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Planning and Assessment Division
Department of Planning, Housing and Infrastructure
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Returned via Major Projects Portal
By email: Allison.Sharp@planning.nsw.gov.au

Attention: Allison Sharp

EPA Advice on Submissions Report – Holcim Salt Ash Sand Operations – SSD-9099356

Dear Ms Sharp

I am writing in response to your request for the NSW Environment Protection Authority (EPA) to review the Submissions Report for the proposed Holcim Salt Ash Sand Operations (Application SSD-9099356) (the Proposal) at 8 Oakvale Drive, Salt Ash NSW (Lot 4 DP774726) (the Premises).

The EPA has reviewed the following documents:

- Holcim Salt Ash Sand Operations – Submissions Report - Element Environment - 26 August 2025 (including appendices)
- Letter - Holcim Salt Ash Sand Operations (SSD-9099356) – Request for Information (dated 28 August 2025) – ENV Solutions – 16 September 2025

The EPA understands the Proposal is for:

- The extraction of up to 10 million tonnes of sand via dry extraction and dredging techniques over a 30-year period at the rate of up to 550,000 tonnes per annum.
- Continued importation and processing of up to 200,000 tonnes per annum of sand from Holcim's Tanilba Bay and Anna Bay operations as well as other local sand quarries.
- Processing of Acid Sulfate Soils (ASS) including separation of sulfidic fines from dredged sand, chemical neutralisation of acidic sand, fines and groundwater and onsite disposal of sulfidic materials within the dredge pond.

Based on the information provided, the proposal would be subject to Environment Protection Licence (EPL) 11685 under sections 43, 48, 55 and/or 122 of the *Protection of the Environment Operations Act 1997* (the Act) for *extractive activities* under clause 19 of Schedule 1 of the Act.

The EPA is unlikely to be able to license proposed activities

The EPA believes the Proposal is likely to create an unacceptable risk of *pollution of waters* (groundwater) from the proposed dredging activities, associated ASS processing and the onsite disposal of ASS fines.

NSW Environment Protection Authority

As the environmental steward and regulator of our State we are committed to a sustainable future. Join us on our mission to protect tomorrow together.

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The EPA considers that the Proposal presents a significant risk to groundwater quality due to the potential to cause irreversible impacts to both local and regional groundwater systems. To this effect objectives of the EPA under s 6 of the *Protection of the Environment Administration Act 1991* require the EPA to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development (ESD). The precautionary principle should be considered where there is a lack of full scientific certainty to prevent environmental degradation. This level of environmental risk is considered unacceptably high and cannot be adequately offset by the management and mitigation strategies within the Submissions Report.

Due to the requirements of section 45 of the Act the EPA is unlikely to be able to license the Proposal as presented within the Submissions Report. In addition, the EPA must consider the objectives of the EPA under s 6 of the *Protection of the Environment Administration Act 1991* as amended by Schedule 8 of the *Environmental Legislation Amendment Act 2025* that requires the EPA to have regard to Aboriginal cultural values and practices.

The EPA note that both the Worimi Conservation Lands Board and the Worimi Local Aboriginal Land Council have previously objected to the Proposal. The EPA notes the cultural significance of groundwater to the Maangal Ngurra of the Worimi Nation being the traditional primary source of fresh water. The Proposal has not adequately assessed the potential impacts to the Aboriginal cultural values of groundwater during both operation and post closure.

Matters to be addressed

In consideration of the above advice, the EPA has provided some matters as **Attachment A** that need to be addressed to the EPA's satisfaction to ensure that considerations under s 45 of the Act and the objectives of the EPA under s 6 of the *Protection of the Environment Administration Act 1991* as amended by Schedule 8 of the *Environmental Legislation Amendment Act 2025* can be met by the Proposal to permit the EPA to license the proposed activities.

The EPA recommends that the Department of Planning, Housing and Infrastructure (DPHI) limit the depth of sand mining to 1m above the groundwater table as advised in previous submissions on the Proposal by both the NSW Department of Climate Change Energy, the Environment and Water (DCCEEW) and Hunter Water Corporation (HWC) to mitigate the significant water quality related risks.

Consistency in maintaining a buffer between the maximum allowable extraction depth and the maximum predicted groundwater height has been a uniform control on sand mining operations in the area since a buffer was proposed over 30 years ago. (refer to *Tomago Tomaree Stockton groundwater: Technical Review* - NSW Department of Water Resources, 1995). The EPA intends to ensure that all sand extraction operations licensed by the EPA in the Port Stephens Local Government area are required by conditions of the EPL to limit the depth of sand mining to not adversely interact with the groundwater table.

If you have any questions about this matter, please contact Anthony van der Horst via email at info@epa.nsw.gov.au.

Yours sincerely

NATASHA RYAN
Unit Head - Operations
NSW Environment Protection Authority

Enclosure: Attachment A: Matters to be Addressed
Attachment B: Legislative Context of EPA

ATTACHMENT A: Matters to be addressed

Based on the information provided to the EPA in relation to Proposal, the EPA may not be able to license the proposed activities under *Protection of the Environment Operations Act 1997* (the Act), the *Protection of the Environment Administration Act 1991* and as amended by Schedule 8 of *Environmental Legislation Amendment Act 2025*.

Accordingly, the EPA is unable to provide recommended conditions of consent for the Proposal. The Proponent must adequately address the following issues for the EPA to consider recommended conditions of consent.

1. Pollution of groundwater through liberation of metals from ASS fines

The Proposal has not sufficiently demonstrated that the risk of liberation and mobilisation of metals from the ASS fines can be adequately controlled. The Proponent determined that elevated levels of acid digestible aluminium, arsenic, barium, beryllium, chromium, cobalt, copper, iron, manganese, molybdenum, nickel, lead, strontium, and zinc are present in the ASS fines.

As the groundwaters exhibit low alkalinity any liberation of acid from the ASS fines or addition of lime to neutralise acid that is generated is likely to cause rapid swings in pH that are would be difficult to control. The Proposal notes that metals present in the ASS fines can be liberated through either low or high pH conditions.

Accordingly, the Proponent would need to ensure a high degree of control over lime dosing for pH adjustment to prevent the liberation of metals from the ASS fines. Undertaking this process within or within close proximity to the high permeability sand aquifer presents a high degree of risk of pollution of waters should the Proponent not be able to maintain control of the treatment process.

While the strategy of increasing the pH of the ASS fines slurry and/or the dredge pond may decrease the solubility of metal ions; the efficacy of the approach could depend on many factors such as:

- the level of metal ion solubility that has already occurred before dosing,
- the effectiveness of the dosing strategy, and
- the concentration of metal ions in the slurry.

In addition to this the Proponent has not adequately addressed the issue of metals precipitating in the slurry (which would then be returned to the dredge pond) where increasing the pH would not assist with the higher metal concentrations. Therefore, solely adjusting the pH may not prevent the liberation and mobilisation of metals into the aquifer. Additionally, the Proponent has not given consideration to concentration gradients rather than groundwater flow that may dominate the migration of any liberated metals from the dredge pond and off site.

The EPA notes that the Proponent has not conducted bench scale testing or pilot plant trials for neutralising the ASS fines. The limited knowledge of potential chemical reactions, liberation of metals under various treatment conditions or reaction kinetics presents a highly experimental approach to the treatment of ASS fines at a production scale within an environment where migration of liberated metals off site is likely.

2. Inter-Generational Equity of disposal of concentrated ASS fines within dredge pond

Under s6 of the *Protection of the Environment Administration Act 1991* the objectives of the EPA are to protect, restore and enhance the quality of the environment in NSW, having regard to the need to maintain ecologically sustainable development (ESD). ESD requires the consideration of intergeneration equity.

The Proposal does not adequately address the long-term management of the dredge pond post closure in perpetuity with respect to the risk of acidification and metals migration. The Proponent has not considered the potential impacts of the sterilisation of the land for future use.

The Proposal intends to concentrate and dispose of ASS fines within the dredge pond. The ASS fines have the potential to acidify and release toxic metals to the groundwater aquifer if disturbed and exposed to oxygen.

The EPA considers this to be an unacceptable impact on intergenerational equity as the proposed future land use does not promote the environment being maintained or enhanced for the benefit of future generations. This is through the disposal of material that if generated offsite would otherwise likely be classified as restricted solid waste or hazardous waste under the *Waste Classification Guidelines Part 1: Classifying waste* (EPA2014). While the ASS fines may naturally occur within the site, the extraction and processing of the sand would concentrate the ASS fines, and the proposed disposal methodology would deposit the processed material in a manner that is inconsistent with the naturally occurring material. The proposed disposal location is located within a highly mobile unconfined aquifer that is adjacent to the Worimi Conservation lands.

Effectively, the disposal of the ASS fines within the dredge pond would require the concentrated ASS material contained within pond to not be disturbed in perpetuity, or until oxidised. The Proponent has not adequately addressed these issues within the Proposal other than identifying that *“the site’s future land use will be limited and likely confined to environmental conservation and/or eco-tourism land uses”*.

The EPA notes that the Proposal does not explain how the ASS fines disposal site would be able to be utilised for conservation or eco-tourism land uses or address the risk of disturbing the disposed ASS fines post closure and causing significant contamination of the groundwater source.

Given the relatively isolated location of the proposed dredge pond, the EPA has serious concerns that post closure the dredge pond would become a target site for illegal dumping. The Proposal does not adequately address the risk of illegal dumping and associated disturbance of the disposed ASS fines post closure.

The Proposal has not adequately assessed the potential impacts to the Aboriginal cultural values of groundwater during both operation and post closure.

3. Monitoring and Response to changes in Groundwater Quality

The findings presented in the Proposal continue to reflect a highly probabilistic occurrence regarding potential adverse impacts on groundwater systems.

Section 9.6 of the Acid Sulfate Soils Characterisation Investigation (Geosyntec 2025) being Appendix B of the Submissions Report, details that metal releasing conditions in the D1 and D2 soil horizons are highly susceptible to leaching due to the acid generating potential when oxidised. This potential increases the risk of altering the water quality which the soils is in contact with.

Section 11.2 of the Acid Sulfate Soils Characterisation Investigation states that *“Based on the analysis, concentrations of the identified CoPC in groundwater are likely to increase if oxidation of acid sulfate soils occurs within the extraction void, or in soils adjacent to the extraction void through the disturbance caused by the dredge processes or increased oxygen mixing within the extraction pond. The effect may be reduced with suitable acid sulfate soils management but may also require additional management measures if some degree of acid generation and metals mobilisation occurs even with the application of ASS management.”*

While the Proposal sets out monitoring and triggers to identify the liberation and mobilisation of acid or metals, the EPA has concerns that the monitoring timeframes and trigger levels may not prevent harm to the groundwater aquifer or provide sufficient time to implement appropriate response measures.

Additionally, the EPA has concerns that the response measures identified by the Proposal may not be feasible or able to prevent environmental harm from occurring. Notably the Proposal does not provide suitable evidence that the proposed primary control of management of pH in the dredge pond through addition of lime will prevent mobilisation of metals. The Proposal has not sufficiently considered other mobilisation pathways such as oxidation caused by water circulation by the dredge, the reintroduction of the concentrated ASS fines or the surface of the dredge pond being exposed.

4. Potential Migration of PFAS from Williamtown Broader Management Zone

The Proposal has not adequately considered the risk of migration of PFAS from the Williamtown Broader Management Zone. The Proposal would create a significant draw down on the groundwater aquifer.

The Williamtown PFAS Broader Management Zone extends to the boundary of the Premises. The Proposal has not adequately considered the risk that draw down of groundwater during the life of the Proposal and post-closure may create a groundwater gradient that promotes the migration of PFAS from current PFAS impacted areas.

It is also unclear how groundwater dynamics may be impacted through the concentration of ASS fines and reintroduction to the dredge pond on groundwater flows.

5. Consideration of Resource Recovery Order and Exemption Framework

The Proposal may require a site-specific Resource Recovery Order and Exemption under Section 286A of the Act for the Proponent to be able to lawfully export treated sand from the Premises. The Proponent has not provided details of this consideration within the Proposal. Further information on obtaining a Resource Recovery Order and Exemption can be found on the [EPA website](#).

ATTACHMENT B: Legislative Context of Environment Protection Authority

Section 120 of the Act prohibits any person from causing or permitting the pollution of waters.

Schedule 6 of the Act defines *waters* as including *any underground or artesian water*.

Section 45 of the *Protection of the Environment Operations Act 1997* (the Act) requires the EPA to consider various matters when issuing or varying an environment protection licence. These matters include:

- (c) the pollution caused or likely to be caused by the carrying out of the activity or work concerned and the likely impact of that pollution on the environment
- (d) the practical measures that could be taken—
 - to prevent, control, abate or mitigate that pollution, and
 - to protect the environment from harm as a result of that pollution
- (f1) in relation to an activity or work that causes, is likely to cause or has caused water pollution—
 - the environmental values of water affected by the activity or work, and
 - the practical measures that could be taken to restore or maintain those environmental values.
- (a) the objectives of the EPA as referred to in section 6 of the *Protection of the Environment Administration Act 1991* including:
 - to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain *Ecologically Sustainable Development*.
- s 6 of the *Protection of the Environment Administration Act 1991* as amended by Schedule 8 of the *Environmental Legislation Amendment Act 2025* that requires the EPA to have regard to Aboriginal cultural values and practices.

Section 6(2) of the *Protection of the Environment Administration Act 1991* states that *Ecologically Sustainable Development* can be achieved through the implementation of:

- (a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by—

 - (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
 - (ii) an assessment of the risk-weighted consequences of various options.
- (b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

ENDS