

Mr Tim Green  
Department of Planning and Environment  
GPO BOX 39  
SYDNEY NSW 2001

Dear Mr Green

**SSD 9452 – AUSTRALIAN MUSEUM RE-DEVELOPMENT (STAGE 1) – ENVIRONMENTAL  
IMPACT STATEMENT (EIS)**

I am writing to you in reply to your invitation to the Environment Protection Authority (EPA) to make a submission concerning the above project EIS.

The EPA requests that this submission be read in conjunction with its letter dated 26 July 2018 in respect of the draft Secretary's environmental assessment requirements for the project.

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

The EPA notes the proximity of the development site to the Cross City Tunnel which warrants appropriate precautions to ensure any excavations do not compromise in-tunnel groundwater management and rock bolting and any resultant environmental impacts.

The EPA notes with concern -

- (a) the age of those sections of the existing complex proposed for demolition and anticipates that asbestos containing materials, lead-based paint and PCBs (electrical equipment and light fittings) are likely to be encountered during that demolition; and
- (b) the development site adjoins an educational establishment.

EIS section 4.10 states that the proposed works would not disturb any active geological specimens.

The EPA has identified the following site specific concerns based on the project information available on the Department of Planning and Environment major projects web site:

- (a) the need for a detailed assessment of potential site contamination, including information about groundwater and a detailed assessment of the footprint and surrounds of existing buildings following their demolition;

- (b) demolition and construction phase noise and vibration impacts (including recommended standard construction hours and intra-day respite periods for highly intrusive noise generating work) on noise sensitive receivers such as surrounding residences;
- (c) demolition and construction phase dust control and management;
- (d) demolition and construction phase erosion and sediment control and management;
- (e) operational noise impacts on noise sensitive receivers;
- (f) the need to assess feasible and reasonable noise mitigation and management measures;
- (g) the need to clarify how the back up emergency generator is fuelled;
- (h) practical opportunities to implement water sensitive urban design principles, including stormwater re-use; and
- (i) practical opportunities to minimise consumption of energy generated from non-renewable sources and to implement effective energy efficiency measures.

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

Yours sincerely



**SARAH THOMSON**  
**Unit Head, Metropolitan Infrastructure**  
**NSW Environment Protection Authority**

**Attachment A**

Contact officer: JOHN GOODWIN

## ATTACHMENT A

### - ENVIRONMENT PROTECTION AUTHORITY COMMENTS – AUSTRALIAN MUSEUM RE-DEVELOPMENT (STAGE 1)

#### 1. General

The EPA considers that the project comprises distinct phases of construction and operation and has set out its comments on that basis.

The EPA notes the proximity of surrounding residences which may be adversely affected by noise impacts during demolition, site preparation, construction and operation phases of the project.

#### 2. Construction phase

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

- the site contamination remediation action plan accompanying the EIS,
- compliance with recommended standard construction hours,
- intra-day respite periods from high noise generating construction activities (including jack hammering, rock breaking, pile boring or driving, saw cutting),
- feasible and reasonable noise and vibration minimisation and mitigation,
- effective dust control and management,
- erosion and sediment control, and
- waste handling and management, particularly concrete waste and rinse water.

##### 2.1 Site contamination (including hazardous building materials)

EIS Appendix I comprises a preliminary site investigation which is limited in scope to desktop study and site inspection only. The investigation does not include any soil or groundwater sampling, but recommended limited and targeted site investigation to assess presence of contaminants of concern and to provide preliminary waste classification for surplus soils.

EIS Appendix I indicates the likely presence of asbestos containing material and other hazardous building materials on the development site most likely related to previous demolition works.

#### Recommendations

1. The proponent be required to ensure that a detailed post-demolition site assessment is undertaken, prior to any construction, to fully characterise contamination of those areas of the development site which will be redeveloped, including:
  - (i) sampling and assessment of soils and groundwater;
  - (ii) sampling at sufficient sampling points necessary to properly characterise soil and groundwater contamination in accordance with NSW EPA Sampling Design Guidelines; and

- (iii) conclusions concerning the suitability of the development site for intended use and recommendations for remediation and management of any encountered contamination.
2. The proponent be required consider the guidance material provided in *The National Environment Protection (assessment of contamination) Measures, 2013* as amended as well as the following EPA documents when undertaking further site assessment and validation -
    - NSW EPA Sampling Design Guidelines,
    - Guidelines for the NSW Site Auditor Scheme (3<sup>rd</sup> edition) 2017, and
    - Guidelines for Consultants Reporting on Contaminated Sites, 2011.
  3. The proponent be required to ensure that the processes outlined in *State Environmental Planning Policy 55 - Remediation of Land (SEPP55)* are followed in assessing the suitability of the land and any remediation required in relation to the proposed use.
  4. The proponent be required to ensure that the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination.
  5. The proponent be required to notify the EPA should any contamination of the development site be identified which meets the triggers in the *Guidelines for the Duty to Report Contamination*.
  6. The proponent be required to engage a site auditor (accredited under the Contaminated Land Management Act) should additional site assessment reveal further contamination of soil or groundwater –
    - (a) to review the adequacy of contamination assessment reports, any remediation action plan and unexpected finds procedure, and
    - (b) to provide a Section A Site Audit Statement (SAS) and accompanying Site Audit Report (SAR) certifying the suitability of the development site for the proposed use.

#### Hazardous building materials (including ACM and PCBs)

The EPA anticipates that given the age of some parts of the Museum complex, asbestos containing materials, lead-based paints, and PCBs (associated with electrical equipment and lighting fixtures) are likely to be encountered during demolition and construction.

Section 7 to EIS Appendix I recommends that a hazardous building materials survey be undertaken prior to any demolition and construction works.

Since late 2015, clause 79 of the Waste Regulation has required transporters of loads of asbestos waste to provide certain details of the loads to the EPA using the “WasteLocate” system. These details include details of the source site, date of proposed transport, details of the proposed destination site and the approximate weight of asbestos waste in the load. The information must be provided to the EPA before transportation of the load commences.

WasteLocate is an online tool that allows the EPA to track the transport of asbestos waste. Transporters are required to use WasteLocate to report the movement of more than 100 kilograms of asbestos waste or more than 10 square metres of asbestos sheeting within NSW. The details can be reported on WasteLocate by using an app on a mobile phone or tablet or by using a computer.

The *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997* sets out requirements for managing PCB materials and wastes, including activities such as -

- processing,
- storage,
- transport, and
- disposal

The Control Order is made under the Environmentally Hazardous Chemicals Act 1985. The proponent may readily obtain a copy of the Order on the EPA web site via the following link –

<https://www.epa.nsw.gov.au/your-environment/chemicals/chemical-control-orders>

## Recommendations

1. The proponent be required prior to commencing work to prepare and implement an appropriate procedure for identifying and dealing with unexpected finds of site contamination (including asbestos containing materials, lead-based paint, and Polychlorinated Biphenyls) that incorporates details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved.
2. The proponent be required to satisfy the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 'asbestos wastes'.

**Note:** The EPA provides additional guidance material at its web-site

<http://www.environment.nsw.gov.au/waste/asbestos/index.htm>.

3. The proponent be required to consult with Safework NSW concerning the handling of any asbestos waste that may be encountered during the course of the project.
4. The proponent be required to ensure that any PCB material or waste kept on the development site:
  - (a) is stored and handled in accordance with the *Polychlorinated Biphenyl (PCB) Chemical Control Order 1997*, and
  - (b) is assessed, classified and managed in accordance with the EPA "*Waste Classification Guidelines Part 1: Classifying Waste*" November 2014 and the 2016 Addendum thereto.

## 2.2 Noise and vibration

The EPA anticipates that demolition, site preparation (including tree clearing), bulk earthworks, construction and construction-related activities may have significant noise and vibration impacts on the adjoining school, and nearby passive recreation areas and residences.

### 2.2.1 *general construction hours*

The EPA emphasises that demolition, site preparation, bulk earthworks, construction and construction-related activities should be undertaken during the recommended standard construction hours.

The EPA notes that EIS section 6.18.1 indicates that works are proposed to be undertaken during the recommended standard construction hours.

## Recommendation

The proponent be required to ensure that as far as practicable all demolition, site preparation, bulk earthworks, construction and construction-related activities likely to be audible at any noise sensitive receivers such as surrounding residences are only undertaken during the standard construction hours, being -

- (a) 7.00 am to 6.00 pm Monday to Friday,
- (b) 8.00 am to 1.00 pm Saturday, and
- (c) no work on Sundays or gazetted public holidays.

### 2.2.2 *intra-day respite periods*

The EPA anticipates that those demolition, site preparation, bulk earthworks, construction and construction-related activities generating noise with particularly annoying or intrusive characteristics (such as those identified as particularly annoying in section 4.5 of the Interim Construction Noise Guideline) would be subject to a regime of intra-day respite periods where –

- (a) they are only undertaken after 8.00 am,
- (b) they are only undertaken over continuous periods not exceeding 3 hours with at least a 1 hour respite every three hours, and.
- (c) ‘continuous’ means any period during which there is less than an uninterrupted 60 minute respite between temporarily halting and recommencing any of the intrusive and annoying work referred to in Interim Construction Noise Guideline section 4.5

The EPA emphasises that intra-day respite periods are not proposed to apply to those demolition, site preparation, bulk earthworks, construction and construction-related activities that do not generate noise with particularly annoying or intrusive characteristics.

### **Recommendation**

The proponent be required to schedule intra-day ‘respite periods’ for construction activities identified in section 4.5 of the Interim Construction Noise Guideline as being particularly annoying to noise sensitive receivers and that those respite periods are scheduled in consultation with the management of the adjoining school.

### 2.2.3 *idling and queuing construction vehicles*

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 demolition, site preparation, bulk earthworks, construction and construction-related activities do not arrive at the project site or in surrounding residential precincts outside approved construction hours.

### 2.2.4 *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 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.

## Recommendation

The proponent be required to consider undertaking a safety risk assessment of site preparation, bulk earth works, construction and construction-related activities to determine whether it is practicable to use audible movement alarms of a type that would minimise the noise impact on surrounding noise sensitive receivers, without compromising safety.

### 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.

## Recommendation

The proponent be required to:

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

### 2.4 Sediment control

*Managing Urban Stormwater Soils and Construction, 4<sup>th</sup> Edition* published by Landcom (the so-called 'Blue Book') provides guidance material for achieving effective sediment control on construction sites. The proponent should implement all such feasible and reasonable measures as may be necessary to prevent water pollution in the course of developing the site.

The EPA emphasises the importance of –

- (a) not commencing demolition, site preparation, bulk earthworks, construction and construction-related activities until appropriate and effective sediment controls are in place, and
- (b) daily inspection of sediment controls which is fundamental to ensuring timely maintenance and repair of those controls.

### 2.5 Waste control and management (general)

The proponent should manage waste in accordance with the waste management hierarchy. The waste hierarchy, established under the [Waste Avoidance and Resource Recovery Act 2001](#), is one that ensures that resource management options are considered against the following priorities:

**Avoidance** including action to reduce the amount of waste generated by households, industry and all levels of government

**Resource recovery** including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources

**Disposal** including management of all disposal options in the most environmentally responsible manner.

All wastes generated during the project must be properly assessed, classified and managed in accordance with the EPA's guidelines to ensure proper treatment, transport and disposal at a landfill legally able to accept those wastes.

The EPA further anticipates that, without proper site controls and management, mud and waste may be tracked off the site during the course of the project.

## Recommendation

The proponent be required to ensure that:

- (1) all waste generated during the project is assessed, classified and managed in accordance with the EPA "*Waste Classification Guidelines Part 1: Classifying Waste*", November 2014 and the 2016 Addendum thereto;
- (2) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to prevent any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and
- (3) mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site, is removed before the vehicle, trailer or motorised plant leaves the premises.

### 2.6 Waste control and management (concrete and concrete rinse water)

The EPA anticipates that during the course of the project concrete deliveries and pumping are likely to generate significant volumes of concrete waste and rinse water. The proponent should ensure that concrete waste and rinse water is not disposed of on the project site and instead that:

- (a) waste concrete is either returned in the agitator trucks to the supplier or directed to a dedicated watertight skip protected from the entry of precipitation, and
- (b) concrete rinse water is directed to a dedicated watertight skip protected from the entry of precipitation or a suitable water treatment plant.

## Recommendation

The proponent be required to ensure that concrete waste and rinse water are

- (a) not disposed of on the development site, and
- (b) prevented from entering waters, including any natural or artificial watercourse.

## 3. Operational phase

The EPA considers that environmental impacts that arise once the development is operational should be able to be largely averted by responsible environmental management practices, particularly with regard to:

- (a) feasible and reasonable noise mitigation measures;
- (b) waste management in accordance with the waste management hierarchy;
- (c) any underground petroleum storage system;
- (d) water sensitive urban design; and
- (e) energy conservation and efficiency.

### 3.1 Noise and vibration impacts

The EPA anticipates the proposed development (especially mechanical ventilation plant and equipment and back up generators) may have significant operational noise impacts on nearby sensitive receivers, especially nearby residences and the adjoining school.



SEARs requirement 10 requires the proponent to undertake an operational noise impact assessment. Whilst, EIS Appendix G is headed 'Construction and Operation Impact Assessment', it does not appear to include any operational noise impact assessment.

The EPA understands that the purpose of the development is to modernise the Museum and to increase patronage. Further, that an upgraded mechanical ventilation and air conditioning system is required for curatorial purposes.

#### background noise measurement

The EPA emphasises that properly establishing background noise levels in accordance with guidance material in the New South Wales Noise Policy for Industry (NPI) is fundamental to a consistent approach to the quantitative assessment of noise impacts of development.

The NSW Noise Policy for Industry (NPI) specifies that at least a 'weeks' worth' of monitoring data is required to establish background noise levels and that noise levels measured during rainfall should be excluded when deriving those background levels.

Section 3.2 to EIS Appendix G states that unattended background noise monitoring was undertaken on up to 13.5 days between 29 August 2018 and 11 September 2018 during which period Bureau of Meteorology observations (Observatory Hill) indicate that –

- rainfall was recorded on nine days, and
- wind velocities exceeding 5 metres per second (i.e. 18 kilometres per hour) during at least part of 10 days.

However, the daily 'unattended noise monitoring results' graphs appended to EIS Appendix G allow for the recording of rainfall and wind speed but show no rainfall periods and zero wind speed.

#### **Recommendation**

The proponent be required to undertake and report background noise monitoring in accordance with the guidance material provided in Fact Sheets A and B to the Noise Policy for Industry.

#### noise impact assessment

The EPA anticipates significant operational noise impacts associated with operation of the redeveloped Museum complex, including noise impacts arising from:

- mechanical plant and equipment (especially ventilation and air conditioning plant and equipment);
- functions held at the Museum (especially functions involving amplified music);
- loading dock operations including waste collection services (especially during the evening and night time assessment periods and on weekends and public holidays); and
- grounds maintenance using powered equipment.

#### **Recommendation**

The proponent be required to:

- (a) provide a comprehensive quantitative assessment of operational noise impacts on surrounding noise sensitive receivers, especially the adjoining school and nearby residences;

- (b) ensure mechanical plant and equipment installed on the development site does not generate:
  - (i) noise that exceeds 5 dbA above the rating background noise level (day, evening and night) measured at the boundary of the development site, and
  - (ii) noise that exhibits tonal or other annoying characteristics.

#### waste collection services

The EPA notes numerous reports of community concern arising from waste collection services undertaken at public facilities such as schools, especially during evening and night times.

#### **Recommendation**

The proponent be required ensure waste collection services are not undertaken outside the hours of 7.00 am to 6.00 pm Monday to Saturday with no collections on Sundays and public holidays.

#### grounds maintenance using powered equipment

The EPA notes numerous reports of community concern arising from grounds maintenance involving the use of powered equipment (example: leaf blowers, lawn mowers, brush cutters) at public facilities such as schools during early morning and evening periods as well as on weekends and public holidays.

#### **Recommendation**

The proponent be required ensure grounds maintenance involving the use of powered equipment is not undertaken outside the hours of 7.00 am to 6.00 pm Monday to Friday.

### 3.2 Waste management

The proponent should manage waste in accordance with the waste management hierarchy outlined above.

#### **Recommendation**

The proponent be required to identify and implement feasible and reasonable opportunities for the re-use and recycling of waste, including food waste.

### 3.3 Underground petroleum storage system (UPSS)

SEARs requirement 10 requires the proponent to confirm whether the Museum will be served by a back up generator.

EIS section 4.10 states that “An Underground Petroleum Storage System is not currently located on the site and is not required for the development”. However, EIS architectural drawing ‘DA200’ identifies a back up emergency generator within the Museum’s loading dock level.

#### **Recommendation**

The proponent be required to provide details of how the back up emergency generator is fuelled, including the type of the fuel and the location of the fuel storage tank.

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