



Our reference: DOC16/125936-02

Cameron Sargent
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Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Dear Mr Sargent

I refer to your letter dated 8 March 2016 requesting the Environment Protection Authority's (EPA) comments on the exhibition of State Significant Development Application SSD 6960 – Stage 1B Basement, Barangaroo South.

The EPA has assessed the application and supporting documentation and provides comments at **Attachment A**.

As you may be aware, the EPA regulates the environmental impacts of remediation activities undertaken at Barangaroo through environment protection licence 13336. The licensee will need to submit a separate application to the EPA to vary the licence to permit the works detailed under SSD 6960.

If you have any questions in relation to this letter please contact Mark Hanemann on 9995 6845 or via email at mark.hanemann@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in purple ink, appearing to read 'James Goodwin'.

8 April 2016

JAMES GOODWIN
A/Manager Sydney Industry
Environment Protection Authority

Attachment A
EPA Comments on State Significant Development Application SSD 6960 – Stage 1B Basement, Barangaroo South.

Contamination

The EPA notes that the remediation of the majority of the subject area, which includes consent for the construction of groundwater retention walls and bulk excavation of material containing gasworks wastes within the retention walls, has been approved by DPE under SSD 5897, Stage 1B Remediation Area.

The EPA notes that the proposed works under SSD 6960 occur either after the completion of SSD 5897 or are outside the EPA declaration area. AECOM's assessment in Section 7 of L1 – SEPP Letter –Rev 12.11.15 indicates that the proposed works outside the EPA declaration area unlikely encounter significant contamination. These include ORWN services zone and the Block 4 services zone to the west of EPA declaration area. The EPA considers AECOM's assessment to be adequate.

The only potential exception is the proposed works in the Hickson Road services zone. Figure 3 of the EIS indicates the northern excavation area of the Hickson Road services zone is within the EPA declaration area. The proposed excavation works for the installation of stormwater pipes may occur prior to the remediation of Hickson Road. In Section 7.6 of L1 – SEPP Letter –Rev 12.11.15, AECOM explains how interim remediation works are to be carried out to protect the stormwater pipes. They include lining the excavation with HDPE liner and backfilling it with clean fill. The EPA considers this interim measure to be appropriate.

Waste

The document titled *Stage 1B Basement Barangaroo South - Construction Waste Management Plan Rev D - 11 November 2015* (CWMP), prepared by ARUP Pty Ltd (Appendix J of the EIS) is very general in scope and does not provide a sufficient level of detail on the processes by which waste will be minimised and diverted from landfill. However, the EPA notes that the contractor is required to develop a detailed CWMP prior to construction, which will incorporate Green Star requirements for waste diversion and set specific targets and procedures.

Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM)

The CWMP identifies VENM and ENM at the site as sandstone bedrock and natural marine sediments. The suitability of these materials as VENM or ENM needs to be carefully considered before it leaves the site.

- VENM and ENM must not contain sulfidic ores. The EPA notes that Potential Acid Sulphate Soils (PASS) have been previously identified at the site, and soils must therefore be carefully assessed for PASS (and Actual Acid Sulphate Soils) before being classified as VENM or ENM.
- While marine sediments may fall within the definition of ENM, the proponent should consider whether the analytical suite proposed in the order is comprehensive enough to adequately characterise the materials in question. Marine sediments experience different exposure pathways to that of soil and therefore additional contaminants of concern could potentially apply. For example, given the significant shipping traffic, tributyltin (TBT) may also be a contaminant of concern, which is not included as a chemical requirement under the order.
- The CWMP states that untreated PASS will be disposed as VENM to the Kurnell Landfill Company. However, PASS cannot be considered VENM due to the presence of sulfidic ores. The proponent must abide by the transporting requirements for PASS under Part 4 of the Waste Classification Guidelines; PASS must be kept wet at all times from excavation to when the material can be safely disposed at an appropriately licensed facility. PASS must be received at the proposed disposal facility within 16 hours of being excavated.

Reuse and Resource Recovery

The CWMP states that filling material is proposed for off-site reuse or disposal. It is not clear by what means filling material will be reused off site, bearing in mind that filling material may not meet the definition of ENM. ENM must be naturally occurring (containing at least 98% natural material) and does not include material that has been processed.

- The CWMP states that contaminated material is proposed for reuse or disposal off site. It is unlikely that contaminated material, by definition, will be suitable for reuse off site.
- The CWMP proposes a 97% recovery rate of construction and demolition waste. It is not clear whether this target included excavated soils. The CWMP does not demonstrate how this target will be met.
- Vegetation is proposed for reuse as mulch. If mulch is to be used off site it must comply with the chemical and other material requirements of the current order and exemption for mulch. These documents have not been referenced in the CWMP.
- No asbestos disposal facility was provided in Table 4 of the CWMP. As part of planning prior to excavation, an appropriately licensed landfill facility should be identified, should asbestos material be encountered on site.
- Prior to transporting any waste materials to the facilities in question, it should be verified whether the site is licensed to receive that material.
- Stockpiling of any material should be undertaken with appropriate bunding and containment measures. This should be detailed in the CWMP.

The waste hierarchy referenced in the CWMP is incorrect. The CWMP should reference the waste hierarchy that underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001*, which is as follows:

1. Avoid and reduce waste
2. Reuse waste
3. Recycle waste
4. Recover energy
5. Treat waste
6. Dispose of waste

The EPA notes that the CWMP references the AECOM (2013) Waste Management Plan, which may address some of the points raised above. The EPA also notes that management of demolition waste is further addressed under a separate DA.

Water Quality

The EPA considers that the key issue in relation to water is the appropriate management of any wastewater that may come into contact with contaminated material or be produced by groundwater seepage into the basement works. The EPA recommends the following consent conditions for water, which are consistent with what is being proposed in the EIS and with other stages of the development for the wider Barangaroo project.

WATER DISCHARGES

The Proponent must ensure that all surface water discharges from the site comply with:

- (a) section 120 of the POEO Act; or
- (b) the discharge limits (both volume and quality) set for the project in any applicable Environment Protection Licence (EPL), unless otherwise agreed to in writing by the EPA.

Prior to the commencement of works, the Applicant must ensure that EPL 13336, issued to the Barangaroo Delivery Authority, is varied to reflect and permit the proposed works.

The construction stage must be implemented in accordance with the water management measures included in the EIS and EPL 13336.

WATER AND STORMWATER MANAGEMENT PLAN

A construction stage Water and Stormwater Management Plan (the Plan) for the project must be prepared and be submitted to the EPA for review prior to the construction stage.

The Plan must ensure that all groundwater from the excavations and surface water that may be contaminated by toxicants associated with the Barangaroo site will be managed and/or treated in a manner that ensures that it can be discharged to sewer or waters or tankered offsite to an appropriate facility.

Any potentially contaminated water associated with the works that may be discharged to surface waters must be directed through the site Wastewater Treatment Plant (WTP) and be sufficiently treated to ensure compliance with the relevant limits required under EPL 13336.

The Plan must include but need not be limited to the following elements:

- Specifications and design details of any WTP;
- Details of how the WTP can achieve the licence limits that have been applied previously to Barangaroo site discharges under EPL 13336;
- A WTP commissioning stage monitoring program;
- A construction stage discharge quality monitoring program;
- Trigger criteria for exceedance of surface water discharges;
- Specific actions for any exceedances of trigger values for all potential pollutants that may be discharged in surface water;
- Reuse criteria for any proposed reuse of wastewater onsite including reuse of in-situ treatment wastewater or effluent by reinjection;
- Details of how all contaminated water (including stormwater collected in disturbed contaminated areas and works areas, and groundwater from disturbed contaminated areas) will be collected for treatment on-site prior to any discharge; and
- Details of turbidity monitoring and silt curtain(s) arrangement proposed in the EIS.

EROSION AND SEDIMENT CONTROL

Soil erosion and sediment control measures must be designed in accordance with the document *Managing Urban Stormwater — Soils & Construction Volume 1 (2004)* by Landcom. Details are to be submitted to the satisfaction of the Certifying Authority prior to the construction stage.

It is noted that the majority of erosion and sediment control measures required for the construction of the Stage 1B basement will be established as part of the works to be completed under the Construction Framework Environmental Management Plan for the Stage 1B Basement works.

CONSTRUCTION FRAMEWORK ENVIRONMENTAL MANAGEMENT PLAN

The Construction Framework Environmental Management Plan for the Stage 1B Basement works must be updated to incorporate the proposal and provided to the EPA for review prior to the construction stage.

[Note – the EPA anticipates that the standard Construction Framework Environmental Management Plan consent condition used for previous Barangaroo developments (e.g. the related SSD 5897) is included in the consent conditions for SSD 6960.]

Air Quality

Predicted Impacts

The Air Quality Impact Assessment (AQIA) (AECOM, 2015)¹ predicts exceedances of the impact assessment criteria contained in the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*, as follows:

- On an incremental basis (emissions from the proposal only) the assessment predicts exceedances of:
 - Nitrogen Dioxide (NO₂) over a 1 hour averaging period; and
 - Particulate matter (PM₁₀) over a 24 hour averaging period.
- On a cumulative basis (including additional activities and background air quality) the assessment predicts exceedances of:
 - Nitrogen Dioxide (NO₂) over a 1 hour averaging period;
 - Particulate matter (PM₁₀) over a 24 hour and annual averaging period; and
 - Total Suspended Particles (TSP) over an annual averaging period.

The AQIA does not include a detailed breakdown or analysis of the predicted exceedances, including the quantity and contributing factors. It is therefore difficult to comprehensively interpret the risk of adverse air quality impacts from the project. The AQIA also does not provide a discussion or assessment on potential alternatives, such as reduced excavation rates or activities with the aim of reducing particulate matter emissions to ensure exceedances do not occur.

The proponent should provide further analysis of predicted exceedances, including the quantity of predicted exceedances, the contributing factors and an options analysis.

Proactive Management Strategies

Section 7.1 of the AQIA outlines a number of mitigation measures, and states that mitigation measures will be implemented based on the reactive management program and the nature of the works. The EPA considers that mitigation measures should be applied on a proactive basis, coupled with additional measures on a reactive basis where necessary to ensure no adverse off site impacts.

Reactive Management Strategies

The AQIA provides an example of how the proposed reactive management strategy would be applied, based on dispersion modelling output for a single modelling day, and the associated trigger levels proposed for reactive management. The example provided shows that with the reactive mechanism in place, cumulative concentrations of PM₁₀ may exceed the impact assessment criteria. On this basis, additional mitigation measures and/or revised management triggers may be required.

The proponent should outline the mechanisms for reviewing the proactive and reactive management strategies, including the trigger levels, with the objective of minimising particulate matter emissions and ensuring exceedances do not result from project operations.

Management of Potential Residual Contamination

The EPA notes that emissions of compounds associated with the contamination to be remediated were not assessed, on the basis that remediation of contamination should be completed prior to undertaking excavation works. The EPA recommends that management strategies be developed for confirming remediation is complete prior to undertaking excavation activities, and contingency measures be outlined in the event residual contamination is exposed during the excavation works.

¹ AECOM, 2015 – *Air Quality Impact Assessment, One Sydney Harbour – Stage 1 B Basement – State Significant Development Application*, dated 13th November 2015

Noise Impacts

Insufficient justification for extended hours

The document titled *Lend Lease One Sydney Harbour State Significant Development 6960 Stage 1B Basement – Barangaroo South – Construction Noise & Vibration Assessment – Report No. 10232-1B Version C, November 2015* (the CNVA) proposes operating on Saturdays until 5:00 pm, based on approvals for other work in Barangaroo South and the City of Sydney code of practice *Construction Hours/ Noise within the Central Business District* (City of Sydney 1992).

The CNVA indicates that construction noise from the project on Saturdays between 1:00 pm and 5:00 pm may be up to:

- 13 dBA above the noise management level at residences on Hickson Road;
- 5 dBA above the noise management level at residences on High Street;
- 6 dBA above the noise management level for total construction noise from Barangaroo South; and
- 4 dBA above the noise management level at residential building R8 in Barangaroo.

Table 2 of the *Interim Construction Noise Guideline* (ICNG) (DECC 2009) indicates that strong justification should be provided for works outside the recommended standard hours and that “where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should negotiate with the community”.

The EPA considers that the works should abide by the ICNG where possible, and that insufficient justification has been provided for the extended hours. Justification for the proposed out of hours works should include demonstrating the support of the potentially affected community.

Vibration

The CNVA suggested that criteria from *Assessing vibration: a technical guideline* (DEC 2006) may be exceeded at receivers on Hickson Road, for some works close to those receivers. The options presented in the CNVA to manage those impacts, and which should be in the noise and vibration management sub plan, are:

- Notifying receivers when activities occur
- Using the smallest practical size of vibratory roller
- Vibration monitoring in response to complaints or at the initial stage of rock excavation
- Trial testing of vibration levels for equipment which may result in exceeding criteria.

The CNVA relies on mitigation measures which should be included in the noise and vibration management sub plan including:

- Acoustic treatment of odour ventilation equipment such as barriers or silencers, and reduced speed at night
- Acoustic treatment of generators or use of mains power
- Selection of low noise equipment and use of rock saws where feasible.