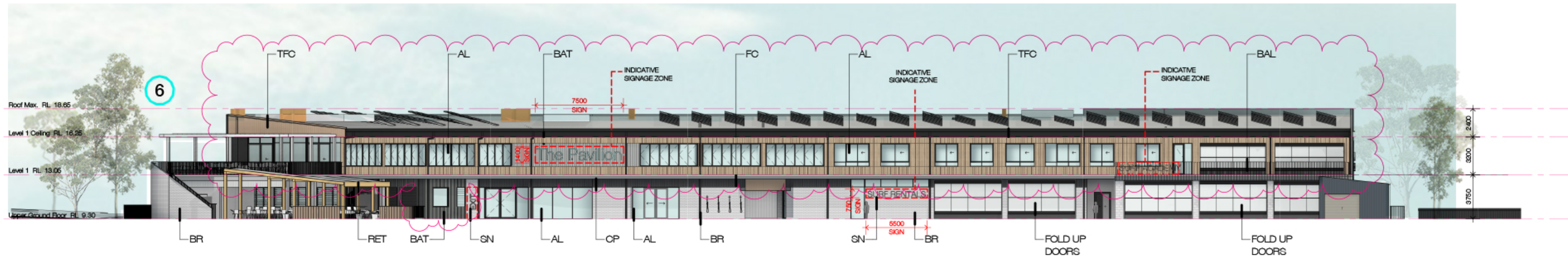
NOTE:
SIGNAGE DIMENSIONS &
DESIGN ARE INDICATIVE
ONLY



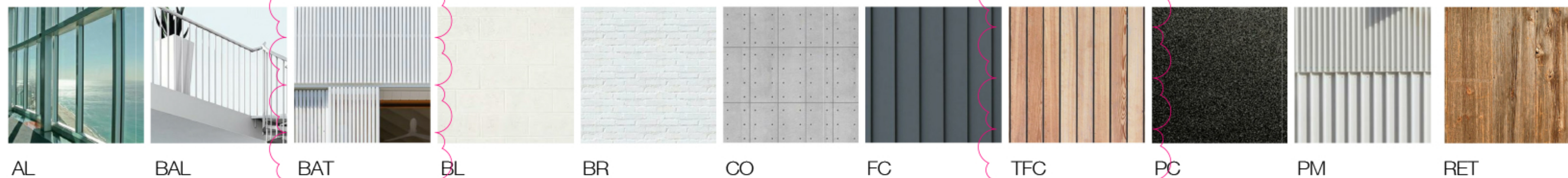
4. North-West Elevation
Scale 1 : 200



5. North-West Elevation continued
Scale 1 : 200

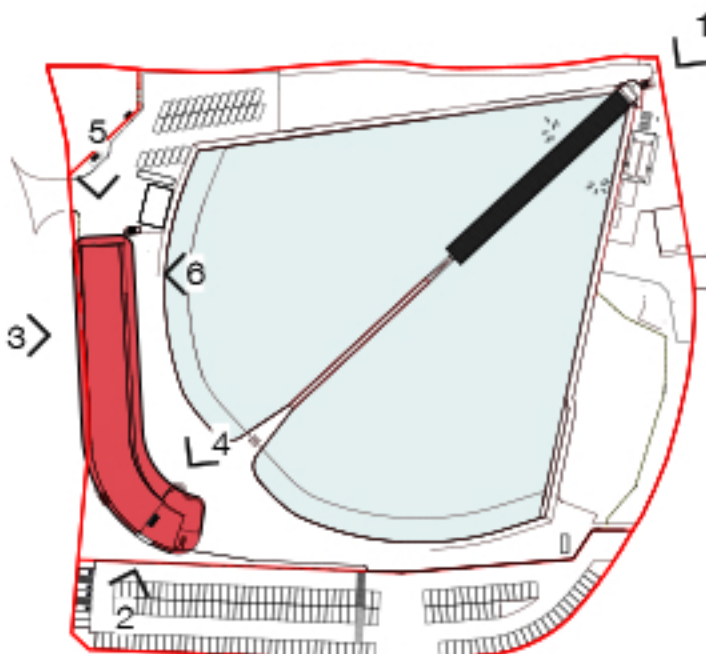


6. North-East Elevation
Scale 1 : 200



Legend - Abbreviations

AL ALUMINUM FRAMED DOORS & WINDOWS
BAL PAINTED ALUMINUM BALUSTRADE
BAT TIMBER LOOK BATTENS
BL FACE BLOCKWORK
BR WHITE BAGGED BRICK WALL
CO EXPOSED IN-SITU CONCRETE
FC VERTICAL FC CLADDING
TFC TIMBER LOOK FC CLADDING
PC POWDER COATED FINISH
PM PROFILE METAL SHEET
RET RECYCLED TIMBER



CHANGES FROM PREVIOUS DA

- 1 Redesign of maintenance areas for better connection between servicing & operation
- 2 Creation of a Food & Beverage Precinct with public landscape connections
- 3 Updated Retail, Ticketing & Amenities for best user experience
- 4 Introduction of flexible Multi-purpose space for potential events
- 5 Redesign of Staff Facilities for better amenity
- 6 Exterior redesign of materiality to create a neutral coastal vibe which is inkeeping with URBNSURF brand

LEGEND

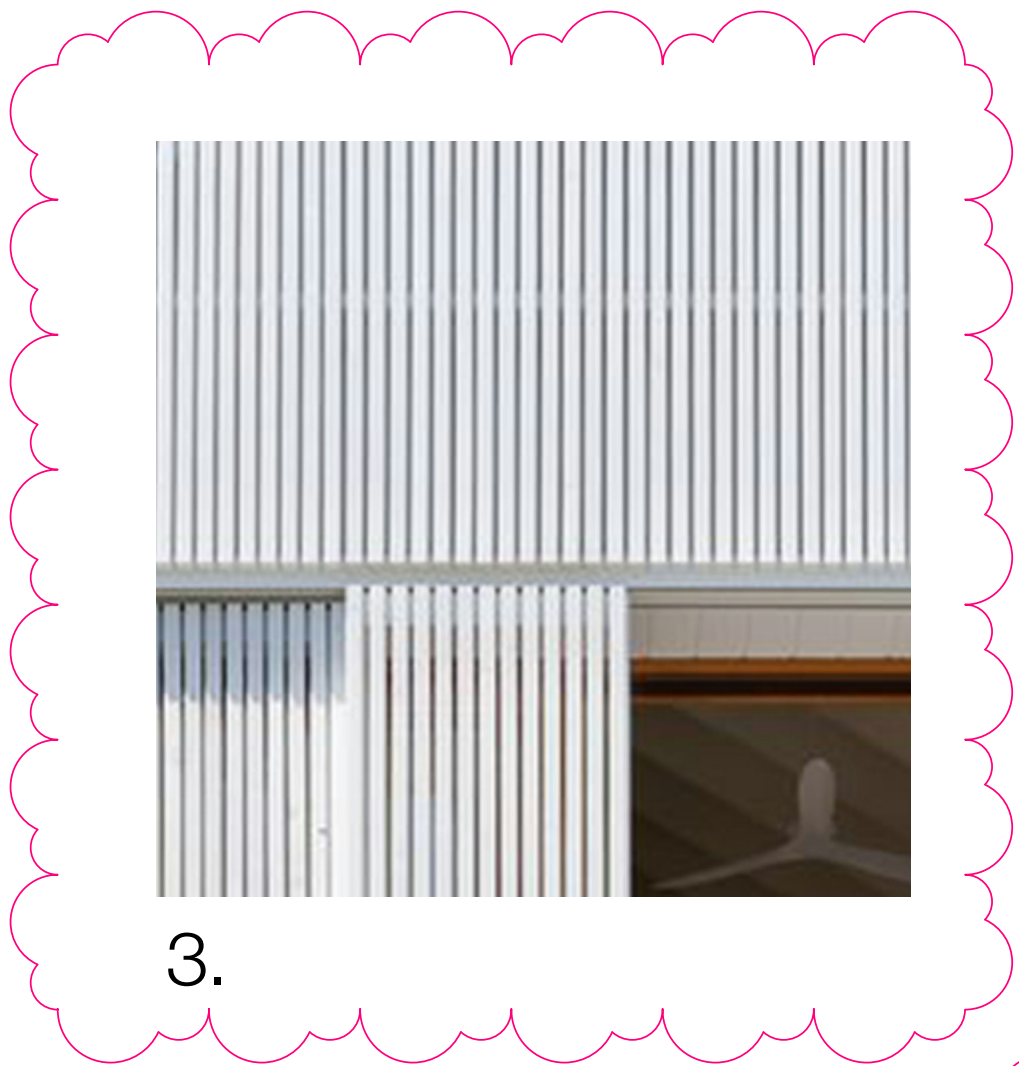
- 1. AL Aluminium Framed Doors & Windows
- 2. BAL Painted Aluminium Balustrade
- 3. BAT Aluminium Battens
- 4. BL Face Blockwork
- 5. BR White Bagged Brick Wall
- 6. CR Exposed In-situ Concrete
- 7. FC Vertical FC Cladding
- 8. TFC Timber Look FC Cladding
- 9. PC Powder Coated Finish
- 10. PM Profile Metal Sheet
- 11. RET Recycled Timber



1.



2.



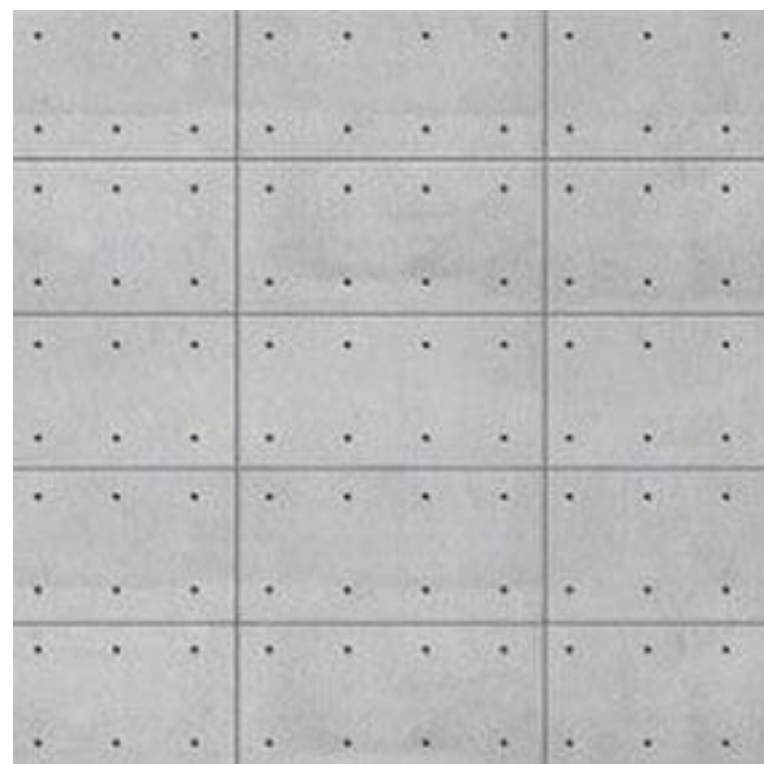
3.



4.



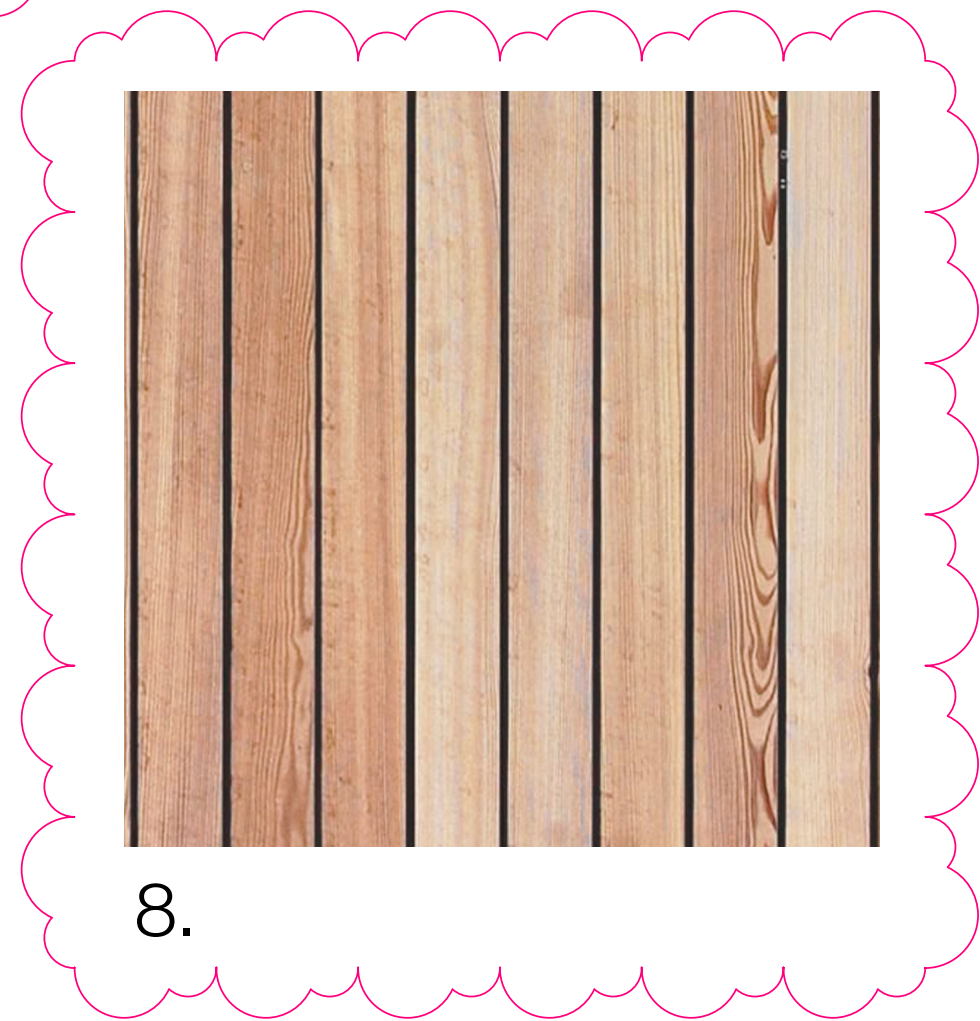
5.



6.



7.



8.



9.



10.



11.







*Artist impression only



Appendix 8 – P034987_LTR2_URBNSURF_NSW DPIE_NSW EPA_PRM

28 June 2021

Mr Rodger Roppolo
Senior Planning Officer
NSW Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Dear Mr Roppolo

RE: Open Water Surf Facility, Sydney Olympic Park Precinct (SSD-7942-MOD-1) NSW EPA Advice on Modification

In reply to your letter dated 17 May 2021 relating to NSW EPA's comments on the proposed modification to the Open Water Surf Facility State Significant Development (SSD) located at Pod B, P5 Car Park, Hill Road, Sydney Olympic Park NSW (Lot 71 DP 1191648).

URBNSURF have appointed Progressive Risk Management Pty Ltd (PRM) as the suitably qualified experts to undertake the necessary environmental consulting works in accordance with the approved Remedial Action Plan and existing development consent. PRM meet the definition of suitably qualified experts, demonstrated through professional accreditation with the Australian Contaminated Land Consultants Association (ACLCA) and staff members certified as Chartered Environmental Practitioners in accordance with [NSW EPA's policy](#).

Since the modification to the existing development consent was submitted, PRM have authored a supplementary RAP to further interpret existing information, update for current industry guidance and provide further detail on remediation methodologies. The supplementary RAP provides a revised interpretation of the likely extent of landfills (emplacement cells) within the Haslams Reach precinct as being located outside of the URBNSURF development area. This interpretation has been further supported by geotechnical investigations undertaken during May 2021, in which landfill waste was not encountered.

The following sections document our response to NSW EPAs specific comments.

1. Section A Site Audit Statement and Report

The following explanatory notes regarding the requirement for a Site Audit, applicable land use and site setting are provided:

- NSW State Environmental Planning Policy 55 *Remediation of Land* 1998 refers to the Contaminated Land Management Act 1997 for when a Site Audit is required. Part 47(c) of the CLM Act defines a Statutory Site Audit as *"a requirement imposed by State Environmental Planning Policy No 55— Remediation of Land or by any other environmental planning instrument made under the Environmental Planning and Assessment Act 1979 or by any development consent or approval given under that Act"*.
- The proposed development is consistent with the Public Recreation (RE1) zoning currently. Currently the site is publicly accessible and comprised of an asphalt carpark, footpaths, and landscaped areas. The proposed development will comprise of the lagoon structure, hardstand areas, secure perimeter fence and landscaped areas contained by engineered capping layers. The final site condition will result in a "sealed" configuration equivalent to or improved from the existing configuration.
- Aquatic facilities do not necessarily meet either definition for "public open space" or "commercial/industrial" land use as defined by NEPM 2013 guidance. The URBNSURF facility is considered more comparable to a commercial land use (i.e. controlled) as opposed to a public open space land use such as ovals, footpaths and parks.
- The proposed development will be subject to an ongoing environmental management plan to prevent potential exposure of contamination to site users which will be administered by URBNSURF throughout the operational phase.

Acknowledging the requirement for a Statutory Site Audit is currently being contemplated by DPIE, there is reason to suggest this requirement would not be necessary to achieve the remediation objectives for the development. With consideration to the proposed land use, final site condition and ongoing environmental management outlined in the points above; the remediation approach currently approved within the existing development consent is sufficient to remediate and demonstrate the site as being a suitable proposed commercial land use in accordance the applicable regulatory provisions.

2. NSW EPA Contaminated Land Certification Policy

PRM confirm that the validation report and environmental management plan documenting the final site condition will be prepared in consultation with and approved by a Chartered Environmental Practitioner Site Contamination (CEnvP SC) specialist.

3. Liaison with Sydney Olympic Park Authority

Ongoing compliance with SOPA's Remediated Lands Management Plan, protection of surrounding landfill in the Haslams Reach Precinct and provision of environmental reports is agreed.

4. Pre-existing Contamination

Implementation of the proposed remediation approach in accordance with the existing development consent should not interfere with known sources of existing contamination including SOPA's compliance with NSW EPA Maintenance of Remediation Notice (reference: 28040 dated 23 January 2009) and Remediated Lands Management Plan.

5. Duty to Report

Contaminated Land Management Act 1997 (CLM Act) grants powers to the NSW EPA to regulate contaminated sites, including the establishment of guidelines regarding the duty to report contamination. The criteria used to assess contamination to determine whether reporting is required is provided in the Guidelines on the Duty to Report Land Contamination under the Contaminated Land Management Act 1997 (published 2015). Under the guidelines, a site must be reported with respect to contamination in soil if:

- *Contamination on the site exceeds designated trigger values and a person has been or foreseeably will be exposed to the contamination; OR*
- *Contamination has or foreseeably will enter an adjacent property at concentrations above designated trigger values and will foreseeably remain above the trigger value; OR*
- *Friable asbestos is identified above designated trigger values in or on the soil and a person has been or foreseeably will be exposed to potential inhalation of fibres.*

The trigger values used to assess the contamination are the HILs and HSLs provided in NEPM (2013), selected for the current or approved use of the site, or the neighbouring site for off-site contamination. The duty to report asbestos contamination under Section 60 is required if:

- *Friable asbestos is present in or on soil on the land; AND*
- *The level of asbestos (% weight for weight) in an individual soil sample is equal to or above the health screening level of friable asbestos in soil (0.001%) specified in Section 4.8, Schedule B1 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 2013); AND*
- *a person has been, or foreseeably will be, exposed to elevated levels of asbestos fibres by breathing them into their lungs.*

In consideration of the above, there is no evidence to suggest that anyone has been or foreseeably will be exposed to the asbestos contamination provided control measures prescribed within the CEMP, RAP and Asbestos Management Plan are implemented. As such, the requirement to notify contamination under section 60 of the CLM Act 1997 is not required.

6. POEO (Waste) Regulation

Compliance with the Protection of the Environment Operations (Waste) Regulation 2014 for all excavated material, asbestos containing material and wastewater generated during the project is agreed. Provisions relating to waste management have been included in the waste management plan prepared for the project. The approved remediation strategy should result in minimal quantities of asbestos contaminated waste requiring offsite disposal.

Closure

We trust this letter adequately addresses the comments and recommendations made by NSW EPA. Further questions are welcome by contacting the undersigned.



Ashley Barber

Team Leader | Environmental Risk

P: +61 401 762 871

E: ashley.barber@progressiverm.com