NSW EPA
ENVIRONMENT PROTECTION AUTHORITY

PCU061293

Your reference *SSD 6956 & SSD 6957*
Our reference: SF13/9913 – DOC15/291683-03
Our contact: Bob Marr

Mr Cameron Sargent
Team Leader
Key Site Assessment
Department of Planning and Environment
23-33 Bridge St
SYDNEY NSW 2001

Attn: Matthew Rosel

Dear Mr Sargent

The Environment Protection Authority (EPA) refers to your letter dated 15 July 2015 seeking comments on two State Significant Development Applications at Barangaroo South (SSD 6956 & SSD 6597). EPA refers also to the supporting documents prepared by JBA Urban Planning Pty Ltd on behalf of Crown Sydney Property Pty Ltd and titled:

(i) *State Significant Development Application SSD 15_6956 - Environmental Impact Statement - Stage 1C Remediation and Earthworks Barangaroo South*; and

(ii) *State Significant Development Application SSD 15_6957 - Environmental Impact Statement - Crown Sydney Hotel Resort - Barangaroo South.*

As you are aware the Department of Planning and Environment (P&E) sought and received submissions from the EPA on the Secretary's Environmental Assessment Requirements (SEAR) for these projects and EPA's comments appear to have been satisfactorily addressed in the EISs.

Nevertheless, EPA considers that the following areas will need careful management should the project proceed:

1. Site Contamination;
2. Waste;
3. Noise and vibration;
4. Groundwater and surface water management;
5. Air; and
6. Contaminated materials, waste and chemicals.

EPA's detailed comments and provisional recommendations on the above environmental media are appended in attachment 1, 2 and 3.

EPA understands that the proponents have developed a comprehensive Construction Framework Environmental Management Plan for the Barangaroo Development. EPA understands also that sub-plans covering the relevant environmental media will be developed and implemented to assist the proponents to meet the relevant environmental goals and to comply with the relevant environmental legislation.

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As you will be aware activities at the Barangaroo site are regulated by conditions attached to Environment Protection Licence (EPL) number 13336 which is held by the Barangaroo Delivery Authority. You may be aware also that EPL 13336 was recently varied to reflect the cessation of a number of scheduled activities at the Barangaroo site. However, it is likely that the planning approval of new projects at Barangaroo, including SSD 6956 & SSD 6597 may trigger the need for further EPL variations to add new scheduled activities and/or new conditions to the EPL. If P&E grants approval for these developments, where necessary the BDA should apply to the EPA to vary EPL number 13336.

EPA considers that many of the short-term environmental or amenity impacts associated with these projects can be readily regulated by the EPL. However, the proponent will need to ensure that all mitigation measures outlined in the EIS, and required in P&E's final Approval will need to be carefully implemented to ensure compliance with the EPL and other relevant environmental legislation.

In summary, on the basis of the information available the EPA has no objection on environmental grounds to P&E proceeding with the planning process for these projects should it decide to do so. EPA will of course consider the contents of any Response to Submissions (RTS) report which the proponents may prepare once the EIS exhibition period is completed and EPA may refine its requirements as a consequence.

If you have any queries regarding these matters please contact Bob Marr on 9995 6825.

Yours sincerely

21 August 2015

DAVID GATHERCOLE
Unit Head Sydney Industry
Environment Protection Authority

ATTACHMENT 1

EPA submission on

State Significant Development Application SSD 15_6956 - Environmental Impact Statement - Stage 1C Remediation and Earthworks Barangaroo South; and

(ii) State Significant Development Application SSD 15_6957 - Environmental Impact Statement - Crown Sydney Hotel Resort - Barangaroo South.

The EPA has reviewed the above EISs and provides comment and provisional recommended consent conditions on the following aspects of the proposal:

1. Site Contamination and miscellaneous;
2. Waste including waste stockpile management;
3. Noise and vibration;
4. Groundwater and surface water management and receiving water quality;
5. Air; and
6. Contaminated materials, waste and chemicals.

1. Site contamination & miscellaneous

The Remediation Action Plan (RAP) Addendum and the Site Audit Report (SAR) together have adequately addressed "***3. Remediation and contamination***" of the Secretary's Environmental Assessment Requirements (SEAR).

1. The RAP Addendum has outlined a reasonable and credible framework to address "***4. Waste Management***" of the SEARs in relation to TIM (tar impacted material) and ACM (asbestos contained material). The SAR (with Site Audit Statement (SAS), No. GN439B-6) prepared by Graeme Nyland has provided comprehensive assessment and endorsement of the RAP and the RAP Addendum. The SAS has also stated that the site can be made suitable for the proposed range of uses (hotel, commercial/retail, public open space and underground carpark).

2. Waste

Prior to the commencement of works, the proponent must develop and submit to EPA for review, a revised Waste Management Plan. The WMP must include (but not be limited to):

2.1. A stockpile, contamination soil and sediment management plan including (at a minimum):

a. The exact locations where contaminated waste material (including Acid Sulphate Soils if found) and non-contaminated waste material will be stockpiled. Contaminated and non-contaminated waste material must be stockpiled separately and the designated areas must be clearly marked and labelled (on the plans and on the ground);

b. Details of how stockpiled contaminated waste material will be kept separate from non-contaminated waste material;

c. Details of how runoff from stockpiled contaminated waste material will be kept separate from non-contaminated runoff;

d. The maximum proposed heights and volumes for each stockpile to reduce the potential for dust and odour and greater detail on stockpile stabilisation and covering to minimise odour and vapour emissions;

e. Procedures for minimising the movement of waste material around the site and double handling; and

f. Additional information detailing how materials proposed to be recycled / reused will be segregated on the site during operations. Particularly in relation to those wastes categorised as "Building" waste.

2.2 A detailed plan for in-situ classification of waste material, including the sampling locations and sampling regime that will be employed to classify the waste, particularly with regards to the identification of contamination hotspots.

2.3 A commitment to retaining all sampling and classification results for the life of the project to demonstrate compliance with EPA's Classification Guidelines.

2.4 Details in relation to any Concrete Crushing and Screening Plant to be installed at the site and its use, including (at a minimum):

a. Location and specifications of the concrete crushing and screening plant;

b. Estimated quantities of concrete to be crushed per day;

c. Measures that will be employed to prevent or minimise the emission of dust from the crushing activity; and

d. Measures that will be employed to prevent or minimise the emission of noise from the crushing activity.

2.5 Details in relation to the transport of waste material around the site (on-site) and from the site, including (at a minimum):

a. A traffic plan showing transport routes within the site;

b. Location of the stockpiles at each stage as they migrate within the site;

c. A commitment to retain waste transport details for the life of the project to demonstrate compliance with the Protection of the Environment Operations Act; and

d. The name and address of each licensed facility that will receive waste from the Barangaroo site (if appropriate);

2.6 Details of the de-watering process, including the specifications for any on-site water treatment plant.

2.7 A contingency plan for any event that may affect excavation and contaminated soil treatment operations at the site, particularly in relation to the expected volumes materials excavated/generated at the site.

3. Noise and vibration

3.1. The proponent must prepare and implement a detailed Construction Noise and Vibration Management Plan (CNVMP), to be approved by the Director General before commencement of works, that includes but is not necessarily limited to:

3.2. identification of the specific activities that will be carried out and associated noise sources at the premises;

3.3. identification of all potentially affected sensitive receiver locations;

3.4. quantification of the rating background noise level (RBL) for sensitive receivers, as part of the CNVMP, or as undertaken in the EIS;

3.5. the construction noise, ground-borne noise and vibration objectives derived from an application of the EPA Interim Construction Noise Guideline (ICNG), as reflected in conditions of approval;

3.6. prediction and assessment of potential noise, ground-borne noise (as relevant) and vibration levels from the proposed construction methods expected at sensitive receiver premises against the objectives identified in the ICNG and conditions of approval;

3.7. where the objectives are predicted to be exceeded, an analysis of feasible and reasonable noise mitigation measures that can be implemented to reduce construction noise and vibration impacts;

3.8. description of management methods and procedures, and specific noise mitigation treatments / measures that will be implemented to control noise and vibration during construction;

3.9. where the objectives cannot be met, additional measures including, but not necessarily limited to, the following should be considered and implemented where practicable; reduced hours of construction, the provision of respite from noisy / vibration intensive activities, acoustic barriers / enclosures, alternative excavation methods or other negotiated outcomes with the affected community;

3.10. where night time noise management levels cannot be satisfied, a report shall be submitted to the Director General outlining the mitigation measures applied, the noise levels achieved and justification that the outcome is consistent with best practice;

3.11. measures to identify non-conformances with the requirements of the CNVMP, and procedures to implement corrective and preventative action;

3.12. suitable contractual arrangements to ensure that all site personnel, including sub-contractors, are required to adhere to the noise management provisions in the CNVMP;

3.13. procedures for notifying residents of construction activities that are likely to affect their noise and vibration amenity;

3.14. measures to monitor noise performance and respond to complaints;

3.15. measures to reduce noise related impacts associated with offsite vehicle movements on nearby access and egress routes from the site;

3.16. procedures to allow for regular professional acoustic input to construction activities and planning; and

3.17. effective site induction, and ongoing training and awareness measures for personnel (e.g. tool box talks, meetings etc).

All construction work at the premises must be conducted between 7am and 6pm Monday to Friday and between 8am and 5pm Saturdays and at no time on Sundays and public holidays, unless inaudible at any residential premises. Works outside these hours are not permitted except as explicitly specified below or in other conditions and include:

(i) the delivery of materials which is required outside these hours as requested by Police or other authorities for safety reasons;

(ii) emergency work to avoid the loss of lives, damage to property and/or to prevent environmental harm;

(iii) other works expressly approved by the Director General; and

(iv) out of standard hours works identified in a CNVMP approved by the Director General.

Construction noise management levels (NML) derived in accordance with the EPA Interim Construction Noise Guidelines apply to this project, and are required to be identified in an approved CNVMP. Any activities that have the potential for noise emissions that exceed the NMLs must be identified and managed in accordance with the CNVMP. The Proponent must implement all Reasonable and Feasible noise mitigation and management measures with the aim of achieving the NMLs.

Vibration caused by Construction and received at any sensitive receiver outside the project must be assessed against the guidelines contained in the EPA publication "Environmental Noise Management - Assessing Vibration: a technical guideline" and in accordance with the CNVMP.

4. Water

Stormwater and Water Management Plan

4.1. Prior to the commencement of works, the proponent must develop and provide to the EPA for comment, a comprehensive Stormwater and Water Management Plan.

4.2. All groundwater, surface water or leachate arising from the works must be collected, managed and/or treated in a manner that ensures that it can be legally discharged to sewer or waters.

4.3. All water discharged from the site to Darling Harbour must comply with the table of limits (**see Attachment 3**) unless otherwise agreed by EPA. In addition to the limits (**Attachment 3**), a turbidity limit will be applied to the ambient monitoring locations to ensure there is no visible plume outside the silt curtain. In the initial stages of the project an interim limit of 25NTU will be applied. Once sufficient ambient data is available from both the ambient locations and the reference location a final limit will be developed which will include consideration of background.

4.4. Any discharge structure constructed to allow water to be discharged to Darling Harbour must allow for at least an initial 5 fold dilution. The discharge point must be installed inside an appropriately installed silt curtain arrangement.

4.5. No water that is contaminated may be reused on site for dust suppression or other activities without being treated.

4.6. The water treatment plant must be designed to remove all relevant contaminants (including petroleum hydrocarbons, PAHs, BTEX, sediments and metals) to levels in the water management plan or as otherwise agreed by EPA.

4.7. Untreated water must be held on site until results from monitoring are available for review until otherwise agreed by EPA

Monitoring

4.8. The water management plan must include a detailed proposal for monitoring water quality.

4.9. The monitoring program must include at least an on-site program for waters held on site prior to discharge and an ambient monitoring program that checks water quality in Darling Harbour.

4.10. The monitoring on site program needs to cover all types of water on the site that needs to be discharged including clean stormwater, higher turbidity stormwater from areas without much soil contamination, stormwater that has been in contact with contaminated areas and contaminated groundwater from the excavations.

The monitoring of ambient waters program must include an up and downstream/tide sampling location around the discharge structure as well as a reference location. Water to be discharged to Darling Harbour must be monitored on a daily basis for the first two weeks of operations. The monitoring frequency of subsequent discharges must be not less than weekly unless otherwise agreed by EPA and/or permitted by licence conditions.

5. Air Quality Management Plan

5.1. An Air Quality Management Plan (AQMP) must be developed for the project. The Air Quality Management Plan must be submitted to the Department of Planning for review and approval in consultation with the EPA.

5.2. The AQMP must include, as a minimum, the following elements:

5.2.1. Relevant environmental criteria to be used in the day to day management of dust and volatile organic compounds (VOC)/odour;
5.2.2. Mission statement;
5.2.3. Dust and VOCs/odour management strategies, consisting of:
5.2.3.1. Objectives and targets;
5.2.3.2. Risk assessment;
5.2.3.3. Suppression improvement plan.
5.2.4. Monitoring requirements including assigning responsibility (for all employees and contractors);
5.2.5. Communication strategy; and
5.2.6. System and performance review for continuous improvement.

Broad outlines of the above elements can be found in **Attachment 2**.

5.3. The AQMP must detail management practices to be implemented for all dust and VOC/odour sources at the site.

5.4. The AQMP must detail the dust, odour, VOC and semi-volatile organic compounds (SVOC) monitoring program (e.g. frequency, duration and method of monitoring) to be undertaken for the project.

5.5. The proponent must develop and implement an appropriate comprehensive Reactive Air Quality and Odour Management Plan which will incorporate an Ambient Air Monitoring Program and Reactive Management Strategy to ensure that the assessment criteria are met during works.

Dust Generation

All operations and activities occurring at the premises must be carried out in a manner that will minimise or prevent the emission of dust from the premises.

The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

Odour

The applicant must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the *Protection of the Environment Operations Act 1997*, provides that the applicant must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Stockpile Management

All stockpiles shall be maintained at manageable sizes which allow them to be covered, if necessary, to control emissions of dust and/or VOCs/odour.

6. Hazardous materials immobilisation/management

6.1. If any soil needs to be disposed of off-site then it will need to comply with the Waste Classification Guidelines. These guidelines may indicate the material will need to be immobilised prior to disposal. If this is the case, the proponent must apply to EPA for a site specific immobilisation approval.

6.2. Any asbestos contaminated materials excavated from the site must be managed in accordance with the EPA document titled: The Use of Asbestos Contaminated soils on Barangaroo (known as The Driscoll Report).

ATTACHMENT 2

EPA SUBMISSION ON SSD 6956 & SSD 6957

GUIDANCE NOTE

AIR QUALITY MANAGEMENT PLAN

VERSION 1.0 DRAFT

Air Quality Management Plan

The broad outline of an air quality management plan (AQMP) is provided in Figure 0.1. Each aspect of the AQMP is discussed in further detail in this chapter. An AQMP should contain as a minimum the following elements:

- Environmental Criteria (Section 0);
- Mission statement (Section 0);
- Dust management strategy (Section 0) consisting of :
    - Objectives and targets (Section 0);
    - Dust risk assessment (Section 0);
    - Dust suppression improvement plan (Section 0);
- Monitoring requirements (Section 0) including assigning responsibility (Section 0);
- Communication strategy (Section 0); and
- System and performance review for continuous improvement (Section 0)

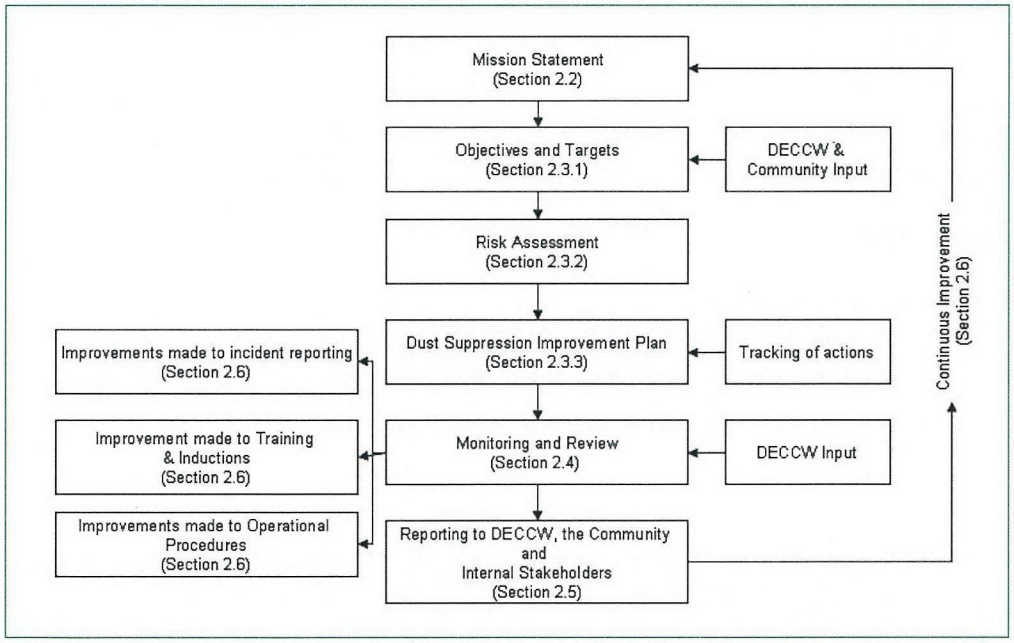

Figure 0.1: Broad Outline of Dust Management Plan

Identify Environmental Criteria

Identify environmental criteria that can be used to measure the extent of impacts from emissions of particulate matter and VOCs/odour. The environmental criteria should note the:

- Particle size
- Averaging time
- Concentration
- Frequency of exceedance

Environmental criteria for an AQMP may not directly correlate to regulatory criteria. For example, the premises may operate several air quality monitors that measure and report ambient levels of particulate matter on a 10 minute time step. It may be useful for the AQMP to identify alarm levels based on short term time steps in order to effectively manage air quality impacts. Therefore, environmental criteria would need to be developed that are not consistent with regulatory environmental criteria.

Mission Statement

Provide a mission statement for the operation of the premise. The mission statement for an air quality management plan should encompass the need for continuous improvement in terms of reducing fugitive emissions generated by activities undertaken and outline why continuous improvement is important for the organisation.

Develop Management Strategy

Set Objectives and Targets

Within the Management Strategy, the Proponent should set objectives and targets to meet over the reporting period taking into consideration the following aspects:

- environmental risks identified in the dust and VOCs/odour risk register
- legal non-compliance issues;
- audit findings and corrective actions;
- stakeholder complaints and views
- technological options;
- financial, operational and business requirements.

Dust and VOCs/Odour Risk Assessment

The dust and VOCs/odour risk assessment should:

- identify all potential particulate matter and VOCs/odour emission sources
- magnitude of emission source and range of potential emission significance
- potential impact area under the range of meteorological conditions likely at the site
- probability of occurrence
- consequence of occurrence
- existing controls of each source, including physical controls, behavioural controls and procedural controls

Dust and VOCs/Odour Suppression Improvement Plan

The dust suppression improvement plan should outline actions to meet endorsed objectives and targets and address high risk areas identified in the risk register.

Monitoring Requirements

The broad aim of the monitoring programme is to provide a quantitative measurement of how the Proponent is performing against the Objectives and Targets set out in the Management Plan. Secondary aims of the monitoring network are to:

- Determine long-term trends in ambient air quality levels.
- Determine TSP, PM_{10}, and VOC/odour (including individual VOC species) concentrations at representative locations surrounding the facility.
- Provide scientific data for the community.

It is important to note that monitoring requirements for informing an AQMP do not necessarily have to align with regulatory monitoring requirements. For example, light scattering techniques that are correlated to dust levels could be used to inform the dust management plan (e.g. opacity meters used to measure haul road dust to inform road watering, surface treatment response).

Responsibilities

The dust management plan should outline all responsibilities in regards to dust management for all employees (including contractors) of the Proponent.

Communication Strategies

Both internal (e.g. training and induction, exceedance reporting, incidence reporting) and external (annual reporting, exceedance analysis, complaint analysis, internet reporting for community) communication strategies in relation to dust management are to be outlined in the Dust Management Plan.

System and Performance Review

A review of the air quality management plan should be conducted periodically. The review should take into account the following:

- Suitability of the missions statement;
- The extent to which objectives and targets have been met;
- Air quality concerns or complaints from external stakeholders;
- General dust performance based on monitoring results;
- Periodic environmental audit findings; and
- Periodic reviews of dust control trials and investigations;

The results of the review are to feed back into the air quality management plan with the objective to drive continuous improvement in performance.

Attachment 3
EPA Submission on SSD 6956 & SSD 6957
Water Quality Limits for Discharges from Barangaroo

	Units	Criteria
Total suspended solids	mg/L	50 (100-percentile concentration limit that already incorporates dilution)
Turbidity	NTU	0.5 – 10 (ambient guideline for outside silt curtain – a trigger value above background could be calculated for ambient monitoring/licence limit purposed for wet and dry weather). NTU discharge criteria from sediment basins would need to be developed based on a good site specific relationship to TSS
Sheens or plumes	daily inspections	No visual sheens or plumes outside silt curtain
pH	pH	6.5 – 8.5 (100-percentile concentration limit that already incorporates dilution)
Arsenic	µg/L	2.3
Cadmium	µg/L	0.7
Copper	µg/L	1.3
Lead	µg/L	4.4
Mercury	µg/L	0.1
Zinc	µg/L	15
Chromium (trivalent)	µg/L	27
Chromium (VI) compounds	µg/L	4.4
Nickel	µg/L	7
Cyanide	µg/L	4
Ammonia	µg/L	910
BTEX		
Benzene	µg/L	500
Ethyl benzene	µg/L	80
Toluene	µg/L	180
m-Xylene	µg/L	75
p-Xylene	µg/L	200
o-Xylene	µg/L	350
Phenol	µg/L	400
Total Petroleum Hydrocarbons C10-C14 Fraction	µg/L	50#
Total Petroleum Hydrocarbons C15-C28 Fraction	µg/L	100#
Total Petroleum Hydrocarbons C29-C36 Fraction	µg/L	50#
Total Petroleum Hydrocarbons C6-C9 Fraction	µg/L	20#
Oil and grease	mg/L	10 (100-percentile concentration limit that already incorporates dilution)
PAHs		
Naphthalene	µg/L	50
Anthracene	µg/L	2 (0.01)*
Phenanthrene	µg/L	2 (0.6)*
Fluoranthene	µg/L	2 (1.0)*
Benzo(a)anthracene	µg/L	2 (0.5)*
Benzo(a)pyrene	µg/L	2 (0.1)*
Benzo(b)fluoranthene	µg/L	2 (0.1)*
Benzo(k)fluoranthene	µg/L	2 (0.1)*

Acenapthene	µg/L	2*
Acennapthylene	µg/L	2*
Chrysene	µg/L	2*
Indeno(1,2,3-cd)pyrene	µg/L	2*
Pyrene	µg/L	2*
Flourene	µg/L	2*
Benzo[ghi]perylene	µg/L	2*
Dibenz[a,h]anthracene	µg/L	2*
Electrical conductivity		monitor
Dissolved oxygen		-
Total Polychlorinated Byphenols (PCBs)	µg/L	Early non-detects and this can be removed from any ongoing monitoring requirements

* The limit of reporting of 2 µg/L is proposed when ANZECC criteria are lower than this detection limit

\# Standard limit of reporting

Note: Where default trigger values are not available then ANZECC criteria from volume 2 of the Water Quality Guidelines is used. These are environmental concern levels and the guidelines explain their application.