



Our Ref: DOC19/1026540
Your Ref: SSD 10398

Director, Minerals Quarry Assessments
Department of Planning, Industry and Environment
Planning and Assessment Group
PO Box 39
Sydney NSW 2011

Attention: Ms Gen Lucas, Senior Environmental Assessment Officer

Dear Mr Spratt

Re: Request for Environmental Assessment Requirements – Hanson Tweed Sand Plant Expansion, Tweed local government area (SSD 10398)

Thank you for your referral via the Major Projects portal on 11 November 2019 inviting input to the preparation of Secretary's Environmental Assessment Requirements (SEARs) for the Hanson Tweed Sand Plant Expansion from the Biodiversity and Conservation Division (BCD) of the Environment, Energy and Science Group in the NSW Department of Planning, Industry and Environment. I appreciate the opportunity to provide advice.

The BCD was formerly part of the Office of Environment and Heritage, but now forms part of a Group that has responsibilities relating to biodiversity (including threatened species and ecological communities, or their habitats), Aboriginal cultural heritage, National Parks and Wildlife Service estate, climate change, sustainability, flooding, coastal and estuary matters.

We note that the proposal will be assessed as State Significant Development in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Environmental Impact Statement (EIS) SEARs provided by the Biodiversity and Conservation Division are limited to Aboriginal cultural heritage, biodiversity, National Park estate, historic heritage, acid sulphate soils, flooding, stormwater and coastal erosion.

The proponent should ensure that the EIS will be sufficiently comprehensive to enable unambiguous determination of the extent of the direct and indirect impact(s) of the proposal.

The full list of our requirements that may need to be addressed in the EIS are provided in **Attachment A**. In addition, we have provided project specific requirements in **Attachment B**. These relate to biodiversity, Aboriginal cultural heritage, acid sulfate soils, water and soils and flooding.

For biodiversity, these SEARs have been issued with respect to the *Biodiversity Conservation Act 2016*. The project specific requirements for biodiversity are required as the quarry expansion project will impact on areas that were to be rehabilitated as required by the current conditions of consent even though the rehabilitation program is not complete. As the rehabilitation works were part of the offset arrangements for the existing quarry development any impacts on the areas that were required to be rehabilitated must be offset. In accordance with Section 7.14 (4) of the *Biodiversity Conservation Act 2016* the offsets must be secured before the new development commences.

For Aboriginal cultural heritage, the development occurs in a location identified in the Tweed Shire Council's *Aboriginal Cultural Heritage Management Plan 2018* as containing an Aboriginal Place of Heritage Significance. A project specific requirement has been included to ensure the assessment of cultural heritage values considers the Tweed Shire Council's *Aboriginal Cultural Heritage Management Plan 2018* and the identified Aboriginal Place of Heritage Significance mapped within the site and that this consideration include consultation with the local Aboriginal community.


For acid sulfate soils, the approach outlined in the scoping study by Gilbert and Sutherland is not adequate and would not satisfy the requirements. Project specific requirements include assessing and sample testing in accordance with specific guidelines, development of a conceptual model for the site to understand local hydrogeological conditions, the stratigraphic and lateral distribution of sulfide minerals, and consideration of the presence of sensitive environmental receptors. They also require mitigation and management measures to prevent, control, abate or minimise potential impacts arising from the disturbance of acid sulfate soils and a contingency plan incorporating a commitment to appropriate monitoring.

As the project is large with heightened potential to impact on water quality and hydrology, project specific requirements are included to address the impacts of the proposed development on water quality, hydrology and flood behaviour, particularly in relation to projected climate change induced sea level rise.

In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment C**.

If you have any questions about this advice, please do not hesitate to contact Ms Rachel Lonie, Senior Conservation Planning Officer, at rachel.lonie@environment.nsw.gov.au or on 6650 7130.

Yours sincerely



9 December 2019

DIMITRI YOUNG
Senior Team Leader Planning, North East Branch
Biodiversity and Conservation

Enclosures:

Attachment A - BCD Standard Environmental Assessment Requirements (SSD 10398)

Attachment B - BCD Project-specific Environmental Assessment Requirements (SSD 10398)

Attachment C – Guidance Material (SSD 10398).

**Biodiversity and Conservation Division
Recommended Environmental
Assessment Requirements (EARs)
for**

Hanson Tweed Sand Plant Expansion,
Tweed Local Government Area (SSD 10398)

Attachment A – Biodiversity and Conservation Division Standard Environmental Assessment Requirements (SSD 10398)

Biodiversity

1. Biodiversity impacts related to the proposed development are to be assessed in accordance with [Section 7.9 of the Biodiversity Conservation Act 2016](#) the [Biodiversity Assessment Method](#) and documented in a [Biodiversity Development Assessment Report \(BDAR\)](#). The BDAR must include information in the form detailed in the *Biodiversity Conservation Act 2016* (s6.12), *Biodiversity Conservation Regulation 2017* (s6.8) and [Biodiversity Assessment Method](#), unless Biodiversity and Conservation Division and Planning and Assessment Group determine that the proposed development is not likely to have any significant impacts on biodiversity values.
2. The BDAR must document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the [Biodiversity Assessment Method](#).
3. The BDAR must include details of the measures proposed to address the offset obligation as follows;
 - The total number and classes of biodiversity credits required to be retired for the development;
 - The number and classes of like-for-like biodiversity credits proposed to be retired;
 - The number and classes of biodiversity credits proposed to be retired in accordance with the variation rules;
 - Any proposal to fund a [biodiversity conservation action](#);
 - Any proposal to conduct ecological rehabilitation (if a mining project);
 - Any proposal to make a payment to the Biodiversity Conservation Fund.If seeking approval to use the variation rules, the BDAR must contain details of the [reasonable steps](#) that have been taken to obtain requisite like-for-like biodiversity credits.
4. The BDAR must be submitted with all spatial data associated with the survey and assessment as per Appendix 11 of the BAM.
5. The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the *Biodiversity Conservation Act 2016*.

Aboriginal cultural heritage

6. The EIS must identify and describe the Aboriginal cultural heritage values that exist across the whole area that will be affected by the development and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation. The identification of cultural heritage values must be conducted in accordance with the [Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW \(OEH 2010\)](#), and guided by the [Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW \(DECCW, 2011\)](#) and consultation with Biodiversity and Conservation Division regional branch officers.

<p>7. Consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the ACHAR.</p>
<p>8. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the ACHAR. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to Biodiversity and Conservation Division.</p>
<p>Water and soils</p>
<p>9. The EIS must map the following features relevant to water and soils including:</p> <ul style="list-style-type: none"> a. Acid sulfate soils (Class 1, 2, 3 or 4 on the Acid Sulfate Soil Planning Map). b. Rivers, streams, wetlands, estuaries (as described in s4.2 of the Biodiversity Assessment Method). c. Wetlands as described in s4.2 of the Biodiversity Assessment Method. d. Groundwater. e. Groundwater dependent ecosystems. f. Proposed intake and discharge locations.
<p>10. The EIS must describe background conditions for any water resource likely to be affected by the development, including:</p> <ul style="list-style-type: none"> a. Existing surface and groundwater. b. Hydrology, including volume, frequency and quality of discharges at proposed intake and discharge locations. c. Water Quality Objectives (as endorsed by the NSW Government http://www.environment.nsw.gov.au/ieo/index.htm) including groundwater as appropriate that represent the community's uses and values for the receiving waters. d. Indicators and trigger values/criteria for the environmental values identified at (c) in accordance with the ANZECC (2000) Guidelines for Fresh and Marine Water Quality and/or local objectives, criteria or targets endorsed by the NSW Government. e. Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions http://www.environment.nsw.gov.au/research-and-publications/publications-search/risk-based-framework-for-considering-waterway-health-outcomes-in-strategic-land-use-planning
<p>11. The EIS must assess the impacts of the development on water quality, including:</p> <ul style="list-style-type: none"> a. The nature and degree of impact on receiving waters for both surface and groundwater, demonstrating how the development protects the Water Quality Objectives where they are currently being achieved, and contributes towards achievement of the Water Quality Objectives over time where they are currently not being achieved. This should include an assessment of the mitigating effects of proposed stormwater and wastewater management during and after construction. b. Identification of proposed monitoring of water quality including how the waterbodies will be managed and water quality will be maintained post quarrying. c. Consistency with any relevant certified Coastal Management Program (or Coastal Zone Management Plan)

12. The EIS must assess the impact of the development on hydrology, including:
- a. Water balance including quantity, quality and source.
 - b. Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas.
 - c. Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems.
 - d. Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge (e.g. river benches).
 - e. Changes to environmental water availability, both regulated/licensed and unregulated/rules-based sources of such water.
 - f. Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options.
 - g. Identification of proposed monitoring of hydrological attributes.

Flooding and coastal hazards

13. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:
- a. Flood prone land.
 - b. Flood planning area, the area below the flood planning level.
 - c. Hydraulic categorisation (floodways and flood storage areas).
 - d. Flood hazard.

14. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 5% Annual Exceedance Probability (AEP), 1% AEP, flood levels and the probable maximum flood, or an equivalent extreme event.

15. The EIS must model the effect of the proposed development (including fill) on the flood behaviour under the following scenarios:
- a. Current flood behaviour for a range of design events as identified in 14 above. This includes the 0.5% and 0.2% AEP year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.

16. Modelling in the EIS must consider and document:
- a. Existing council flood studies in the area and examine consistency to the flood behaviour documented in these studies.
 - b. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood, or an equivalent extreme flood.
 - c. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazard categories and hydraulic categories.
 - d. Relevant provisions of the NSW Floodplain Development Manual 2005.

17. The EIS must assess the impacts on the proposed development on flood behaviour, including:
- a. Whether there will be detrimental increases in the potential flood affection of other properties, assets and infrastructure.
 - b. Consistency with Council floodplain risk management plans.
 - c. Consistency with any Rural Floodplain Management Plans.

- d. Compatibility with the flood hazard of the land.
- e. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
- f. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
- g. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
- h. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the NSW SES and Council.
- i. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the NSW SES and Council.
- j. Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the NSW SES.
- k. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.

Attachment B – Biodiversity and Conservation Division Project-specific Environmental Assessment Requirements (SSD 10398)

<p>Aboriginal cultural heritage</p> <p>1. The assessment of cultural heritage values must include consideration of the Tweed Shire Council's Aboriginal Cultural Heritage Management Plan 2018 and the identified Aboriginal Place of Heritage Significance mapped within the site including demonstrated consultation with the local Aboriginal community.</p>
<p>Biodiversity</p> <p>1. Impacts on the areas that were required to be rehabilitated in accordance with the revised Rehabilitation and Landscape Management Plan (RLMP) prepared by JWA (2019) must be offset in accordance with the Biodiversity Offset Scheme.</p> <p>2. The vegetation communities that were required to be established should be matched to a Plant Community Type in accordance with the BioNet Vegetation Information System and offsets requirements must be considered in the Biodiversity Development Assessment Report prepared by an accredited assessor in accordance with the Biodiversity Assessment Method.</p> <p>3. Offsets must be fully secured before any works commence on the site.</p>
<p>Acid sulfate soils</p> <p>1. The potential impacts of the development on acid sulfate soils must be assessed in accordance with the relevant guidelines in the Acid Sulfate Soils Manual (Stone et al. 1998) including the Assessment Guidelines 1998. Samples will be tested according to procedures in the Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004).</p> <p>2. A sound conceptual model must be developed for the site, including an understanding of local hydrogeological conditions, of the stratigraphic and lateral distribution of sulfide minerals, and of the presence of sensitive environmental receptors. This must include:</p> <ol style="list-style-type: none"> a. identifying whether sufficient pyrite is present in sediments to cause significant acidification on oxidation, b. determining whether mining activities are likely to cause oxidation of pyrite and leach acidity and soluble metals into groundwater or surface waterways, c. determining the likely extent and severity of groundwater or surface water contamination that may be caused by acidic leachate from oxidising sediments, and d. identifying whether there are ecosystems or groundwater users in the vicinity of the mine site that are likely to be exposed to contamination from acidic leachate. <p>3. Describe mitigation and management measures that will be used to prevent, control, abate or minimise potential impacts from the disturbance of acid sulfate soils associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This must include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.</p> <p>4. Describe the contingency plan, incorporating a commitment to appropriate monitoring.</p>

Water and soils
<p>1. The description of existing and proposed end use water quality/hydrology in the EIS must be based on suitable data (meaning data collection may be required) and must include:</p> <ul style="list-style-type: none"> a. Water chemistry. b. A description of receiving water processes, circulation and mixing characteristics and hydrodynamic regimes. c. Lake or estuary flushing characteristics. d. Sensitive ecosystems or species conservation values. e. Specific human uses and values (e.g. fishing, proximity to recreation areas). f. A description of any impacts from existing industry or activities on water quality. g. A description of the condition of the local catchment e.g. erosion, soils, vegetation cover. h. An outline of baseline groundwater information, including, for example, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment. i. Historic river flow data.
<p>2. The assessment of the development on water quality and hydrology in the EIS must include:</p> <ul style="list-style-type: none"> a. Water circulation, current patterns, water chemistry and other appropriate characteristics such as clarity, temperature, nutrient and toxicants, and potential for erosion. b. Changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, and groundwater). c. Disturbance of acid sulphate soils and potential acid sulfate soils. d. Stream bank stability and impacts on macro invertebrates. e. Water quality and hydrology modelling and/or monitoring, where necessary.
<p>3. The proposed monitoring of water quality must be undertaken in accordance with the Approved Methods for the Sampling and Analysis of Water Pollutant in NSW 2004.</p>
<p>4. The EIS must include a water quality and aquatic ecosystem monitoring program that includes:</p> <ul style="list-style-type: none"> a. Adequate data for evaluating maintenance, or progress towards achieving, the relevant Water Quality Objectives. b. measurement of pollutants identified or expected to be present.
<p>5. The EIS must assess the impacts of the development on water quality, including consideration of the effect on the receiving water bodies if a flood flow impacts the site and disperses the site lake water into the adjacent environment and/or into receiving waters.</p>
<p>6. The EIS must assess the impact of the development on hydrology, including the projected impacts of sea level rise on the site as affecting hydrological flow and connectivity of the site to the surrounding lands and waterways.</p>
Flooding and coastal hazards
<p>1. The EIS must assess the impacts on the proposed development on flood behaviour, including any impacts the development may have on the projected flood, groundwater, and freshwater hydrology impacts of projected climate change induced sea level rise.</p>

Attachment C – Guidance material (SSD 10398)

Title	Web address
<u>Relevant Legislation</u>	
<i>Biodiversity Conservation Act 2016</i>	https://www.legislation.nsw.gov.au/#/view/act/2016/63/full
<i>Coastal Management Act 2016</i>	https://www.legislation.nsw.gov.au/#/view/act/2016/20/full
<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
<i>Environmental Planning and Assessment Act 1979</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
<i>Fisheries Management Act 1994</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
<i>Marine Parks Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
<i>National Parks and Wildlife Act 1974</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
<i>Protection of the Environment Operations Act 1997</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
<i>Water Management Act 2000</i>	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
<i>Wilderness Act 1987</i>	http://www.legislation.nsw.gov.au/viewtop/inforce/act+196+1987+FIRST+0+N
<u>Biodiversity</u>	
Biodiversity Assessment Method (OEH, 2017)	http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf
Biodiversity Development Assessment Report	https://www.legislation.nsw.gov.au/#/view/act/2016/63/part6/div3/sec6.12
Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (OEH, 2017)	http://www.environment.nsw.gov.au/resources/bcact/guidance-decision-makers-determine-serious-irreversible-impact-170204.pdf
Accreditation Scheme for Application of the Biodiversity Assessment Metho Order 2017	https://www.legislation.nsw.gov.au/regulations/2017-471.pdf
Biodiversity conservation actions	www.environment.nsw.gov.au/resources/bcact/ancillary-rules-biodiversity-actions-170496.pdf
Reasonable steps to seek like-for-like biodiversity credits for the purpose of applying the variation rules	www.environment.nsw.gov.au/resources/bcact/ancillary-rules-reasonable-steps-170498.pdf
Threatened Species Website	www.environment.nsw.gov.au/threatenedspecies/
NSW BioNet (Atlas of NSW Wildlife)	www.bionet.nsw.gov.au/
NSW guide to surveying threatened plants (OEH 2016)	www.environment.nsw.gov.au/resources/threatenedspecies/160129-threatened-plants-survey-guide.pdf

Title	Web address
Threatened species survey and assessment guideline information	www.environment.nsw.gov.au/threatenedspecies/surveyassessmentsgdlns.htm
BioNet Vegetation Classification - NSW Plant Community Type (PCT) database	www.environment.nsw.gov.au/research/Vegetationinformationsystem.htm
Data Portal (access to online spatial data)	http://data.environment.nsw.gov.au/
Fisheries NSW policies and guidelines	http://www.dpi.nsw.gov.au/fisheries/habitat/publications/policies.-guidelines-and-manuals/fish-habitat-conservation
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
Revocation, recategorisation and road adjustment policy (OEH, 2012)	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land managed by the Office of Environment and Heritage (OEH 2013)	http://www.environment.nsw.gov.au/resources/protectedareas/development-land-adjoining-130122.pdf
<u>Aboriginal Cultural Heritage</u>	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/comconsultation/09781ACHconsultreq.pdf
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/cultureheritage/10783FinalArchCoP.pdf
Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)	http://www.environment.nsw.gov.au/resources/cultureheritage/20110263ACHguide.pdf
Aboriginal Site Recording Form	http://www.environment.nsw.gov.au/resources/parks/SiteCardMainV1_1.pdf
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/resources/cultureheritage/120558asirf.pdf
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm
Care Agreement Application form	http://www.environment.nsw.gov.au/resources/cultureheritage/20110914TransferObject.pdf
<u>Water and Soils</u>	
Acid sulphate soils	
Acid Sulfate Soils Planning Maps via Data.NSW	http://data.nsw.gov.au/data/
Acid Sulfate Soils Manual (Stone et al. 1998)	http://www.environment.nsw.gov.au/resources/epa/Acid-Sulfate-Manual-1998.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.environment.nsw.gov.au/resources/soils/acid-sulfate-soils-laboratory-methods-guidelines.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.
Flooding and Coastal Erosion	

Title	Web address
Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Guidelines for Preparing Coastal Zone Management Plans	Guidelines for Preparing Coastal Zone Management Plans http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
NSW Climate Impact Profile	http://climatechange.environment.nsw.gov.au/
Climate Change Impacts and Risk Management	Climate Change Impacts and Risk Management: A Guide for Business and Government, AGIC Guidelines for Climate Change Adaptation
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	www.environment.gov.au/water/publications/quality/australian-and-new-zealand-guidelines-fresh-marine-water-quality-volume-1
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf