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Dear Mr Williams

Proposed New Berrima Brickworks Facility, 416 and 524 Berrima Road, Moss Vale (SSD-10422)

I refer to your email of 27 July 2020 to the Environment Protection Authority (EPA) inviting comments on the Environmental Impact Statement (EIS) for the above project, including advice on recommended conditions. The project is proposed to replace the existing Bowral brickworks plant.

Based on the information provided, the EPA advises that there appears to be insufficient information in the EIS to determine the environmental impact of the proposal and the effectiveness of the measures proposed to address any impacts. The EPA has identified several matters in **Attachment A** where it is recommended the proponent provide additional information and/or clarification to assist the Department of Planning, Industry and Environment in the assessment and determination of this project.

The proponent has advised that the proposed development will require an Environment Protection Licence under the *Protection of the Environment Operations Act 1997* (POEO Act). To assist the EPA to provide its recommended conditions of approval for the project, the matters included in Attachment A should be addressed by the proponent. The EPA may have further comments and/or requirements upon receipt and review of the information.

If you have questions regarding the above, please phone Craig Patterson on (02) 4224 4100.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Peter Bloem', with a date stamp '21/08/20' below it.

21/08/20

PETER BLOEM
Manager Regulatory Operations

Attachment A

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(from outside NSW)

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Attachment A

Environmental Impact Statement (EIS)

1. Section 4 of the EIS indicates that the proposed development would require the issue of an Environment Protection Licence (EPL) from the EPA for the scheduled activity of ceramic works. Section 3.2.1 also indicates that raw materials delivered to the Site would be crushed and ground onsite. The proponent must ensure that if the proposed development be granted project approval all scheduled activities that will be undertaken at the premises are identified. This may include but not be limited to the scheduled activity of crushing, grinding or separating.
2. Section 6.5.2 states that “*the crusher infrastructure would be enclosed internally, which significantly minimises the potential for airborne dust emissions resulting from the crushing and associated operations*”. Section 6.7 refers to external crushing operations as a principal noise source. The EPA requests that information is provided to clarify the location and operation of the proposed crushing activities.
3. Section 6.9.5 states that the measures included in the preliminary Erosion and Sediment Control Plan are a conceptual approach and further details of the erosion and sediment control systems and procedures would be provided at the detailed design stage when more information is available regarding in-situ soils and development staging.

Given that the site is located within the Sydney Water Drinking Catchment (Section 6.9.8), enhanced stormwater controls should be designed and implemented to be consistent with the practices and principles of the Managing Urban Stormwater: Soils and Construction Volumes 1 and 2. For example, this could include larger basins to promote the reuse of water and minimise discharges, capacity or ability to pump water around the site to minimise discharges, or additional armoury to minimise erosion and maximise sediment capture. The EPA may have further comments and/or requirements upon submission of further details for the detailed design stage.

4. Section 6.9.10 indicates that the brick manufacturing process will require a significant quantity of water for cooling and washing. While some information on water quality treatment is provided in Section 6.9.8, the EIS does not appear to discuss the management of any process waters/wastewaters from the development as required by the SEARs. The EPA requests that additional information is provided to describe any process waters that may be produced as a result of the activity and the measures that will be implemented to manage it.
5. Section 6.10 identifies the presence of potential asbestos containing materials onsite and states that a Remedial Action Plan is required to manage this material. The objective of the remediation activities for the asbestos contaminated soil must be to eliminate any potential risks to human health and/or the environment for both current and proposed future users of the site. The remediation activities must be undertaken in a manner that can clearly demonstrate that this objective has been achieved. An independent occupational hygienist should also be engaged to review the proposed remediation strategies and supervise the remediation activities for the site to ensure any potential risks to human health and/or the environment are satisfactorily addressed.

The storage, transport and disposal of any asbestos waste removed from the premises must be undertaken in accordance with the Protection of the Environment Operations Act 1997 and the Protection of the Environment Operations (Waste) Regulation 2014. Please note that asbestos waste above certain quantities must be tracked using the EPA’s WasteLocate. Other legislation, including the Work Health and Safety Act 2011 and associated regulations may also apply.

Air Quality Impact Assessment (AQIA)

The EPA requests that a revised AQIA is provided to address the following matters:

Hydrogen fluoride (HF) impacts on sensitive land has not been adequately assessed

6. The HF impact assessment criteria (IAC) from the Approved Methods for Modelling and Assessment of Air Pollutants in NSW (Approved Methods) for “general land use” has been used in the AQIA. The AQIA has predicted that offsite HF concentrations at all identified receptors are below this IAC. A more stringent IAC exists for specialised land use, which includes all areas with vegetation sensitive to fluoride.

Section 6.4 of the AQIA states “*At the time of preparing this assessment, it is unknown whether the land-use surrounding the proposed facility comes under the specialised land-use category. However, as per the Wingecarribee Local Environmental Plan 2010 – Land Zoning Map LZN_007C (refer Figure 4), the proposed facility is located in the General Industrial (IN1), with the Boral Cement Plant in the Heavy Industrial (IN3) zone and the Austral Bricks Quarry in the E3 – Environmental Management zone*”.

To the north of the site there is land zoned as E2 Environmental Conservation and E3 Environmental Management. Additionally, wineries are in the general vicinity of the proposed facility and grapes are a sensitive vegetation type.

The AQIA has not adequately demonstrated that the general land use IAC is appropriate. For determination of HF impacts, the Approved Methods specifies assessment criteria for general land-use and for specialised land-use which is applicable to all areas with vegetation sensitive to fluoride.

The EPA requests that the proponent provide a detailed land use and vegetation assessment to evaluate current and potential future land uses and vegetation that may be sensitive to fluoride.

Hydrogen chloride has not been adequately assessed.

7. The AQIA has predicted modelled maximum (100th percentile) cumulative concentrations at the nearest sensitive receptor for all of the assessed pollutants (TSP, PM10, PM2.5, HF, SO₂, NO₂ and deposited dust levels), with the exception of sulfuric acid, for which the maximum (99.9th percentile) incremental impacts (from the proposed facility) have been predicted at or beyond the facility site boundary.

The assessment has not considered emissions or potential impacts of hydrogen chloride (HCl). HCl is a known pollutant from the brick making process and is classed as an individual toxic air pollutant. Table 7.2b of the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2016) lists the IAC, as 0.14mg/m³.

As per the Protection of the Environment Operations (Clean Air) Regulation (2010) the Group 6 limit for HCl for ceramic works activities is 100mg/m³. The assessment should also consider all cumulative sources of hydrogen chloride, including the Boral Berrima Cement Works.

The EPA requests that the AQIA be revised to include an assessment of hydrogen chloride (HCl). HCl must be assessed at and beyond the boundary of the facility and consider cumulative sources including the Boral Berrima Cement Works.

Significant incremental impacts are predicted

8. The following significant incremental impacts are predicted;
 - HF is predicted to be;
 - 26% of the assessment criteria for the 90-day averaging period.

- 18% of the assessment criteria for the 30-day averaging period.
- 22% of the assessment criteria for the 7-day averaging period; and
- 52% of the assessment criteria for the 24-hour averaging period
- Sulfuric acid is predicted to be 84% of the assessment criteria (99.9th percentile 1-hour average)
- NO₂ is predicted to be 32% of the assessment criteria (100th percentile, 1-hour average)
- Sulfur dioxide is predicted to be 18% of the assessment criteria (100th percentile, 10 minute average)

The EPA considers these incremental impacts to be significant. The proposed facility is in the Moss Vale Enterprise Corridor (MVEC), and increased industrial premises are approved or seeking approval for development in the local vicinity to the facility. As such, the EPA consider that all facilities must aim to reduce emissions as far as practicable to minimise impacts to the localised air quality.

The AQIA indicates that the proponent proposes to install a cascade scrubber to limit the discharge concentration of HF from the kiln stack to a maximum of 20 mg/m³. However, no controls are discussed for other pollutants including sulfur dioxide, sulfur trioxide, hydrogen chloride or nitrogen oxides.

All reasonable and feasible options must be considered and assessed to minimise emissions of air pollutants as far as practicable. Additional control measures and options for improved dispersion should also be considered.

The height of the kiln stack for the proposed facility is 35m above ground level. A higher stack would generally facilitate better dispersion of pollutants and minimise building wake effects that can potentially disrupt / impact the plume dispersion.

The EPA requests that the proponent identify and evaluate further mitigation measures to minimise emissions of pollutants including sulfur trioxide, nitrogen oxides and sulfur dioxide in a revised AQIA. Additionally, options to improve dispersion, such as increasing the stack height, should also be considered.

Assessment of nitrogen dioxide impacts is less conservative.

9. The cumulative maximum predicted ground level concentration of NO₂ is 153.9 ug/m³, which is 63% of the IAC (1-hour average). Incremental impacts from the project alone are predicted to be 78.6 ug/m³ which is 32% of the IAC (1-hour average).

NO₂ emissions data from the Boral Cement has been sourced from 2017/18 NPI data. There is no justification given for the selected year/date. It is shown in the table below that some reported pollutant emissions (i.e. NO_x) were significantly lower for the 2017/18 reporting period compared with the 2016/17 and 2018/19 reporting periods. The adoption of the lower emissions data means that the assessment is less conservative.

Period	Substance	Air Total (kg)	Air Fugitive (kg)	Air Point (kg)	Total (kg)
2016/2017	Oxides of Nitrogen	3,000,000	34,000	3,000,000	3,000,000
2017/2018	Oxides of Nitrogen	2,300,000	20,000	2,300,000	2,300,000
2018/2019	Oxides of Nitrogen	4,000,000	20,000	4,000,000	4,000,000

Additionally, NO₂ emissions from the Austral masonry plant have not been included in the cumulative assessment. Only particulate matter (TSP, PM₁₀, PM_{2.5} and deposited dust) impacts from the Austral Masonry Plant were considered. Justification is provided by Airlabs in Section 7.4 of the AQIA that following review of the AQIA for the masonry plant (Airlabs, 2018), the maximum 1-hour average NO₂ incremental concentrations predicted at the worst impacted receptor was approximately 1% of the assessment criteria". While the justification provided is

reasonable, the omission of this data further adds to the uncertainty of the predicted ground level impacts for NO₂.

The EPA requests that the AQIA be revised to include a refined assessment of nitrogen dioxide, accounting for all nearby emission sources.

Kiln emissions during reducing conditions have not been discussed or assessed

10. A reduction kiln is proposed to be used at the plant to produce dry pressed brick products including 'Bowral Blues'. To produce this type of brick oxidised (high oxygen) and reduced (high gas) firing techniques are required.

Under reduced oxygen (high gas) conditions increased emissions of pollutants, including carbon monoxide, particles and VOC's are typically expected. The AQIA does not discuss the expected impact on emissions from the proposed two firing techniques. As such, the assumed emission concentrations and adopted emission rates have not been adequately justified.

The EPA requests that the AQIA be revised to include a discussion on the expected emissions profiles from the kiln stack under oxidised and reduced conditions. All pollutant emissions associated with the proposed two firing techniques, including carbon monoxide, volatile organic compounds and particles must be adequately evaluated and assessed. Justification for all adopted emission rates should be appropriately supported.

Solid particles emissions control performance is inconsistent with best practice

11. The assessment predicts minor incremental impacts from particles (TSP, PM₁₀ and PM_{2.5}). The design concentration for total solid particles (TSP), adopted by Airlabs in the AQIA is 45 mg/ m³. This is marginally below the standard of concentration (50mg/m³) prescribed in the POEO Clean Air Regulation (2010) for Ceramic Works (Group 6, Schedule 3).

The POEO Clean Air Regulation Group 6 prescribed standards of concentration have applied since 2005. As advised during the planning focus meeting on 7 November 2019, it is expected that the emission control performance of current pollution control systems should aim to achieve emissions performance well below the prescribed standards of the Regulation. All reasonable and feasible control measures for minimising particle emissions should be considered and evaluated against current performance standards for emission controls.

The EPA requests that additional information is provided to demonstrate that all reasonable and feasible control measures have been considered and evaluated in the AQIA to achieve an emission performance of particles, which is reflective of best practice controls and benchmarked against comparable emission performance standards for newly installed pollution control systems.

Fugitive dust emissions from the operational activities not adequately assessed

12. It has been proposed that the Brickworks will operate 24 hours, 7 days a week. To estimate dust emissions from the material handling activities (loader operations, conveyor operations etc.), emissions have only been calculated for a 12-hour period every day of the year (Section 8.2). This approach is likely to underpredict emissions from the operations, if activities occur over a 24-hour period. The AQIA does not appear to provide any justification for the reduced hours.

The EPA requests that the AQIA be revised to model emissions of fugitive dust from operational activities over a 24-hour period, unless adequate justification can be provided for adopting a 12-hour period.

Noise Impact Assessment (NIA)

13. Section 3.1 of the NIA, pertaining to background noise monitoring, states that “*The gathered data showed higher than expected background noise levels from natural sources such as insects and cicadas...*”

Part A4 of the Noise Policy for Industry (NPfI, 2017) provides guidance for approaches to ensure that seasonal variations in noise (such as cicada noise) is adequately considered in the assessment. Table 3.4 of the NIA indicates that insect/cicada noise was between 36 and 40 dBA at the measurement locations. The Rating Background Level (RBL) selected for the site indicates that there is a possibility that this insect/cicada noise has increased the background noise level over and above what would be measured out-of-season.

The EPA requests that additional information be provided to clarify whether the seasonal variation has been considered in deriving the RBL for the site, and therefore determining the appropriate Project Trigger Noise Levels (PTNLs). The NIA has selected the minimum RBL for the Day period, however the Evening and Night period may be elevated as a result of the inclusion of the insect/cicada noise. The NIA indicates that several receivers are within 1 or 2 dB of the PTNL presented within the report. Minor variations of the RBL could affect the Predicted Noise Levels for Operational Activities presented in Table 5.2 of the NIA.

14. Section 3.2 of the EIS states that the plant would operate as a dry press brick plant which involves material being pressed into a steel mould to produce the finished brick shape. Section 2.4 of the NIA describes the process as an extrusion process using a pugmill. Table 5.1 of the NIA also includes an extruder as a nominated noise source. The NIA must ensure that the correct process and/or equipment proposed to be used at the new brickworks plant are assessed to ensure the accuracy of the predicted noise levels. The EPA requests that NIA should be reviewed to assess its accuracy and suitability in assessing any proposed noise impacts from the development.