Mr Paul Smith
Pandanus Solutions
[redacted]

By Email: [redacted]

31 March 2020

Dear Mr Smith

Crescent Head Ilmenite Stockpile Removal Project (EAR 1180)
Revised Environmental Assessment Requirements

I have attached the revised Planning Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement (EIS) for Crescent Head Ilmenite Stockpile Removal Project.

These requirements have been updated to include the additional requirements received by the Biodiversity Conservation Division. The revised requirements are based on the information you have provided to date and have been prepared in consultation with the relevant government agencies. The agencies' previous advice and supplementary/updated advice are attached for your consideration during the preparation of the EIS (see **Attachment 2A and 2B**).

Please note that the Planning Secretary may modify these requirements at any time. If you do not submit a development application (DA) and EIS for the development within 2 years, you must consult further with the Planning Secretary in relation to the preparation of the EIS.

Please contact the consent authority (Kempsey Shire Council) at least two weeks before you propose to submit your development application. This will enable the consent authority to:

- confirm the applicable fees; and
- determine the number of copies (hard-copy and digital) of the EIS that will be required for reviewing purposes.

If your proposal is likely to have a significant impact on matters of National Environmental Significance, it will also require separate approval under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). This approval would be in addition to any approvals required under NSW legislation and it is your responsibility to contact the Commonwealth Department of the Environment and Energy to determine if an approval under the EPBC Act is required (http://www.environment.gov.au or 6274 111).

If you have any enquiries about these requirements, please contact Rose-Anne Hawkeswood on [redacted]

Yours sincerely,

[redacted]

Steve O'Donoghue
Director
Resource Assessments
as nominee of the Planning Secretary

Enclosed: Attachment 1 – Revised SEARs Requirements
Attachment 2A – Previous Agency Requirements
Attachment 2B – Updated Agency Requirements

Secretary's Environmental Assessment Requirements

Section 78A(8) of the *Environmental Planning and Assessment Act 1979* and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Designated Development

EARS Number	EARS 1180
Proposal	Removal of an approximately 47,500 cubic metre ilmenite stockpile for reprocessing
Location	Point Plomer Road, Crescent Head (Lot 2281 on DP 1153793)
Applicant	Greencoast Environmental Rehabilitation
Date of Issue	31 March 2020
General Requirements	The Environmental Impact Statement (EIS) for the development must comply with the requirements in Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.* In particular, the EIS must include: • an executive summary; • a full description of the development, including: - a description of the geological setting, mineralogy of the stockpile material, a resource and reserve statement, and a production schedule; - a site description and history of any previous mining on the site, including a current survey plan; - the layout of the proposed works and components (including any existing infrastructure that would be used for the development); – an assessment of the potential impacts of the development (including cumulative impacts), taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice; - a description of the measure that would be implemented to avoid, mitigate and/or offset these impacts; - a detailed rehabilitation plan for the site; - a list of any other approvals that must be obtained before the development may commence; - the permissibility of the development, including identification of the land use zoning of the site; - identification of sensitive receivers likely to be affected by the development using clear maps/plans, including key landform areas, such as conservation areas and waterways; • the reasons why the development should be approved having regard to: – relevant matters for consideration under the *Environmental Planning and Assessment Act 1979*, including he objects of the Act and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development; – the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; and – feasible alternatives to the development (and its key components), including the consequences of not carrying out the development. • a signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading. While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of this development. In addition to the matters set out in Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*, the development application must be accompanied by a signed report from a suitably qualified person that includes an accurate estimate of the capital investment value of the development (as defined in Clause 3 of the

	Environmental Planning and Assessment Regulation 2000), including details of all the assumptions and components from which the capital investment value calculation is derived. In addition, the EIS must assess the development against the Kempsey Local Environmental Plan 2013 and any relevant development control plans/strategies.
Key Issues	The EIS must address the following specific issues: • **Biodiversity** – including: – an assessment of the biodiversity values and the likely biodiversity impacts of the development in accordance with the *Biodiversity Conservation Act 2016 (*NSW) and the *Biodiversity Conservation Regulation 2017* (NSW) and documented in a *Biodiversity Development Assessment Report* (BDAR); – a detailed description of the proposed regime for minimising, managing and reporting on the biodiversity impacts of the development over time; and – a strategy to offset any residual impacts; • **Water** – including: – an assessment of the likely impacts of the development (including flooding) on surface water and groundwater resources (including watercourses), wetlands, riparian land, groundwater dependent ecosystems, related infrastructure, surrounding Crown land, adjacent licensed water users and basic landholder rights; and measures proposed to monitor, reduce and mitigate these impacts; – details of water supply arrangements; and – a description of the erosion and sediment control measures that would be implemented to mitigate any impacts in accordance with *Managing Urban Stormwater: Soils & Construction* (Landcom 2004); • **Heritage** – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including adequate consultation with the local Aboriginal community; • **Land** – including an assessment of potential impacts on the quality and quantity of the soils (including contaminated and acid sulphate soils) and land capability of the site; the proposed mitigation, management and remedial measures (as appropriate); and an assessment of the compatibility of the development with other land uses in the vicinity of the development, in accordance with the requirements of Clause 12 of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*; • **Transport** – including an assessment of the site access route and likely transport impacts of the development on the capacity and condition of roads (including on any Crown land); a description of the measures that would be implemented to mitigate any impacts during construction; and a description of any proposed road upgrades developed in consultation with the relevant road (if required); • **Noise** – including an assessment of noise impacts including traffic noise, in accordance with the *Noise Policy for Industry 2017*, and a draft noise management plan if the assessment shows noise is likely to exceed applicable criteria; • **Air** – including an assessment of the likely air quality impacts of the development with a particular focus on dust emissions, including $PM_{2.5}$ and PM_{10} emissions, and the mitigation measures that would be implemented to minimise dust emissions (including evidence that there are no other mitigation measures available other than those proposed); • **Visual** – including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, including with respect to any new landforms; and

	• **Rehabilitation** – including a detailed description of the proposed rehabilitation measures that would be undertaken throughout the development, a detailed rehabilitation strategy, including justification for the proposed final landform and consideration of the objectives of any relevant strategic land use plans or policies; and a description of the biosecurity measures to prevent the introduction of weeds and pests. • **Hazards and Radiation** – an assessment of potential radioactivity associated with the ilmenite stockpile against the *NSW Radiation Control Action 1990* and *Radiation Control Regulation 2013,* and the proposed measures for management and handling of any radioactive material.
Environmental Planning Instruments	The EIS must take into account all relevant State Government environmental planning instruments, guidelines, policies, and plans. While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies and plans that may be relevant to the environmental assessment of this development. In addition, the EIS must assess the development against the Kempsey Local Environmental Plan 2013, the Kempsey Shire Council's Comprehensive Koala Plan of Management, and any relevant development control plans/strategies.
Consultation	During the preparation of the EIS, you should consult with relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups, affected landowners, exploration licence holders, quarry operators and mineral title holders. In particular, you must undertake detailed consultation with affected landowners surrounding the development and Kempsey Shire Council. The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.
Further consultation after 2 years	If you do not lodge a development application and EIS for the development within 2 years of the issue date of these EARs, you must consult further with the Secretary in relation to the preparation of the EIS.

ATTACHMENT 1

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:
http://www.planning.nsw.gov.au
http://www.bookshop.nsw.gov.au
http://www.publications.gov.au

Environmental Planning Instruments, Policies, Guidelines & Plans

Environmental Planning Instruments - General	
	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
	State Environmental Planning Policy (State and Regional Development) 2011
	State Environmental Planning Policy (Infrastructure) 2007
	Kempsey Local Environmental Plan 2013
	Kempsey Development Control Plan 2013
Noise	
	Noise Policy for Industry 2017 (EPA)
	NSW Road Noise Policy (EPA)
Land	
	State Environmental Planning Policy No. 55 – Remediation of Land
	Draft Coastal Management SEPP 2016
	Agricultural Land Classification (DPI)
	Rural Land Capability Mapping (OEH)
	Soil and Landscape Issues in Environmental Impact Assessment (NOW)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
	Guidelines for Consultants Reporting on Contaminated Sites (EPA)
	Agricultural Issues for Extractive Industry Development (DPI)
	Guidelines for development adjoining land managed by the OEH (OEH)
Water	
	NSW State Rivers and Estuary Policy (NOW)
	NSW Government Water Quality and River Flow Objectives (EPA)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)
	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC)
	Managing Urban Stormwater: Treatment Techniques (EPA)
	Managing Urban Stormwater: Source Control (EPA)
	Technical Guidelines: Bunding & Spill Management (EPA)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	Guidelines for Controlled Activities on Waterfront Land (DPI Water)
	Floodplain Management Plan (DPI Water)
Biodiversity	
	State Environmental Planning Policy (Koala Habitat Protection) 2019 Biodiversity Assessment Method (OEH)
	Threatened Species Assessment Guidelines - Assessment of Significance (OEH)

	Biosecurity Act 2015
	Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (DPI)
	Policy and Guidelines for Fish Habitat Conservation and Management (DPI)
Heritage	
	Guide to investigation, assessing and reporting on Aboriginal cultural heritage in NSW (OEH) 2011
	Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH)
	Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW (OEH)
	Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH)
Air	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA)
	Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	National Greenhouse Accounts Factors (Commonwealth)
Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RMS) & relevant Austroads Standards
	Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development
Public Safety	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Resource	
	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC)
Waste	
	Waste Classification Guidelines (DECC)
	Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes 1999 (EPA)
Rehabilitation	
	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Strategic Framework for Mine Closure (ANZMEC-MCA)
Hazards	
	NSW Radiation Control Action 1990
	Radiation Control Regulation 2013

ATTACHMENT 2A

AGENCIES' ORIGINAL ADVICE

ATTACHMENT 2B

AGENCIES' REVISED ADVICE

KEMPSEY
Shire Council

Civic Centre
22 Tozer Street
PO Box 3078
West Kempsey NSW 2440

Customer Services
P 02 6566 3200
F 02 6566 3205
ksc@kempsey.nsw.gov.au
www.kempsey.nsw.gov.au
ABN 70 705 618 663

Ref: D17/41584, F12/1672, LA32022
MKJ:MKJ

3 November 2017

Resource and Energy Assessments
NSW Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attn: Rose-Anne Hawkeswood

ENVIRONMENTAL ASSESSMENT REQUIREMENTS FOR THE CRESCENT HEAD ILMENITE STOCKPILE REHABILITATION PROJECT – LOT 2281 DP1153793 – POINT PLOMER ROAD CRESCENT HEAD

With reference to your correspondence of 16 October 2017, seeking Council's requirements for the Environmental Impact Statement (EIS) for the above proposal to be included in the Director General's Requirements (DGR's), Council advises the following.

Council requests that the EIS address the following:

(a) Potential contamination of the site. Council's records indicate that advice was received from NSW Department of Health in June 1984, that the site was 'classified as requiring removal of radioactive material before future development'. Council has no records of any decontamination or the removal of radioactive material occurring at the site. Therefore it is considered that the site may require the remediation of contaminated land. An assessment should be undertaken by a suitably qualified contaminated land practitioner, of the materials to be removed to identify the nature and extent of any contaminated material and other contaminants associated with historic uses.

(b) A Flora and Fauna Assessment. The site is identified as comprising Potential Endangered Ecological Community, Threatened Flora and is within a Wildlife Corridor.

(c) Assessment against Council's Comprehensive Koala Plan of Management. The site is identified as Primary, Secondary Class A and unknown koala habitat.

(d) A Traffic Assessment taking into consideration the following:

  (i) identification of the main transportation methodology and haul route for disposal of the material;

  (ii) use of residential streets and a school zone;

  (iii) noise impact from truck movements through a residential area.

(e) A detailed Rehabilitation Plan.

(f) Assessment against relevant environmental planning instruments, including:

(i) Kempsey Local Environmental Plan 2013;
(ii) Kempsey Development Control Plan 2013;
(iii) State Environmental Planning Policy No. 44 – Koala Habitat Protection;
(iv) State Environmental Planning Policy No. 55 – Remediation of Land;
(v) State Environmental Planning Policy No. 71 – Coastal Protection;
(vi) State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007; and
(vii) Draft Coastal Management SEPP 2016.

(g) An Aboriginal Cultural Heritage Assessment.

It must be noted that Council received comment from NSW Department of Industry – Lands and Forestry Division, stating that available records indicate that three Aboriginal Land Claims are associated with the subject lot, pursuant to the *NSW Aboriginal Land Rights Act 1983*.

Should you require any further information please contact Marnie Jeffery on (02) 6566 3200 or [redacted]

Yours faithfully

[redacted]

Marnie Jeffery
TOWN PLANNER

As part of Council's initiative to reduce paper use we encourage as much correspondence to be sent via email as possible. If you believe this is an option that you would like to use, please send your letters to ksc@kempsey.nsw.gov.au

Department of Industry

Assessment Advice

Coordinated Branch Responses

Analysis

Department of Industry – Crown Lands & Water Division (Regional Services)

The Department of Industry – Crown Lands and Water (the department) has been requested to provide its requirements into the Secretary's Environmental Assessment Requirements (SEARs) #1180 for the proponent's Environmental Impact Assessment, per Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (NSW).

Suggested Response

1 Recommendations.

The Department of Industry – Crown Lands & Water recommends that the matters which ensure that the Principles of Crown land management, (s11 *Crown Lands Act 1989*) are promoted and addressed by the Environmental Impact Statement for the proposed removal a stockpile of ilmenite from Crown Reserve 1003268, being a volume of 47,514 m^3 (and subsequent site rehabilitation) - adjacent to Point Plomer Road, Crescent Head (Location – attachment B).

Key reasons

- The department is raising these issues to ensure the Principles of Crown land management are considered and included in the EIS. This is to ensure that all aspects are considered for the land owners consent to gain development consent and for, assessing to determination Land Owner's Consent, and any potential future tenure related processes under the *Crown Lands Act 1989*.
- Potential contentious issues include: royalties due to the department; community concerns about extractive industry near the coast; adverse impacts on Crown land and water; Cultural Heritage and Native Title.
- The Department requests the following assessments are included in the Environmental Impact Statement (EIS) - in order to ensure the proponent's activities are consistent with the Principles of Crown land management - as defined under s11 of the *Crown Lands Act 1989*. These assessments must aim to mitigate adverse impacts to the department, community, and natural resources on the subject Crown land.
- The EIS must therefore include an assessment of the impacts of the following matters individually and/or where the matters may have a cumulative impact, undertake a cumulative impact assessment.
    - Mitigation measures to avoid air pollution, including monitoring and reporting measures to be employed during and after the operation, ensuring the site is safe to the public after the operation until the rehabilitation (plantings) have established.
    - Limited hours of operation – to minimise adverse impacts to the community
    - Hydrological impact assessment of surface water and ground water at the location – including water quality and flow management; and mitigation measures that avoid water pollution.

- Assessment of potential adverse hydrological impacts on surrounding Crown land and provide maps to demonstrate and verify avoidance as part of the assessment.
- An assessment of impacts on any infrastructure or utilities occupying or adjacent to the site, on Crown land.
- Assessment of impacts on any existing tracks or in the creation of new tracks on Crown land – ensuring that track condition is maintained or improved throughout and after the proposed activity.
- An impact assessment and management proposal of Actual and Potential Acid Sulphate Soils (ASS and PASS) throughout the proposed activity location and shall include management options to minimise, mitigate or avoid ASS and PASS where possible.
- Assessment of potential impacts on native vegetation including: methods of native vegetation clearing and rehabilitation to be employed; weed control and containment from spread on Crown land. All vegetation clearing and rehabilitation activities must be accompanied by detailed monitoring and evaluation – for the duration of proposal and successful rehabilitation.
- Feral animal assessment and feral animal controls at the site – ensuring activities do not increase opportunities for feral animal presence or abundance at the site. Benchmark studies are to be undertaken to understand the baseline presence, distribution and abundance at the site prior to works being undertaken.
- A detailed assessment and description of future maintenance requirements of the site, and rehabilitation works.
- An assessment of chemical and hazardous substances management, including contaminated land and waste minimisation, and management. The EIS must develop mitigations to avoid adverse impacts related to these matters on Crown land.
- A full public consultation and stakeholder engagement Strategy (including notifications and signage); and Public safety management and mitigation Strategy (including site exclusion and signage).
- An assessment of likely significant impacts on threatened species, populations, ecological communities, or their habitats, additionally any Wildlife Corridors or Koala Habitats.
- How the proposal meets requirements of SEPPs (including SEPP 71)
- Evidence of any National Parks and Wildlife Act requirements/permits.
- Cultural Heritage assessments, including Aboriginal Heritage Information Management System searches (to a minimum of 200 metres from the subject Lot 2881 DP 1153793)
- Native Title Act access arrangements
- Presence of Aboriginal Land Claims being an inchoate interest in the land
- Measurement of volume of material removed from Crown land – methods proposed for accurately recording and reporting this data to the department.

Branch approvals

Comments: Prepared by Tina Clemens, Natural Resource Management Project Officer, [redacted]

Position	Signature	Date
Contact officer: Byron Reynolds, Senior Natural Resource Management Officer, [redacted]	**On leave**	
Approving officer: Silas Sutherland, Area Manager North Coast, [redacted]	[redacted]	**14 November 2017**

Comments:

Background

Crown land is State owned land that is significantly varied in both physical characteristics and purpose, and includes reserves, roads and waterways under the administration of the department.

The department is responsible for ensuring that development proposals on Crown land adhere to the principals of Crown land management and are authorised under *the Crown Lands Act 1989* (NSW).

The proposed removal of a stockpile of ilmenite from Crown Reserve 1003268, being a volume of 47,514 m^3 (and subsequent site rehabilitation) adjacent to Point Plomer Road, Crescent Head will require an assessment and determination for Land Owner's Consent from the Department of Industry – Crown Lands and Water.

The purposes of the Crown reserve (1003268), subject of the proposal, are: Environmental Protection and Public Recreation. The land is managed by the Goolawah Reserve Trust [being a Corporation under the Minister Administering the National Parks & Wildlife Act 1974] – gazetted 16 April 2010.

An exploration Licence (No 8505) was issued by the ex NSW Trade & Investment – Resources & Energy on 16 May 2013, which expired 16 May 2015 – which the department holds a copy of. It appears that China Australia Mining Pty Ltd's exploration work was completed in this time. A copy of the works Plan, accompanying the company's s11A approval application, was also received by the department.

The department's EIS requirements will ensure that key matters are fully considered for the Environmental Impact Assessment to inform the Land Owners Consent assessment and determination process, and any potential future tenure related considerations.

Discussions have been held with the proponent advising that the proposed work is not being undertaken by or on behalf of the department.

It should also be noted that no guarantee can be provided to the proponent of any tenure related outcomes at this stage, due to matters related to the department's direct negotiation principles (for a potential lease), Commonwealth Native Title legislative requirements and the current Aboriginal Land Claims (3) – which must be satisfied.

Any extracted material, if taken from Crown land, would attract Royalties payable to the department.

Attachments

Attachment	Title
A	Extracts (Maps from background document DOC17/237109)
B	Maps (Image one - location, Image two – parish map)

ATTACHMENT A – Extracts (Maps from background document (DOC17/237109)

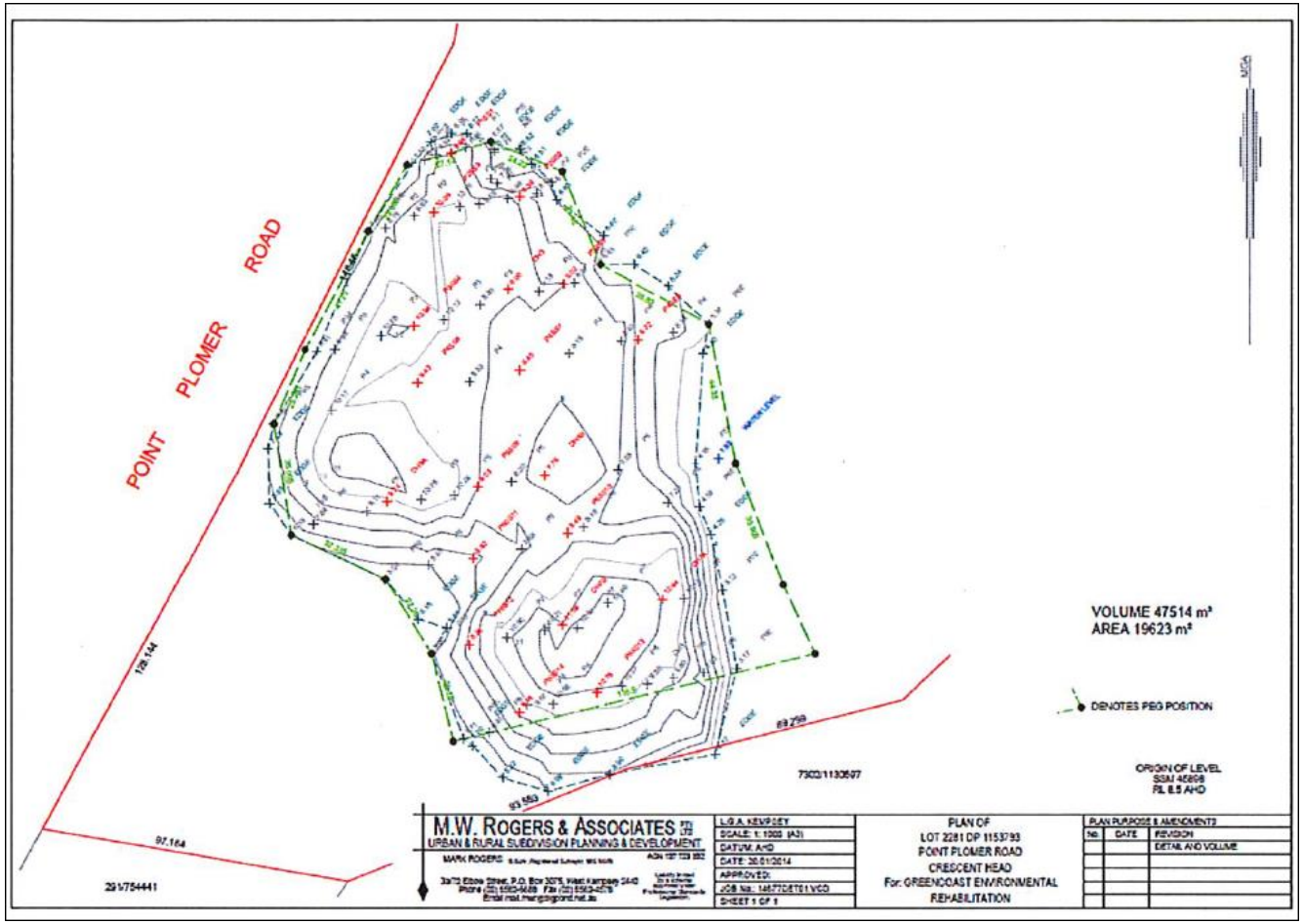

Image one: Stockpile/dump survey diagram. Stockpile with an estimated volume of 47,514 m^3 and surface area of 19,623 m^3.

ATTACHMENT B – Maps

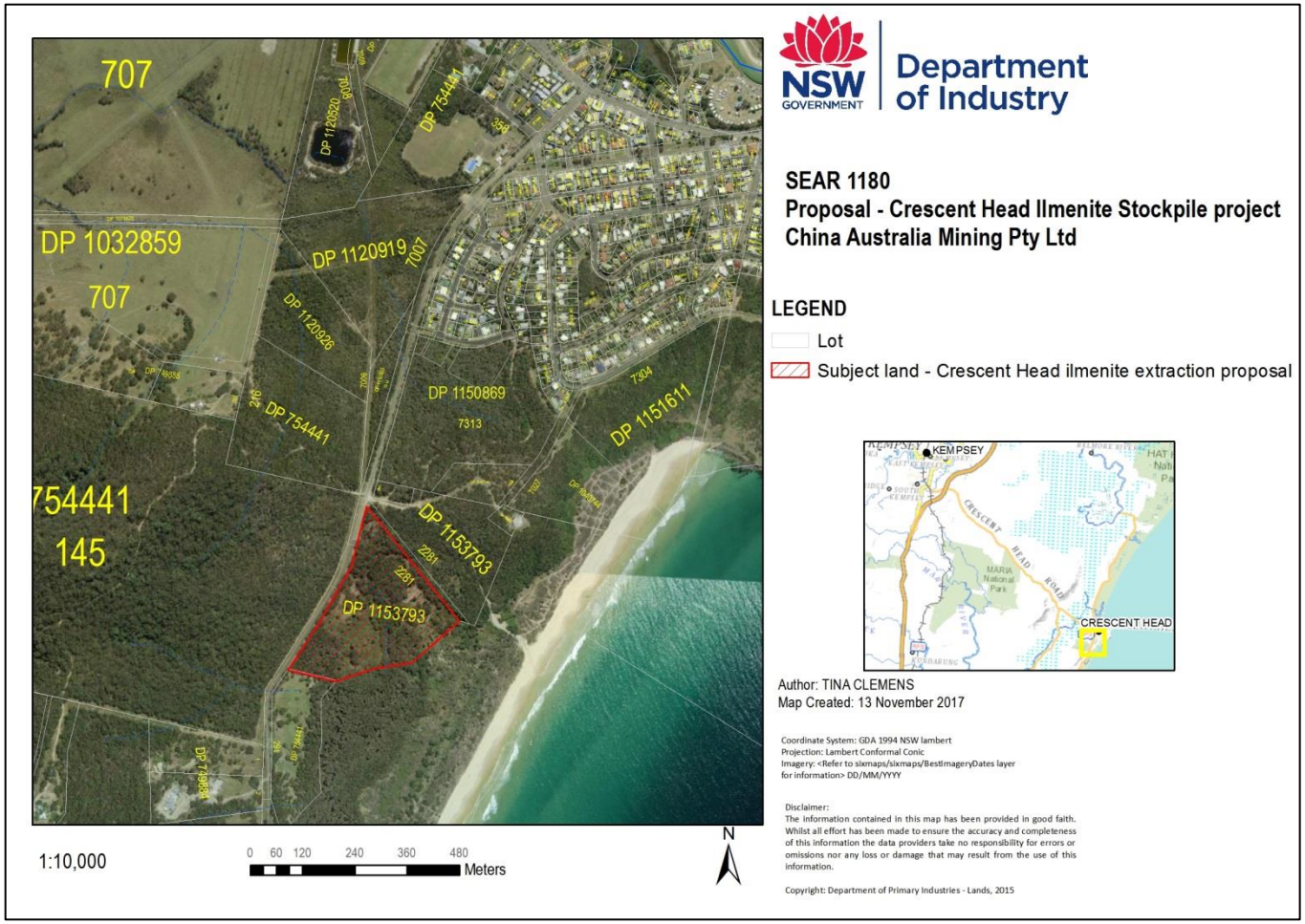

Image two: Location Map

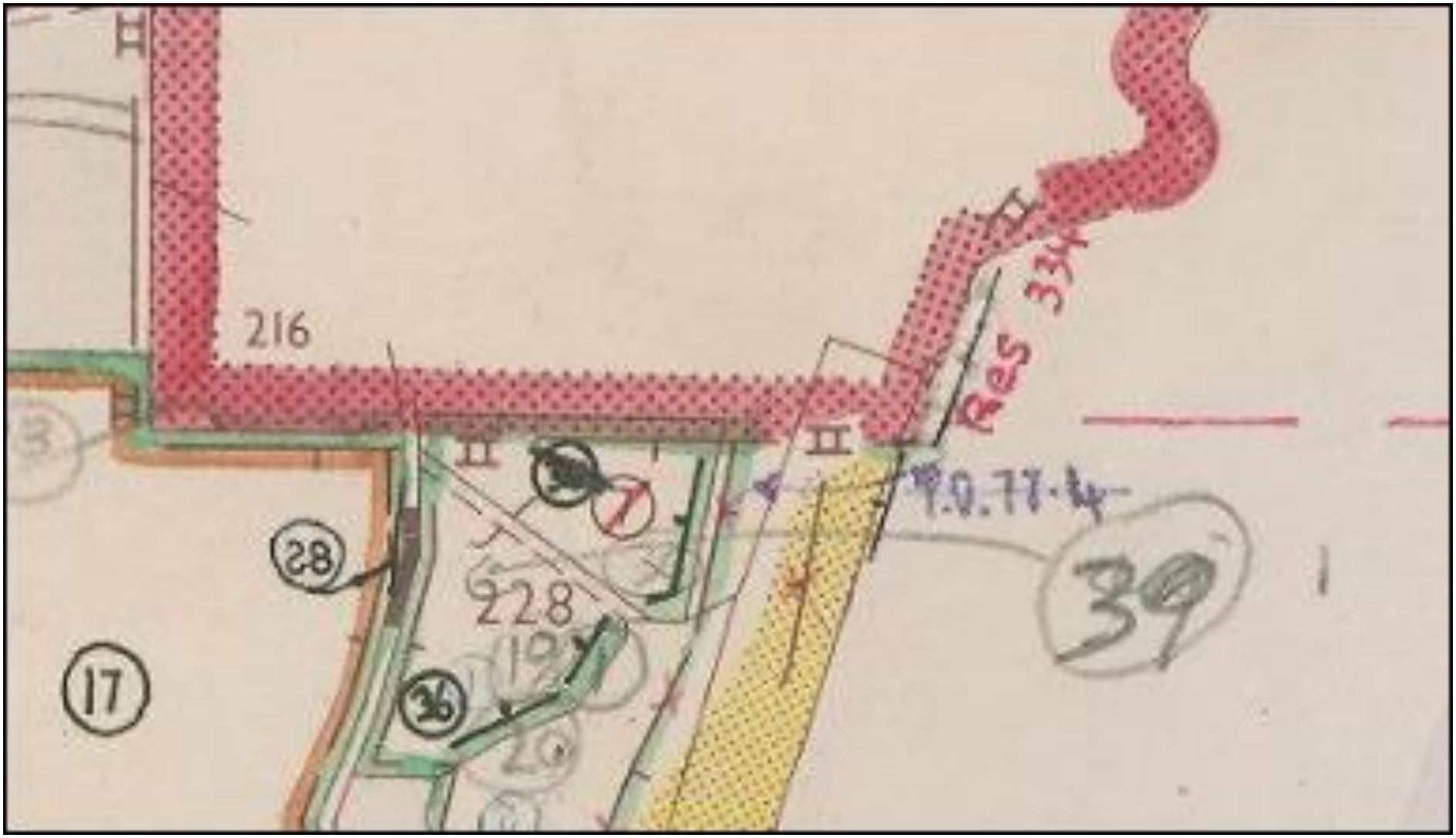

Image Three: Parish of Palmerston Map extract 13 March 1978.

Planning & Environment
Resources & Geoscience

OUT17/44028

Joel Herbert
Student Para Planner
Resource Assessments - Planning Services Division
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

[redacted]

Dear Joel

Crescent Head Ilmenite Stockpile Rehabilitation Project
Request for Secretary's Environmental Assessment Requirements (SEARs)

I refer to your email dated 17 October 2017 inviting the Division of Resources & Geoscience (the Division) to provide comments on the Crescent Head Ilmenite Stockpile Rehabilitation Project (the Project) submitted by Blueprint Planning Consultants, on behalf of China Australia Mining Pty Ltd (the Proponent).

The Division has reviewed the information supplied in relation to the abovementioned Project and provides the following advice:

To ensure that a Project and its environmental interactions can be understood and assessed by the Division, the Environmental Impact Statement (EIS) should provide a comprehensive description of all aspects (including mineral extraction/excavation and methods employed) of the Project. This information is often a key component in understanding the environmental effects of the Project.

The Environmental Impact Statement is to include:

Geology

- Brief description of the geological setting and summary of past mining activities of the project area.
- Detailed description of the mineralogy of the stockpiled material including specific details about the shape and physical dimensions.
- Supporting information including plans and cross sections should be included.

Resource and Reserve Statement

The EIS should contain an appropriate resource/reserve statement. The Division requires the proponent to provide in the EIS an Indicated Resource estimate (to JORC or equivalent standard) which should contain:

- A breakdown of the mineralogy present (rutile, zircon).
- The approximate TiO2 grade and tonnes of the ilmenite.
- Percentages of marketable ilmenite vs waste (cut off).

The Division recommends that a scintillometer grid survey be undertaken as part of the EA for this project.

Production Schedule
The Proponent must supply a production schedule for the life of the Project. The production schedule should include:

- Details of marketable ilmenite ore and waste tonnage planned to be extracted over the life of the project.
- An estimate of the saleable product for the life of the project.
- In terms of text, plans, or charts, the EIS must clearly show the proposed extent and sequence of the development.
- Economic justification for the project and the market the product tonnes would be sold into e.g. export/domestic mineral product, nominated port, transportation of product.
- Potential prices for the product.

The Division understands that an estimate of product tonnes split into a particular market segment is difficult to estimate at a particular point in time and is dependent on market conditions as the Project progresses. Further, the Division acknowledges the proponents' declaration that the proposal is viable due to the current market price for ilmenite but should that price fall it will more than likely become economically unviable. However, the Division requires the proponent to provide its best estimate of their market mix at the initial stages of the Project

Rehabilitation
The mining development rehabilitation SEARs (below), are to be applied to this Project. It is noted that the SEARS have been simplified commensurate with the small scale of the proposed activity. A site specific SEAR is to be applied due to the identification of rehabilitation objectives and completion criteria that addresses radiological risks. This should include a radiological investigation of the final landform to ensure radiation levels are acceptable for the intended land use.

Approvals
Provide information in the EIS about what authorisations and approvals will be sought under the *Mining Act 1992*, including information about existing authorisations over the Project area and any interaction that may occur with other authorisation holders within and adjacent to the Project area. The Division notes that should approval be granted for this Project, it should be provided as supporting documentation for a current application made by the proponent under Section 11A of the *Mining Act 1992*.

Further enquiries regarding this matter please contact: Adam Banister, Senior Advisory Officer [redacted] or industry.coordination@industry.nsw.gov.au

Yours sincerely

[redacted]

Matt Gagan
A/Manager Royalties & Advisory Services
9 November 2017

Mining Development - Rehabilitation Standard Assessment Requirements

Post-mining land use

(a) Identification and assessment of post-mining land use options;

Rehabilitation objectives and domains

(b) Inclusion of a set of project rehabilitation objectives and completion criteria that clearly define the outcomes required to achieve the post-mining land use. Completion criteria should be specific, measurable, achievable, realistic and time-bound;

Rehabilitation Methodology

(c) Details regarding the rehabilitation methods for disturbed areas and expected time frames for each stage of the rehabilitation process;

(d) Mine layout and scheduling, including maximising opportunities for progressive final rehabilitation. The mine plan should maximise opportunities for progressive rehabilitation;

Conceptual Final Landform Design

(e) Inclusion of a drawing at an appropriate scale identifying key attributes of the final landform, including final landform contours and the location of the proposed final land use(s);

Post-closure maintenance

(f) Description of how post-rehabilitation areas will be actively managed and maintained in accordance with the intended land use(s) in order to demonstrate progress towards meeting the rehabilitation objectives and completion criteria in a timely manner;

(g) Identification and description of those aspects of the operations that may present environmental harm and barriers or limitations to effective rehabilitation;

(h) Consideration of the controls likely to be required to either prevent or mitigate against rehabilitation risks as part of the closure plan for the site;

The following risks have been identified that require the application of non-standard Assessment Requirements:

(i) Tailings from mineral sand operations include residues with elevated radioactivity. It is unknown as to whether tailings from historic operations were disposed of on site and subsequently buried under the ilmenite stockpiles and that removal of stockpiles would expose potentially radioactive residues.

(i) Inclusion of rehabilitation objectives and completion criteria that address radiological risks. This should include a radiological investigation of the final landform to ensure radiation levels are acceptable for the intended land use.

[1] The following government policies should be considered when addressing rehabilitation issues:
• Mine Rehabilitation (Leading Practice Sustainable Development Program for the Mining Industry, 2006)
• Mine Closure and Completion (Leading Practice Sustainable Development Program for the Mining Industry, 2006)
• Strategic Framework for Mine Closure (ANZMEC-MCA, 2000)

Our reference: EF14/2829 - DOC17/518479-03
Contact: Robert Donohoe [redacted]

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

Attention Mr Joel Herbert,

Re: Proposal – Crescent Head Ilmenite Stockpile Rehabilitation Project – EAR ID No. 1180

I refer to the NSW Department of Planning and Environment (DoPE) email of 16 October 2017 requesting the Environment Protection Authority (EPA) requirements for the proposed Crescent Head Ilmenite Stockpile Rehabilitation Project – EAR ID No. 1180. Thank you for the opportunity to comment on the proposal, I apologise for the delay in responding.

The Preliminary Environmental Assessment (PEA) submitted with the request states that the site is located within (Mining) Exploration Licence 8085, within Lot 2281 DP1153793 held under Crown Reserve No. 1003 268 and was previously the site of a former mineral separation plant operated up to 1985 in association with coastal sand mining activities.

The EPA has specific regulatory roles with respect to waste, land contamination and extraction activities and advice with respect to each of these is provided below:

Extractive activity

Land-based activity which involves the extraction, processing or storage of more than 30,000 tonnes (T) per year of extractive materials would require an Environment Protection Licence (EPL). It is understood from the PEA that the ilmenite to be removed is material from previous sand mining activities.

On this basis, the ilmenite has previously been extracted, and the *'conventional load and haul techniques'* that compromise the proposed activity, do not fit within the meaning of 'extraction' for the purposes of 'land-based extractive activity'. It is also noted that the definition of extractive materials in schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) excludes substances that are minerals within the meaning of the *Mining Act 1992*.

Based on this information the EPA has formed the view that the proposed activity would not be classified as 'land-based extractive activity' as defined in the POEO Act and no licence will be required to be issued by the EPA, in respect to the proposal.

Contamination

The Environmental Impact Statement (EIS) should assess whether the removal of any contaminated soils triggers obligations associated with State Environment Planning Policy No. 55 – Remediation of Land, under the *Environment Planning and Assessment Act 1979*.

Email: north.coast@epa.nsw.gov.au
PO Box 498, Grafton NSW 2460
49 Victoria Street, Grafton NSW 2460
Tel: (02) 6640 2500 Fax: (02) 6640 2539
ABN 43 692 285 758
www.epa.nsw.gov.au

Radiation

The EPA notes references in the PEA identifying the potential for elevated radioactivity associated with the ilmenite stockpile. In response to this issue the proponent's EIS for the proposal will need to reference the radiation limits prescribed in the *NSW Radiation Control Act 1990* (Act) and *Radiation Control Regulation 2013* (Regulation) and identify within the EIS any specific management and handling procedures that will be required to be implemented by the proponent to comply with the Act and Regulation.

The EPA acknowledges the proponent's commitment, in the PEA, to transport the ilmenite from the project area in compliance with the Act and *Dangerous Goods Road and Rail Transport Act 2008.* Given the potential radioactive characteristics of the material please ensure these transport aspects are suitably addressed by the proponent in the EIS.

Waste

Due to the origins of the ilmenite, and based on information provided, it appears the material proposed to be removed is likely to be classified as 'waste'. The proponent's PEA also identifies a range of waste materials (HDPE piping, steel pipe and timber) protruding from the ilmenite stockpile and further states: *'This suggests there is likely to be more solid waste buried within the stockpile/dump. However, the actual amount of solid waste cannot be determined until removal of the ilmenite stockpile/dump is complete'.*

Based on the information provided, it does not appear that the waste will need to be tracked, however this issue, including identification of lawful waste disposal pathways, will need to be clearly addressed in the EIS.

Should you wish to clarify any of the above advice please contact Robert Donohoe on 6640 2518.

Yours sincerely

[redacted]

13 NOV 2017

GRAEME BUDD
Head Environmental Management Unit – North Coast
Environment Protection Authority

NSW GOVERNMENT | Office of Environment & Heritage

Our Ref: DOC17/514213
Your Ref: EAR No. 1180

Resource and Energy Assessments
Department of Environment and Planning
GPO Box 39
Sydney NSW 2001

Attention: Mr Joel Herbert

Dear Mr Herbert

Re: Request for OEH Environmental Impact Statement Environmental Assessment Requirements – for the Crescent Head Ilmenite Stockpile Rehabilitation Project EARs ID 1180

Thank you for your email dated 16 October about the Crescent Head Ilmenite Stockpile Rehabilitation Project at Crescent Head seeking Environmental Assessment Requirements (EARs) from the Office of Environment and Heritage (OEH). I appreciate the opportunity to provide input.

We note that the project will be assessed as designated development (under Schedule 3 25(bii/iii) of the *Environmental Planning and Assessment Regulation 2000*) in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Environmental Impact Statement (EIS) EARs provided by the OEH are limited to Aboriginal cultural heritage, biodiversity, OEH 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 assessment of all direct and indirect impacts of the proposal. The EIS should include an assessment of the potential impacts on Aboriginal cultural heritage and biodiversity, including threatened species, populations, ecological communities, or their habitats likely to occur on or near the subject site, as well as National and Wildlife Parks (NPWS) Estate - Goolawah National Park. We consider that the information required as part of the standard EARs provided in Attachment 1 to this letter, in addition to the proposal specific requirements necessary for a comprehensive EIS.

The EIS should specifically consider:

<u>Aboriginal cultural heritage</u>

The OEH advises that there is a high concentration of evidence of past Aboriginal occupation in the area around the subject lands, so any assessment for this activity needs to consider the views of those Aboriginal people who have a documented interest in the project area and its immediate surrounds.

1. The Aboriginal cultural heritage assessment must consider;
    a. potential harm to Aboriginal cultural heritage values associated with direct or indirect impacts of the proposal, and

Locked Bag 914, Coffs Harbour NSW 2450
Federation House, Level 8, 24 Moonee Street
Coffs Harbour NSW
Tel: (02) 6659 8200 Fax: (02) 6659 8281
ABN 30 841 387 271
www.environment.nsw.gov.au

b. past mining practices to determine the potential for Aboriginal objects to be present within the project area in a disturbed context within the discard pile.

Biodiversity

The biodiversity or ecological assessment for the proposal must:

2. Undertake target surveys for the following threatened species, and their habitat listed under Schedule 1 of the *Biodiversity Conservation Act 2016* and asses the impacts of the proposal on these species:
   a. Koala *Phascolarctos cinereus*, due to on site records, and the presence of mapped primary and secondary A koala habitat under the 'Comprehensive Koala Plan of Management for the Eastern Portion of the Kempsey Shire Local Government Area, dated May 2011'.
   b. Sand Spurge *Chamaesyce psammogeton* and Silver bush *Sophora tomentosa*, as they are recorded within adjoining lands

3. Consider habitat for the following threatened species under Schedule 1 of the *Biodiversity Conservation Act 2016,* determine the need or otherwise for target survey of these species and assess the impacts of the proposal on these species:
   a. Austral toadflax *Thesium australe*, as it is recorded within adjoining lands.
   b. Little bentwing-bat *Miniopterus australis* and Glossy black-cockatoo *Calyptorhynchus lathami* in assessing habitat resources present within the subject lands.
   c. Osprey *Pandion cristatus*, and the potential nesting sites within the vicinity of the subject lands.

4. Undertake targeted survey to determine the presence or absence of the following threatened ecological communities (TEC) listed under Schedule 2 of the *Biodiversity Conservation Act 2016,* in accordance with the NSW Scientific Committee Determinations, which can be found on the OEH website, at: http://www.environment.nsw.gov.au/determinations/:
   a. Swamp Sclerophyll Forests on the Coastal floodplains of the NSW North Coast, Sydney Basin and South-east Corner Bioregions.
   b. Subtropical Coastal Floodplain Forest of the NSW North Coast Bioregion.

5. Assess the proposal's impacts on the:
   a. wildlife corridor function between the surrounding areas of Goolawah National Park, and as part of the greater regional coastal corridor, given the subject land is surrounded by OEH Estate lands.
   b. localised hydrology, especially as it relates to surface and subsurface water flow and likely effects on the water dependant ecological communities within the adjoining Goolawah National Park and Crown lands.
   c. environmental health of the subject lands, resulting from the ilmenite pile disturbance, especially as it relates to threatened species, ecological communities, or their habitats on and adjoining the subject lands.

Goolawah Reserve Trust

As the subject lands are included within the Goolawah Reserve Trust, a Crown Reserve administered by the Minister for the Environment, gazetted 16 April 2010. We advise that the EIS, must document:

6. Consultation with the National Parks and Wildlife Service (NPWS) and clearly document the role of NPWS in the management of Goolawah Reserve Trust, especially as it relates to the management of the subject lands and the standards of rehabilitation and reporting which may apply.

NPWS Estate - Goolawah National Park.

7. The EIS must clearly document any potential or likely impacts, both direct and indirect on the adjoining NPWS Estate - Goolawah National Park. This assessment of impacts is to include documented consultation with the Macleay Area Office of National Parks and Wildlife Service, the office can be contacted on 6561 6700 or via email at npws.macleay@environment.nsw.gov.au

The full list of our requirements that may need to be addressed in the EIS is provided in **Attachment 1**. In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment 2.**

If you have any further questions about this issue, Ms Rachel Binskin, Regional Operations Officer, Regional Operations, OEH, can be contacted on 6659 8247 or at rachel.binskin@environment.nsw.gov.au.

Yours sincerely

[redacted] 31 October 2017

DIMITRI YOUNG
Senior Team Leader Planning, North East Branch
Regional Operations

Contact officer: [redacted]

Enclosure: Attachment 1 – OEH Standard Environmental Assessment Considerations and Attachment 2 – Guidance Material Links

Attachment 1

OEH's Recommended Secretary's Environmental Assessment Requirements (SEARs) for Preparation of an Environmental Impact Statement

The Crescent Head Ilmenite Stockpile Rehabilitation Project

EAR ID No. - 1180

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TABLE OF CONTENTS

A. The Proposal

The Environmental Impact Statement (EIS) should identify the environmental objectives for the proposal and clearly describe the proposal. These environmental objectives will guide decisions on environmental controls and management throughout the life of the proposal.

The objectives of the proposal should be clearly stated and refer to:

1. the size and type of the proposal and its operation;
2. all anticipated environment impacts, both direct and indirect, including level of vegetation / habitat clearing
3. the anticipated level of performance in meeting required environmental standards;
4. threatened species, populations, ecological communities and their habitats impacted upon;
5. the staging and timing of the proposal; and
6. the proposal's relationship to any other proposal.

The EIS should fully identify all of the processes and activities intended for the site and during the life of the proposal, including details of:

7. the location of the proposal and details of the surrounding environment;
8. the proposed layout of the site;
9. appropriate land use zoning;
10. ownership details of any residence and/or land likely to be affected by the proposal;
11. maps/diagrams showing the location of residences and properties likely to be affected and other industrial developments, conservation areas, wetlands, etc. in the locality that may be affected by the proposal;
12. all equipment proposed for use at the site;
13. chemicals, including fuel, used on the site and proposed methods for the transportation, storage, use and emergency management;
14. waste generation, storage and disposal;
15. a plan showing the distribution of any threatened flora or fauna species and the vegetation communities on or adjacent to the subject site, and the extent of vegetation proposed to be cleared should be provided; and
16. methods to mitigate any expected environmental impacts of the proposal.

B. Environmental Impacts of the Proposal

Impacts related to the following environmental issues need to be assessed, quantified and reported on:

- Aboriginal cultural heritage
- Biodiversity
- OEH Estate (land reserved or acquired under the *National Parks and Wildlife Act 1974*)
- Historic heritage
- Acid Sulfate Soils
- Flooding, Stormwater and Coastal Erosion
- Cumulative Impacts

The EIS should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at **Attachment 2**.

C. Aboriginal Cultural Heritage

The EIS should contain:

1. A description of the Aboriginal objects and declared Aboriginal places located within the area of the proposal.

2. A description of the cultural heritage values, including the significance of the Aboriginal objects and declared Aboriginal places, that exist across the whole area that will be affected by the proposal, and the significance of these values for the Aboriginal people who have a cultural association with the land.

3. A description of any consultation with Aboriginal people regarding the proposal and the significance of any Aboriginal cultural heritage values identified through that consultation. The OEH advises that the proponent may utilise the OEH's *Aboriginal Consultation Requirements for Proponents 2010* as best practice guidelines for such consultation (these OEH requirements for consultation must be followed if the proposal requires an Aboriginal Heritage Impact Permit or the Aboriginal heritage assessment requires archaeological testing).

4. The views of those Aboriginal people regarding the likely impact of the proposal on their cultural heritage. If any submissions have been received as a part of the consultation requirements, then the report must include a copy of each submission and your response.

5. A description of the actual or likely harm posed to the Aboriginal objects or declared Aboriginal places from the proposal, with reference to the cultural heritage values identified.

6. A description of any practical measures that may be taken to protect and conserve those Aboriginal objects or declared Aboriginal places.

7. A description of any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm or, if this is not possible, to manage (minimise) harm.

In addressing these requirements, the proponent must refer to the following documents:

a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (OEH, 2010) - www.environment.nsw.gov.au/resources/cultureheritage/ddcop/10798ddcop.pdf. These guidelines identify a process that could be used to prepare Aboriginal cultural heritage assessments for development proposals assessed under Part 4 of the *Environmental Planning and Assessment Act 1979*.

b. *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (OEH, 2010) - www.environment.nsw.gov.au/licences/consultation.htm. This document further explains the consultation requirements that are set out in clause 80C of the National Parks and Wildlife Regulation 2009. The process set out in this document must be followed and documented in the EIS if the proposal requires an Aboriginal Heritage Impact Permit or the Aboriginal heritage assessment requires archaeological testing.

c. *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH, 2010) - www.environment.nsw.gov.au/licences/archinvestigations.htm. The process described in this Code should be followed and documented where the assessment of Aboriginal cultural heritage requires archaeological testing to be undertaken.

Notes:

- An Aboriginal Site Impact Recording Form (http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm) must be completed and submitted to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through archaeological investigations required or permitted through these environmental assessment requirements.

- Under section 89A of the *National Parks and Wildlife Act* 1974, it is an offence for a person not to notify OEH of the location of any Aboriginal object the person becomes aware of, not already recorded on the Aboriginal Heritage Information Management System (AHIMS). An AHIMS Site Recording Form should be completed and submitted to the AHIMS Registrar (http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm), for each Aboriginal site found during investigations.

D. Biodiversity

1. The EIS must assess the impacts of the proposed development on biodiversity values to determine if the proposed development is "likely to significantly affect threatened species" for the purposes of Section 7.2 of the Biodiversity Conservation Act 2016 (BC Act) as follows:

   a) The EIS must demonstrate whether or not the proposed development is to be carried out in a declared area of outstanding biodiversity value.

   b) If the proposed development is not carried out in a declared area of outstanding biodiversity value, then the EIS must demonstrate and document how the proposed development exceeds, or does not exceed, the biodiversity offset scheme threshold, as set out in section 7.4 of the BC Act and clause 7.1 of the Biodiversity Conservation Regulation 2017 (BC Regulation) by determining whether the proposed development involves:

      I. The clearing of native vegetation of an area declared by clause 7.23 of the BC Regulation as exceeding the threshold, or

      II. The clearing of native vegetation, or other action prescribed by clause 6.1 of the BC Regulation, on land included on the Biodiversity Values Map published under clause 7.3 of the BC Regulation.

   c) If the biodiversity offset scheme thresholds are not exceeded, then the EIS must document *the test for determining whether proposed development likely to significantly affect threatened species or ecological communities* as outlined in Section 7.3 of the BC Act, by preparing an ecological assessment that includes:

      I. A field survey of the site conducted and documented in accordance with relevant guidelines, including:

      - the *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians* (DECCW, 2009) http://www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf
      - *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004), http://www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf
      - Field survey methods and assessment information on the OEH website: http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/surveys-and-assessments

      If a proposed survey methodology is likely to vary significantly from the above methods, the proponent should discuss the proposed methodology with OEH prior to undertaking the EIS, to determine whether OEH considers that it is appropriate.

      Recent (less than five years old) surveys and assessments may be used. However, previous surveys should not be used if they have:

- been undertaken in seasons, weather conditions or following extensive disturbance events when the subject species are unlikely to be detected or present, or
- utilised methodologies, survey sampling intensities, timeframes or baits that are not the most appropriate for detecting the target subject species,

unless these differences can be clearly demonstrated to have had an insignificant impact upon the outcomes of the surveys. If a previous survey is used, surveys for any additional entities listed under the BC Act since the previous survey took place, must be undertaken and documented.

Determining the list of potential threatened species for the site should be done in accordance with the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004) and the *Guidelines for Threatened Species Assessment* (Department of Planning, July 2005). The OEH internet resources:

- Bionet Atlas http://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx and
- Threatened species profile http://www.environment.nsw.gov.au/threatenedSpeciesApp/
- Bionet Vegetation Classification http://www.environment.nsw.gov.au/research/Visclassification.htm
- Other data sources (e.g. PlantNET, Online Zoological Collections of Australian Museums (http://www.ozcam.gov.au/), previous or nearby surveys etc.) may also be used to compile the list.

II. The following information as a minimum:

a. The requirements set out in the *Guidelines for Threatened Species Assessment* (Department of Planning, July 2005

b. A description and geo-referenced mapping of study area (and spatial data files), e.g. overlays on topographic maps, satellite images and /or aerial photos, including details of map datum, projection and zone, all survey locations, vegetation communities that accord with the BioNet Vegetation Classification http://www.environment.nsw.gov.au/research/Visclassification.htm, key habitat features and reported locations of threatened species and ecological communities present in the subject site and study area.

c. A description of survey methodologies used, including timing, location and weather conditions.

d. Details, including qualifications and experience of all staff undertaking the surveys, mapping and assessment of impacts as part of the EIS.

e. Identification of national and state listed threatened biota known or likely to occur in the study area and their conservation status.

f. A description of the likely impacts of the proposal on biodiversity and wildlife corridors, including direct and indirect and construction and operation impacts. Wherever possible, quantify these impacts such as the amount of

each vegetation community or species habitat to be cleared or impacted, or any fragmentation of a wildlife corridor.

g. Identification of the avoidance, mitigation and management measures that will be put in place as part of the proposal to avoid or minimise impacts, including details about alternative options considered and how long-term management arrangements will be guaranteed.

h. A description of the residual impacts of the proposal. If the proposal cannot adequately avoid or mitigate impacts on biodiversity, then a biodiversity offset package is expected (see the requirements for this at point 4 below).

III. The '*test for determining whether proposed development likely to significantly affect threatened species or ecological communities, or their habitats*' as outlined in Section 7.3 of the BC Act.

2. If the EIS determines under Section 7.2 of the BC Act as set out in 1 above that the proposed development is likely to significantly affect threatened species, then in accordance with Section 7.7 of the BC Act the EIS must be accompanied by a Biodiversity Development Assessment Report prepared in accordance with Part 6 of the BC Act.

Note:
For the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, the REF should identify any relevant Matters of National Environmental Significance and whether the proposal has been referred to the Commonwealth or already determined to be a controlled action.

E. OEH Estate

The EIS should address the following with respect to land reserved under the *National Parks and Wildlife Act 1974*.

1. Where appropriate, likely impacts (both direct and indirect) on any adjoining and/or nearby OEH estate reserved under the *National Parks and Wildlife Act 1974* should be considered. Refer to the *Guidelines for developments adjoining land managed by the Office of Environment and Heritage* (OEH, 2013). The guideline is available at:

   http://www.environment.nsw.gov.au/resources/protectedareas/development-land-adjoining-130122.pdf

Note: Proposals which may impact marine protected areas should be referred to the Department of Primary Industries to determine the assessment and approval requirements.

F. Historic Heritage

The EIS should address the following:

1. The heritage significance of the site and any impacts the proposal may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site.

2. The Heritage Council maintains the State Heritage Inventory which lists some items protected under the *Heritage Act 1977* and other statutory instruments. This register can be accessed through the Heritage Branch home page on the internet (http:www.heritage.nsw.gov.au). In addition, lists maintained by the National Trust, any heritage listed under the Australian Government's Environment Protection and Biodiversity Conservation Act 1999 and the local council should be consulted in order to identify any known items of heritage significance in the area affected by the proposal. These lists are constantly evolving and items with potential heritage significance may not yet be listed

3. Non-Aboriginal heritage items within the area affected by the proposal should be identified by field survey. This should include any buildings, works, relics (including relics underwater), gardens, landscapes, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of these items should be undertaken. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual. The field survey and assessment should be undertaken by a qualified practitioner/consultant with historic sites experience. The Manager, OEH Heritage Division Conservation Team, can be contacted on telephone (02) 9873 8599 for a list of suitable consultants.

G. Acid Sulfate Soils

The EIS should address the following:

1. The potential impacts of the proposal on acid sulfate soils must be assessed in accordance with the relevant guidelines in the Acid Sulfate Soils Manual (Stone et al. 1998) and the Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004).

2. Describe mitigation and management options 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 should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

H. Flooding, Stormwater and Coastal Erosion

The EIS should include an assessment of the following referring to the relevant guidelines in Attachment 2:

1. The potential effect of coastal processes and coastal hazards including potential impacts of sea level rise:
    a. on the proposal; and
    b. arising from the proposal.
2. Whether the proposal is consistent with any coastal zone management plans.
3. Whether the proposal is consistent with any floodplain risk management plans.
4. Whether the proposal is compatible with the flood hazard of the land.
5. Whether the proposal will significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties.
6. Whether the proposal will significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
7. Whether the proposal incorporates appropriate measures to manage risk to life from flood.
8. Whether the proposal is likely to result in unsustainable social and economic costs to the community as a consequence of flooding.
9. The implications of flooding over the full range of potential flooding, including the probable maximum flood, should be considered as set out in the NSW Government Floodplain Development Manual. This should include the provision of:
    a. Full details of the flood assessment and modelling undertaken in determining any design flood levels (if applicable), including the 1 in 100 year flood levels.
    b. A sensitivity assessment of the potential impacts of an increase in rainfall intensity and runoff (10%, 20% and 30%) and sea level rise on the flood behaviour for the 1 in 100 year design flood if applicable.
10. All site drainage, stormwater quality devices and erosion / sedimentation control measures should be identified and the onsite treatment of stormwater and effluent runoff and predicted stormwater discharge quality from the proposal should be detailed.

I. Cumulative Impacts

The EIS should include an assessment of the following:

1. The cumulative impacts, including both construction and operational impacts, from all clearing activities and operations, associated edge effects and other indirect impacts on cultural heritage, biodiversity and OEH Estate in accordance with the *Environmental Planning and Assessment Act 1979*.

2. The cumulative impacts, including both construction and operational impacts, of the proponent's existing and proposed development and associated infrastructure (such as access tracks etc.) as well as the cumulative impact of the development in the context of other developments located in the vicinity.

Attachment 2 – EIS Guidance Material

Title	Web address
Relevant Legislation	
Coastal Protection Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Floodplain Development Manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Biodiversity Conservation Act 2016	https://www.legislation.nsw.gov.au/~/view/act/2016/63
Biodiversity Conservation Regulation 2017	https://www.legislation.nsw.gov.au/~/view/regulation/2017/432
Biodiversity Conservation (Savings and Transitional) Regulation 2017	https://www.legislation.nsw.gov.au/~/view/regulation/2017/433
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/consultation.htm
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/archinvestigations.htm
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm

Biodiversity

Biodiversity Assessment Method (OEH 2017)	http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf
Biodiversity Assessment Calculator	https://www.lmbc.nsw.gov.au/bamcalc
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians (DECCW, 2009)	http://www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf
Field Survey Methods	http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/surveys-and-assessments/field-survey-methods
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DEC, 2004)	http://www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf
OEH Threatened Species website	http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species
Atlas of NSW Wildlife	http://www.environment.nsw.gov.au/wildlifeatlas/about.htm
BioNet Vegetation Classification (NSW Vegetation Classification System)	http://www.environment.nsw.gov.au/research/Visclassification.htm
PlantNET	http://plantnet.rbgsyd.nsw.gov.au/
Online Zoological Collections of Australian Museums	http://www.ozcam.org/
Threatened Species Assessment Guidelines: the Assessment of Significance (DECC 2007)	http://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-species-assessment-guidelines
Principles for the use of biodiversity offsets in NSW	http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm

OEH Estate

Land reserved or acquired under the NPW Act

List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
OEH Revocation of Land Policy	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/protectedareas/10509devadjdeccw.pdf

Water and Soils

Acid sulphate soils

Acid Sulfate Soils Planning Maps	http://canri.nsw.gov.au/download/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.derm.qld.gov.au/land/ass/pdfs/lmg.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.

Flooding and Coastal Erosion

Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.dnr.nsw.gov.au/floodplains/manual.shtml
Guidelines for Preparing Coastal Zone Management Plans	http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
Climate Change Impacts and Risk Management	http://www.environment.gov.au/climate-change

Water

Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality
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

File No: NTH17/00163
Your Ref:

The Secretary
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Joel Herbert

Dear Sir / Madam,

Secretary's Environmental Assessment Requirements for EAR No.1180 - Proposed Ilmenite Stockpile Rehabilitation, Point Plomer Road, Crescent Head

I refer to your email of 16 October 2017 requesting input to the Secretary's Environmental Assessment Requirements (EARs) for the abovementioned state significant development.

Roles and Responsibilities

The key interests for Roads and Maritime Services are the safety and efficiency of the road network, traffic management, the integrity of infrastructure assets and the integration of land use and transport.

Crescent Head Road is an unclassified (Regional) road and Point Plomer Road is a Local road. Kempsey Shire Council is responsible for setting standards, determining priorities and carrying out works on these roads.

Roads and Maritime is given the opportunity to review and provide comment on the subject development under Clause 16 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

Roads and Maritime Response

Roads and Maritime requests that the Environmental Assessment be supported by a Traffic Impact Assessment (TIA) prepared by a suitably qualified person in accordance with the Austroads Guide to Traffic Management Part 12, the complementary Roads and Maritime Supplement and RTA Guide to Traffic Generating Developments. The TIA is to address the following;

- The total impact of existing and proposed development on the road network with consideration for a 10 year horizon.
- The volume and distribution of traffic generated by the proposed development.
- Intersection sight distances at key intersections along the primary haul route.
- Existing and proposed site access standards.
- Details of proposed improvements to affected intersections.

- Impact of rail corridors on the road network and details of proposed interface treatments.
- Details of servicing and parking arrangements.
- Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as walking and cycling.
- Impacts of road traffic noise and dust generated along the primary haul route/s.
- Consideration for Clause 16(1) of the Mining SEPP regarding;
    - Impact on school zones and residential areas.
    - Code of Conduct for haulage operators
    - Road safety assessment of key haulage route/s

Should Planning and Environment wish to condition the preparation of a Code of Conduct for haulage operators, this could include, but not be limited to;

a. A map of the primary haulage routes highlighting critical locations.
b. Safety initiatives for haulage through residential areas and/or school zones.
c. An induction process for vehicle operators & regular toolbox meetings.
d. A complaint resolution and disciplinary procedure.
e. Any community consultation measures for peak haulage periods.

Where road safety concerns are identified at a specific location along the identified haulage route/s, Roads and Maritime suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons.

Roads and Maritime recommends current Austroads Guidelines, Australian Standards and Roads and Maritime Supplements be adopted for any proposed works on the road network.

If you have any further enquiries regarding the above comments please contact Liz Smith, Manager Land Use Assessment on (02) 6640 1362 or via email at: development.northern@rms.nsw.gov.au

Yours faithfully

[redacted]

for Monica Sirol
Network & Safety Manager, Northern Region
07/11/2017

DOC20/204394

DIVISION OF RESOURCES & GEOSCIENCE ADVICE RESPONSE

Rose-Anne Hawkeswood
Energy & Resource Assessments - Planning & Assessment Division
Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

Rose-Anne.Hawkeswood@planning.nsw.gov.au

Dear Rose-Anne

Project: Crescent Head Ilmenite Stockpile Project
Stage: Secretary's Environmental Assessment Requirements
Development Application: EAR 1180

I refer to your request dated 4 March 2020 inviting the Division of Resources & Geoscience to provide comments on the Crescent Head Ilmenite Stockpile Project (the Project) submitted by Greencoast Environmental Rehabilitation (the Proponent).

The Division has reviewed the information supplied in relation to the abovementioned Project and provides the following advice:

The Division requires that the Project's Environmental Impact Statement (EIS) refers to and includes all the requirements set out in the *Division of Resources and Geoscience Secretary's Environmental Assessment Requirements* (**Attachment 1**).

For further enquiries in relation to this matter, please contact the Assessment Coordination Unit – Resource Assessments on 02 4063 6534 or assessment.coordination@planning.nsw.gov.au.

Yours sincerely

[redacted]

Adam W. Banister
A/Manager Assessment Coordination
Resource Operations
Division of Resources & Geoscience
19 March 2020

for
Stephen Wills
Executive Director Resource Operations
Division of Resources & Geoscience

Responsibilities of the Resources Regulator

The Department of Planning, Industry and Environment - Planning & Assessment Division and the Proponent should be aware that matters pertaining to rehabilitation, environmental impacts of final landform design, mine operator and safety are not assessed by the Division and advice should be sought from the Resources Regulator.

The Mining Act Inspectorate within the Resources Regulator has responsibility for providing strategic advice for environmental issues pertaining to the proposed development in so far as they relate to or affect rehabilitation.

Mine Safety Operations within the Resources Regulator is responsible for ensuring mine operators manage the risk to worker health and safety though compliance with the Work Health and Safety (Mines and Petroleum Sites) Act 2013 and the subordinate mining legislation. In particular the effective management of risk associated with the principal hazards as specified in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

Division of Resources & Geoscience

Secretary's Environmental Assessment Requirements

for proposed development applications requiring consultation

Project	Crescent Head Ilmenite Project
Reference Number:	DOC20/204460
Issue date of SEARs:	18 March 2020
Type of Approval:	Mining operation - **open cut**
Proponent:	Greencoast Environmental Rehabilitation
DA Number:	EAR 1180
LGA:	Kempsey Shire
Mineral:	Ilmenite

This development may require an approval under the *Mining Act 1992* to be issued by the Division of Resources & Geoscience. The proponent must apply to the Division for the relevant approval (mining lease) during the development assessment process, or once consent has been granted, and before the commencement of any mining or ancillary activity.

A development application under the *Environmental Planning and Assessment Act 1979* must be approved before a mining lease can be granted. A mining lease will only be granted for activities specified in the development consent.

Environmental Impact Statement (EIS) requirements for mining

1. Project description

The Proponent is to supply a comprehensive overview and description of all aspects of the Project, including:

(a) Location map showing the project area, mining titles, nearest town/s, major roads etc.

(b) Status of all titles (including mining and exploration), and development consents in place and/or timeline to obtain necessary approvals.

(c) Nature of operation (e.g. underground, open cut) and ore mineral/s to be extracted.

2. Geology

The Proponent is to supply a summary of the geological components of the mineral resource, including:

(a) A brief description of the regional geology including a supporting map.

(b) Details of the ore and waste rock, including mineralogy and deleterious elements.

3. Mineral Resources and Ore Reserves

The Proponent is to supply the most recent resource and reserve statement. The Proponent should also provide a summary of the mineral resource classifications and justification for each category.

(a) Include a full and updated resource/reserve statement that has been prepared in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves of the Joint Ore Reserves Committee (the JORC code), or equivalent standard, to a minimum of Indicated Resource level of confidence. It is preferred that a significant amount of the resources are estimated to at least indicated or equivalent high-level of confidence.

The statement must contain:

- A breakdown of the mineralogy present (ilmenite, rutile, zircon)
- The TiO2 grade and tonnes of ilmenite.
- Percentages of marketable ilmenite vs waste (cut-off).

The Division understands that it may not be feasible to convert all Inferred Resources to Indicated (or higher) level of confidence. However, the Proponent needs to demonstrate that there are sufficient resources to support the majority of the initial life of mine production schedule. Any contribution from Inferred Resources to the schedule needs to be justified.

4. Resource extraction

The Proponent is to supply evidence that the resource extraction is sustainable and maximised. Such evidence will include:

(a) A summary of resources that may be sterilised or excluded, with justification.

(b) A summary of the processing and recovery methods.

(c) List all economic, environmental, geological, geotechnical and other constraints to the recovery of the resource/reserve impacting the Project.

5. Life of mine schedule

The Proponent must supply a life of mine production schedule for each year of operation of the mine and for the life of the Project. The production schedule is to include:

(a) Details of run-of-mine ore, low-grade ore-mineralised waste and waste rock tonnage planned to be extracted for each year and for the life of the Project, and an estimate of the saleable product produced for each year and the life of the Project.

(b) In terms of text, plans or charts, the EIS must clearly show the proposed extent and sequence of the development.

6. Project economics and target market

The Proponent is to supply an assessment of project economics including:

(a) Price forecasts by product type used by the Proponent. The Division requires these forecasts to analyse the Proponent's calculations of royalty value and export value.

(b) CAPEX & OPEX necessary for the Project broken down into the various sub-categories and equipment type.

(c) Estimates of employment generation broken down into direct, indirect, ongoing, construction and contract workers.

(d) Total royalty generated over the life of the Project.

The Division understands that an estimate of product split into individual market segments is difficult to estimate at a point in time and is dependent on market conditions as the life of the Project progresses, however the Division requires the Proponent to provide its best estimate of their market mix at the initial stages of the Project.

8. Spatial data

The Proponent is to supply the following shapefile(s) and/or coordinates to enable the Division's internal mapping and assessment of the project:

(a) The project/development application area(s).

(b) Discreet features within the project area, for example mine extraction area/pit, mine infrastructure area, ancillary water storage dam(s), tailings dam(s).

Discreet project features must be in separate files and labelled clearly to demarcate from the main project area. Data must be supplied in GDA 1994 MGA coordinate system, UTM projection and shape files in ESRI shape file format.

Spatial data is to be sent to assessment.coordination@planning.nsw.gov.au on submission of the EIS.

All above information should be summarised in the EIS, with full documentation appended. If deemed commercial-in-confidence, the resource summary included in the EIS must commit to providing the Division with full resource documentation via the Division's Resource and Economic Assessment process.

Standard mining development rehabilitation requirements

Post-mining land use

(a) Identification and assessment of post-mining land use options.

(b) Identification and justification of the preferred post-mining land use outcome(s), including a discussion of how the final land use(s) are aligned with relevant local and regional strategic land use objectives.

(c) Identification of how the rehabilitation of the project will relate to the rehabilitation strategies of neighboring mines within the region, with a particular emphasis on the coordination of rehabilitation activities along common boundary areas.

Rehabilitation objectives and domains

(d) Inclusion of a set of project rehabilitation objectives and completion criteria that clearly define the outcomes required to achieve the post-mining land use for each domain. Completion criteria should be specific, measurable, achievable, realistic and time bound. If necessary, objective criteria may be presented as ranges.

Rehabilitation methodology

(e) Details regarding the rehabilitation methods for disturbed areas and expected time frames for each stage of the rehabilitation process.

(f) Mine layout and scheduling, including maximising opportunities for progressive final rehabilitation. The final rehabilitation schedule should be mapped against key production milestones (i.e. ROM tonnes) of the mine layout sequence before being translated to indicative timeframes throughout the mine life. The mine plan should maximise opportunities for progressive rehabilitation.

Conceptual final landform design

(g) Inclusion of a drawing at an appropriate scale identifying key attributes of the final landform, including final landform contours and the location of the proposed final land use(s).

Monitoring and research

(h) Outlining the monitoring programs that will be implemented to assess how rehabilitation is trending towards the nominated land use objectives and completion criteria.

(i) Details of the process for triggering intervention and adaptive management measures to address potential adverse results as well as continuously improve rehabilitation practices.

(j) Outlining any proposed rehabilitation research programs and trials, including their objectives. This should include details of how the outcomes of research are considered as part of the ongoing review and improvement of rehabilitation practices.

Post-closure maintenance

(k) Description of how post-rehabilitation areas will be actively managed and maintained in accordance with the intended land use(s) in order to demonstrate progress towards meeting the rehabilitation objectives and completion criteria in a timely manner.

Barriers or limitations to effective rehabilitation

(l) Identification and description of those aspects of the site or operations that may present barriers or limitations to effective rehabilitation, including:

i. evaluation of the likely effectiveness of the proposed rehabilitation techniques against the rehabilitation objectives and completion criteria;

ii. an assessment and life of mine management strategy of the potential for geochemical constraints to rehabilitation (e.g. acid rock drainage, spontaneous combustion etc.), particularly associated with the management of overburden/interburden and reject material;

iii. the processes that will be implemented throughout the mine life to identify and appropriately manage geochemical risks that may affect the ability to achieve sustainable rehabilitation outcomes;

iv. a life of mine tailings management strategy, which details measures to be implemented to avoid the exposure of tailings material that may cause environmental risk, as well as promote geotechnical stability of the rehabilitated landform; and

v. existing and surrounding landforms (showing contours and slopes) and how similar characteristics can be incorporated into the post-mining final landform design. This should include an evaluation of how key geomorphological characteristics evident in stable landforms within the natural landscape can be adapted to the materials and other constraints associated with the site.

(m) Where a void is proposed to remain as part of the final landform, include:

i. a constraints and opportunities analysis of final void options, including backfilling, to justify that the proposed design is the most feasible and environmentally sustainable option to minimise the sterilisation of land post-mining;

ii. a preliminary geotechnical assessment to identify the likely long-term stability risks associated with the proposed remaining high wall(s) and low wall(s) along with associated measures that will be required to minimise potential risks to public safety; and

iii. outcomes of the surface and groundwater assessments in relation to the likely final water level in the void. This should include an assessment of the potential for fill and spill along with measures required be implemented to minimise associated impacts to the environment and downstream water users.

(n) Consideration of the controls likely to be required to either prevent or mitigate against rehabilitation risks as part of the closure plan for the site.

(o) Where an ecological land use is proposed, demonstrate how the revegetation strategy (e.g. seed mix, habitat features, corridor width etc.) has been developed in consideration of the target vegetation community(s).

(p) Where the intended land use is agriculture, demonstrate that the landscape, vegetation and soil will be returned to a condition capable of supporting this.

(q) Consider any relevant government policies[1].

The following risks have been identified that require the application of non-standard Assessment Requirements:

i. Tailings from mineral sand operations include residues with elevated radioactivity. It is unknown as to whether tailings from historic operations were disposed of on site and subsequently buried under the ilmenite stockpiles and that removal of stockpiles would expose potentially radioactive residues; and

ii. Inclusion of rehabilitation objectives and completion criteria that address radiological risks. This should include a radiological investigation.

[1] The following government policies should be considered when addressing rehabilitation issues:
- Mine Rehabilitation (Leading Practice Sustainable Development Program for the Mining Industry, 2006)
- Mine Closure and Completion (Leading Practice Sustainable Development Program for the Mining Industry, 2006)
- Strategic Framework for Mine Closure (ANZMEC-MCA, 2000)

Additional matters for attention

Biodiversity offsets

The Division requests that the Proponent consider potential resource sterilisation in relation to any proposed biodiversity offsets areas. Biodiversity offsets have the potential to preclude access for future resource discovery and extraction and could also potentially permanently sterilise access to mineral resources.

The EIS must therefore clearly illustrate the location (including offsite locations) of any biodiversity offsets being considered for the project and their spatial relationship to known and potential mineral and construction material resources and existing mining & exploration titles.

The Division requests consultation with both the Geological Survey of NSW – Land Use Assessment team and holders of existing mining and exploration authorities affected by planned biodiversity offsets. Evidence of consultation should be included in the EIS.

Mining Titles

The Division notes that this Project, as it currently stands, is located within the existing title area of Exploration Licence 8085 (Act 1992) (Attachment A).

As Ilmenite is a prescribed mineral under the *Mining Act 1992*, the Proponent must obtain the appropriate mining title(s), such as a mining lease, from the Division allowing for mineral extraction (Ilmenite) over the project extension area within EL 8085.

The EIS for a project should clearly identify existing mineral titles, mineral title applications and the final proposed mining lease area(s) for the project site and areas surrounding the proposed project area and address the environmental impacts and management measures for the mining and mining purpose activities as licensed under the *Mining Act 1992*.

A development application under the *Environmental Planning and Assessment Act 1979* must be approved before a mining lease can be granted. A mining lease will only be granted for activities and minerals specified in the development consent.

For ancillary mining activities a proponent holding a mining lease granted in respect of mineral/s may, in accordance with the lease conditions, carry out any ancillary mining activity on that land (see definition of ancillary mining activity in clause 7 of the Mining Regulations 2016).

There is a subset of ancillary mining activity that the legislation defines as 'designated ancillary mining activity' (defined in section 6(6) of the *Mining Act 1992*).

A proponent seeking to undertake designated ancillary mining activity on land inside the mining area must ensure that the mining lease granted in respect of mineral/s contains a condition allowing undertaking of this designated ancillary mining activity (Section 6(1) of the *Mining Act 1992*).

A proponent seeking to undertake a designated ancillary mining activity outside a mining area, but in the immediate vicinity of and that directly facilitates the mining lease in respect of mineral(s), must apply for one of the following:

1. A separate mining lease for the designated ancillary mining activity which authorises the carrying out of the activity. (This provides the holder with the right to access the mining area to undertake the ancillary mining activity, however does not provide the holder with the right to mine).
2. A condition on an existing mining lease that regulates the carrying out of the designated ancillary mining activity in an off-title area. (See section 6(2) of the *Mining Act 1992*). The ancillary mining activity condition will include the survey plan of the designated ancillary mining activity area on which the designated ancillary mining activity is (or is proposed to be) located.

Appendices

Appendix A – Crescent Head Ilmenite Project - Diagram (DOC20/323105).

Approvals

Position	Approval	Date
Approving Officer: Adam W. Banister Acting Manager Assessment Coordination Resource Operations (02) 4063 6534	Approved in CM9	19 March 2020

NSW GOVERNMENT

Crescent Head Ilmenite Project Area

Planning, Industry & Environment

Our Ref: DOC20/184961
Your Ref: EAR 1180

Energy and Resources
Department of Planning Industry and Environment
GPO Box 39
Sydney NSW 2001

Attention: Ms Rose-Anne Hawkeswood

Dear Ms Hawkeswood

Re: Request for Biodiversity and Conservation Division's Environmental Impact Statement Environmental Assessment Requirements – Crescent Head Ilmenite Stockpile Rehabilitation Project EARs ID 1180

Thank you for your e-mail dated 4 March 2020 about the Crescent Head ilmenite stockpile rehabilitation project, revision to Secretary's Environmental Assessment Requirements (SEARS) seeking Environmental Assessment Requirements (EARs) from the Biodiversity and Conservation Division (BCD) of the Environment, Energy and Science Group in the Department of Planning, Industry and Environment. I appreciate the opportunity to provide input.

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 project will be assessed in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Environmental Impact Statement (EIS) EARs provided by the Biodiversity and Conservation Division are limited to Aboriginal cultural heritage, biodiversity, NPWS estate, acid sulphate soils, flooding, stormwater and coastal erosion.

The proponent should ensure that the EIS will be sufficiently comprehensive to enable unambiguous assessment of all direct and indirect impacts of the proposed development.

In particular, the EIS should address the following matters.

<u>Aboriginal cultural heritage</u>

The OEH advises that there is a high concentration of evidence of past Aboriginal occupation in the area around the subject lands, so any assessment for this proposal should consider the views of those Aboriginal people who have a documented interest in the project area and its immediate surrounds.

1. The Aboriginal cultural heritage assessment must consider;
    a. potential harm to Aboriginal cultural heritage values associated with direct or indirect impacts of the proposal, and

b. past mining practices, to determine the potential for Aboriginal objects to be present within the project area in a disturbed context within the discard pile.

Biodiversity

2. The proposal involves the clearing of native vegetation as prescribed by clause 6.1 of the Biodiversity Conservation Regulation 2017 on land included on the Biodiversity Values Map published under clause 7.3 of the Regulation. The EIS must be accompanied by a Biodiversity Development Assessment Report prepared in accordance with Part 6, Division 3 of the *Biodiversity Conservation Act 2016*.

Goolawah Reserve Trust

The subject lands are included within the Goolawah Reserve Trust, a Crown Reserve administered by the Minister for the Environment, gazetted 16 April 2010.

3. The EIS, must include consultation with the National Parks and Wildlife Service (NPWS) and clearly document the role of NPWS in the management of Goolawah Reserve Trust, especially as it relates to the management of the subject lands and the standards of rehabilitation and reporting which may apply.

NPWS Estate - Goolawah National Park.

4. The EIS must clearly document any potential or likely impacts, both direct and indirect on the adjoining NPWS Estate - Goolawah National Park, with reference to the *Guidelines for developments adjoining land managed by the Office of Environment and Heritage*. This assessment of impacts is to include documented consultation with the Macleay Area Office of National Parks and Wildlife Service, the office can be contacted on 6561 6700 or via email at npws.macleay@environment.nsw.gov.au

We consider that this information is necessary for a comprehensive EIS for the proposed development.

The full list of our requirements that may need to be addressed in the EIS is provided in **Attachment 1**. In preparing the EIS, the proponent should refer to the relevant guidance material listed in **Attachment 2.**

If you have any questions about this advice, please do not hesitate to contact Mr Bill Larkin, Senior Conservation Planning Officer, at bill.larkin@environment.nsw.gov.au or 6659 8216.

Yours sincerely

[redacted] 20 March 2020

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

Enclosures:
Attachment 1 - BCD Recommended EARs – EIS – Crescent Head Ilmenite Stockpile Rehabilitation Project EAR 1180

Attachment 2 - EIS Guidance Material

Attachment 1

Biodiversity and Conservation Division's Recommended Secretary's Environmental Assessment Requirements (SEARs) for Preparation of an Environmental Impact Statement

for the

Crescent Head Ilmenite Stockpile Rehabilitation Project

EAR 1180

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TABLE OF CONTENTS

A. The Proposed Development

The Environmental Impact Statement (EIS) should fully and clearly describe the proposed development, including any environmental impact mitigation measures, and identify all the processes and activities intended for the site during the life of the proposed development.

The description of the proposed development in the EIS should, where relevant, include:

1. the location of the proposal and details of the surrounding environment;
2. appropriate land use zoning;
3. the size and type of the proposal and its operation;
4. the proposed layout of the site;
5. the staging and timing of the proposal;
6. the proposal's relationship to any other proposal.
7. all equipment proposed for use at the site;
8. chemicals, including fuel, used on the site and proposed methods for the transportation, storage, use and emergency management;
9. waste generation, storage and disposal;
10. the anticipated environment impacts of the proposal, both direct and indirect,
11. a plan showing the distribution of any threatened flora or fauna species and the vegetation communities on or adjacent to the subject site, and the extent of vegetation proposed to be cleared; and
12. ownership details of any residence and/or land likely to be affected by the proposal;
13. maps/diagrams showing the location of residences and properties likely to be affected and other industrial developments, conservation areas, wetlands, etc. in the locality that may be affected by the proposal;
14. methods to mitigate any expected environmental impacts of the proposal; and
15. the anticipated level of performance in meeting required environmental standards.

B. Environmental Impacts of the Proposed Development

Impacts related to the following environmental issues should be assessed, quantified and reported on:

- Aboriginal cultural heritage
- Biodiversity
- NPWS Estate (land reserved or acquired under the *National Parks and Wildlife Act 1974*)
- Acid Sulfate Soils
- Flooding, Stormwater and Coastal Erosion
- Cumulative Impacts

The EIS should address the specific requirements outlined under each heading below and assess impacts in accordance with the relevant guidelines mentioned. A full list of guidelines is at **Attachment 2**.

C. Aboriginal Cultural Heritage

The EIS should contain:

1. A description of the Aboriginal objects and declared Aboriginal places located within the area of the proposed development.

2. A description of the cultural heritage values, including the significance of any Aboriginal objects and/or declared Aboriginal places, that exist across the whole area that will be affected by the proposed development, and the significance of these values for the Aboriginal people who have a cultural association with the land.

3. A description of any consultation with Aboriginal people on the proposed development and the significance of any Aboriginal cultural heritage values identified through that consultation. The Biodiversity and Conservation Division advises that the proponent may utilise the former OEH's *Aboriginal Consultation Requirements for Proponents 2010* as best practice guidelines for such consultation (these requirements for consultation must be followed if the proposed development requires an Aboriginal Heritage Impact Permit or the Aboriginal heritage assessment requires archaeological testing).

4. The views of those Aboriginal people regarding the likely impact of the proposed development on their cultural heritage. If any submissions have been received as a part of the consultation requirements, then the report must include a copy of each submission and the proponent's response.

5. A description of the actual or likely harm posed to the Aboriginal objects and/or declared Aboriginal places from the proposed development, with reference to the cultural heritage values identified.

6. A description of any practical measures that may be taken to protect and conserve those Aboriginal objects and/or declared Aboriginal places.

7. A description of any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm or, if this is not possible, to manage (minimise) harm, to those Aboriginal objects and/or declared Aboriginal places.

In addressing these requirements, the proponent may refer to the following documents:

a. *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (OEH, 2010) - www.environment.nsw.gov.au/resources/cultureheritage/ddcop/10798ddcop.pdf. These guidelines identify a process that could be used to prepare Aboriginal cultural heritage assessments for development proposals assessed under Part 4 of the *Environmental Planning and Assessment Act 1979*.

b. *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (OEH, 2010) - www.environment.nsw.gov.au/licences/consultation.htm. This document further explains the consultation requirements that are set out in clause 80C of the *National Parks and Wildlife Regulation 2009*. The process set out in this document must be followed and documented in the EIS if the proposed development requires an Aboriginal Heritage Impact Permit or the Aboriginal heritage assessment requires archaeological testing.

c. *Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH, 2010) - www.environment.nsw.gov.au/licences/archinvestigations.htm. The process described in this Code should be followed and documented where the assessment of Aboriginal cultural heritage requires archaeological testing to be undertaken.

Notes:

- An Aboriginal Site Impact Recording Form (http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm) must be completed and submitted to the Aboriginal Heritage Information Management System (AHIMS) Registrar, for each AHIMS site that is harmed through archaeological investigations required or permitted through these environmental assessment requirements.

- Under section 89A of the *National Parks and Wildlife Act* 1974, it is an offence for a person not to notify the Biodiversity and Conservation Division of the location of any Aboriginal object the person becomes aware of, not already recorded on the Aboriginal Heritage Information Management System (AHIMS). An AHIMS Site Recording Form should be completed and submitted to the AHIMS Registrar (http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm), for each Aboriginal site found during investigations.

D. Biodiversity

1. The EIS must assess the impacts of the proposed development on biodiversity values to determine if the proposed development is "likely to significantly affect threatened species" for the purposes of Section 7.2 of the *Biodiversity Conservation Act 2016* (BC Act) as follows:

   A. The EIS must demonstrate whether the proposed development is to be carried out in a declared area of outstanding biodiversity value.

   B. If the proposed development is not carried out in a declared area of outstanding biodiversity value, then the EIS must demonstrate and document whether the proposed development exceeds the biodiversity offset scheme threshold, as set out in section 7.4 of the BC Act and clause 7.1 of the Biodiversity Conservation Regulation 2017 (BC Regulation), by determining whether the proposed development involves:

      I. The clearing of native vegetation of an area declared by clause 7.23 of the BC Regulation as exceeding the threshold, or

      II. The clearing of native vegetation, or other action prescribed by clause 6.1 of the BC Regulation, on land included on the Biodiversity Values Map published under clause 7.3 of the BC Regulation.

   C. If the biodiversity offset scheme threshold is not exceeded, then the EIS must document *the test for determining whether proposed development is likely to significantly affect threatened species or ecological communities* as outlined in Section 7.3 of the BC Act, by preparing an ecological assessment that:

      I. Should include a field survey of the site conducted and documented in accordance with relevant guidelines, including:

         a. *Field survey methods for environmental consultants and surveyors when assessing proposed developments or other activities on sites containing threatened species* https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/field-survey-method-guidelines.pdf

         b. *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians* (DECC, 2009) http://www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf

         c. *NSW Guide to Surveying Threatened Plants* (OEH 2016) https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/guide-surveying-threatened-plants-160129.pdf

         d. *"Species credit' threatened bats and their habitats* *https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/species-credit-threatened-bats-survey-guide-180466.pdf*

         e. *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004),

https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/draft-threatened-biodiversity-survey-guide.pdf

If a proposed field survey methodology is likely to vary significantly from the methods in the guidelines above, then the proponent should discuss the proposed methodology with the Biodiversity and Conservation Division prior to undertaking surveys for the EIS, to determine whether the Biodiversity and Conservation Division considers the proposed methodology appropriate.

The results of recent (less than five years old) field surveys may be used. However, the results of previous field surveys should not be used if they have:

- been undertaken in seasons, weather conditions or following extensive disturbance events when the subject species are unlikely to be detected or present, or
- utilised methodologies, survey sampling intensities, timeframes or baits that are not the most appropriate for detecting the target subject species,

unless these differences can be clearly demonstrated to have had an insignificant impact upon the outcomes of the field surveys.

If the results of previous field surveys are used, then field surveys for any additional threatened entities listed under the BC Act since the previous field surveys took place, must be undertaken and documented.

The list of potential threatened species, populations, ecological communities, or their habitats for the site should be determined in accordance with:

- the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft* (DEC, 2004), and
- the Department's Threatened Species website http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species ,and
- the *Bionet Atlas of NSW* http://www.environment.nsw.gov.au/wildlifeatlas/about.htm , and
- the Vegetation Information System (BioNet Vegetation Classification) http://www.environment.nsw.gov.au/research/Visclassification.htm , and
- other data sources (e.g. PlantNET, Online Zoological Collections of Australian Museums (http://www.ozcam.org/), previous or nearby surveys etc.) may also be used to compile the list.

II. Should include the following information as a minimum:

a. A description, spatial data files, and geo-referenced mapping of the study area, (overlays on topographic maps, satellite images and /or aerial photos, including details of map datum, projection and zone), showing all field survey locations, vegetation communities classified in accordance with the BioNet Vegetation Classification (http://www.environment.nsw.gov.au/research/Visclassification.htm), key habitat features and reported locations of threatened species and ecological communities present in the subject site and study area.

b. A description of survey methodologies used, including timing, location and weather conditions.

c. Details, including qualifications and experience, of all persons undertaking the surveys, mapping and assessment of impacts as part of the EIS.

d. Identification of national and state listed threatened biota known or likely to occur in the study area and their conservation status.

e. A description of the likely impacts of the proposed development on biodiversity values, including direct and indirect impacts and construction and operation impacts, with impacts quantified, wherever possible, such as the amount of each vegetation community or species habitat to be cleared or impacted, and/or the degree of fragmentation of a habitat connectivity.

f. Identification of the avoidance, mitigation and management measures that will be put in place as part of the proposed development to avoid or minimise biodiversity impacts, including details about alternative options considered and how long-term management arrangements will be guaranteed.

g. A description of the residual impacts of the proposed development.

III. Must include the '*test for determining whether proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats*' as outlined in Section 7.3 of the BC Act undertaken in accordance with the gazetted *Threatened Species Test of Significance Guidelines* (OEH 2018) available at: https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/threatened-species-test-significance-guidelines-170634.pdf

2. If the EIS determines under 1 above that the proposed development is likely to significantly affect threatened species, then in accordance with Section 7.7 of the BC Act the EIS must be accompanied by a Biodiversity Development Assessment Report prepared in accordance with Part 6, Division 3 of the BC Act.

3. If the EIS determines under 1 above that the proposed development is unlikely to significantly affect threatened species, then the proposed development should:

   a. be designed to avoid and minimise impacts on biodiversity values to the fullest extent possible, and

   b. include a biodiversity offset package to offset remaining direct and indirect impacts on biodiversity values, prepared in accordance with the Department's 13 offsetting principles available at http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm:

Note:

For the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999,* the EIS should identify any relevant Matters of National Environmental Significance and whether the proposal has been referred to the Commonwealth or already determined to be a controlled action.

E. NPWS Estate

The EIS should address the following with respect to land reserved under the *National Parks and Wildlife Act 1974*.

1. Where appropriate, likely impacts (both direct and indirect) of the proposed development on any adjoining and/or nearby NPWS estate reserved under the *National Parks and Wildlife Act 1974* should be considered, with reference to the *Guidelines for developments adjoining land managed by the Office of Environment and Heritage* (OEH, 2013) available at:

   http://www.environment.nsw.gov.au/resources/protectedareas/development-land-adjoining-130122.pdf

Note: Proposed development which may impact marine protected areas should be referred to the Regions, Industry, Agriculture and Resources Group in the Department of Planning, Industry and Environment to determine the assessment and approval requirements.

F. Acid Sulfate Soils

The EIS should address the following:

1. The potential impacts of the proposed development on acid sulfate soils must be assessed in accordance with the relevant guidelines in the Acid Sulfate Soils Manual (Stone et al. 1998) and the Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004).

2. The mitigation and management options that will be used to prevent, control, abate or minimise potential impacts from the disturbance of acid sulfate soils associated with the proposed development and to reduce risks to human health and prevent the degradation of the environment must be described, including include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

G. Flooding, Stormwater and Coastal Erosion

The EIS should include an assessment of the following referring to the relevant guidelines in Attachment 2:

1. The potential effect of coastal processes and coastal hazards including potential impacts of sea level rise:

    a. on the proposed development; and

    b. arising from the proposed development.

2. Whether the proposed development is consistent with any coastal zone management plans.

3. Whether the proposed development is consistent with any floodplain risk management plans.

4. Whether the proposed development is compatible with the flood hazard of the land.

5. Whether the proposed development will significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties.

6. Whether the proposed development will significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

7. Whether the proposed development incorporates appropriate measures to manage risk to life from flood.

8. Whether the proposed development is likely to result in unsustainable social and economic costs to the community as a consequence of flooding.

9. The implications of flooding over the full range of potential flooding, including the probable maximum flood, should be considered as set out in the NSW Government Floodplain Development Manual. This should include the provision of:

    a. Full details of the flood assessment and modelling undertaken in determining any design flood levels (if applicable), including the 1 in 100 year flood levels.

    b. A sensitivity assessment of the potential impacts of an increase in rainfall intensity and runoff (10%, 20% and 30%) and sea level rise on the flood behaviour for the 1 in 100 year design flood if applicable.

10. All site drainage, stormwater quality devices and erosion / sedimentation control measures should be identified and the onsite treatment of stormwater and effluent runoff and predicted stormwater discharge quality from the proposed development should be detailed.

H. Cumulative Impacts

The EIS should include an assessment of the following:

1. The cumulative impacts, including both construction and operational impacts, from all clearing activities and operations, associated edge effects and other indirect impacts on cultural heritage, biodiversity and NPWS Estate in accordance with the *Environmental Planning and Assessment Act 1979*.

2. The cumulative impacts, including both construction and operational impacts, of the proponent's existing proposals and other proposals and associated infrastructure (such as access tracks etc.) as well as the cumulative impact of the proposed development in the context of other proposals located in the vicinity.

Attachment 2 – EIS Guidance Material

Title	Web address
Relevant Legislation	
Coastal Protection Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Floodplain Development Manual	http://www.environment.nsw.gov.au/floodplains/manual.htm
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Biodiversity Conservation Act 2016	https://www.legislation.nsw.gov.au/~/view/act/2016/63
Biodiversity Conservation Regulation 2017	https://www.legislation.nsw.gov.au/~/view/regulation/2017/432
Biodiversity Conservation (Savings and Transitional) Regulation 2017	https://www.legislation.nsw.gov.au/~/view/regulation/2017/433
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Aboriginal Cultural Heritage	
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/consultation.htm
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/archinvestigations.htm
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm

Biodiversity

Biodiversity Assessment Method (OEH 2017)	http://www.environment.nsw.gov.au/resources/bcact/biodiversity-assessment-method-170206.pdf
Biodiversity Assessment Calculator	https://www.lmbc.nsw.gov.au/bamcalc
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians (DECCW, 2009)	http://www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf
Species credit *threatened* bats and their habitat – NSW survey guide for the Biodiversity Assessment Method (OEH 2018).	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/species-credit-threatened-bats-survey-guide-180466.pdf
NSW Guide to Surveying Threatened Plants (OEH 2016)	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/guide-surveying-threatened-plants-160129.pdf
Field survey methods	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/field-survey-method-guidelines.pdf
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DEC, 2004)	https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Threatened-species/draft-threatened-biodiversity-survey-guide.pdf
Threatened Species website	http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species
Atlas of NSW Wildlife	http://www.environment.nsw.gov.au/wildlifeatlas/about.htm
BioNet Vegetation Classification (NSW Vegetation Classification System)	http://www.environment.nsw.gov.au/research/Visclassification.htm
PlantNET	http://plantnet.rbgsyd.nsw.gov.au/
Online Zoological Collections of Australian Museums	http://www.ozcam.org/
Threatened Species Assessment Guidelines: the Assessment of Significance (DECC 2007)	http://www.environment.nsw.gov.au/research-and-publications/publications-search/threatened-species-assessment-guidelines
Principles for the use of biodiversity offsets in NSW	http://www.environment.nsw.gov.au/biodivoffsets/oehoffsetprincip.htm

NPWS Estate

Land reserved or acquired under the NPW Act

List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx

NPWS Revocation of Land Policy	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/protectedareas/10509devadjdeccw.pdf

Water and Soils

Acid sulphate soils

Acid Sulfate Soils Planning Maps	http://canri.nsw.gov.au/download/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.derm.qld.gov.au/land/ass/pdfs/lmg.pdf This replaces Chapter 4 of the Acid Sulfate Soils Manual above.

Flooding and Coastal Erosion

Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm
Floodplain development manual	http://www.dnr.nsw.gov.au/floodplains/manual.shtml
Guidelines for Preparing Coastal Zone Management Plans	http://www.environment.nsw.gov.au/resources/coasts/130224CZMPGuide.pdf
Climate Change Impacts and Risk Management	http://www.environment.gov.au/climate-change

Water

Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality
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