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Project 4150  
18 October 2023

**The Land Owners/Residents at One Darling Harbour**  
**C/o- Beatty Hughes & Associates**  
Attention: Ms Ballanda Sack  
Level 4, 235 Macquarie Street  
SYDNEY NSW 2000

Email: ballanda@beattylegal.com

Dear Ms Sack

**ONE DARLING HARBOUR RESIDENTS – HARBOURSIDE DEVELOPMENT**  
**SSDA3 – CONSTRUCTION, FITOUT AND USE OF PUBLIC DOMAIN**

1. Acoustic Dynamics is engaged by **Beatty Hughes & Associates** on behalf of the Owners Corporation for SP 49259 to conduct a brief review of, and provide comment on, the Harbourside residential and shopping centre development acoustic assessment – SSDA3 – Construction Fitout and Use of the Public Domain (SSD-49653211).

## **1 EXECUTIVE SUMMARY**

2. The assessment report does not indicate any intention to assess/address the acoustic impact of the use of the public domain elements on nearby receivers external to the development.
3. The acoustic assessment does not meet the standard expected for a member of the Association of Australasian Acoustical Consultants (AAAC).
4. The existing noise environment at One Darling Harbour is inadequately established.
5. The assessment report excludes significant elements of the Public Domain works proposed. It provides no confidence that noise emission from the Waterfront Garden, Waterfront Steps, North Bridge, Bunn Street bridge have been adequately considered and assessed.
6. Cumulative impacts of activities associated with the SSDA2 development including vehicular access to the carpark, retail deliveries and the collection of waste has not been considered.
7. The conclusion in the acoustic assessment that the proposed public domain development is generally consistent with existing site conditions is incorrect and the conclusion that the use of public domain is not expected to generate any significant change to the ambient noise profile of the existing locality is unsupported.

No detail is provided of the inputs into the noise modelling asserted to have been undertaken. Accordingly, the modelling results cannot be verified and the adequacy and accuracy of the acoustic modelling is unknown.

8. There is no evidence that noise from the use of retail spaces, including outdoor dining, adjoining the Waterfront Garden were included in the assessment and the conclusion that noise emission from the level 2 passive recreational space (Waterfront Garden) would be “negligible” is difficult to understand.
9. Residents at One Darling Harbour are experiencing and will continue to experience significant and disruptive levels of demolition, excavation and construction noise for a period of at least 5 years. The noise monitoring data prepared in relation to the demolition activities conducted under SSD7874 and the excavation works under SSDA1:
  - a. is likely to be unrepresentative of (lower than) noise experienced by One Darling Harbour residents; and
  - b. indicate significant exceedances of the construction noise limits.
10. The applicant has demonstrated that they continue to emit construction noise levels vastly exceeding the appropriate limits, hence lowering noise emission or the use of acoustic barriers does not appear to be a viable option. Accordingly, facade treatment may be the only way the demolition and construction noise can be satisfactorily mitigated to the receivers within One Darling Harbour.

## 2 REVIEW

11. Note is made that the subject SSDA3 acoustic assessment prepared by Acoustic Logic Consultancy (ALC) dated 21 April 2023, specifically states:

*“This document addresses noise impacts associated with the following:*

  - *Noise intrusion to project site from public domain usage.*
  - *Construction noise and vibration impacts.”*
12. Note also is made that the Public Domain was excluded from the previous DA assessments including SSDA1 and SSDA2, although noise emission from its use has the potential to impact the acoustic environment of nearby sensitive receivers including the residential receivers located within One Darling Harbour, at 50 Murray Street, Sydney.
13. As such, the acoustic impact resulting from the use of the public domain elements of the development, in terms of noise emission received at nearby sensitive receivers, external to the subject development, is not addressed/assessed in the ALC SSDA3 assessment report, nor in the previous acoustic documents prepared for SSDA1, SSDA2 or MOD3.

14. Within Section 4.1, the ALC SSDA3 assessment states:

*“The Harbourside Central Approval (SSD 7874) sets out the relevant planning parameters to guide the detailed design and construction of the redeveloped Harbourside site. The proposed development is required to be consistent with SSD 7874 pursuant to section 4.24 of the EP&A Act, which states that “while any consent granted on the determination of a concept development application for a site remains in force, the determination of any further development application in respect of the site cannot be inconsistent with the consent proposals for the development of the site”. ”*

And

*“Part 3 of the SSD 7874 conditions of consent sets out conditions which must be met in all future detailed design applications at the site (the Future Environmental Assessment Requirements – FEARs). The proposal is consistent with all relevant SSD 7874 FEARs...”*

15. The ALC report indicates C19 and C53 of the SSD7874 FEARs require:

**ENTERTAINMENT PRECINCT PROTECTION**

C19. *Future Development Application(s) must be accompanied by a Noise and Vibration Impact Assessment (NVIA) that identifies and provides a quantitative assessment of the main noise generating sources and activities during operation. The NVIA must include:*

- (a) an alternative noise criterion for future apartments within the development utilising internal noise measurements with windows closed and designed to maximise the usage of the retail tenancies and events in the public domain without resulting in excessive impact on new and existing residents.*
- (b) details of any mitigation measures to ensure the amenity of sensitive land uses, and the function and 24-hour operation of noise generating uses are protected during the operation of the development.*
- (c) noise management and mitigation strategies for commercial uses which restricts hours of operation as a last resort.*

**CONSTRUCTION**

C53. *All future development applications(s) must provide an analysis and assessment of the impacts of Construction and include:*

...

- (b) Construction Noise and Vibration Impact Assessments that identifies and provides a quantitative assessment of the main noise generating sources and activities during construction. Details are to be provided outlining any to mitigation measures ensure the amenity of adjoining sensitive land uses, including but not limited to the National Maritime Museum, is protected throughout the construction period(s)*

16. The ALC report indicates Condition 14 of the SSD-49673466 SEARs requires:

**14. Noise and Vibration**

- *Provide a noise and vibration assessment prepared in accordance with the relevant NSW Environment Protection Authority (EPA) guidelines. The assessment must detail construction and operational noise and vibration impacts on nearby sensitive receivers and structures and outline the proposed management and mitigation measures that would be implemented.*

17. The ALC SSDA3 assessment report does not follow the typical format of an acoustic report prepared by a member firm of the AAAC. The report lacks definitive and carefully considered processes, a description of methodology and acoustic assessment, or the structure that one would normally expect of an AAAC member firm.

18. The ALC SSDA3 assessment identifies the sensitive residential receivers at One Darling Harbour as “Receiver 8” and provides a very short description of construction activities associated with SSDA3 works.

19. The ALC SSDA3 assessment presents background noise monitoring data obtained at two residential apartments at One Darling Harbour, being U204 and U1302, however the noise environments at the two receiver locations were substantially different. The report presented a 6 dB difference during the daytime period, a 5 dB difference during the evening period and a 4 dB difference during the night-time period. The differences are not satisfactorily explained by ALC other than to conclude *“the background noise levels recorded at Level 13 of the development were considerably higher due to the environmental noise contributions of surrounding mechanical plant and having a wider field of view of the generalised hum associated with an urban environment, from which the lower levels of development are shielded from”*.

20. The noise environments are clearly different, if the noise environment has been contaminated by nearby mechanical equipment, then it would be appropriate to conduct further monitoring at another representative receiver on a higher level of the building which is not affected by the mechanical equipment.

21. In terms of Public Domain items assessed or considered, in section 8.3 the ALC SSDA3 assessment states *“the public domain proposal of SSDA 3 as to which this document pertains relates to the following items:*

- *Waterfront Garden*
- *Alterations to the Waterfront Promenade*
- *Inclusion of the Waterfront Steps*
- *The construction of the Bunn Street Bridge and new through-site pedestrian link”*

22. However, Figure 2 and Figure 3 of the ALC SSDA3 assessment report indicate the following elements are included in the Public Domain:

- Waterfront Boulevard
- Waterfront Steps
- Waterfront Garden
- Pyrmont Bridge Steps
- North / South Walk
- North Bridge
- Bunn Street Bridge
- Bunn Street Steps
- Darling Drive Arrival

23. Of significant concern, the ALC SSDA3 assessment report states:

*“Use of public domain space is not governed by any statutory or local acoustic controls exclusive of that maintained within the Entertainment Precinct FEARs for the development, as provided above.”*

24. The ALC SSDA3 assessment report states:

- *“The promenade of the existing Harbourside Shopping Centre is characterised by outdoor seating areas for various food and beverage tenancies. The impacts of the proposed changes to the promenade are generally consistent with that of the existing use of the space from an acoustic viewpoint.”*
- *Through a preliminary assessment conducted within the SSDA 2 Acoustic Assessment, it was concluded that upgraded glazing with perimeter acoustic seals for façade treatments would suffice for satisfying the alternative noise criteria presented above for the noise impacts associated with the Harbourside redevelopment ground floor retail tenancies and the outdoor seating areas within the promenade area, in conjunction with the surrounding entertainment precinct (W Sydney and Cockle Bay Park redevelopment). It was noted within this assessment that façade upgrades were to be determined during Detailed Design.”*
- *General use of Public Domain space is not expected to generate comparative noise levels to the operational uses assessed within the SSDA 2 Acoustic Assessment i.e. Patron activity within the entertainment precinct, vehicle movements along Darling Drive and use of the underground carpark and loading dock.*
- *All other items maintained within the proposed scope of the SSDA 3 application, such as the alterations to the waterfront area, the development of the new Bunn Street Bridge and the development of through-site links, are both generally consistent with existing site conditions, and also provide space which is not expected to generate significant external noise impacts, (Passive recreation and circulation areas) and hence will not provide any significant change to the ambient noise profile of the existing locality.”*

25. For the reasons outlined below, it is impossible to agree that the proposed development is *“...generally consistent with existing site conditions...”* and *“...is not expected to generate significant external noise impacts, (Passive recreation and circulation areas) and hence will not provide any significant change to the ambient noise profile of the existing locality.”*

26. The ALC SSDA3 assessment report also states:

- *“With regards to surrounding noise sensitive receivers, the proposal is consistent with existing site conditions for surrounding noise sensitive receivers, noting that the boardwalk surrounding the existing Harbourside Shopping Centre currently provides passive recreation public domain space which is occasionally used for events such as Vivid and New Year’s Celebrations. As such, the anticipated use and operation of the proposed passive recreation areas of the development does not significantly alter from the existing acoustic amenity of the area and should be considered acceptable from an acoustic viewpoint.”*
- *Notwithstanding the above, modelling of general use of the Waterfront Garden area has been included within the following section to assess the impacts of this space on the residential tower, in conjunction with the use of the promenade indoor and outdoor seating space as included within the SSDA 2 Noise and Vibration Impact Assessment.”*

27. Similarly, as outlined below, it is also impossible to agree that:

*“the proposal is consistent with existing site conditions for surrounding noise sensitive receivers, noting that the boardwalk surrounding the existing Harbourside Shopping Centre currently provides passive recreation public domain space which is occasionally used for events such as Vivid and New Year’s Celebrations...”*

or that

*“...the anticipated use and operation of the proposed passive recreation areas of the development does not significantly alter from the existing acoustic amenity of the area and should be considered acceptable from an acoustic viewpoint.”*

28. Within section 8.4 the ALC SSDA3 assessment report indicates acoustic modelling was undertaken, however no detail is provided regarding the noise modelling inputs. Such information normally provided by an appropriately qualified and experienced acoustical consultant, and expected of a report for a development such as this would include:

- A list of noise sources
- Sound power levels for all noise sources
- Locations and heights for all noise sources
- Locations and heights for all receivers
- Details of scenarios modelled
- A table showing noise emission levels at various receiver points

29. The lack of such information does not enable the modelling results to be verified and casts significant doubt over the adequacy and accuracy of the acoustic modelling undertaken.



30. Table 8-1 of the ALC SSDA3 assessment report indicates the most significant contributor to the modelled noise emission levels at receivers R8 is the Waterfront Promenade Indoor and Outdoor Dining and that noise emission resulting from the Level 2 passive recreational space would be “negligible” and does not contribute to the received noise levels at these receivers.
31. Noting the understanding that there are two licenced premises with outdoor seating within, and opening on to the passive recreational space, along with usage of the Waterfront Garden, such a finding is difficult to comprehend, especially given the size of the Level 2 passive recreational space and its proximity to the receivers (approximately 38m at its closest point to a distance of 90m).
32. The ALC SSDA3 assessment report provides no indication that the use of retail (including outdoor dining) spaces adjoining the Waterfront Garden were included in the assessment.
33. The ALC comment that “*the existing Harbourside Shopping Centre currently provides passive recreation public domain space which is occasionally used for events such as Vivid and New Year’s Celebrations. As such, the anticipated use and operation of the proposed passive recreation areas of the development does not significantly alter from the existing acoustic amenity of the area*” is difficult to reconcile, given the creation of a rooftop outdoor passive recreation space with commercial (restaurant) uses and potential ‘special’ events, along with normal usage, as close as 38m from the receivers at One Darling Harbour is an entirely new concept and not “*generally consistent with existing site conditions*”, as ALC suggest.
34. Previously the Harbourside Shopping Centre incorporated outdoor dining on the harbour foreshore, with the Harbourside Shopping Centre Building providing a significant buffer in terms of distance and acoustic screening to the receivers at One Darling Harbour. The proposal is for a large park and entertainment space directly in front of these receivers.
35. It is interesting to note that the ALC SSDA3 assessment report indicated:  
  

*“Through a preliminary assessment conducted within the SSDA 2 Acoustic Assessment, it was concluded that upgraded glazing with perimeter acoustic seals for façade treatments would suffice for satisfying the alternative noise criteria presented above for the noise impacts associated with the Harbourside redevelopment ground floor retail tenancies and the outdoor seating areas within the promenade area, in conjunction with the surrounding entertainment precinct (W Sydney and Cockle Bay Park redevelopment). It was noted within this assessment that façade upgrades were to be determined during Detailed Design.”*
36. Noting the similar offset distances, and coupled with the noise from demolition, excavation and construction activities, expected to occur over a period greater than 5 years, the receivers at One Darling Harbour will be exposed to the ongoing usage of the Level 2 passive recreational space without the benefit of upgraded glazing.

37. In terms of noise control, the hierarchy of treatment, from easiest and most effective to least effective, is as follows:
  - Treatment at the noise source
    - Reducing the noise source
    - Provision of noise mitigation at the source (eg. noise barriers)
  - Treatment at the receiver
    - Provision of noise mitigation at the receiver (eg. noise barriers or façade/glazing upgrades)
  - Treatment of the noise path
    - Provision of noise mitigation along the noise path (eg. noise barriers)
38. The ALC SSDA3 assessment report also assesses construction noise associated with *“the construction and use of the public domain and Waterfront Garden, including construction and use of the Bunn Street and North Bridge works associated with the Harbourside redevelopment.”*
39. Similar to the modelling of operational noise, the ALC SSDA3 assessment report indicates acoustic modelling of construction works was undertaken, however no significant detail is provided regarding the noise modelling inputs. Such information normally provided by an appropriately qualified and experienced acoustical consultant, and expected of a report for a development such as this would include:
  - A list of noise sources
  - Sound power levels for all noise sources
  - Locations and heights for all noise sources
  - Locations and heights for all receivers
  - Details of scenarios modelled
  - A table showing noise emission levels at various receiver points
40. The lack of such information does not enable the modelling results to be verified and casts significant doubt over the adequacy and accuracy of the acoustic modelling undertaken.
41. Within Table 11-2 of the ALC SSDA3 assessment report, the column heading indicates *“Excavation/Piling Stage Predicted External Noise Level”*, however the activities shown in Table 10-1 do not reflect excavation/piling activities. It is assumed the column heading in Table 11-2 is incorrect.
42. Table 11-2 indicates noise emission levels of 41-74 will be experienced at One Darling Harbour (receiver R8), however no detail is provided in relation to the source or the hierarchy of sources contributing to this noise emission, nor the expected duration of the activities causing exceedances. Table 11-2 refers the reader to *“See Section 12 ‘Ameliorative Measures’ for recommendations”*.
43. Within the recommendations (section 12), ALC recommend noise monitoring and regular downloading and reporting of noise levels, with reports to be provided on a fortnightly basis.



44. A review of the ALC construction noise monitoring reports prepared to date in relation to the demolition activities conducted under SSD7874 and the excavation works under SSDA1, indicates significant exceedances of the Construction Noise Level Limits for extended periods of the day. For example,  $L_{A10}$  noise emission at the noise monitoring location reported to be representative of the Murray Street residences (One Darling Harbour) exceeded 80 dB(A) for long periods of the day on 12, 13, 15, 16, 17, 18, 19, 20, 23, 24 and 25 May 2023, in reviewing one report alone. The relevant construction noise limit for One Darling Harbour, determined by ALC for the weekday periods is 63 dB(A). Hence, this is a significant exceedance.
45. Note should also be made that the monitoring location, as shown in the report, is both inappropriate and not representative of the sensitive receivers at One Darling Harbour for the following reasons:
  - The monitoring location is within a covered walkway.
  - The noise monitor is positioned on the less exposed northern side of the covered walkway.
  - The covered walkway is representative of the northern most extremity of the construction site, however many receivers within One Darling Harbour are much closer and overlook the bulk of the construction activities and hence it is not representative of these receivers.
  - The monitoring location is low down and potentially shielded from much of the construction activities.
46. Section 15.2 of the ALC SSDA3 assessment report includes the following in relation to complaints:
 

*“Should ongoing complaints of excessive noise or vibration occur, immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices. In the case of exceedances of the vibration limits, all work potentially producing vibration shall cease until the exceedance is investigated. The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.”*
47. It is understood numerous complaints have been made by residents of One Darling harbour in relation to demolition and construction activity noise emission from the approved works, however construction noise emission levels continue to exceed the relevant Construction Noise Level Limits as evidenced by the ALC noise monitoring.
48. Accordingly, the construction noise emission monitoring appears to be a grossly inadequate data dump and provides no protection or benefit to affected sensitive receivers, as the construction noise emission continues to exceed limits, with no consequences.
49. Given the size of the development and the duration of the demolition (2 years), bulk exaction and construction activities (3 years), likely being greater than 5 years, the acoustic impact of these activities upon adjacent sensitive receivers will be significant with regard to both loudness and duration of exposure.

50. In relation to SSD 49295711, ALC has provided a *“Response to Submissions”* document, however the responses are generally dismissive and provide no technical or detailed response to the issues (submissions) raised.
51. The FEARs require an assessment of the noise emission resulting from the use of the public domain and includes requirements to protect the entertainment precinct. The ALC SSDA3 assessment report provides no confidence and does not demonstrate that noise emission associated with the public domain spaces, in particular the Waterfront Garden, Waterfront Steps, North Bridge, Bunn Street Bridge and Steps, has been adequately considered and assessed. Note should be made that the Waterfront Steps and Bunn Street Bridge and Steps provide significant gaps or line-of-site tunnels between the One Darling Harbour residents and the Waterfront Promenade.
52. The ALC SSDA3 assessment report provides no assessment of entertainment (or events) on the Waterfront Garden, the Waterfront Steps, or even the Waterfront Promenade.
53. If ALC SSDA3 assessment report has only considered the Waterfront Garden and Steps as a passive recreational space within the SSDA3 assessment report, then appropriate consent conditions should be written around this. Such conditions may include:
- A requirement that there will be no provision of music within the Waterfront Garden and Waterfront Steps (music of any form is prohibited – amplified and acoustic).
  - A requirement that the space is to be used for passive recreation and not to be used for entertainment, sport or gatherings of any form.
54. The ALC SSDA3 assessment report, and previous SSDA assessment reports, have not considered noise emission resulting from the pedestrian use of the various access bridges and walkways adjacent to the One Darling Harbour residential building.
55. The ALC SSDA3 assessment report, and previous SSDA assessment reports, have not considered noise emission resulting from vehicular access to, and egress from the 279 space carpark, nor retail deliveries, nor the collection of waste from both retail and residential receivers.
56. In summary, significant concerns should be raised in relation to the likely ongoing acoustic impacts at the One Darling Harbour residential building resulting from the adjacent Harbourside redevelopment, including construction works and ongoing operations sought to be approved under the SSDA3 application.

We trust the above information meets with your immediate requirements and expectations. Please do not hesitate to contact us on 02 9908 1270 should you require more information or clarification.


Kind Regards

**ACOUSTIC DYNAMICS**




**RICHARD HAYDON**

*Principal, BE(Mech), MIEAust, MAAS, MASA, AAAC Executive (Chair)*

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