

Andrew Hartcher

From: Michaela Briggs <MBriggs1@cityofsydney.nsw.gov.au>
Sent: Thursday, 2 March 2017 11:24 AM
To: Andrew Hartcher
Subject: Public submission received regarding SSD 7689
Attachments: Review of Noise Impact Assessment .pdf; scan.pdf; 20170220151918591.pdf; pile condition grid layout_DRAFT 190412.pdf

Dear Andrew,

Please find attached and below information submitted to the City of Sydney regarding works within the Walsh Bay Arts Precinct. The email was received in response to SSD 7689.

Regards,

Michaela Briggs
Specialist Planner
Planning Assessments



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From: Brigid Kennedy [<mailto:brigid@simmeronthebay.com.au>]
Sent: Friday, 24 February 2017 3:21 PM
To: Christopher Corradi <ccorradi@cityofsydney.nsw.gov.au>
Subject: Compliance

Christopher Corradi
Area Planning Manager

Central Sydney Planning committee Members

Thank you gentlemen/ ladies for the opportunity to speak with you at the CSP Meeting last evening.

As promised the soft copy of documents tended for your perusal.

As mentioned I represent Walsh Bay Arts and Commerce and the Executive of the abutting Shore 2/3 strata

- 17 Commercial offices, 3 event spaces and 2 café's who have been trading on site for 11 years.
-

Walsh Bay Arts and Commerce has fully supported the Arts for 10 years creating the Arts Alliance where cash strapped Arts companies share staff, resources and IP.

We created funding opportunities, linking business to Arts.

We bought Vivid to Walsh Bay funding the first year

Whilst we acknowledge creating the Arts Precinct will have long term gain if handled well, it is with the caveat: you cannot bluster one sector at the extinguishment of another.

Please also note some salient points arising from infrastructure NSW Rep Nicholas Wolff.

1/His comments on Renzo Tonin report that the Arts companies will self-regulate the noise issues. This may sound well in theory.

Not in practice however:

STC have already had performance matinee disrupted by 30 mins by Commercial events in Pier 2/3

There have been 3 fires in the Pier 2/3 by commercial activity as a result of no supervision of the sub landlord Arts

Note subsequently with the change of use of the Public Square/ Events plaza: Due to events proposed STC as part of their refurbishment is sound proofing their building.

Due to Heritage ruling Shore 2/3 is unable to do so

2/During construction 85% of Arts tenants will be moving from the Wharf as they have has prior warning of the significance of the noise expected during construction

They were given notice of time lines from March 2016

Shore 2/3 despite assurances in the EIS of Consultation with Shore 2/3 no substantial consultation has been made.

- An open day was arranged to show what was already on the website on a Saturday, not business hours and certainly not consultation
- An invitation for discussion has been organised after submissions were closed. Arts said it was an oversight despite many of the strata contacting them. 3 owners have been invited of the 21 to a meeting on the 27 February
- Shore 2/3 request to have Exhibition time extended to obtain professional reports was denied.
- Shore 2/3 to date have not been given timelines
- Preliminary works start 27th February.

3/ The construction proposed and measured in the Tonin report points out non compliance with EPA guidelines, Secretary's environmental Assessment Requirements.

These areas were not covered in Arts ARUP estimates in either the Concept Stage and then despite EPA request nor in the Substantive DA

- Operational Plans have not been discussed with Shore 2/3
- Walsh Bay Arts Working Group does not contain a member of the Shore 2/3 strata

4/ Construction noise for 2 years will have the following effects

- When land lords cannot tenant their properties many as individual investors will go to the wall.
- Outdoor cafes will not have patrons during noise levels of continued 82 dec. it will extinguish their businesses
- Events spaces will not have patrons during construction phase as relying on current amenity. Their businesses will be extinguished
- Owner occupier office space cannot sustain business in an arena their workers are unable to perform duties due to EPA regulation requiring a quieter work space than 82 dec as per the Tonin report.

The shore 2/3 owners are willing to work with Arts but need require attenuation of offices for noise and compensation for businesses to be extinguished. To Date Arts have kept all information of time lines and building works to themselves and Arts tenants

Important note: This is the only stage Shore 2/3 can object due to the clause in the head lease excusing indemnifying Arts in their use of the Precinct.

Arts intend to start works next Monday which makes a mockery of the meeting last night. You will see in the brochure sent only last week to Shore 2/3 – again noncompliance of notice. Please see attached the piling works required for maintenance. Note the red and orange as stand alones are required and in the section for Arts which is right of the parallel lines there is only 60 odd piles requiring attention in maintenance. The ones with a sister pile do not require work.

You will see from the brochure sent out just last week that 600 piles is the entire works so does not comply with Maintenance, nor with notice given to stakeholder and neighbours.

Please note no consultation has been made with the commercial suites nor the retailers (event spaces of which there are 3 and 2 cafes) as to when noisy works are proposed.

Arts NSW have \$3,290,550 set aside for this "maintenance/upgrade" when usually works coming in annually at \$400-500k, the first stage of it is significance and also attached.

Needless to say we have never had a brochure printed for regular maintenance before such as attached.

I would appreciate your time on this matter and would like to be kept informed of progress

Your sincerely

Brigid Kennedy

Brigid Kennedy
Director

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WALSH BAY ARTS PRECINCT | STAGE 2 STATE SIGNIFICANT DEVELOPMENT APPLICATION

Peer review of noise and vibration impact assessment

15 February 2017

Dynamic Property Services

TH720-02F01 Review of Noise Impact Assessment (r4)

Document details

Detail	Reference
Doc reference:	TH720-02F01 Review of Noise Impact Assessment (r4)
Prepared for:	Dynamic Property Services
Address:	Level 9, 66 Goulburn St SYDNEY NSW 2000
Attention:	Ms Jodie Gardener

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
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15/2/2017	Issued as final		4	RT	RT	RT

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We have derived data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination and re-evaluation of the data, findings, observations and conclusions expressed in this report.

We have prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

The information contained herein is for the purpose of acoustics only. No claims are made and no liability is accepted in respect of design and construction issues falling outside of the specialist field of acoustics engineering including and not limited to structural integrity, fire rating, architectural buildability and fit-for-purpose, waterproofing and the like. Supplementary professional advice should be sought in respect of these issues.

Executive summary

Renzo Tonin & Associates is engaged by the owners and tenants of No 13 Hickson Road, Dawes Point NSW 2000 (SP 73989) to provide a peer review of the Noise Impact Assessment, the Precinct Operational Event Noise Management Plan and the Precinct Environmental, Construction and Site Management Plan relating to noise and vibration impacts associated with the construction and operation of the proposed Walsh Bay Arts Precinct (WBAP). The occupants of No 13 Hickson Road abut the WBAP and represent the closest potentially affected noise-sensitive receivers.

The WBAP comprises demolition and rebuilding works in Pier 2/3 to accommodate arts uses, events, festivals and functions, a major upgrade of Wharf 4/5 for arts uses, new commercial offices with cafes, restaurants and retail shopping and the construction of a new north facing Waterfront Square over water between Pier 2/3 and Wharf 4/5 supported with new boardwalks for collaborative outdoor performances, events, festivals, markets and public art. If approved, the consent will permit the WBAP to hold events for up to 10,000 people.

The construction of the WBAP will involve use of piling rigs, large delivery and dump trucks, concrete trucks and concrete pumps with booms, front end loaders, cranes and excavators, welders, nailing guns, hand tools, grinders and similar equipment.

The NSW EPA provides guidelines in respect of mitigating noise and vibration from construction activities. However, the noise impact assessment prepared for WBAP neglects to include SP 73989 as a noise-sensitive receiver. Furthermore, the noise impact assessment relies on measured existing ambient noise levels which are inadequate because they do not comply with EPA guidelines. As a consequence, the noise management levels and noise goals recommended in the report are deficient.

The noise impact assessment also fails to consider SP 73989 as a noise-sensitive receiver in evaluating event noise. As a consequence, the occupants of SP 73989 are not protected from adverse noise impacts when WBAP is operating.

We conclude that there are likely to be significant noise impacts for occupants of SP 73989 which have not been addressed. Therefore, the noise impact assessment fails to comply with clauses 7, 9 and 17 of the Secretary's Environmental Assessment Requirements in terms of a) providing a *"high level of environmental amenity"*, b) *"outlining measures to minimise and mitigate potential noise and vibration impacts within the precinct and to surrounding occupiers of land"*, and c) providing an Environmental and Construction Management Plan to include *"noise and vibration impacts on and off site"*. Furthermore, because the noise-sensitive receivers in SP 73989 are overlooked or ignored in the noise impact report, conditions A12, A13, B3, B16 and B12 in SSD 6069 are not complied with.

It is therefore concluded the noise impact assessment is faulty and non-compliant with both the Secretary's Environmental Assessment Requirements and the development consent SSD 6069.

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1 Introduction

Renzo Tonin & Associates is engaged by the owners and tenants of No 13 Hickson Road, Dawes Point NSW 2000 (SP 73989) to provide a peer review of documents relating to noise and vibration impacts associated with the construction and operation of the proposed Walsh Bay Arts Precinct (WBAP).

The occupants of No 13 Hickson Road about the WBAP and represent the closest potentially affected noise-sensitive receivers. A list of occupants is shown in the table below.

Table 1 List of Occupants in Shore 2/3 Studios at 13 Hickson Road Strata Plan 73989

Lot	Studio	Company	Tenant or Owner
1	1	Stephenson Mansell Group	Tenant
2	2	10,000 Hours	Tenant
3	3	Pier Capital / Meers Group	Owner
4-9	4-9	Archer Capital	Owner
10	10	Stewart Investors	Tenant
11	11	Tudor Capital	Owner
12	12	Mail Plus / Jigsaw Capital	Tenant
13	13	WWW.Com (The Dubs)	Tenant
14	14	Xref	Tenant
15	15	Angophora Capital	Owner
16	16	Vittoria Coffee	Owner
17	17	Xref	Tenant
18	18	Munro Lawyers	Tenant
19	19	Simmer on the Bay	Owner
20	20	View By Sydney	Tenant
21-22	21-22	Simmer on the Bay	Owner

The occupants comprise mostly commercial office space, a restaurant (View By Sydney), and an art gallery/private dining room/café (Simmer on the Bay). There is no assessment of noise and vibration impacts upon the sensitive receivers in SP 73989 despite the requirement in the Secretary's Environmental Assessment Requirements (SEARs) to "*outline(s) measures to minimise and mitigate potential noise and vibration impacts within the precinct and to surrounding occupiers of land*".¹

The purpose of this report is therefore to provide a peer review of the Noise Impact Assessment prepared by Arup [9], the Environmental, Construction and Site Management Plan prepared by Cadence [11] and the Operational Event Noise Management Plan prepared by Arup [10] and to present further information to enable an assessment to be made as to the likely noise and vibration impacts generated by the WBAP on the occupants situated at No 13 Hickson Road.

¹ Clause 9, Secretary's Environmental Assessment Requirements, 1 July 2016

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. Appendix A contains a glossary of acoustic terms used in this report.

2 Description of the Proposal and the Applicant's premises

The existing development at Walsh Bay Wharves comprises the following buildings, some of which are shown in Figure 1 below:

1. Pier One - adapted to contain the Sebel Pier One Sydney Hotel;
2. Pier 2/3 - an undeveloped finger wharf comprising two storeys (and associated shore sheds) with gabled roof which has approval for cultural uses, temporary arts events and some commercial events.
3. Wharf 4/5 - a four storey timber finger wharf structure used by ten arts and cultural organisations (such as Australian Theatre for Young People and the Bangarra Dance Theatre) and comprises a range of performance venues, rehearsal, workshop spaces, a recording studio, cafe/restaurants and office accommodation occupied by the Sydney Theatre Company;
4. Pier 6/7 - redeveloped for residential apartments and associated boat marina;
5. Pier 8/9 - redeveloped for office uses; and,
6. Shore Sheds - containing a range of commercial activities, including restaurants, bars, shops and offices.



In 2011/12 Arts NSW engaged the NSW Government Architect to prepare a master plan for the WBAP. The WBAP comprises the following elements:

1. Demolition and rebuilding works in Pier 2/3 to accommodate the Australian Chamber Orchestra, Bell Shakespeare and Australian Theatre for Young People with associated foyer and office space on the ground level and a commercial space at the northern end;
2. The construction of a new Australian Chamber Orchestra auditorium in the north end of Pier 2/3 and secondary auditorium for Australian Theatre for Young People in the south end of Pier 2/3. To accommodate the acoustic needs of the auditorium, a section of roof will be demolished and rebuilt with an increased height;
3. The demolition and construction of a large "raw" heritage space in Pier 2/3 for events, festivals and functions;
4. A major upgrade of ground floor facilities at Wharf 4/5 for the Bangarra Dance Theatre (an indigenous performing arts company) including a café/bar at the end of the Wharf on the ground floor and facilities for the Sydney Dance Company (but excluding Sydney Theatre Company which is not a part of the Proposal);
5. The demolition and construction of creative and commercial activities along the shore sheds included an upgraded choir's office accommodation, rehearsal space and new commercial offices with cafes, restaurants and retail shopping;
6. The construction of a new north facing Waterfront Square over water between Pier 2/3 and Wharf 4/5 supported with new boardwalks to significantly increase public open space and create a central platform for activity, collaborative outdoor performances, events, festivals, markets and public art. This work will involve the installation of a large number of piles.

Annexed hereto in Appendix B is a copy of the strata plan SP 73989 [1]. The location of SP 73989 is shown in Figure 1 and comprises a four level brick and timber building otherwise known as "Shore Studios 2/3" as depicted in the strata plan. The street address of SP 73989 is No 13 Hickson Road, Dawes Point NSW 2000 and comprises 22 tenancies of various sizes.

Lots 1-18 are used as commercial offices. On Level 1 (the ground floor level) is a restaurant in Lot 20 and a single tenancy known as Simmer on the Bay in Lots 19, 21 and 22 which is used as an art gallery/private dining room/café.

Simmer on the Bay has a café on the eastern portion of the tenancy accommodating approximately 20 patrons. The remainder of the tenancy is used for art gallery/dining room use including an outdoor area. The art gallery/dining room is air-conditioned with 12mm thick glass windows and two 12mm thick double glass doors on the northern façade and large fixed windows and a main entrance incorporating a 12mm thick double glass door on the southern façade.

Abutting the tenancy immediately to the east is the Pier 3 promenade entrance roadway. Abutting the tenancy immediately to the west is a space associated with arts use.

The approved hours of operation for the art gallery are 9:00am to 9:00pm 7 days a week. The private dining room is approved for use from 6pm to 1am Monday to Saturday 3 times a week in the inside areas and up to 10:30pm 3 times a week in the outside areas. On Sundays and public holidays, the inside areas are restricted to 11:00pm and the outside areas to 10:00pm. The operating hours of the Café are unrestricted.

3 Minister's consent and conditions imposed

Development Application SSD 6069 submitted by Arts NSW to the Minister for Planning was approved on 21 May 2015 [5]. Of relevance is that, because the noise-sensitive receivers in SP 73989 are overlooked or ignored in the noise impact report, conditions A12, A13, B3, B16 and B12 in SSD 6069 are not complied with.

The following relevant conditions were imposed in SSD 6069.

3.1 Approved development

A1 DEVELOPMENT DESCRIPTION

a. Except as amended by this approval, concept approval is granted for the Walsh Bay Arts Precinct, an integrated performing arts and cultural precinct, which includes the following key elements:

- *a new waterfront public square between Pier 2/3 and Wharfs 4/5;*
- *a series of new stairs and balconies on Pier 2/3 and Wharf 4/5 and modification to the roof of Pier 2/3;*
- *the inclusion of flexible and adaptive spaces in Pier 2/3 and Wharf 4/5 for arts and cultural activities;*
and
- *the use of the precinct for arts festivals, events and pop-ups and associated uses, including restaurants, cafes and bars*

subject to compliance with the modification in Part B of this approval

3.2 Restrictions on use

Condition A7 specified the restrictions on use as follows:

A7 RESTRICTIONS ON USE

The future use of the Waterfront Square and associated outdoor spaces for events is to be generally consistent with the scope and frequency provided in the Table below.

Category	Scope of Events
Major Events	• <i>up to 10,000 people</i> • <i>max 4 times per year</i> • <i>must not occur over more than one day</i> • <i>use must not occur before 7 am or after midnight on any day, except New Year's Eve (when the use may occur until 2 am the following day)</i> • <i>music to be ceased by 11 pm in all cases (with the exception of New Year's Eve)</i>

	• <i>set-up/dismantle time for the use must not start earlier than 6 am, or end later than 1 am, on any day, except New Year's Eve when dismantle may occur until 2 am the following day</i> • <i>clean up time for the use must end no later than 2 hours after the use was to stop occurring or may be undertaken the following day</i>
<i>Arts and Cultural Festivals</i>	• <i>up to 7,500 people moving through the site at any one time</i> • <i>can occur over consecutive days</i> • <i>max 6 times per year</i> • <i>use must not occur before 7 am or after 12 midnight on any day (including set up/dismantle and clean up time) music to be ceased by 11 pm in all cases</i>
<i>Community Events</i>	• <i>up to 5,000 people</i> • <i>no limit on number of community events held in a year</i> • <i>can occur over consecutive days</i> • <i>use must not occur before 7 am or after midnight on any day, including set up/ dismantle time and clean up</i> • <i>music to be ceased by 11 pm in all cases</i> • <i>use of localised low output amplified sound system for announcements or for live intimate entertainment only</i>
<i>Private Events</i>	• <i>up to 1,000 people</i> • <i>no limit on number of private events</i> • <i>use must not occur before 7 am or after midnight, including set up/dismantle and clean up time</i> • <i>music to be ceased by 11 pm in all cases</i> • <i>private event should not restrict or impede public</i> • <i>access to public outdoor areas</i> • <i>use of localised low output amplified sound system for live intimate entertainment only</i>

3.3 Operational management plans

An operational plan of management and operational event noise management plan are to be prepared:

A12 OPERATIONAL PLAN OF MANAGEMENT

The applicant is to review and finalise the draft Operational Plan of Management (OPM) for WBAP in consultation with the Walsh Bay Arts Precinct Working Group. A copy of the final OPM is to be submitted to the Secretary and Council prior to the lodgement of the first development application.

A13 OPERATIONAL EVENT NOISE MANAGEMENT PLAN

The applicant is to finalise the draft Operational Event Noise Management Plan (OENMP) for WBAP in consultation with the EPA and Council. Specifically, the EPA and Council are to be consulted in relation to the following:

- (a) relevant event noise control targets for each specific category of event;*
- (b) the methodology for noise monitoring;*
- (c) reasonable and feasible noise mitigation techniques specific to each category of event; and*
- (d) required community consultation techniques specific to each category of event.*

The Plan is to include the management strategies and mitigation measures included in Sections 7 and 8 of the Noise and Vibration Management Plan prepared by WSP dated June 2014.

A copy of the final OENMP is to be submitted to the Secretary and Council prior to the lodgement of the first development application.

3.4 Conditions to be met in Stage 2

The conditions to be complied with in future stages (including Stage 2, the current proposal) are:

B3 OPERATIONAL MANAGEMENT PLANS

All future applications for the fitout and adaptive reuse of the WBAP are to demonstrate compliance with the following:

- a) The final Operational Plan of Management prepared in accordance with Condition A12; and*
- b) The final Operational Event Noise Management Plan in accordance with Condition A13.*

Where future application/s require amendments to these Plans they are to be endorsed by the respective agencies/groups referred to in the respective Condition.

B16 NOISE IMPACT ASSESSMENT

Where relevant, future applications are to include a Noise Impact Assessment (NIA) which includes performance based modelling. The NIA is to demonstrate how the recommendations in sections 7.0 and 8.0 of the Noise and Vibration Plan prepared by WSP dated June 2014 have been addressed, as relevant. The NIA is also to demonstrate how compliance can be achieved with the Operational Event Noise Management Plan prepared in accordance with Condition A13 of this consent.

B20 EVENT MANAGEMENT PLAN

All future event development applications are to be accompanied by a detailed event management plan prepared in accordance with approved Operational Plan of Management required under Condition A12. The Plan is to be prepared in consultation with the NSW Police, the RMS, Transport for NSW and the City of Sydney and is to comprehensively address the following matters:

...

(c) Noise management, including reactive noise management measures and noise monitoring

4 Secretary's Environmental Assessment Requirements (SEARs)

The SEARs for the Stage 2 development were issued on 1 July 2016 [6]. Of relevance is that requirements 7,9 and 17 are not considered in the Stage 2 development application in respect of the sensitive receivers in SP 73989 and therefore those requirements are not complied with.

The relevant SEARs requirements are as follows:

7. Amenity

- *Address and demonstrate a high level of environmental amenity in respect of ... acoustic ... privacy, particularly regarding the impacts of the outdoor waterfront square; and, ...*

9. Noise and Vibration

- *The EIS shall include a noise and vibration assessment prepared by a suitably qualified acoustic consultant that:*
 - *assesses construction noise and vibration impacts. The assessment must consider cumulative noise and vibration impacts from all concurrent construction activities;*
 - *assesses operational noise from the use of the buildings and the public domain, associated events and any food and drink premises;*
 - *assesses operational vibration from the use of the premises;*
 - *outlines measures to minimise and mitigate potential noise and vibration impacts within the precinct and to surrounding occupiers of land.*

Relevant Policies and Guidelines:

- *NSW Industrial Noise Policy (EPA)*

17. Environmental, Construction and Site Management Plan

- *The EIS shall provide an Environmental and Construction Management Plan for the proposed works, and is to include:*
 - *community consultation, notification and complaints handling;*
 - *impacts of construction on adjoining development and proposed measures to mitigate construction impacts;*
 - *noise and vibration impacts on and off site; ...*

5 Description of proposed construction works

The Proposal is described in the architectural drawings prepared by Tonkin Zulaikha Greer Architects [14]. An explanation of the Proposal is provided in the table below.²

Table 2 Proposed construction works

Location	Description
Pier 2/3 internal alterations	Performance venues for ACO, Bell Shakespeare and ATYP; Rehearsal rooms, production workshops, back of house facilities and offices for ACO, ATYP and Bell Shakespeare; Function/commercial spaces and foyer spaces, some of which extend out onto external gantry platforms (balconies) providing breakout space for internal foyers and allowing views of outdoor performances; Mezzanine spaces for offices and back of house facilities; Upgrades to meet compliance with current BCA, DDA and fire codes; New lifts and stairs; Public toilets; Removal of some storey posts and beams to facilitate internal reconfiguration and new uses; Retention of a large proportion of the ground floor in its existing 'raw' heritage state for events and festivals including Sydney Writers' Festival and Biennale including venue and commercial hire.
Pier 2/3 external alterations	Three new balconies on the western elevation and one balcony on the eastern elevation to provide breakout space from the internal public areas. The balconies have been designed to echo the form and detailing of the original gantries; Three new external stairs on the western elevation and one new set of stairs on the eastern elevation to provide fire escape from the upper level; New external lift for access at the north end of the western facade to provide accessible travel to ACO offices and the function space on Level 1; Installation of glazing in existing cargo sliding door openings and other solid panels on the eastern and western elevations to allow for views into and out of the building. The new glazing has been located to respect the chequerboard rhythm of the building. Other than those in front of the balconies, new openings are screened with louvres adapted from the existing sidings to mimic the solidity of the existing façade; Installation of three new openings on the northern elevation. At the upper level, the central two bays will be replaced with glazing, providing Harbour views from the independent function space. At the lower level, the north eastern corner is opened up and replaced with glazing, reinterpreting the original building which was open in this corner; Roof penetrations within the central valley at the southern and northern end to accommodate mechanical plant and associated structural modifications including truss strengthening; Raising of the external floor level on the eastern side by introducing a new raised deck and continuous set of stairs beyond the existing column line; A new canopy on the east facade above the loading area in order to provide shelter for the safe movement of goods. The canopy will be a contemporary element that interprets historical loading platforms that were present.

² extracted from Section 6 reference 12

Location	Description
Wharf 4/5 internal alterations	Internal alterations and reconfiguration to the BDT tenancy to provide for: - Upgrade of the main rehearsal and performance space to provide improved daylight and natural ventilation; - Upgraded foyer and exhibition space along the eastern frontage; - Improved office space at mezzanine level including a new lift; - Provision of function space and kitchen at ground level of northern end of wharf; - New entrance to BDT and new glazing in bays of sliding cargo doors, opening up the foyer and main studio to Wharf 4 apron; - Improved staff amenities. Minor internal alterations to the SDC tenancy including: - Reducing the existing workshop space to create a fifth dance studio; - Upgrading office and reception areas; - Improved staff amenities. Provision of two new commercial tenancies at ground and mezzanine levels, one at the southern end and one in the centre of the ground level. Future use of these tenancies will be subject to separate development applications; Removal of some storey posts and beams to facilitate internal reconfiguration and new uses; Provision of public toilets.
Wharf 4/5 external alterations	Three new external stairs on the eastern elevation and one new set of stairs on the western elevation to provide fire escape from the upper level; Two external lifts on the eastern elevation to provide for accessible travel and one external goods lift on the western elevation; Two roof penetrations within the central valley, one above the STC workshop to allow theatre sets to be built at full height and one above STC Theatre 1 to improve sight lines, allow for clear head height to technical zones and enable flexible seating configurations; Raising of timber wharf deck adjoining the SDC café and opening of facade with new glazing to activate the waterfront square; Improved street entry at Hickson Road involving relocation of the stairs to allow for an improved landing and point of arrival to the STC; New entries along the wharf located to respect the chequerboard rhythm of the building
Shore Sheds 4/5	Internal alterations to reconfigure choir spaces, including provision of a large rehearsal space on the ground floor and creation of a mezzanine for choir administration; Creation of two new commercial tenancies at ground and mezzanine levels. Future use of these tenancies will be subject to separate development applications; Provision of office space at ground level, including an office in the western Shore Shed for use by the Precinct Manager; Provision of a waste room for Pier 2/3
Waterfront Square	New waterfront square between Pier 2/3 and Wharf 4/5 by extending the promenade into the water space between the two wharves. The majority of the Square is set at RL2.1, matching the key entry at Pier 4/5. At either side, raised areas resolve the changes in level to the main Wharf Aprons at RL 3.4 .
Structural Engineering	The proposed upgrade and alterations involve removal of additional internal columns, replacement of some columns previously removed, additional stairs, lifts and mezzanine floors throughout, raised roof profile in parts, and some additional roof plant platforms. The new waterfront square is supported on new piles.
Construction Staging	The project is to be carried out in two main stages; demolition and construction. The indicative duration of each stage is as follows. Demolition – 4 months (approximately 17 weeks) Construction – 18 months (approximately 74 weeks). The project would include the demolition and redevelopment of the internal building fabric, with the external structure to be maintained and improved. The construction works scheduled to be carried out in 22 to 23 months between mid 2017 and mid 2019.

Location	Description
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NOTE:

ACO – Australian Chamber Orchestra

ATYP- Australian Theatre for Young People

There is no information provided in the EIS document [12] relating to building quantities expected in the project. However, in the previous application SSD 6069, a detailed description of construction works was provided in the MBM Report [2]. The following key details are extracted from that report:

Table 3 Key project construction details

Location	Description
Pier 2/3 Refurbishment	Removal of 180 piles to be replaced with new steel jack-up piles. ACO Fitout – 1,420sqm of reinforced concrete slabs Replace existing roof 336sqm with associated bracing Bell Shakespeare Fitout – 573sqm of reinforced concrete slab ATYP Fitout – 1,405sqm of reinforced concrete slabs
Wharf 4/5 Refurbishment	Demolish 2,416sqm of ground and first floor areas Demolish 904sqm of retail space in shore sheds
Waterfront Square	634sqm of upgrade to eastern approaches to Pier 2/3 2,175sqm of piling 1,013sqm of timber decking including framing fixed to piling 840sqm of unspecified decking to The Wings 246sqm performance stage 317sqm of Roof over stage 157sqm new raised deck area in front of Wharf 3/4 Café externally

NOTE:

ACO – Australian Chamber Orchestra

ATYP- Australian Theatre for Young People

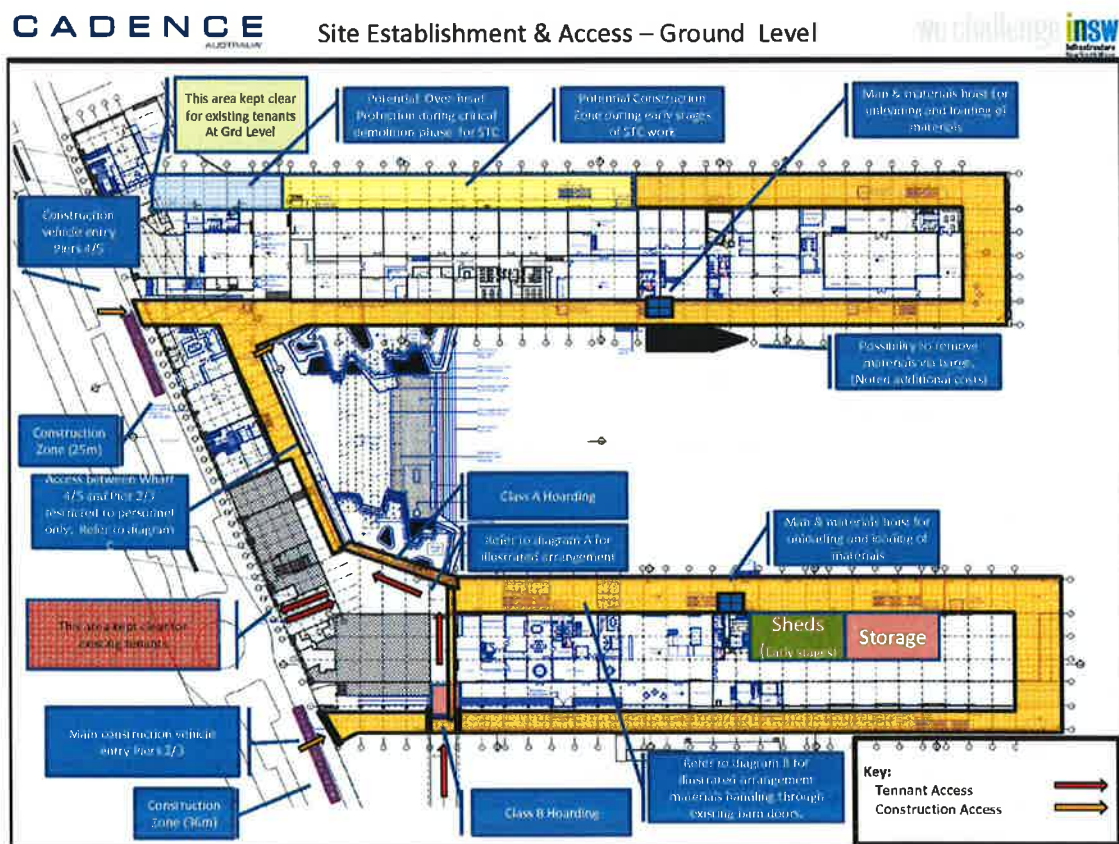
The work described above would most likely involve the use of construction equipment such as:

- Piling rigs
- Large delivery and dump trucks
- Concrete trucks and concrete pumps with booms
- Barge crane
- Fork lifts and mobile cranes
- Welders, nailing guns, hand tools, grinders etc.

Whilst a large proportion of the construction works will occur indoors, the construction of the Waterfront Square will occur outdoors in front of SP 73989.

Figure 2 shows the proposed construction access arrangements. The two key construction entry and exit portals are via Pier2 and Wharf 4. The access from Hickson Road via Pier 3 is to be kept free for existing tenants (including SP 73989).

Figure 2: Proposed construction vehicle entry and exit points and access for existing tenants



According to Section 6.4.7 of the Arup Report, there will be 40-80 vehicles per day (i.e. 80-160 vehicular movements per day) associated with deliveries and debris removal from the site. It is noted that the construction traffic corridor extends across both the north-west and the eastern facades of SP 73989. Noise impacts from truck traffic entering and leaving the site would therefore be a relevant matter to be addressed.

6 Ambient noise measurements

Ambient noise levels were measured at the Simmer on the Bay premises in 2015 for the purpose of adducing evidence in relation to an appeal against development application SD 6069 (a matter which is now concluded).

A limited sample of noise measurements were taken inside and outside the premises on the morning of Thursday 26th November 2015 from 10:19am to 11:33am.

The equipment used for noise measurements was an NTi Audio Type XL2 precision sound level analyser which is a class 1 instrument having accuracy suitable for field and laboratory use. The instrument was calibrated prior and subsequent to measurements using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with IEC 61672 (parts 1-3) 'Electroacoustics - Sound Level Meters' and IEC 60942 'Electroacoustics - Sound calibrators' and carries current NATA certification.

Weather conditions were fine with wind gusts less than 5m/sec, temperature 34.4degC, 35%RH and 1/8oct cloud cover.

Noise levels were measured in the free field outside the premises on the northern and southern facades (denoted as M1 and M2 in Figure 1). Existing noise sources include traffic, wave noise, helicopters, people chatting in the distance and train passbys on the bridge approach. Noise levels were also measured inside the kitchen and in the gallery/dining space. The following results were obtained:

Table 4 Measured ambient noise levels Thursday 26 November 2015

File	Location	Start Time	Stop Time	Duration	LA10%	LAeq	LA90%
		[hh:mm:ss]	[hh:mm:ss]	[mm:ss]	[dB]	[dB]	[dB]
SLM_000	M1 - North entrance to Simmer 4m from façade	10:19:44 AM	10:34:46 AM	15:02	60.0	56.7	51.5
SLM_001	M1 - North entrance to Simmer 4m from façade	10:35:18 AM	10:50:36 AM	15:18	61.0	58.1	51.3
SLM_002	M2 - Hickson Road main entrance 3.5m from façade	10:51:48 AM	11:08:12 AM	16:24	71.9	68.7	58.3
SLM_003	Inside kitchen - 3 staff, no airconditioning	11:09:30 AM	11:14:38 AM	05:08	70.0	67.2	60.1
SLM_004	Lower gallery/dining space no airconditioning	11:15:44 AM	11:22:43 AM	06:59	49.3	47.3	43.0
SLM_005	Lower gallery/dining space with airconditioning on	11:26:24 AM	11:32:56 AM	06:32	48.8	46.9	44.9

In respect of the gallery/dining space, ambient noise was predominantly due to traffic on Hickson Road transmitted via the main entry door and fixed windows. Whilst the entry door glass is 12mm thick, there are large gaps in the perimeter of the door which allow the transfer of sound. Comparing the outside noise level on Hickson road with the internal noise level, there is only about a 22dB(A) noise reduction in the LAeq noise level. This is relevant because this would be the noise reduction that would also be

expected from outside to inside from future construction noise transmitted through the northern façade.

For the office areas on Level 2 and above, the glass in the windows and balcony doors is unlikely to be as thick, we assume in the order of 6-10mm, however the acoustic sealing at the frame periphery would be better. Therefore, taking both matters into consideration, we expect the internal noise levels in the office spaces to be about the same as in the gallery/dining spaces in Simmer on the Bay, i.e. 47 LAeq and the noise reduction of the external façade to be about 22dB(A).

It is not necessary to be precise about these noise levels at this point in time because they can be quantified accurately prior to construction works commencing.

7 Applicable noise and vibration criteria for construction works

There are no standards recommended in the SEARs for assessment of noise and vibration during construction of the WBAP. The EPA's NSW Industrial Noise Policy referred to in condition 9 of the SEARs does not apply to construction works. Instead, the EPA recommends the following guideline documents:

- Interim Construction Noise Guideline (2009) [16]; and
- Assessing Vibration: a technical guideline (2006) [17].

7.1 Applicable noise criteria

The NSW EPA *Interim Construction Noise Guideline(2009) (ICNG)* provides guidelines for assessing noise generated during the construction phase of developments. The key components of the guideline relevant to this assessment include:

- Use of LAeq(15min) as the descriptor for measuring and assessing construction noise.
- Application of feasible and reasonable noise mitigation measures.
- 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 involves making a judgement to determine whether the overall noise benefit outweighs the overall social, economic and environmental effects.

The standard hours for construction work recommended in the ING are as follows:

- Monday to Friday 7 am to 6 pm
- Saturday 8 am to 1 pm
- No work on Sundays or public holidays

It is assumed in this report those standard hours will be applied to the WBAP.

Section 4.1.3 of the ICNG sets out the following guideline for commercial premises.

4.1.3 Commercial and industrial premises

Due to the broad range of sensitivities that commercial or industrial land can have to noise from construction, the process of defining management levels is separated into three categories. The external noise levels should be assessed at the most-affected occupied point of the premises:

industrial premises: external LAeq (15 min) 75 dB(A)

offices, retail outlets: external LAeq (15 min) 70 dB(A)

other businesses that may be very sensitive to noise, where the noise level is project specific as discussed below.

Examples of other noise-sensitive businesses are theatres and child care centres. The proponent should undertake a special investigation to determine suitable noise levels on a project-by-project basis; the recommended 'maximum' internal noise levels in AS 2107 Acoustics – Recommended design sound levels and reverberation times for building interiors may assist in determining relevant noise levels (Standards Australia 2000).

The proponent should assess construction noise levels for the project, and consult with occupants of commercial and industrial premises prior to lodging an application where required.

During construction, the proponent should regularly update the occupants of the commercial and industrial premises regarding noise levels and hours of work.

If the external noise level at the façade of SP 73989 is limited to 70 LAeq(15min) then, according to the information in the previous section, this will result in a noise level below 50LAeq(15min) which should be acceptable for a commercial premises. A management level of 70 LAeq(15min) is therefore recommended.

In respect of the outside café, the management noise levels for residential receivers of "RBL+10dB" should apply. From Table 4 above, the LA90(15min) (taken to be the RBL) at the northern entrance is 51dB(A) and the appropriate management construction noise level is therefore (51+10=) 61LAeq(15min).

The following table therefore summarises the applicable noise management levels for the commercial premises SP 73989:

Table 5: Construction noise management levels for the commercial premises SP 73989

Assessment Location	Indoors/outdoors	LAeq(15min)
Commercial tenancies	Outdoors	70
Café	Outdoors	61

As the café and the nearest façade of the building are at approximately the same location with respect to most of the construction works, complying with the café management level will be more onerous than for the office spaces. Whilst the use of acoustic screens around the café boundary may assist in reducing noise levels, there will no doubt be some negotiation required with the café operator in respect of achieving times of respite.

7.2 Applicable vibration criteria

Vibration disturbance from piling operations contemplated for the Proposal is a potential issue.

Assessment of disturbance from vibration on human occupants of buildings is made in accordance with the NSW DECC 'Assessing Vibration; a technical guideline' (DECC, 2006) [17]. Sources of vibration are

defined as either 'Continuous', 'Impulsive' or 'Intermittent'. In the case of piling operations, these are defined in the guideline as 'Intermittent' and the following vibration criteria apply:

Table 6: Acceptable vibration dose values for intermittent vibration ($\text{m/s}^{1.75}$)

Location	Daytime ¹		Night-time ¹	
	Preferred value	Maximum value	Preferred value	Maximum value
Critical areas ²	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

Notes: 1. Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am
 2. Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be a need to assess intermittent values against the continuous or impulsive criteria for critical areas.
 Source: BS 6472-1992

By way of explanation, the "*vibration dose values*" or VDV account for both the magnitude of vibration and the number of vibration occurrences.

Activities should be designed to meet the preferred values where an area is not already exposed to vibration. Where all feasible and reasonable measures have been applied, values up to the maximum value may be used if they can be justified. For values beyond the maximum value, the operator should negotiate directly with the affected community.

As there are no specific categories for art gallery use, café use or catering service use, we shall adopt the third row category in this table "*Offices, schools, educational institutes and places of worship*" as being the most relevant for the whole of SP 73989.

8 Predicted construction noise levels and assessment of impact

There is some information provided in the WBAP documents as to the type of construction equipment to be deployed (e.g. Section 4 ECSMP [11]) but not the number of equipment and therefore a generic assessment must be made in order to estimate noise levels.

The sound levels in British Standard BS 5228-1-2009 plus A1-2014 *Noise and Vibration Control on Construction Sites* are used for the purpose of estimating construction noise levels taking into consideration the information provided in the architectural drawings, the MBM Report and the noise sources identified in Section 5 above.

Three construction scenarios are assumed as depicted in the following table – Site Preparation, Piling and Superstructure Works. Activities which might occur inside the pier and wharf are ignored as these would not add significantly to the external noise levels. The numbers and type of equipment for each stage depicted in the table are based on an assumption as to what might be required to construct the WBAP. These assumptions are based on our observations of equipment used on other construction sites.

Columns 1 and 2 "Table" and "Ref No" are a reference to the data tables in BS 5228. Columns 3-5 describe the equipment. Column 6 is the noise level at 10m. On the assumption that the acoustic centre of the external works (particularly the Waterfront Square) is 30m from the façade of SP 73989 then columns 7-8, 9-10 and 11-12 show the numbers of equipment by type and the respective sound levels at the northern façade of SP 73989.

The total cumulative noise level at the northern façade of SP 73989 is shown in the last row.

Note that the equipment selection is conceptual. If there is a criticism, for example, that there will be no dozers used on site, then that item of equipment would be indicative of another similar item of equipment.

Table 7 Predicted construction noise levels at the northern façade of SP 73989

1	2	3	4	5	6	7	8	9	10	11	12
Table	Ref no.	Equipment	Power rating, kW	Equipment size, weight (mass), capacity	LAeq,T dB at 10 m	Site Preparation		Piling		Superstructure Works	
						LAeq,T		LAeq,T		LAeq,T	
						No	Receiver	No	Receiver	No	Receiver
C.2	13	Barge Crane	82	11t	78	1	68	1	68	1	68
C.2	32	Articulated dump truck	187	23t	74	2	67	2	67	2	67
C.3	2	Hydraulic hammer rig	186	4t hammer	87			1	77		
C.3	28	Tracked mobile crane	184	110t	67	1	57	1	57	1	57
C.3	31	Hand-held welder			73			2	66	1	63
C.3	33	Generator for welding	6	508kg	57			2	50	1	47
C.4	18	Concrete mixer truck (discharging)			75					1	65
C.4	29	Truck mounted concrete pump + boom arm		26t	80					1	70
C.4	43	Wheeled mobile crane	275	35t	70	1	60	1	60	1	60
C.4	67	Fork lift		5t	74	1	64	1	64	1	64
C.4	73	Hand-held circular saw (cutting paving slabs/tiles)	1.5	7.6kg/235mm diameter	84					4	80
C.4	76	Diesel generator (hand tools, lighting)	6.5		61	4	57			4	57
C.4	93	Angle grinder (grinding steel)	2.3	4.7kg	80					1	70
C.4	95	Handheld cordless nail gun		15 to 50mm nails	73					1	63
Total Receiver LAeq,T							72		79		82

The "Total Receiver LAeq,T" shown in the last row is the external noise level at the northern façade of the Simmer on the Bay premises.

The predicted external construction noise levels may then be compared with the noise management levels determined in the previous section. The following table shows the predicted noise levels and assessment and compliance with the goals.

Table 8: Assessment of construction noise impact at the premises SP 73989

Assessment Location	Outside LAeq(15min)	Construction Noise Management Level LAeq(15min)	Exceedence dB
Commercial tenancies	72-82	70	2-12
Outside Café	72-82	61	11-21

This table shows there are significant exceedences of the construction noise management level for all assessment locations which require mitigation.

The calculation does not take into account noise produced by construction vehicles entering and leaving the construction site which would add cumulatively to the noise levels indicated in the table above.

9 Predicted construction vibration levels and assessment of impact

It is stated in section 6.4.9 of the Arup Report that no significant issues are expected in respect of construction vibration. Irrespective of whether or not the proposed hydraulic piling method will result in ground vibration potentially affecting the commercial tenancies in SP 73989, construction activity conducted on the existing wharf structure (such as dropping of materials) may generate vibration.

Therefore, vibration monitors should be installed at selected locations in SP 73989 for the period of the construction works.

10 Noise and vibration mitigation measures associated with construction

Where the noise or vibration management targets are exceeded, it would be reasonable to recommend work practices to mitigate those exceedences based on best practice techniques. For example, Section 6 of the ICNG discusses various reasonable and feasible measures including:

- i. reduce the line-of-sight noise transmission using temporary barriers.
- ii. temporary noise barriers can be constructed from hoarding (plywood boards, panels of steel sheeting or compressed fibre cement board) with no gaps between the panels at the site boundary. Stockpiles, shipping containers and site office transportables can be effective barriers. Erect temporary noise barriers before work commences to reduce noise from works as soon as possible.
- iii. provide acoustical treatment for the kitchen, for example, acoustically sealed doors and windows and install air-conditioning to enable the doors and windows to be kept closed.
- iv. using a lower noise and vibration generating form of piling, such as bored or vibratory piling instead of impact piling.
- v. limiting noisy activities – piling and demolishing – to one or two hours in a day to provide respite.
- vi. selecting low noise equipment for the site.
- vii. liaising with stakeholders and informing them when noisy work will occur and what is being done to minimise the noise.
- viii. using smart reversing alarms rather than beeping annoying alternatives.
- ix. use alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electric driven units.
- x. locate electrical generators away from noise sensitive receivers and/or use noise barriers.
- xi. examine and specify different types of machines that perform the same function and compare the noise level data.
- xii. select the least noisy machine for the job, for example, rubber wheeled tractors can be less noisy than steel tracked tractors.
- xiii. pneumatic equipment is traditionally a problem – select super-silenced compressors, silenced jackhammers and damped bits where possible.
- xiv. reduce throttle setting and turn off equipment when not being used.
- xv. reducing noise from metal chutes and bins by placing damping material in the bin.

- xvi. regularly inspect and maintain equipment to ensure it is in good working order. Also check the condition of mufflers.
- xvii. place as much distance as possible between the plant or equipment and sensitive receivers.
- xviii. restrict areas in which mobile plant can operate so that it is away from sensitive receivers.
- xix. schedule site vehicle entrances away from sensitive land uses.
- xx. carry out noisy fabrication work at another site (for example, within enclosed factory premises) and then transport to site.

Identifying work practices that are reasonable involves an evaluation of the costs involved in implementing the solution in comparison with the overall project costs and taking into account the expected reduction in noise levels and the benefit to the sensitive receiver.

11 Evaluation of the Arup report, the Environmental, Construction and Site Management Plan and the Operational Event Noise Management Plan

We now turn to the Arup Report [9], the Environmental, Construction and Site Management Plan prepared by Cadence [11] and the Operational Event Noise Management Plan prepared by Arup [10] in terms of evaluating compliance with conditions B16, B3 and B20 respectively as described in Section 3.4 above.

11.1 Arup Report

11.1.1 Identification of noise-sensitive receivers

In Section 4.2 of the Arup Report, the terminology "key receptors" is used instead of "noise-sensitive land uses" or "noise-sensitive receivers" which are the preferred terms in the NSW Industrial Noise Policy (INP) [15]. As previously stated in this report, SP 73989 is a noise-sensitive receiver which is neglected or overlooked in the Arup Report.

11.1.2 Measurement of ambient noise levels

In Section 4.3 of the Arup Report, it states that it relies on ambient noise levels in the WSP Report submitted as part of the Stage 1 SSDA [5]. However, in the WSP Report, it is stated that noise logging was undertaken at seven days for Locations 1 and 5 in Figure 5 of the WSP Report (also annexed in Appendix A of the Arup Report). In the INP, seven days' valid data is recommended for high risk projects (which we believe is a suitable category for the WBAP).³ However, in Figure 7 of the WSP Report, there is only 5 1/2 days data reported for Location 1 and in Figure 8 only 4 1/2 days for Location 2. Furthermore, it is not evident in these figures that data for days with adverse meteorology are excluded from the analysis as required in the INP.⁴ Therefore, the validity of the data is questioned.

Furthermore, with the possible exception of sites R4 and R5, the applicable background noise levels for all the locations in Figure 3 of the WSP Report are calculated from a combination of the noise logging referred to in the previous paragraph and short term noise measurements. This is completely unacceptable because, for a project of this importance, Arup should have deployed a sufficient number of noise loggers in the study area to define the background noise levels with appropriate precision in accordance with the INP.

Whilst this criticism could equally apply to the short-term measurements we took at SP 73989 as reported in Section 6 above, those measurements were taken to illustrate the potential noise impacts at SP 73989 and were not intended to support a large-scale project such as WBAP. Furthermore, it is

³ Table 3.2 INP

⁴ Section 3.4 INP

recommended that Arup redo those noise measurements over a period of 7 days in compliance with the INP guidelines.

We also refer to the EPA's submission which also criticised the lack of valid environmental noise monitoring [12].

Section 5.1 of the Arup Report in which Project Specific Noise Criteria are derived should therefore be updated following a more extensive assessment of ambient noise levels.

11.1.3 Acoustic criteria

In Section 5.1 of the Arup Report there is a derivation in Table 3 of the Project Specific Noise Criteria based on the principles in the INP. However, there is no explanation of how those levels were derived nor of what amenity noise category was used. Furthermore, there is no explanation of how cumulative noise impact from mechanical plant and other event noise occurring contemporaneously will comply with the recommended noise limits.

In any event, Table 3 should be updated to include SP 73989 as a sensitive receiver and, for the reasons explained in Section 11.1.2 above, should also be revised once new background noise levels are obtained.

11.1.4 Event noise

In Section 5.3 of the Arup Report, criteria are developed for major events and arts and cultural events to be held at the WBAP. The report states that these are "based on common practice in Sydney". However, it is our submission that this statement is incorrect.

The noise limits in Tables 4 and 5 use the LAeq,15min and LCEq,15min descriptors. The use of these descriptors is not common practice in Sydney. Reference is made to the following documents:

1. Noise Guide for Local Government, NSW EPA, May 2013: In "Case study 1: open-air concerts and public address systems" in Section 3.6 of that document, the noise limits are:
 - a) For a crowd capacity less than 1,500 the LA10,T must not exceed the ambient background LA90,T.
 - b) For a crowd capacity of between 1,500 and 5,000, the LA10,T must not exceed LA90 plus 5dB up to 11pm and must not exceed LA90,T after 11pm.
 - c) For a crowd capacity exceeding 5,000 the LA,Max must not exceed 65dB(A) and the LC,Max must not exceed 85dB(C) with a time limit up to 10:30pm and a maximum of 8 concerts per year.

These are the same limits applied in the prevention notice issued by the NSW EPA to the Centennial park and Moore Park Trust dated 26 Feb 2001 in respect of events held at Moore Park, Centennial Park and Queens Park.

2. Royal Botanic Gardens and Domain Trust. Prevention Notice issued by the NSW EPA, 24 June 2003: This document regulates outdoor events held at the Fleet Steps and on the Domain Lawn and the noise limits are:
 - a) Category 1 - for a crowd capacity up to 2,000, an LA,Max not to exceed the LA90,T by more than 5dB or 55dB(A) whichever is the lesser, and must finish at midnight.
 - b) Category 2 - for a crowd capacity between 2,000 and 10,000, an LA,Max not exceeding 55dB(A) and an LC,Max not exceeding 70dB(C) and must finish at 11pm.
 - c) Category 3 - for a crowd capacity over 10,000 not relevant to this study.
3. City of Sydney Event Guidelines, April 2015. Noise from any amplified music or notification system used at the event must not exceed an LAeq,15min greater than 65 dB(A) when measured at the nearest affected receiver.

Firstly, it is clear from the above that, with the single exception of the City of Sydney Event Guidelines (which impose a much lower noise limit than the other event categories listed), the preferred noise descriptors commonly used in Sydney are LA,Max and LC,Max and not LAeq,15min and LCeq,15min as proposed in the Arup Report. The effect of measuring in terms of the equivalent noise level indicated by the subscript "eq" is that the noise level is averaged over 15 minutes. It is estimated that the averaging process dilutes the "Max" noise level by as much as 5-10dB. Therefore, the noise limits proposed in Table 4 and 5 of the Arup Report could be 5-10dB higher than if they were to be measured using the "Max" descriptor.

For example, in Table 4, the level of LAeq,15min of 65dB(A) could be equivalent to an LA,Max of 70-75dB(A) which would far exceed the limit range of 55-65dB(A) historically used for major events in Sydney as evident in the examples above. Similarly, an LCeq,15min of 80dB(A) could be equivalent to an LC,Max of 85-90dB(A) which is to be compared with the limits of 70-85dB(C) above.

Secondly, in the examples above, the larger events must finish by 10:30pm-11pm whereas it is proposed that events (with the exception of New Years Eve) would finish at midnight with a 10dB reduced level between 10pm and midnight.

We refer to the EPA's submission which also criticised the derivation of noise criteria for events [12].

11.1.5 Construction noise and vibration

Section 6.4 of the Arup Report deals with noise impacts from construction activity. Reference is made to the NSW EPA's Interim Construction Noise Guideline, 2009 (ICNG) which is the applicable document for assessing noise impacts.

Firstly, the applicable construction noise management levels shown in Table 6 of the Arup Report should be updated to include SP 73989 and, for the reasons explained in Section 11.1.2 above, should also be revised once new background noise levels are obtained.

The assessment of construction noise is unacceptable for two reasons. Firstly, there is no assessment of construction noise at SP 73989 which is the closest noise-sensitive receptor to the WBAP works.

Secondly, the only construction activities discussed in the Arup Report are screw piling, concrete pumps, vibratory pokers and truck noise. It is noted that set-building work is addressed, however, this work is internal to the buildings and unlikely to be an issue at SP 73989. Given the range of works to be carried out at WBAP as described above in Section 5, it seems unlikely these four types of equipment will be the only construction equipment to be deployed on site. We refer to Section 8 above which outlines a more comprehensive list of construction equipment.

Thirdly, in respect of assessing construction noise at SP 73989, it should be done on the basis of the cumulative contribution from all sources and not one source at a time (as required in the SEARs condition 9).

In Section 6.4.8 of the Arup Report, it is stated that the construction contractor *"will be required to liaise with the users so that noise from construction does not impact on any critical events taking place within the existing accommodation"*. It is not clear whether this is a reference to SP 73989. If it is, then the Arup Report is clearly misleading in not quantifying potential noise impacts at SP 73989.

In Section 6.4.9 of the Arup Report, it is stated that *"no significant issues are expected with construction vibration affecting residential or commercial properties of the users of the existing venues at site"*. It is not clear whether the *"existing venues at site"* is a reference to SP 73989. Given that some of the work will be undertaken on or abutting the existing wharf superstructure, it does not seem reasonable to assume there will be *"no significant issues"*. For example, the possibility of materials being dropped on the existing wharf superstructure and the construction of new work abutting the existing structure have the capacity to cause vibration potentially affecting SP 73989. Therefore, it would be appropriate to conduct vibration monitoring in SP 73989 during the period of construction.

11.2 Environmental, Construction and Site Management Plan (ECSMP)

Our review of the ECSMP [11] concludes that it provides no further information in respect of construction noise impacts than that in the Arup Report and therefore the criticisms contained in the previous section equally apply to that report. In respect of vibration impacts, it is noted that in Section 6.2.1 of the ECSMP, there is a requirement to undertake vibration monitoring *"if deemed appropriate and/or necessary by the Acoustic Consultant"* which we agree with, however, it is our recommendation that vibration monitoring should be required as a condition of consent.

11.3 Operational Event Noise Management Plan (OENMP)

As in the Arup Report, the OENMP omits reference to SP 73989 as a noise-sensitive receiver. SP 73989 will be the most affected receiver in respect of event noise.

In Section 6.1 of the OENMP, it states that it is currently proposed that the public domain will not include uses involving music in a concert format. The only scenarios considered in the noise impact

analysis are outdoor cinema and large gatherings without music. If this is in fact the case, then the development consent should impose this restriction as a condition.

In respect of noise from the cinema, it is reported in Section 6.4.2 of the OENMP that the sound level at the "*back of the cinema*" viewing area (presumably close to the northern façade of SP 73989) will be 88 LAeq,15min. However, this far exceeds the 60-65 LAeq,15min criterion proposed in Tables 1 and 2 of the OENMP for the hours up to 10:00pm and there will be a far greater exceedence up to midnight.

Even if the "*back of the cinema*" is separated by some further distance from the northern façade of SP 73989, the emitted noise level should be nevertheless quantified and the impacts addressed.

12 Conclusion

Renzo Tonin & Associates is engaged by the owners and tenants of No 13 Hickson Road, Dawes Point NSW 2000 (SP 73989) to provide a peer review of the Noise Impact Assessment, the Precinct Operational Event Noise Management Plan and the Precinct Environmental, Construction and Site Management Plan relating to noise and vibration impacts associated with the construction and operation of the proposed Walsh Bay Arts Precinct (WBAP). The occupants of No 13 Hickson Road abut the WBAP and represent the closest potentially affected noise-sensitive receivers.

The WBAP comprises demolition and rebuilding works in Pier 2/3 to accommodate arts uses, events, festivals and functions, a major upgrade of Wharf 4/5 for arts uses, new commercial offices with cafes, restaurants and retail shopping and the construction of a new north facing Waterfront Square over water between Pier 2/3 and Wharf 4/5 supported with new boardwalks for collaborative outdoor performances, events, festivals, markets and public art. If approved, the consent will permit the WBAP to hold events for up to 10,000 people.

The construction of the WBAP will involve use of piling rigs, large delivery and dump trucks, concrete trucks and concrete pumps with booms, front end loaders, cranes and excavators, welders, nailing guns, hand tools, grinders and similar equipment.

The NSW EPA provides guidelines in respect of mitigating noise and vibration from construction activities. However, the noise impact assessment prepared for WBAP neglects to include SP 73989 as a noise-sensitive receiver. Furthermore, the noise impact assessment relies on measured existing ambient noise levels which are inadequate because they do not comply with EPA guidelines. As a consequence, the noise management levels and noise goals recommended in the report are deficient.

The noise impact assessment also fails to consider SP 73989 as a noise-sensitive receiver in evaluating event noise. As a consequence, the occupants of SP 73989 are not protected from adverse noise impacts when WBAP is operating.

We conclude that there are likely to be significant noise impacts for occupants of SP 73989 which have not been addressed. Therefore, the noise impact assessment fails to comply with clauses 7, 9 and 17 of the Secretary's environmental Assessment Requirements in terms of a) providing a *"high level of environmental amenity"*, b) *"outlining measures to minimise and mitigate potential noise and vibration impacts within the precinct and to surrounding occupiers of land"*, and c) providing an Environmental and Construction Management Plan to include *"noise and vibration impacts on and off site"*. Furthermore, because the noise-sensitive receivers in SP 73989 are overlooked or ignored in the noise impact report, conditions A12, A13, B3, B16 and B12 in SSD 6069 are not complied with.

It is therefore concluded the noise impact assessment is faulty and non-compliant with both the Secretary's Environmental Assessment Requirements and the development consent SSD 6069.

References

1. Strata Plan SP73989, 13 Hickson Road, 21 Nov 2013
2. Walsh Bay Arts Precinct. Concept CP03 - Final, prepared by MBM, 10 June 2014 (**MBM Report**)
3. Noise & Vibration Report prepared by WSP, 24 June 2014 (**WSP Report**)
4. Secretary's Environmental Assessment Report SSD 6069. May 2015
5. Development Consent SSD 6069 issued by the Minister for Planning, 21 May 2015
6. Secretary's Environmental Assessment Requirements SSD 7689. Walsh Bay Arts Precinct - Stage 2, 1 July 2016 (**SEARs**)
7. Walsh Bay Arts Precinct. Events Management Plan 2016 v2.1 prepared by MI Associates, 10 Nov 2016 (**EMP**)
8. Walsh Bay Arts Precinct. Operational Plan of Management 2016 v2.1 prepared by MI Associates, 10 Nov 2016 (**POM**)
9. Infrastructure NSW. Walsh Bay Arts Precinct. SSD 16_7689 SEARs - Noise Impact Assessment. Issue 3 prepared by Arup, 14 Nov 2016 (**Arup Report**)
10. Infrastructure NSW. Walsh Bay Arts Precinct. Operational Event Noise Management Plan. R04 prepared by Arup, 14 Nov 2016 (**OENMP**)
11. Walsh Bay Arts Precinct. Environmental, Construction and Site Management Plan. Revision C prepared by Cadence Australia, 14 Nov 2016 (**ECSMP**)
12. Walsh Bay Arts Precinct. Environmental Impact Statement. Main Report. Stage 2 State Significant Development Application (SSD 7689) prepared by Arup, 15 Nov 2016 (**EIS**)
13. SSD 7689 8126 - Walsh Bay Arts Precinct Stage 2 EIS. NSW EPA. 16 Dec 2016
14. Set of drawings SSDA Issue A-001 to A-402 prepared by Tonkin Zulaikha Greer Architects, 14 Nov 2016 (downloaded from DoP web portal)
15. NSW Industrial Noise Policy issued by the NSW Environment Protection Authority, Jan 2000 (**INP**)
16. NSW EPA Interim Construction Noise Guideline, 2009 (**ICNG**)
17. NSW DECC Assessing Vibration; a technical guideline, 2006.

APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
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 point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken 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 (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dB The sound of a rock band 115dB Limit of sound permitted in industry 120dB Deafening
dB(A)	A-weighted decibels. The A-weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive 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	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L _{Max}	The maximum sound pressure level measured over a given period.
L _{Min}	The minimum sound pressure level measured over a given period.

L ₁	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L ₁₀	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L ₉₀	The 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 _{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) 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 L _{eq} sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
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 Strata Plan SP 73989

NOTE 1 THESE PARTS OF THE SUBJECT LAND EXIST AT LEVEL 2 AND ABOVE ONLY & ARE LIMITED IN DEPTH BY LOT 23 IN DP 1071587.

THE SUBJECT LAND, LOT 24 IN DP 1071587, IS A STRATUM PARCEL, PARTLY LIMITED IN HEIGHT & DEPTH AS SHOWN IN DP 1071587.

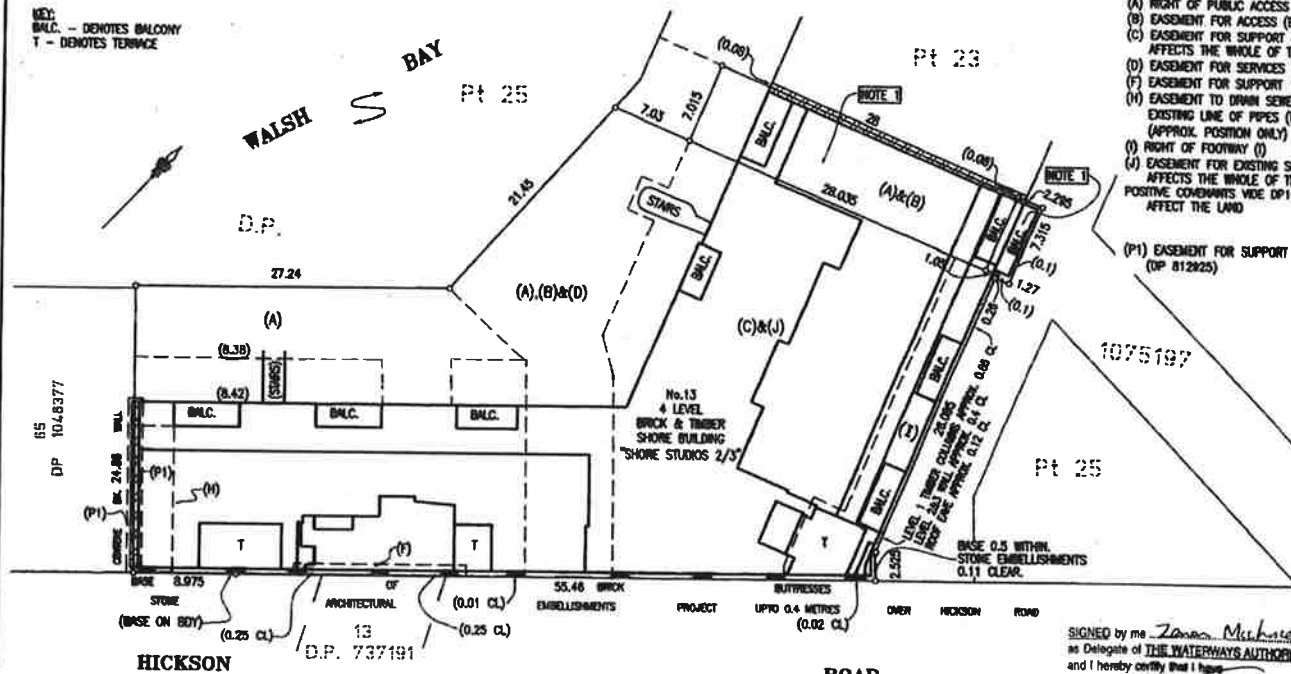
KEY:
BALC. - DENOTES BALCONY
T - DENOTES TERRACE

LOCATION PLAN

SP73989

EXISTING EASEMENTS VIDE DP 1071587 (SEE DP 1071587 FOR FULL DETAILS).

- (A) RIGHT OF PUBLIC ACCESS (A)
- (B) EASEMENT FOR ACCESS (B)
- (C) EASEMENT FOR SUPPORT & SHELTER (C)
- (D) EASEMENT FOR SERVICES (D)
- (F) EASEMENT FOR SUPPORT 1.0 WIDE (F)
- (H) EASEMENT TO DRAIN SEWERAGE OVER EXISTING LINE OF PIPES (H)
- (I) RIGHT OF FOOTWAY (I)
- (J) EASEMENT FOR EXISTING SERVICES (J)
- (P1) EASEMENT FOR SUPPORT 0.5 WIDE (DP 812825)



ROAD

Reduction Ratio 1 : 300 (A3)

Lengths are in metres

Ray Mawhood
Registered Surveyor

John Mawhood
Authorised Person/Competent/Registered/Professional Officer

SURVEYOR'S REFERENCE : 031210 SP

STRATA PLAN FORM 2

WAF G: CREASING OR FOLDING WILL LEAD TO SECTION

Sheet No. 3 of 6 Sheets

SP73989

EXCLUSIVE USE AREA WITHIN COMMON PROPERTY

- (a1) to (a3) - DENOTES EXCLUSIVE USE AREA LIMITED IN HEIGHT TO THE LEVEL OF THE UPPER SURFACE ADJOINING LEVEL 2 FLOOR.
- (b) - DENOTES EXCLUSIVE USE AREA LIMITED IN HEIGHT TO THE LEVEL OF THE UPPER SURFACE OF THE ADJOINING LEVEL 2 FLOOR, EXCEPT FOR THAT PART BELOW THE COMMON PROPERTY STAIRS.
- (c) - DENOTES EXCLUSIVE USE AREA
- (d) - DENOTES EXCLUSIVE USE AREA
- (e) - DENOTES EXCLUSIVE USE AREA LIMITED IN STRATUM TO BETWEEN 1.45 METRES BELOW THE UNDERSIDE OF THE LEVEL 2 TIMBER FLOOR BOARDS ABOVE & THE UPPER SURFACE OF THE CONCRETE CEILING SLAB OF THE SPRINKLER/HYDRANT PUMP ROOM BELOW.
- (f) - DENOTES EXCLUSIVE USE AREA LIMITED IN STRATUM TO BETWEEN THE UNDERSIDE OF THE LEVEL 2 TIMBER FLOOR BOARDS & THE UPPER SURFACE OF THE CONCRETE CEILING SLAB OF THE SWITCH ROOM BELOW.

SPECIAL PRIVILEGE ZONES WITHIN COMMON PROPERTY

- (a) - DENOTES SPECIAL PRIVILEGE ZONES WITHIN THE CEILING ZONE. THE CEILING ZONE IS THE COMMON PROPERTY BETWEEN THE UPPER STRATUM OF LOTS 19, 21 & 22 AND THE UNDERSIDE OF LEVEL 2 TIMBER FLOOR BOARDS ABOVE.
- (b) - DENOTES SPECIAL PRIVILEGE ZONES BELOW THE UPPER SURFACE OF THE LEVEL 1 FLOOR.
- (c) - DENOTES SPECIAL PRIVILEGE ZONES BELOW THE UNDERSIDE OF THE LEVEL 1 FLOOR.
- (d1) to (d3) - DENOTES SPECIAL PRIVILEGE ZONES WITHIN THE CEILING ZONE.

SUBSTRATA NOTES

THE STRATUM OF LOT 21 IS LIMITED TO 1.35 METRES BELOW THE UNDERSIDE OF THE LEVEL 2 TIMBER FLOOR BOARDS ABOVE.

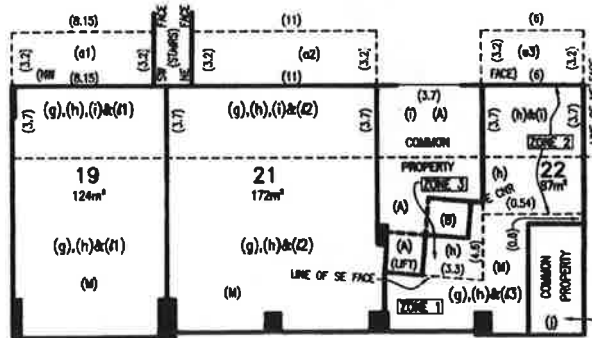
THE STRATUM OF LOT 19 IS LIMITED TO 1.7 METRES BELOW THE UNDERSIDE OF THE LEVEL 2 TIMBER FLOOR BOARDS ABOVE.

THE STRATUM OF LOT 22 IS LIMITED AS FOLLOWS:

ZONE 1 TO 1.55 METRES BELOW THE UNDERSIDE OF THE LEVEL 2 TIMBER FLOOR BOARDS ABOVE.

ZONE 2 TO THE UNDERSIDE OF THE LEVEL 2 TIMBER FLOOR ABOVE. THE HERITAGE CEILING SUSPEND BELOW THE TIMBER FLOOR FORMS PART OF LOT 22 AND IS NOT COMMON PROPERTY.

ZONE 3 TO THE UNDERSIDE OF THE CONCRETE STRUCTURAL CEILING.



AREAS SHOWN ON THE FLOOR PLAN HAVE BEEN CALCULATED FOR THE PURPOSE OF THE STRATA SCHEMES (LEASEHOLD DEVELOPMENT) ACT 1998 ONLY. THEY MAY DIFFER FROM MEASUREMENTS OF THE FLOOR AREAS FOR OTHER PURPOSES.

FOR CLARITY NOT ALL COMMON PROPERTY STRUCTURES ARE SHOWN.

NOTE 1:
THE EASTERN & WESTERN BOUNDARY OF PART LOT 20 IS TO THE INTERIOR FACE OF THE HERITAGE WALLS. THE HERITAGE CARDO DOORS & THE GLASS DOORS FORM PART OF THE LOT & ARE NOT COMMON PROPERTY.

Reduction Ratio 1 : 200 (A3)

Registered Surveyor

WITNESSED by me *Zdenka Mubarekovic*
as Delegate of the WATERWAYS AUTHORITY
and I hereby certify that I have
no notice as to publication of
such delegation
Lengths are in metres

Authorised Person

SURVEYOR'S REFERENCE : 031210 SP

THE STRATUM OF THE LOT 7 BALCONY, WHERE NOT COVERED, IS LIMITED TO 2.5 METRES ABOVE THE UPPER SURFACE OF ITS FLOOR.

ALL OTHER BALCONIES ARE COVERED

CP - DENOTES COMMON PROPERTY

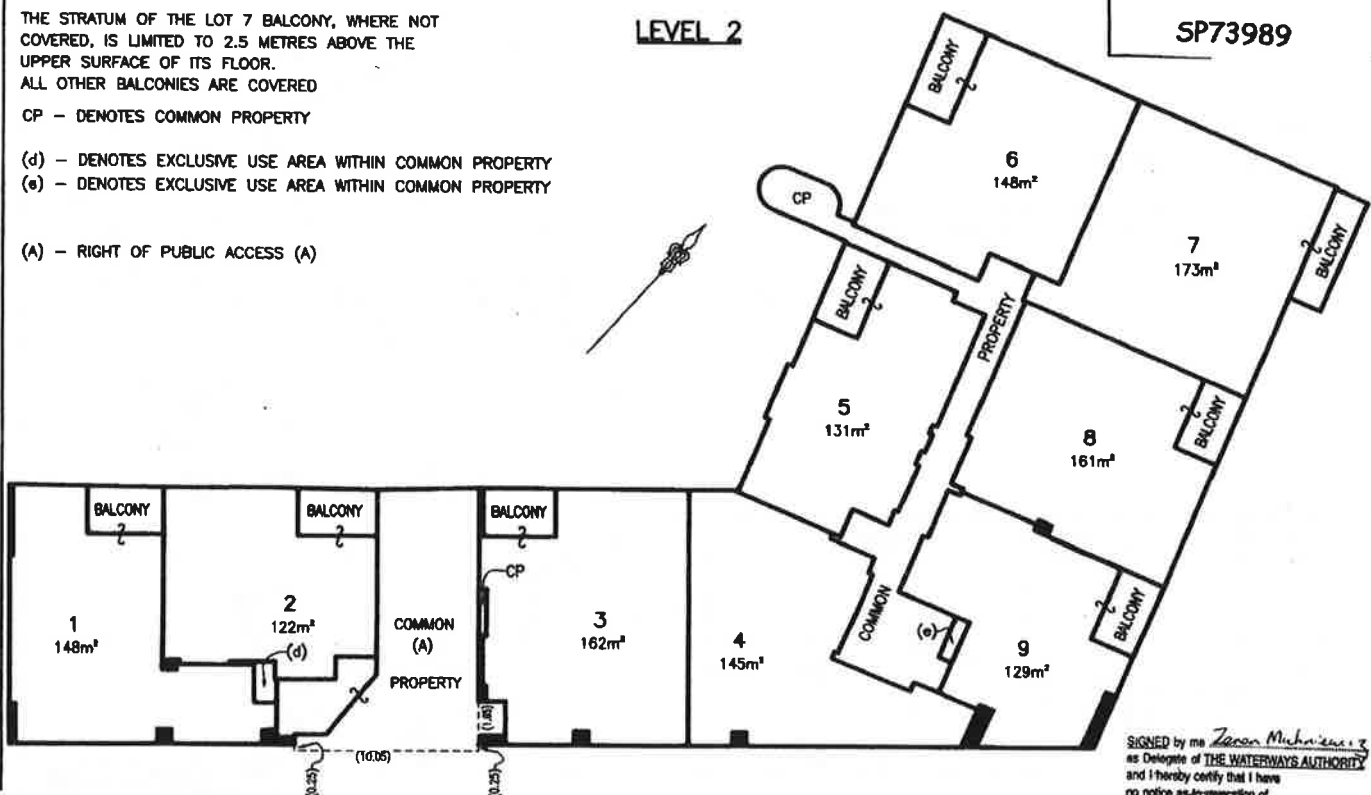
(d) - DENOTES EXCLUSIVE USE AREA WITHIN COMMON PROPERTY

(e) - DENOTES EXCLUSIVE USE AREA WITHIN COMMON PROPERTY

(A) - RIGHT OF PUBLIC ACCESS (A)

LEVEL 2

SP73989



AREAS SHOWN ON THE FLOOR PLAN HAVE BEEN CALCULATED FOR THE PURPOSE OF THE STRATA SCHEMES (LEASEHOLD DEVELOPMENT) ACT 1988 ONLY. THEY MAY DIFFER FROM MEASUREMENTS OF THE FLOOR AREAS FOR OTHER PURPOSES.

FOR CLARITY NOT ALL COMMON PROPERTY STRUCTURES ARE SHOWN.

Reduction Ratio 1 : 200 (A3)

Lengths are in metres

SIGNED by me *Zacora Mchizwa* as Delegate of THE WATERWAYS AUTHORITY and I hereby certify that I have no notice as to revocation of such delegation

Tay Mawle
Registered Surveyor

[Signature]
Authorised Person/Member of the Waterways Authority

SURVEYOR'S REFERENCE : 031210 SP

LEVEL 3

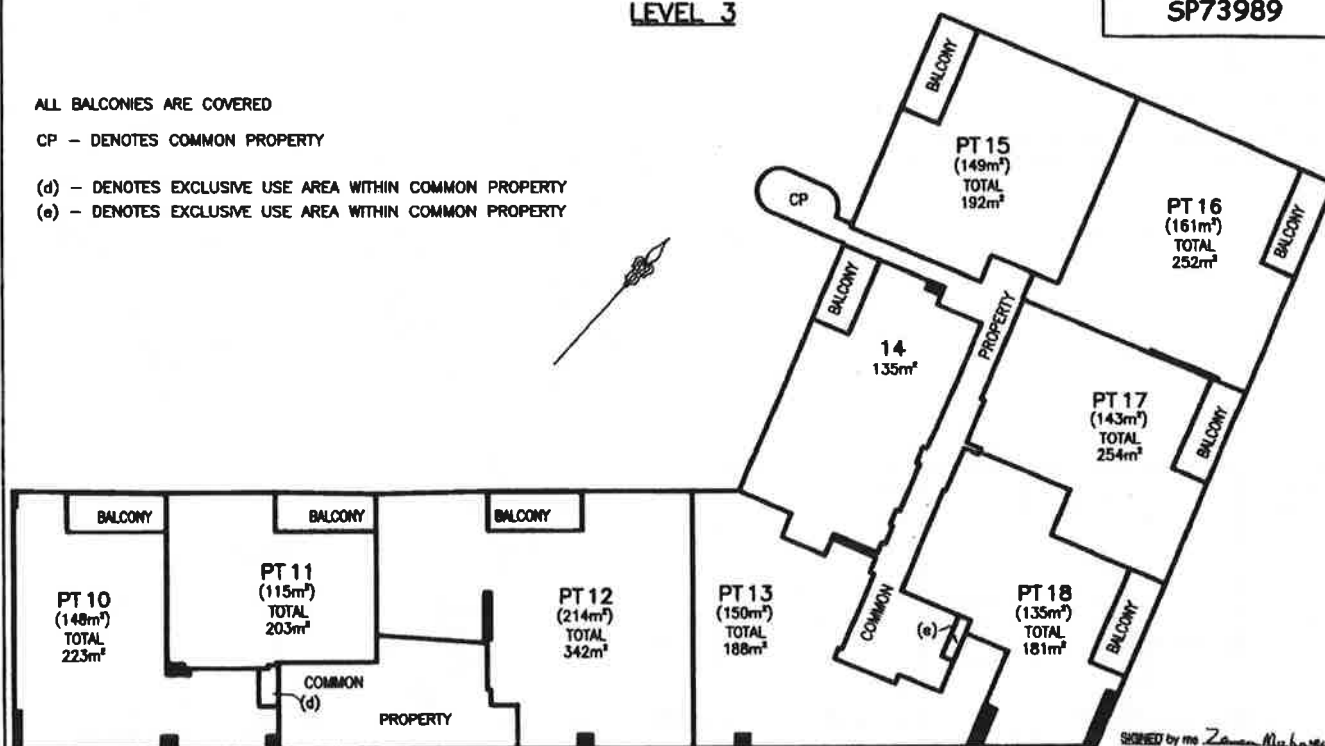
SP73989

ALL BALCONIES ARE COVERED

CP - DENOTES COMMON PROPERTY

(d) - DENOTES EXCLUSIVE USE AREA WITHIN COMMON PROPERTY

(e) - DENOTES EXCLUSIVE USE AREA WITHIN COMMON PROPERTY



AREAS SHOWN ON THE FLOOR PLAN HAVE BEEN CALCULATED FOR THE PURPOSE OF THE STRATA SCHEMES (LEASEHOLD DEVELOPMENT) ACT 1996 ONLY. THEY MAY DIFFER FROM MEASUREMENTS OF THE FLOOR AREAS FOR OTHER PURPOSES. FOR CLARITY NOT ALL COMMON PROPERTY STRUCTURES ARE SHOWN.

Reduction Ratio 1 : 200 (A3)

Angela M. Smith
Registered Surveyor

SIGNED by me *Zoean Mackenzie*
as Delegate of THE WATERWAYS AUTHORITY
and I hereby certify that I have
no reason as to reduction of
such dimension
Lengths are in metres

Angela M. Smith
Authorized Person

SURVEYOR'S REFERENCE : 031210 SP

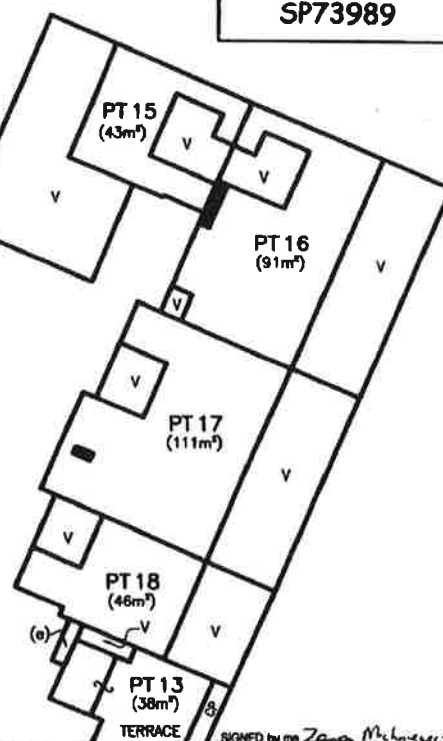
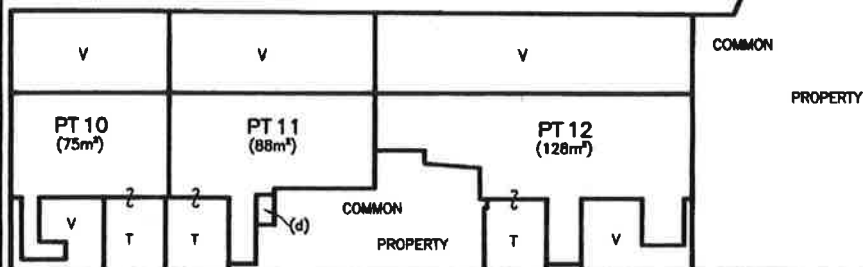
SP73989

LEVEL 4

THE STRATUM OF THE TERRACES, WHERE NOT COVERED, IS LIMITED TO 2.6 METRES ABOVE THE UPPER SURFACE OF THE FLOOR OF THE ADJOINING UNIT.

- (d) - DENOTES EXCLUSIVE USE AREA WITHIN COMMON PROPERTY
 (e) - DENOTES EXCLUSIVE USE AREA WITHIN COMMON PROPERTY

CP - DENOTES COMMON PROPERTY
 T - DENOTES TERRACE
 V - DENOTES VOID TO LEVEL 3



AREAS SHOWN ON THE FLOOR PLAN HAVE BEEN CALCULATED FOR THE PURPOSE OF THE STRATA SCHEMES (LEASEHOLD DEVELOPMENT) ACT 1986 ONLY. THEY MAY DIFFER FROM MEASUREMENTS OF THE FLOOR AREAS FOR OTHER PURPOSES.
 FOR CLARITY NOT ALL COMMON PROPERTY STRUCTURES ARE SHOWN.

Reduction Ratio 1 : 200 (A3)

SIGNED by me *Zana Mkhawane*
 as Delegate of THE WATERWAYS AUTHORITY
 and I hereby certify that I have
 no notice as to revocation of
 such designation
 Lengths are in metres

Registered Surveyor

Authorised Person/Deputy/Manager/Account Officer

SURVEYOR'S REFERENCE : 031210 SP



EF14/1786, DOC16581825-02
SSD 7689

Mr Andrew Hartcher
Department of Planning and Environment
GPO BOX 39
SYDNEY NSW 2001

Dear Mr Hartcher

SSD 76898126 – WALSH BAY ARTS PRECINCT STAGE 2 EIS

I am writing to you in reply to your invitation to the EPA to provide a submission in respect of the project EIS.

The EPA has provided comments under separate cover in respect of the Sydney Theatre Company re-development (SSD 7561)

The EPA understands that Stage 2 involves –

- demolition over and adjacent to harbour waters.
- construction and construction-related activities over and adjacent to harbour waters,
- pile replacement and installation,
- construction of a waterfront square comprising either a floating deck or piled structure, and
- use of the precinct for outdoor events, including the use of amplified sound systems.

The EPA requests that the following advice be considered together with its letter dated 15 August 2014 concerning the precinct Staged Development Application (SSD 6069).

The EPA emphasises that it does not review or endorse environmental management plans or the like for reasons of maintaining regulatory 'arms length'. And, has not reviewed the environmental management plans forming part of or referred to in the EIS.

The EPA has identified the following site specific concerns based on the information in the Environmental Impact Statement as obtained from the Department's Major Projects web site:

- (a) the need for further detailed assessment of potential site contamination following demolition of existing structures;

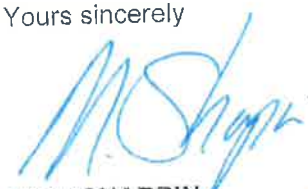
- (b) the need to develop and implement (as necessary) a procedure for dealing with unexpected finds of contamination including asbestos and lead-based paint encountered during demolition, construction and construction-related work;
- (c) the need to minimise demolition, construction and construction-related noise and vibration impacts (including recommended standard construction hours and intra-day respite periods for highly intrusive noise generating work);
- (d) need for demolition, construction and construction-related dust control and management;
- (e) need for demolition, construction and construction-related erosion and sediment control and management, including control of sediment plumes during removal and installation of piles;
- (e1) the need for demolition, construction and construction-related control and management of loose and dislodged materials to prevent those materials being caused or permitted to be placed in or on, or otherwise introduced into or onto harbour waters;
- (f) the need to minimise operational noise impacts on noise sensitive receivers (especially nearby residences and residences on the opposite side of Sydney Harbour) arising from operational activities, including outdoor events, amplified sound systems, sound checks and rehearsals;
- (f1) the need to minimise operational noise impacts on noise sensitive receivers (especially nearby residences) arising from the operation of mechanical plant and services, loading dock activities and waste collection services;
- (g) the need to adopt practical opportunities to implement water sensitive urban design principles, including stormwater collection, storage, treatment and re-use for non-potable purposes; and
- (h) the need to adopt practical opportunities to implement energy conservation including minimisation of the consumption of energy from non-renewable sources.

If appearing they do not know of the abolished business

The EPA expands on its concerns in Attachment A to this letter.

Should you require clarification of any of the above please contact John Goodwin on 9995 6838.

Yours sincerely


 MIKE SHARPIN
 Acting Manager, Metropolitan Infrastructure
 NSW Environment Protection Authority

16-12-16

Attachment A

ATTACHMENT A
- ENVIRONMENT PROTECTION AUTHORITY COMMENTS -
SSD 7689 WALSH BAY ARTS PRECINCT STAGE 2

1. General

The EPA considers that the project comprises two distinct phases (construction and operational) and has set out its comments on that basis.

2. Construction phase

The EPA anticipates a range of environmental impacts during the construction phase of the development which should be comprehensively addressed in detail by the environmental assessment. And, notes the proximity of surrounding residences.

The EPA anticipates that site preparation, bulk earthworks, construction and construction-related activities will be undertaken in an environmentally responsible manner with particular emphasis on –

- detailed site contamination investigation and remediation,
- compliance with recommended standard construction hours,
- waste management consistent with the hierarchy of re-use, recycle and then disposal as the last resort,
- 'special waste' management (i.e. asbestos),
- feasible and reasonable noise and vibration minimisation and mitigation,
- intra-day respite periods from high noise generating construction activities (including jack hammering, rock breaking, pile boring or driving, saw cutting and vibratory rolling),
- effective dust control and management, and
- effective erosion and sediment control.

2.1 Site investigation and remediation

The EPA notes EIS –

- Appendix 32 - Phase 1 Environmental Site Assessment (JBS & G),
- Appendix 33 - Preliminary Sediment Investigation (Cardno), and
- Appendix 34 - Interim Audit Advice issued by the accredited site auditor.

JBS&G undertook a desk top review. They were provided with the *Initial Contamination Assessment* report from HLA- Envirosiences Pty Ltd (August 1996).

JBS&G recommended sediment and water discharge management measures for the project.

The JBS&G Report concluded that –

- current use of the site is considered to have negligible potential for contamination of land and sea,
- the site was previously used as part of the Walsh Bay Wharves shipping facility and this former use, in combination with the location of the site in the central inner city suggested that heavy metals, OCPs, PCBs, PAHs, PCBs, TPH and asbestos were contaminants of potential concern,

2.3 Dust control and management

The EPA considers dust control and management to be an important air quality issue during demolition, site preparation, bulk earthworks and subsequent construction. Demolition and construction inevitably generate dust which in turn may be caused or permitted to be placed in or on, or otherwise introduced into or onto harbour waters.

Recommendation

The proponent be required to:

- (a) minimise dust emissions on the site, and
- (b) prevent dust emissions from the site.

2.4 Erosion and sediment control

The Managing Urban Stormwater Soils and Construction, 4th Edition published by Landcom (the so-called 'Blue Book') provides guidance material for achieving effective erosion and sediment control on construction sites.

The EPA emphasises the importance of –

- (a) not commencing earthmoving or piling operations until appropriate erosion and sediment controls are in place, and
- (b) daily inspection of erosion and sediment controls which is fundamental to ensuring timely maintenance and repair of those controls, and
- (c) ongoing inspection of floating booms particularly during adverse wind and wave conditions.

2.5 Noise and vibration

The EPA considers that the project is likely to generate significant noise impacts on surrounding residences during demolition, site preparation, bulk earthworks and construction.

The EPA provides the following guidance material for the assessment of noise and vibration impacts:

- Interim Construction Noise Guideline (2009); and
- Assessing Vibration: a technical guideline (2006).

The proponent may download a copy of the abovementioned guidance material via the following link:

<http://www.epa.nsw.gov.au/noise/>

The EPA notes that section 6.4.2 to EIS Appendix 23 Noise Impact Assessment' indicates that the proposed construction hours for the project mirror the recommended standard construction hours [7.00 am to 6.00 pm Monday to Friday and 8.00 am to 1.00pm Saturday] in Table 1 to the Interim Construction Noise Guidelines (ICNG).

2.5.1 *Construction hours (including respite periods)*

ICNG section 4.5 specifies construction activities proven to be particularly annoying and intrusive to nearby residents. The EPA anticipates that those activities generating noise with particularly annoying or intrusive characteristics would be subject to a regime of intra-day respite periods where

- (a) they are only undertaken over continuous periods not exceeding 3 hours with at least a 1 hour respite every three hours, and.
- (b) 'continuous' means any period during which there is less than an uninterrupted 60 minute respite between temporarily halting and recommencing any of the work referred to in ICNG section 4.5

Recommendation

The proponent be required to:

- (a) comply with the standard construction hours as recommended in Table 1 Chapter 2 of the Interim Construction Noise Guideline, July 2009; and
- (b) schedule intra-day 'respite periods' for construction activities identified in the Interim Construction Noise Guideline as being particularly annoying to surrounding residents and other noise sensitive receivers.

2.5.2 Reversing and movement alarms

The EPA has identified the noise from 'beeper' type plant movement alarms to be particularly intrusive and is aware of feasible and reasonable alternatives. Transport for NSW, Barangaroo Delivery Authority/Lend Lease and Leighton Contractors (M2 Upgrade project) have undertaken safety risk assessments of alternatives to the traditional 'beeper' alarms. Each determined that adoption of 'quacker' type movement/reversing alarms instead of traditional beepers on all plant and vehicles would not only maintain a safe workplace but also deliver improved outcomes of reduced noise impacts on surrounding residents.

Interim Construction Noise Guideline Appendix C provides additional background material on this issue.

The proponent should commit to undertaking a safety risk assessment of construction activities to determine whether it is practicable to use audible movement alarms of a type that would minimise the noise impact on surrounding noise sensitive receivers, without compromising safety.

2.5.3 Queuing and idling construction vehicles and vessels

The EPA is aware from previous major infrastructure projects that community concerns are likely to arise from noise impacts associated with the early arrival and idling of construction vehicles (including concrete agitator trucks) at the development site and in the residential precincts surrounding that site.

Recommendation

The proponent be required to ensure construction vehicles (including concrete agitator trucks) involved in construction and construction-related activities do not arrive at the project site or in surrounding residential precincts outside approved construction hours.

3. Operational phase

The project represents a significant long-term infrastructure investment with associated potential long-term environmental impacts.

3.1 Noise and vibration impacts

The EPA is aware from long experience that significant risks of unacceptable noise impact arise from inadequate noise mitigation and management measures.

The EPA anticipates that the proposed facilities are likely to change the nature and intensity of noise impacts on surrounding noise sensitive land uses, especially nearby residences and residences on the opposite (i.e. northern) side of the Harbour. And, notes project support documentation including –

- EIS Appendix 23 Noise Impact statement, and
- EIS Appendix 24 Operational Event Noise Management Plan.

The *NSW Industrial Noise Policy, January 2000* (INP) provides guidance material on noise impact assessment and anticipates feasible and reasonable noise mitigation and management measures.

The EPA emphasises that properly establishing background noise levels in accordance with guidance material in the New South Wales Industrial Noise Policy (INP) chapter 3 and appendix B is fundamental to a consistent approach to the quantitative assessment of noise impacts of development.

Section 4.3 to EIS Appendix 23 indicates that background noise levels were established in conjunction with the Stage 1 staged development application. However, the EPA reiterates its concerns (see letter dated 15 August 2014) about the adequacy of background noise monitoring for Stage 1 – e.g. certain background noise levels were estimated rather than assessed in accord with the INP as described in section 3.3.3 to Appendix B to EIS Appendix 24.

The EPA is particularly concerned about noise impacts associated with outdoor events involving the use of amplified sound (including sound checks and rehearsals) and to a lesser extent breakout noise from indoor events. Section 6.1 to EIS Appendix 24 indicates that "... current proposals for use of the public domain do not include any uses with music in a concert format ...".

The EPA is unable to properly assess the noise impacts of outdoor events, noting that:

- the criteria for so-called "daytime" (10.00 am to 10.00 pm) major events are consistent with the *City of Sydney Event Guidelines*: $L_{eq(15min)}$ 65 dBA and 80 dBC; *Please note Summer is not allowed outside amplified*
- other criteria appear to be arbitrary changes of 5, 10 or 15 dB below the City of Sydney criterion, except for the "community and cultural events" criteria which are based on measured background levels;
- the Stage 2 *Operational Event Noise Management Plan* refers to the *Noise Guide for Local Government*, but doesn't appear to have adopted criteria from that Guide; and
- the criteria are different to those for the Stage 1 *Event Operational Noise Management Plan*.

The EPA notes that EIS Appendix 24 identifies 4 categories of event and outlines broad restrictions for each such category. The EPA acknowledges that all event categories are proposed to be subject to –

- an 11.00 pm curfew on music (other than for New Years Eve celebrations),
- limits on the frequency, capacity and duration of category 1 (major events),
- noise monitoring during events,
- community notifications,
- a complaints receipt, handling and response protocol, and
- a proposed event noise impact review process to fine tune event noise limits based on the impact assessment of initial events held at the precinct.

The EPA is concerned that –

- (section 3.3.3 to the extract comprising Appendix B to EIS Appendix 24) indicates that background noise levels were not established in accordance with the guidance material provided in the New South Wales Industrial Noise Policy but instead were calculated,
- whilst category 2 events for up to 7,500 may occur on consecutive days, the EIS is unclear whether amplified sound would be permitted between 6.00 pm and 11.00pm on consecutive evenings/nights,
- whilst category 3 and 4 events appear to restrict sound systems to "... localised low output ..." systems and musical entertainment to "... live intimate entertainment only" the meaning of those proposed restrictions does not appear to have been defined,
- no restrictions are proposed on the timing and duration of sound checks and rehearsals,
- set up, dismantle, clean up and waste services activities are proposed to be permitted before 7.00 am for Category 1 major events, and
- community notifications of upcoming events should occur by letterbox drop (or other method which may be particular residents) not less than 5 days nor more than 14 days before the start of any event.

Recommendation

The proponent be required to:

- (a) provide a quantitative assessment of the background noise levels (day, evening and night time) in accordance with the guidance material provided in the New South Wales Industrial Noise Policy;
- (b) undertake noise compliance monitoring of mechanical plant noise during commissioning so as to ensure avoidance of unintended and unacceptable noise impacts on surrounding residences; and
- (c) design, select and maintain noise generating mechanical services (especially air handling plant and equipment) to ensure that -
 - (i) noise levels measured at the most affected residence do not exceed the rating background level by more than 5 dB, and
 - (ii) such plant and equipment does not generate noise that exhibits tonal or other annoying characteristics.

Recommendation

The proponent be required to –

- (a) design waste collection areas to avoid or minimise the activation of vehicle reversing alarms during use of those facilities; and
- (b) restrict waste collection services to 'day-time' as defined in the NSW Industrial Noise Policy, January 2000

3.6 Energy and Water Conservation

The EPA notes that EIS Appendices 13 and 14 provide a sustainable design approach towards implementing practicable energy and water efficiency and conservation measures.

Pier 2/3 and Wharf 4/5, Walsh Bay Restoration and maintenance work

**We're working within the Walsh Bay Precinct from
Monday 27 February 2017.**

What we're doing

Arts NSW is carrying out essential maintenance on Pier 2/3 and Wharf 4/5 to protect and ensure the structural integrity of the supporting structures and buildings on this important NSW heritage asset.

The work will include repairing, restoring and replacing parts of the supporting structures below Pier 2/3 and Wharf 4/5.

The work will take about seven months to complete, weather permitting.

How this will affect you

These works may create additional noise on some weekdays and weekends.

Our work hours will be:

- 7am to 6pm, Monday to Friday.
- 8am to 1pm, Saturdays.

We will try to minimise noise where possible by turning off all equipment when not in use, providing periods of respite between noisy activities and monitoring noise levels to ensure they do not exceed allowances.

Planning approvals

The restoration and maintenance works are considered "development without consent" under the State Infrastructure Planning Policy (Infrastructure) 2007 and a Review of Environmental Factors (REF) has been assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* by the Department of Justice. The REF details the potential impacts of the works and how they will be mitigated. More information is available on our website arts.nsw.gov.au



Contact us

For project information

VISIT

arts.nsw.gov.au

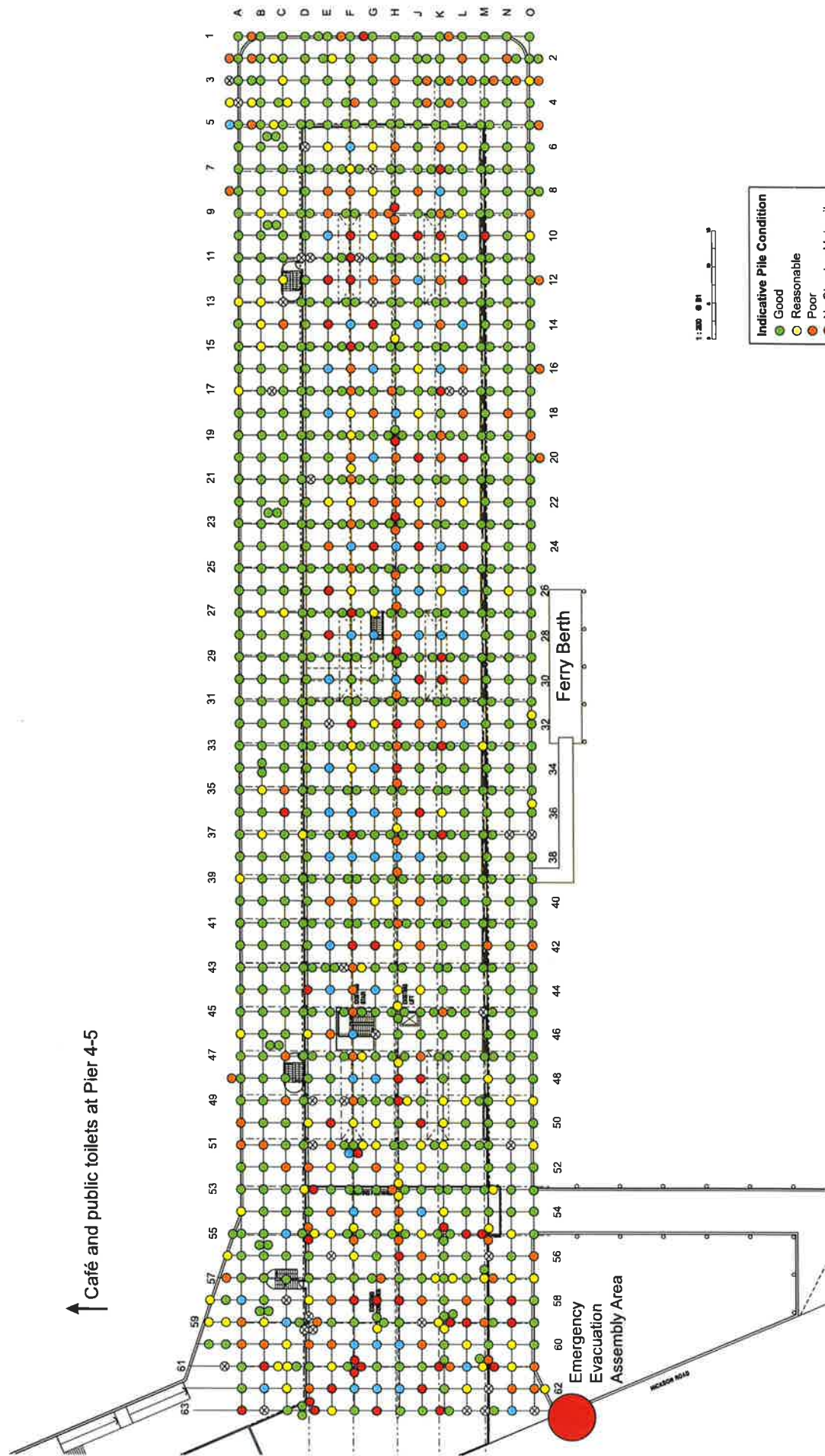
CALL

1800 960 550

EMAIL

mail@arts.nsw.gov.au





Base plan source: Arts NSW



Public Works
Manly Hydraulics Laboratory

PIER 2-3 WALSH BAY GRID LAYOUT

MHL

Figure 2

DATE: 10/10/2018

