



Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
 - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
 - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from the Department's website:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. Additional sectoral guidelines are also available.

- the Policy Statement titled Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.
- the Policy Statement titled Significant Impact Guidelines: Coal seam gas and large coal mining developments—Impacts on water resources.
- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

Can I refer part of a larger action?

In certain circumstances, **the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act)**. If you wish to make a referral for a staged or component referral, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referrals Gateway (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

Is your action in the Great Barrier Reef Marine Park?

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB, GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (the Authority) for the Authority to commence its permit processes as required under the Great Barrier Reef Marine Park Regulations 1983. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from <http://www.gbrmpa.gov.au/> or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379

Townsville QLD 4810

AUSTRALIA

Phone: + 61 7 4750 0700

Fax: + 61 7 4772 6093

www.gbrmpa.gov.au

What information do I need to provide?

Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently. If a section of the referral document is not applicable to your proposal enter N/A.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in blue text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents. Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below three megabytes (3mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referrals Gateway (email address below) for advice. Attachments larger than three megabytes (3mb) may delay processing of your referral.

Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.

How do I pay for my referral?

From 1 October 2014 the Australian Government commenced cost recovery arrangements for environmental assessments and some strategic assessments under the EPBC Act. If an action is referred on or after 1 October 2014, then cost recovery will apply to both the referral and any assessment activities undertaken. Further information regarding cost recovery can be found on the Department's website at:

<http://www.environment.gov.au/epbc/publications/cost-recovery-cris>

Payment of the referral fee can be made using one of the following methods:

- **EFT Payments can be made to:**

BSB: 092-009

Bank Account No. 115859

Amount: \$7352

Account Name: Department of the Environment.

Bank: Reserve Bank of Australia

Bank Address: 20-22 London Circuit Canberra ACT 2601

Description: The reference number provided (see note below)

- **Cheque** - Payable to "Department of the Environment". Include the reference number provided (see note below), and if posted, address:

The Referrals Gateway
Environment Assessment Branch
Department of the Environment
GPO Box 787
Canberra ACT 2601

- **Credit Card**

Please contact the Collector of Public Money (CPM) directly (call (02) 6274 2930 or 6274 20260 and provide the reference number (see note below).

Note: in order to receive a reference number, submit your referral and the Referrals Gateway will email you the reference number.

How do I submit a referral?

Referrals may be submitted by mail or email.

Mail to:

Referrals Gateway
Environment Assessment Branch
Department of Environment
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are required.

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- **Follow up with a mailed hardcopy including copies of any attachments or supporting reports.**

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

The proposed action would have UNACCEPTABLE impacts and CANNOT proceed

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

Compliance audits

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park*," p.2, for more details).

For more information

- call the Department of the Environment Community Information Unit on 1800 803 772 or
- visit the web site <http://www.environment.gov.au/epbc>

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Project title: Urquhart Bauxite Project

1 Summary of proposed action

1.1 Short description

Oresome Bauxite Pty Ltd (Oresome), a subsidiary of Metallica Minerals Ltd, plans to establish a small-scale, open-cut bauxite mine with supporting infrastructure near Urquhart Point, approximately 3 km south of Weipa, Queensland. The proposed Urquhart Bauxite Project (UBx; the Project), will be mined sequentially over two resource areas; Area A and Area B. Mined ore will be hauled approximately 16 km by truck to an existing off-site stockpile and port for export.

The target Direct Shipping Bauxite (DSB) ore will require minimal processing on-site and could be mined over a life of between eight to ten dry seasons and up to a maximum of 1.5 million tonnes per annum (Mtpa). Mining operations will be limited to the dry season only, approximately from March to December of a given year and depending on the onset of the wet season. Progressive rehabilitation of mined areas will occur prior to the wet season shut-down to maximise the period for regeneration of each mined parcel.

1.2 Latitude and longitude

Refer to **Figure 1** for the corresponding labels.

Table 1 Coordinates for the UBx area (GDA 94)

Label	Latitude	Longitude
1	-12.688726	141.838357
2	-12.747331	141.803231
3	-12.771015	141.802565
4	-12.789992	141.793643
5	-12.788113	141.787022
6	-12.777509	141.780310
7	-12.762172	141.786638
8	-12.722096	141.811070
9	-12.713700	141.812922
10	-12.700053	141.819537
11	-12.689174	141.828813
12	-12.688566	141.838195

1.3	<p>Locality and property description</p> <p>The UBx Mine Lease Application (MLA) area is located on Lot 213, SP241407 (Aurukun Shire Council) and Lot 10, SP266623 (Napranum Aboriginal Shire). The MLA area is on the southern bank of the Embley River, 3 km south of Weipa, Queensland (Figure 2). The western side of the Project is bounded by Roberts Creek, the south by Wooldrum Creek (also referred to as Triluck Creek) and to the east is adjacent the Rio Tinto Amrun bauxite project on Mining Lease (ML) 7024 (EPBC 2008/4435).</p> <p>The UBx comprises two bauxite deposits (Area A and Area B). These bauxite deposits are located within the northeast of Exploration Permit for Minerals (EPM) 15268 and comprise an area of approximately 750 ha. An additional 10 ha of land will be required to support haul roads and associated mine infrastructure. A MLA has been lodged for the activity – MLA100044.</p> <p>Mined material would be hauled approximately 16 km by truck across ML7024 to the existing Hey Point Bauxite Project (HPBP) loading facility on ML20611 (EPBC 2014/7382) which is operated by Green Coast Resources. Refer to Figure 3 for the layout of the UBx Project in relation to adjacent projects, the haul road and the HPBP.</p> <p>Access to the Project for construction will be from the Peninsula Developmental Road (PDR) via the Aurukun Road, and existing access tracks through private land and ML7024. Up to 20 construction and operational staff are expected to travel daily to site by road for mobilising equipment, otherwise via the Hey Point ferry service. No on-site accommodation is anticipated to be required for the Project during its construction or operational phases.</p> <p>There are no conservation reserves, stock routes, easements or public road reserves within the Project area. No additional land tenures than those described above would be affected by the Project.</p>
1.4	<p>Size of the development footprint or work area (hectares)</p> <p>MLA100044 covers an area of approximately 1,400 ha of which mining Areas A and B (the areas of disturbance for the Project) account for approximately 760 ha, including access tracks, stockpiles and minor haul roads within the development footprint. Additional resource drilling over Area B will likely reduce the overall footprint. The majority of the remaining (at least) 640 ha will remain unmined.</p>
1.5	<p>Street address of the site</p> <p>Vehicle access to the Project will be from PDR via the Aurukun Road, and existing tracks through private land and the adjacent ML7024. All mining activity will occur on MLA100044.</p>
1.6	<p>Lot description</p> <p>The Project is located on Lot 213, SP241407 (Aurukun Shire Council) and Lot 10, SP266623 (Napranum Aboriginal Shire). The UBx is located on the western side of Cape York on the Gulf of Carpentaria within MLA100044, an area of approximately 1,400 ha. The Project area is located south of the Embley River and adjacent the Urquhart Heavy Mineral Sands (EPBC 2010/5707) project to the west and Amrun (EPBC 2008/4435) project to the immediate east. The western side of the Project is adjacent Roberts Creek, with the eastern portion bounded by ML7024 and southern extend bounded by Wooldrum Creek.</p>
1.7	<p>Local Government Area and Council contact (if known)</p> <p>The Project is not subject to local government planning approval. However, the Project is within the boundaries of the Napranum Shire Council, Aurukun Shire Council and Cook Shire Council and relevant officers are being consulted as part of the stakeholder engagement process.</p>

- 1.8 **Time frame**
The Project lifecycle includes stages for site establishment, early works, construction, operation and ongoing progressive rehabilitation.

It is anticipated that site establishment and early works would proceed immediately following State approvals and receipt of tenure. The Project is proposed to commence in Q1 of 2017 (pending approvals) with a period of up to six weeks required to complete construction and commence operation.

The operations phase will occur over a period of eight to ten seasons for the completion of mining in both Areas A and B. Mining operations will be limited to the dry season with progressive rehabilitation of mined panels occurring prior to shut-down each season. This will mean that vegetation regeneration and ecological recovery will commence in the first year of operation and continue throughout the life of the mine.

1.9	Alternatives to proposed action	X	No
			Yes, you must also complete section 2.2
1.10	Alternative time frames etc		No
		X	Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	State assessment		No
		X	Yes, you must also complete Section 2.5
1.12	Component of larger action	X	No
			Yes, you must also complete Section 2.7
1.13	Related actions/proposals	X	No
			Yes, provide details:
1.14	Australian Government funding	X	No
			Yes, provide details:
1.15	Great Barrier Reef Marine Park	X	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

Oresome Bauxite Pty Ltd (Oresome) is proposing to develop the Urquhart Bauxite Project (UBx) at a site approximately 3 km south of the township of Weipa on the west coast of Cape York Peninsula, Queensland. The area is well known for bauxite mining of a scale much larger than that proposed for UBx. The Project is in the vicinity of other approved projects, with the Urquhart Heavy Mineral Sands project (EPBC 2010/5707) to the west and Rio Tinto's Amrun project (EPBC 2008/4435) to the south and east. In June 2015, Oresome lodged a Mining Lease Application (MLA100044) for the Project, comprising 1,400 ha and covering two areas of bauxite – Area A and Area B. The development footprint, inclusive of Area A and Area B, would result in a direct impact of approximately 750 ha of remnant vegetation, plus an additional 10 ha for access tracks, temporary materials stockpiles and minor haul roads (refer to **Figure 1 and Figure 4**). Additional planned drilling in Area B will likely reduce the footprint based on the location of the bauxite resource.

Areas A and B will be mined sequentially over the life of the mine. Mining will commence in Area A at a maximum rate of 1.5 Mt of bauxite per year for up to five mining seasons. Mining of Area B will follow completion of Area A and is expected to have a similar resource and mine life of up to five seasons. Due to the high quality of the resource being largely Direct Shipping Bauxite (DSB), no processing on-site is required, apart from minor screening. This means that no washing of the bauxite will occur on-site, avoiding the requirement for any associated sediment detention ponds or risks of releasing turbid waters to adjacent creeks. Mined bauxite will be hauled approximately 16 km by truck from the Project site, across the approved Amrun ML7024, to a stockpile location within the Green Coast Resources' approved Hey Point Bauxite Project (HPBP) (EPBC 2014/7382) on ML20611. Stockpiled bauxite would be conveyed and exported by barge under an existing approval held by Green Coast Resources. The inclusion of bauxite from UBx is within the limits of the existing HPBP approval and will not require any amendment to the HPBP conditions of approval. In order to support both projects, a heads of agreement between Oresome and Green Coast Resources was reached in April 2016. Similarly, Oresome is seeking to reach an agreement with Rio Tinto regarding the hauling of ore across ML7024. The proposed activity on ML7024 is consistent with the assessment and approvals granted for the project.

During development of the draft Environmental Authority (EA) required for Queensland Government assessment of the Project, Oresome identified a number of activities and operational efficiencies to minimise potential impacts to Matters of National Environmental Significance (MNES), including the following:

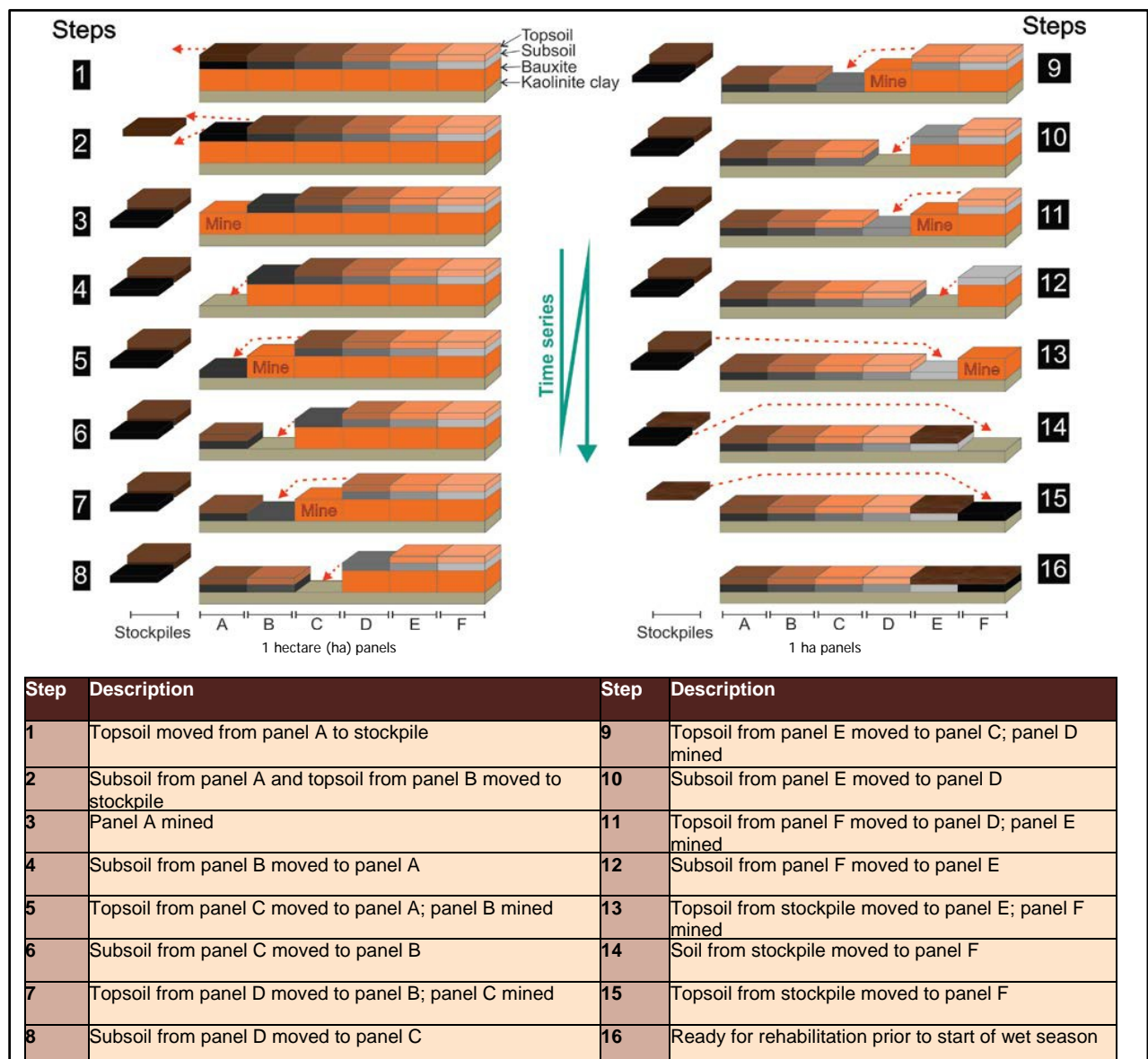
- Use of traditional shallow pit, panel bauxite mining methods, with truck and shovel or scraper operations within defined mining Area A and Area B;
- Mining operation limited to the dry season, with progressive rehabilitation occurring as part of the annual shut-down program and prior to the commencement of the wet season;
- Sediment and erosion control measures appropriate to stabilise mined areas prior to the site being shut-down before the wet season;
- Clean water drainage diverted away from mining areas. Mine-affected water will be captured and contained within the mine workings and managed for reuse during the dry season operation;
- Shallow mine pit is unlikely to interact with deeper groundwater reserves during dry season operations as surface aquifers are dry;
- Retaining an unmined portion of the site of approximately 640 ha;
- A buffer of at least 50 m will be established from the edge of mining areas towards the western coast to avoid impacts to coastal wetland, vine thicket, mangrove and permanent freshwater wetlands;
- Product bauxite to be hauled by truck from the UBx across a haul road through the adjacent ML7024 (assessed and approved under an EIS) to the HPBP stockpile (assessed and

- approved under State EA process);
- Storage and export from the HPBP will be according to the conditions of approval for the HPBP and will not require any amendment to accommodate bauxite from the UBx Project;
- Power will be supplied from a combination of diesel-fuelled generators and renewable energy (solar panels). A self-bunded diesel re-fuelling facility for plant and equipment will be located at Hey Point;
- Water will be required for potable supplies and dust suppression;
- Staff will access site daily by road from Aurukun or by small boat from Weipa. All plant and equipment will be brought in via the road network from Weipa as and when required; and
- Mining activities will occur seven days a week, with one 12 hour shift per day.

Panel Mining Methodology

The mining activities are designed to minimise movement and handling of topsoil and subsoil (overburden), maximising the efficiency of the mining process by directly placing overburden and topsoil. The aim of the method is to ensure that rehabilitation closely follows the progression of the active mining pit, with 2 ha of actively disturbed (excluding rehabilitation activities) land affected during a given mining season.

The implementation of the panel mining methodology is depicted in **Diagram 1**.



The main stages of the mining activity are:

- **Site establishment:** Vegetation will be cleared, mulched and stockpiled. Larger trees with hollows will be felled and placed in the rehabilitation area for fauna habitat;
- **Early works and construction:** A two-stage stripping process will be implemented. Topsoil will be stripped, followed by the subsoil, leaving exposed bauxite to be mined. The topsoil and subsoil will be placed into the previously mined panel, commencing the progressive rehabilitation process;
- **Operations:** Exposed bauxite will be pushed up into windrows with a bulldozer; and
- **Operations:** The majority of windrowed bauxite will be loaded into rear dump trucks or scrapers and transported by haul road to the product stockpile area where it will be exported. Minor screening may be required at the stockpile prior to export.

The key feature of the mining sequence is that all mining panels will commence rehabilitation activities prior to the shut-down of operations at the end of each dry season. With this progressive rehabilitation approach it is expected that vegetation will begin the process of rehabilitation during the subsequent wet season.

Accessing the site

During construction and operation, access to the UBx will be from the PDR via the Aurukun Road, and existing access tracks through private land and ML7024. Up to 20 operational and construction staff are expected to travel daily to site by road or boat. No on-site accommodation is required for the Project during its construction or operational phases.

Office

The office (with crib hut facilities) will be a converted transportable donga (or similar) that will provide an area for lunch, health and safety requirements and supporting a small office.

Water

Water will be required for potable use on the site as well as for dust mitigation. Water for dust mitigation will be sourced from storages on-site. No material washing is proposed, avoiding the need for sediment detention ponds and mitigating the potential for release of tailings to adjacent waterways.

Telecommunications

All communications will be via mobile phone or two-way radio. A dedicated emergency satellite phone will be stored in the crib hut at all times.

Workshop

The on-site workshop will be a converted 20-foot shipping container (or similar) used for storing, servicing, maintenance tools and equipment. Only minor servicing of plant and equipment will be performed on-site. Plant and equipment will be removed from site via the road network and serviced in Weipa for any major repairs.

Minor volumes of fuel, lubricants and grease required for servicing of plant and equipment may also be stored within the workshop. These will be stored in self-bunded cabinets in accordance with relevant standards. All waste from the workshop activities will be stored in a bunded area and removed from site by a licenced waste contractor.

Storage of Diesel

Diesel will be located at a self-bunded facility at Hey Point. Use of the facility at Hey Point will limit the potential risks associated with maintaining a second diesel storage on-site. The on-site storage of diesel will be in accordance with approvals held by Green Coast Resources, including a safety management system which incorporates appropriate spill response procedures.

2.2 Alternatives to taking the proposed action

Based on the small size and restricted extent of the resource over Area A and Area B, its isolated location and short life of the mine, no feasible or viable alternatives were considered.

2.3 Alternative locations, time frames or activities that form part of the referred action

In February 2016, Oresome completed an internal assessment of possible export options for the UBx. Based on criteria for financial, environmental and timing risks, a preferred approach was identified, as described in this document. The three options included:

- A. Constructing a new loading facility at Urquhart Point, to the west of the UBx;
- B. Constructing a new jetty to the north of the UBx; and
- C. Utilising an existing facility 16 km to the east of the UBx project at the HPBP location.

A brief summary of each option is provided below.

A. Urquhart Point Facility

The option would involve hauling material approximately 10 km from UBx, across two intertidal creeks - Roberts Creek and Wooldrum Creek. Crossing the creeks would require construction of a fixed bridge or similar infrastructure to accommodate haul trucks. The bridge would span a distance of up to 450 m of intertidal wetland (including areas of mangrove and saltmarsh). Further, a purpose-specific loading jetty would likely be required to export bauxite. The jetty would extend approximately 120 m into the Embley River, close to the shipping channel.

The option was considered unfeasible based on preliminary construction costs for the bridge, potential environmental impacts on the intertidal wetland system and time required to assess impacts to a standard sufficient to gain regulatory approvals.

B. North Jetty

The option would involve construction of a jetty and associated infrastructure at a site to the north of the UBx, on the Embley River. A 600 m conveyor would cross sensitive intertidal wetlands to load bauxite from a stockpile to barges moored on the jetty.

The option was considered unfeasible based on estimated construction costs, potential impacts to environmentally sensitive areas and the time required to assess impacts to a level necessary to gain regulatory approvals.

C. Hey Point

The Hey Point loading facility is operated by Green Coast Resources as part of the HPBP on ML20611. Mined bauxite would be hauled by truck from UBx approximately 16 km to a stockpile location within ML20611. The haul road would be constructed within ML7024. Refer to **Figure 2** and **Figure 3** for a general indication of the layout.

The option was considered superior in terms of construction cost, limited environmental impacts compared to other options and use of existing approvals for areas being impacted outside of the UBx property boundary. On this basis, Oresome has decided to pursue the Hey Point option as the preferred option. A heads of agreement was reached between Oresome and Green Coast Resources in April 2016.

2.4 Context, planning framework and state/local government requirements

The UBx is a small-scale, short term, open-cut bauxite mine. The potential environmental impacts of the proposed mining activities have been assessed in accordance with the requirements of the Queensland *Environmental Protection Act 1994* (EP Act). Under the EP Act, the Project is unlikely to trigger an EIS. However, the UBx is a resource environmentally relevant activity (ERA) for which an EA is required. The process of acquiring an EA for a resource ERA (not subject to an EIS), requires a site-specific application (SSA) detailing the potential environmental impacts and mitigations. The SSA

EA must demonstrate how the potential environmental impacts of the UBx will be managed in accordance with relevant legislation.

A summary of key legislation relevant to the UBx is provided in **Table 2**.

Table 2 Description of relevant legislation

Legislation	Description	Application to the UBx
Commonwealth		
<i>Native Title Act 1993</i>	The objectives of the <i>Native Title Act 1993</i> (NT Act) include providing for the recognition and protection of native title. The NT Act also provides a mechanism for ensuring that future acts such as the grant of mining leases, or the rights to construct and operate under such authorities, are undertaken in accordance with procedural rights given to relevant native title parties.	The UBx footprint is within the Wik and Wik Way People Native Title Determination No.2 according to the National Native Title Register. Oresome are progressing a right to negotiate process.
State		
<i>Mineral Resources Act 1989</i>	<i>The Minerals Resources Act 1989</i> (MR Act) facilitates granting, conditioning and management of mining leases and other tenement types.	Oresome hold EPM15268 upon which the UBx is located. On 22/06/2015 a MLA was submitted to the Department of Natural Resources and Mines (DNRM). Oresome will consult with DNRM to facilitate the grant of the ML following environmental approval.
<i>Environmental Protection Act 1994</i>	The objective of the <i>Environmental Protection Act 1994</i> (EP Act) is to protect Queensland's environment and to promote ecologically sustainable development. The EP Act defines a General Environmental Duty under which all persons in Queensland have a responsibility to not carry out an activity that causes or is likely to cause environmental harm, and to take all reasonable and practicable measures to prevent or minimise harm.	Under the EP Act, the UBx is a resource ERA for which an EA is required. Oresome is required to submit a SSA EA, demonstrating how the Project will effectively mitigate any potential impacts on the environment.
<i>Nature Conservation Act 1992 and Nature Conservation Regulations 1996</i>	<i>The Nature Conservation Act 1992</i> and the <i>Nature Conservation Regulations 1996</i> (NC Regulations) regulate the environmental impacts of the resource industry through the requirement for vegetation clearing permits and species management programs and other permits.	Following wet and dry season surveys (both wet and dry season), no species requiring clearing permits under the NC Act were identified within the Areas of disturbance.

Legislation	Description	Application to the UBx
<i>Vegetation Management Act 1999</i>	The <i>Vegetation Management Act 1999</i> (VM Act) regulates the clearing of remnant vegetation in Queensland.	On a ML, the VM Act does not apply; however, the assessment of the SSA EA will assess the vegetation clearing activities proposed as part of mining activities at the site.
<i>Water Act 2000</i>	The <i>Water Act 2000</i> (Water Act) is the governing piece of legislation that controls the way in which water is allocated and managed in Queensland. The Water Act regulates the interaction with both surface and groundwater.	There are no waterways within the disturbance footprint. There are no approvals required under the Water Act.
<i>Aboriginal Cultural Heritage Act 2003</i>	The <i>Aboriginal Cultural Heritage Act 2003</i> (ACH Act) binds all persons to provide recognition, protection and conservation of Aboriginal cultural heritage. The Cultural Heritage Duty of Care (section 23 of the ACH Act) states that: 'a person who carries out an activity must take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage'.	Oresome are in discussion with the traditional owners in pursuit of a right to negotiate process to discharge their duty of care obligations.

Oresome are in the process of preparing a SSA to support an EA for the Project, under the EP Act.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

The proposed action is not subject to environmental impact assessments under Commonwealth, State or Territory Environmental Impact Statement (EIS) processes.

2.6 Public consultation (including with Indigenous stakeholders)

Oresome has identified relevant stakeholders and is progressing consultation with the following:

- Private landowners;
- Community members and organisations;
- Napranum Shire Council; Weipa Town Authority; Aurukun Shire Council;
- Local emergency services (fire and rescue, ambulance, police);
- Department of Education, Training and Employment; DEHP; DNRM; Department of Transport and Main Roads and Maritime Safety Queensland;
- RTA Weipa Pty Ltd;
- North Queensland Bulk Ports Corporation;
- Weipa Port Authority; and
- Traditional Owners of the land.

2.7 A staged development or component of a larger project

The proposed action is not part of a staged development or component of a larger project.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

Approval under the EPBC Act is required for any action occurring within or outside a World Heritage property that has the potential or is likely to have a significant impact on the World Heritage Values of the World Heritage property.

There are no World Heritage Properties in the vicinity of the proposed action.

Nature and extent of likely impact

There are no World Heritage Properties in the vicinity of the proposed action and given the relatively small disturbance footprint, proposed management measures can prevent adverse impacts on downstream environments. Therefore, the proposed action is not likely to impact on any World Heritage Properties.

3.1 (b) National Heritage Places

Description

The National Heritage List identifies places of outstanding heritage significance to Australia, whether natural, Indigenous or historic or a combination of these.

There are no National Heritage Places in the vicinity of the proposed action. The closest National Heritage listed place is Ngarrabullgan (Mount Mulligan), approximately 560 km south east from the Project area.

Nature and extent of likely impact

There are no National Heritage Places in the vicinity of the proposed action. The proposed action is not likely to result in any impact on a National Heritage Place.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

There are no Wetlands of International Importance (declared Ramsar wetlands) in the vicinity of the proposed action. The closest Ramsar declared wetland to the proposed action is Bowling Green Bay located approximately 950 km south east of the UBx area.

Nature and extent of likely impact

There is a significant distance (950 km) between the proposed action and the closest declared Ramsar wetland at Bowling Green Bay. The proposed action is not likely to result in any impact upon a Wetland of International Importance (declared Ramsar wetland).

Project Area and Habitat Description

The UBx occurs in a largely undeveloped area, albeit the dominant vegetation community does exhibit limited structural complexity likely as a result of extensive fires that affect the area annually. Nearby areas in the Weipa region were historically used for cattle grazing on unimproved pastures,

although stocking rates were low and it is likely that the Urquhart Point area was never subjected to significant grazing pressure (Winter and Atherton, 1985). No rural or residential properties are in the vicinity of the UBx. However, feral cattle are present on the site.

The UBx area consists of open woodland dominated by *Eucalyptus tetrodonta* with *Corymbia nesophila* and *Corymbia novoguineensis* as common co-dominant species. These communities occur over bauxite deposits and comprise subtly different Regional Ecosystems (RE), such as RE 3.5.2 and 3.2.10, which constitute a relatively homogenous habitat type for fauna. *Eucalyptus tetrodonta* woodland is the most abundant habitat across Cape York Peninsula and Northern Australia. A diversity of habitat types occur in small patches around the periphery of the UBx area and generally outside of the proposed mining Areas A and B (refer to **Figure 4** showing REs within the mine Areas). This mosaic of mangroves, saltmarsh, grasslands, vine forest and paperbark swamps are not generally associated with bauxite deposits and support a different community of wildlife to the surrounding eucalypt woodland.

No threatened ecological communities (TEC) protected under the EPBC Act occur within the UBx area (**Appendix B**).

The mine footprint has been designed to minimise impacts to nationally-important vegetation communities and known habitat areas of significance. An unmined area (refer to **Figure 5**) has been included in the design of the mine footprint to avoid known sensitive ecosystems and reduce / mitigate potential impacts from edge effects, dust and weeds. Further, a buffer of a minimum of 50 m wide will be present on the western side of Area A to protect vine thicket (a known refugia for fauna and flora species) and reduce the significance of altered fire regimes, known to be a threatening process for many threatened species on Cape York (TSSC, 2008; DotE, 2015).

MNES Assessment Methods

The methodology for assessing the potential for MNES to occur within the UBx area involved the following:

- Desktop review of previous studies from the UBx area and surrounds, and relevant State and Commonwealth databases (refer to **Appendix B** for the EPBC Act Protected Matters Report); and
- Site surveys to assess the presence/absence of conservation significant fauna and flora (including TECs).

Site surveys were conducted over two periods - late wet season from 29 April to 8 May 2015 and late dry season from 17 to 26 November 2015. A full description of the survey methods and results is provided in **Appendix A** Terrestrial Ecology Report (METServe, 2016).

Late wet season surveys coincided with maximal plant flowering and fruiting, peak small mammal densities and high levels of reptile activity. Frog calling activity was relatively low, but large numbers of juveniles were present around breeding sites. No threatened frog species are known to occur in the Weipa region (**Appendix B**).

Late dry season surveys were timed to capture seasonal variation in faunal communities and following the annual fire season that affects the area. Typically, little rain had fallen in the four months preceding the survey. One short storm occurred during the survey. All vegetation types, apart from mangrove and vine thickets, were affected by widespread fires, which occur almost annually, during the four months preceding the survey. Mangroves and vine thickets, which act as refugia for fauna were the focus of the survey effort to identify representative species likely to utilise the UBx area. This focused effort was considered in the assessment of impacts associated with the UBx.

Climatic conditions for the surveys are described in **Appendix A**.

3.1 (d) Listed threatened species and ecological communities

Description

The UBx area and surrounds have the potential to support a number of species listed as threatened under the EPBC Act. An EPBC Act Protected Matters Report for the proposed action area (**Appendix B**) and based on a 5 km radius buffer centred on the UBx area, was completed. Results from the report indicated the potential for the following listed MNES to occur within the UBx area:

1. TECs – none;
2. Threatened Species (30):
 - Threatened plant species - 6
 - Threatened bird species – 5
 - Threatened mammal species – 6
 - Threatened reptile species – 7
 - Threatened shark species - 6

The EPBC Protected Matters Search Tool (**Appendix B**) was used to generate a list of species that may occur in or in close proximity to the UBx. Results from the EPBC Protected Matters Search included a range of marine and terrestrial species, so an initial appraisal was undertaken to remove those species with a considered initial low likelihood of occurrence on the UBx site or its' immediate proximity.

Discussion below includes the results from publically available records of species, the EPBC Protected Matters Search (**Appendix B**) and the terrestrial ecology surveys of the UBx (**Appendix A**).

Threatened Ecological Communities

No TECs were identified from the EPBC Protected Matters Report (**Appendix B**) and none were identified during site field studies.

Threatened Species

In addition to the initial appraisal described above, a second level of assessment for threatened or migratory species (for migratory species refer to Section 3.1 (e) below) was undertaken for species with a likelihood of occurrence of "known" or "likely." Species considered as "potential" or "unlikely" to occur at the site were not assessed. This was because an informed assessment suggested that whilst there may be some marginal habitats within or adjacent to the UBx area that could support taxa, a lack of both historic records and failure to identify the species or its habitat on-site was sufficient to conclude that the UBx did not provide core ecological features necessary to support the species. Therefore, it was unlikely that those taxa could reasonably be significantly negatively impacted by the UBx.

Listed Threatened Flora Species

Of the six listed threatened flora species identified from the EPBC Protected Matters Report (**Appendix B**), three species were considered to potentially occur within the vicinity of the UBx. Field surveys confirmed the presence of one of these species (Cooktown Orchid *Dendrobium bigibbum*) and also identified a potential second species of *Dendrobium*, believed to be the Chocolate tea tree orchid (*D. johannis*) at the site. Note that the specimens located were not flowering so identification was not definitive and further discussion is not provided in this document.

Orchid species were generally located within areas of vine thicket or mangrove vegetation that will be protected from impacts through a designated buffer zone outside of the area of disturbance, so are unlikely to be negatively impacted by the UBx (refer **Figure 5** and **Table 3**). A small, isolated area of RE 3.5.4 located in Area B will be removed for the UBx. Refer to **Appendix A** for a full description of the results from the field surveys and interpretation of ecological impacts.

Table 3 Listed Threatened Flora Species

Species	MNES Status	Description and Habitat Preference	Presence / Absence and Potential Impact
<i>Calophyllum bicolor</i>	V	This species occurs in permanent seepage areas, in association with swampy vine forests. Site surveys failed to identify permanent seepage areas in the vicinity of the UBx.	Absent – no records and failure to locate during field survey. No impacts considered likely based on a lack of occurrence.
Cooktown Orchid (<i>Dendrobium bigibbum</i>)	V	<i>Dendrobium bigibbum</i> (the Cooktown Orchid) is an epiphytic orchid associated with coastal scrub, riparian vegetation and sheltered gullies (TSSC, 2008). <i>D. bigibbum</i> was identified from a narrow zone of coastal vegetation behind the landward edge of mangroves.	Present. The area where the species was detected will generally be protected within a buffer zone and no impacts to the species are likely from the UBx.
<i>Solanum dunalianum</i>	V	This species grows in semi-evergreen vine forest on red lateritic ridges (DotE, 2016b). The species was not detected during field survey and it is unlikely that such a large plant (2-4 m shrub/tree) would have gone undetected if present.	Absent – no records and failure to locate through field survey. No impacts to the species are likely.

V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory

Listed Threatened Fauna Species

Of the 24 fauna species identified from the EPBC Protected Matters Report (**Appendix B**), many were ruled out based on their preference for marine/estuarine habitats or requirements that were ecologically distinct from the UBx area. The remaining six species were considered to possibly occur within the UBx area and are discussed in **Table 4** below. In addition, a section is provided regarding the lack of potential impact to threatened marine species.

Table 4 Listed Threatened Fauna Species

Species	MNES Status	Description and Habitat Preference	Presence / Absence and Potential Impact
Red Goshawk (<i>Erythrorhynchus radiates</i>)	V	The Red Goshawk is very thinly distributed across coastal and subcoastal woodlands of northern Australia. Riverine forests are preferred. The species is not thought to breed in western Cape York Peninsula (Aumann and Baker-Gabb, 1991), but disperses widely and may occasionally forage within the Weipa region. There are no recent records from the region.	Absent. No impacts are anticipated from the UBx based on a lack of occurrence.

Palm Cockatoo (Australian) (<i>Probosciger aterrimus macgillivrayi</i>)	V	The primary habitat for Palm Cockatoos is vine forest and nearby paperbark swamps and eucalypt forests. For UBx, this key habitat will generally be avoided as it is outside the mine footprint. The species is known to breed in <i>Eucalyptus tetrodonta</i> an average of 320 m from vine forest (Murphy <i>et al.</i> , 2003). During field surveys, the species was observed flying over the site and was rarely observed within the open woodland that dominates the site.	Present. The UBx will not directly affect habitat known to support the species. Further, site records indicate the dominant vegetation community on-site does not support hollows that could be used for breeding of the species. Therefore, it is unlikely the UBx would result in a significant impact on the species.
Masked Owl (northern) (<i>Tyto novaehollandiae</i>)	V	There are historical records of Masked Owls from the Weipa region circa. 1915. Masked Owls inhabit tall, dense forests, especially near ecotones with vine forest. Potential habitat for the species occurs within the UBx area, but it is doubtful whether the species persists locally. Field survey failed to locate the species.	Absent – no records and failure to locate through field survey. Field conditions cont ideal to support the species. No impacts to the species are likely.
Northern Quoll (<i>Dasyurus hallucatus</i>)	E	The Northern Quoll was common in the Weipa region prior to the arrival of Cane Toads (Winter and Atherton, 1985). It has undergone drastic declines and was thought to have become extinct on Cape York Peninsula (Woinarski <i>et al.</i> , 2008). Populations of Northern Quoll tend to be confined to unburnt, rugged, rocky areas near water (Woinarski <i>et al.</i> , 2008). The annual, large-scale burning of the Urquhart Point region likely predisposes Northern Quolls to unsustainable levels of depredation (Woinarski <i>et al.</i> , 2008). Further, the lack of boulders and other structure provides limited shelter from predators and fire.	Absent – no records and failure to locate through field survey. Based on the lack of suitable habitat, it is unlikely that the UBx area supports the species and no impacts are expected.
Black-footed Tree-rat (<i>Mesembriomys gouldii rattoides</i>)	V	Black-footed Tree-rats in north Queensland inhabit eucalypt forests and woodlands, especially where hollows are relatively plentiful (TSSC, 2015). While favourable habitat and food resources are available throughout the UBx area, the species has not been recently recorded from the Weipa region (Winter and Atherton, 1985).	Absent – no records and failure to locate through field survey. Based on a lack of historic records, it is unlikely that the UBx area supports the species and no impacts are expected.

Bare-rumped Sheath-tail Bat (<i>Saccolaimus saccolaimus</i>)	CE	This poorly known bat occupies open eucalypt forests across the coastal lowlands of northern Australia. It prefers areas near wetlands, sand dunes or saltmarsh. There are no records of the species in the west of Cape York Peninsula.	Absent – no records and failure to locate through field survey. Based on a lack of historic records, it is unlikely that the UBx area supports the species and no impacts are expected.
Speartooth Shark (<i>Glyphis glyphis</i>) and species of Sawfish (<i>Pristis</i> spp.)	CE and V	These species are known from estuaries, river mouths, bays and along sandy and muddy beaches in the Gulf of Carpentaria.	It is possible that the range of species occur in the shallow, estuarine waters of the Embley River. However, the UBx has little potential to affect these species as there is no port infrastructure required for the Project or mine-affected waters leaving the site. Therefore, no impacts are expected to occur as a result of the Project.

V = Vulnerable, E = Endangered, CE = Critically Endangered, M = Migratory

The Commonwealth DotE provides the *Significant Impact Guidelines 1.1* (DotE, 2013) for guidance on determining whether an action is likely to have a significant impact on a MNES. DotE also provides guidelines for specific nationally threatened species or species groups which should be read in conjunction with the *Significant Impact Guidelines*. Where there is an existing guideline for a specific species or species group applicable to the UBx the assessment has deferred to that guideline.

Specific guidelines are not available for the threatened species known to occur on the site. As a result, the significant impact criteria listed in the *Significant Impact Guidelines* were generally considered in the discussion below regarding the significance of potential impacts from the UBx.

Nature and extent of likely impact

Cooktown Orchid

The Cooktown Orchid (*Dendrobium bigibbum*) is an epiphytic orchid that grows on trees in situations of moderate light, including coastal scrub, monsoon forest, riparian vegetation and sheltered gullies (TSSC, 2008). Main threats to the species revolve around illegal collecting and altered fire regimes (TSSC, 2008; DERM, 2010). The species is listed as a Back on Track priority species for the Cape York Peninsula and a high priority by the Queensland Government (DERM, 2010).

Within the UBx, the Cooktown Orchid was common in a narrow zone of vine forest behind the landward edge of mangroves (RE 3.2.2a). Such areas were protected from fire and maintained high humidity year-round. During the April survey the species was flowering. Based on this survey the density of individuals was estimated at 1 orchid per 150 m² within the buffer area.

No clearing of the known habitat for the species on the UBx area is anticipated. Known areas will be retained within a designated buffer from the proposed mining Areas. Therefore, direct or indirect impacts to the species are unlikely as a result of the action.

Palm Cockatoo

The Palm Cockatoo (*Probosciger aterrimus macgillivrayi*) inhabits ecotonal habitats between vine forest and open eucalypt forest in northern Cape York Peninsula and New Guinea. Palm Cockatoos feed on a wide range of trees, the most important being *Parinari nonda* (Wood, 1988), a dominant component of the subcanopy of open forests and vine forest edges. Nesting occurs in hollow branches of *Eucalyptus* spp., *Melaleuca* spp., *Alstonia actinophylla* or large vine forest species (Wood, 1988). The species occupies year-round territories (Wood, 1988).

The main threat to the species is inappropriately managed fires (Garnett and Crowley, 2000), which can reduce hollow availability. Loss of habitat through clearing could reduce local populations, though the species is known to be locally common around Weipa (METServe, 2016).

Palm Cockatoos were recorded sporadically across the UBx area. The majority of sightings occurred in the mosaic of paperbark swamp, coastal dune forests, mangroves and vine thicket that occur along the estuary coastline; outside of the UBx mine Areas. Palm Cockatoos were observed flying overhead through open eucalypt woodland, and likely use these habitats seasonally. No nesting hollows were located within the UBx area and no breeding pairs or behaviour was observed during the surveys.

Habitat Availability

The UBx site and specifically, the mine Areas A and B, are dominated by open woodlands of *E. tetradonta* with various co-dominant species represented. As discussed above, the vegetation community is considered to be relatively homogenous for fauna and is the most abundant vegetation type across the Cape York and broader gulf. Outside of the proposed mine Areas, a mosaic of mangrove, vine thicket, saltmarsh, grassland and paperbark swamps are represented. These areas were considered to offer significant refugia potential for fauna and flora, especially following periods of annual fire.

A spatial assessment was undertaken to estimate the extent of similar vegetation communities beyond the proposed UBx footprint. The UBx would result in the modification and progressive clearing / rehabilitation of up to 760 ha of predominantly open woodland. This area will likely reduce following further geological drilling in Area B to define the bauxite resource. Beyond the UBx footprint, approximately 200,000 ha of open forest and woodland communities dominated by *E. tetradonta* occur within a 50 km radius of the Project (refer to **Figure 6**). For comparative purposes, the area of REs within the UBx mine Areas (namely RE 3.5.2 and 3.2.10c) is equivalent to less than 0.4% of similar habitat available within a 50 km radius.

Considering the potential habitat associations between open woodland and forest dominated by *E. tetradonta* and threatened species verified from the site surveys, the availability of these vegetation communities will not be significantly reduced as a result of the UBx. As a result, it is not considered likely that the UBx would result in fragmentation of any important habitat corridors, foraging reserves or breeding sites for threatened species occurring either on or proximal to the UBx Project. Further, the avoidance of impacts to known important refugia habitat in the form of vine thicket will ensure that any minor impacts resulting from the UBx will be limited to the common open woodland and forest habitat types represented broadly in the region.

Marine Species

Mining activities within Areas A and B are unlikely to result in direct or indirect impacts to the coastal estuarine and marine systems of the Embley River. These systems are known to support a range of threatened marine reptile and fish species. The Project will avoid direct impacts to these species by utilising existing approvals for port infrastructure at the Hay Point facility. Further, on-site water management practices do not include the requirement for material washing or tailings storage. With no material washing, clean water will be directed away from the mine Areas and any water captured within the mine Areas will be retained for site use. Sound sediment and erosion control practices will ensure that site works are completed in accordance with industry standards. Based on the lack of potential sources of tailings water or mine-affected water leaving the site, there are no impacts anticipated on surrounding surface waters.

Summary:

The potential for impacts to result from the UBx are summarised as follows:

- Most threatened species with a likely potential to utilise the UBx area occupy mangrove, paperbark wetland/swamp and vine forest habitats that will not be directly or indirectly affected by the proposed action. The mangrove, paperbark wetland/swamp and vine thicket habitats will be avoided through establishment of a buffer with minimum width of 50 m, which will preserve the integrity of the ecological values of known fauna and flora refugia;
- The availability of common open forest communities is not restricted to the UBx area, dominating an estimated 200,000 ha of area within a 50 km radius of the site;
- There is no requirement for material washing or tailings storage. This will mitigate potential risks to marine systems associated with runoff to surface waters from mine-affected material;
- The location of threatened plant species is known, so sensitive species maps will be generated to ensure construction avoids these areas;
- The majority of refugia sites will remain intact to provide ongoing protection for species during widespread dry season fires; and
- Progressive rehabilitation will commence at the end of the first mining season and continue through the life of the mine. This will promote accelerated recovery of common vegetation communities.

See Section 4 for a qualitative assessment of potential impacts and mitigation measures.

3.1 (e) Listed migratory species

Description

The UBx area and surrounds have the potential to support a number of species listed as migratory under the EPBC Act. An EPBC Act Protected Matters Report for the proposed action area (**Appendix B**) and based on a 5 km radius buffer centred on the UBx area, was completed. Results from the report indicated the potential for the following listed MNES to occur within the UBx area:

1. Migratory Species (40):
 - Migratory marine birds – 3
 - Migratory marine species – 22
 - Migratory terrestrial species – 8
 - Migratory wetlands species – 7

The EPBC Protected Matters Search Tool (**Appendix B**) was used to generate a list of species that may occur in or in close proximity to the UBx. Results from the EPBC Protected Matters Search included a range of marine and terrestrial species, so an initial appraisal was undertaken to remove those species with a considered initial low likelihood of occurrence on the UBx site or its' immediate proximity. A full list of species identified on the site is provided in **Appendix A**.

Discussion below includes the results from publically available records of species, the EPBC Protected Matters Search (**Appendix B**) and the terrestrial ecology surveys of the UBx (**Appendix A**).

Of the 40 migratory species identified from the EPBC Protected Matters Report (**Appendix B**), three from the list were confirmed from the site survey (**Appendix A**). In addition, a fourth species, *Ardea modesta*, was included in the discussion following confirmation from site survey. As the majority of the species listed in the EPBC Protected Matters Report were migratory marine (namely fish, mammals and reptiles) or exhibited habitat requirements dissimilar to those that could be influenced by the UBx, the focus for the assessment was on terrestrial or marine bird species with potential likely requirements in the UBx area. Species excluded from the assessment included individuals that inhabit only aquatic environments or the mosaic of mangroves, paperbark swamps and vine thicket occurring within 200 m of estuarine environments. It was considered that the design of the UBx mine Areas and designated buffer would sufficiently avoid the aquatic, mangrove, paperbark swamp and vine thicket to provide a mitigation to potential impacts.

The four species confirmed from site surveys were:

- Eastern Great Egret (*Ardea modesta*);
- White-bellied Sea Eagle (*Haliaeetus leucogaster*);
- Rainbow Bee-eater (*Merops ornatus*); and
- Eastern Osprey (*Pandion haliaetus*).

Table 5 Listed Migratory Species

Name	EPBC Status	Description and Habitat Preference	Presence / Absence and Potential Impact
Eastern Great Egret (<i>Ardea modesta</i>)	M	Species is a migratory marine bird inhabiting estuarine shorelines and small ephemeral wetlands.	Present. Given the known habitat requirements for the species, impacts are unlikely.

White-bellied Sea-Eagle (<i>Haliaeetus leucogaster</i>)	M	Species is a listed marine bird inhabiting open water and shoreline of estuaries in the vicinity of the UBx.	Present. Given the known habitat requirements for the species, impacts are unlikely.
Rainbow Bee-eater (<i>Merops ornatus</i>)	M	The Rainbow Bee-eater likely routinely utilises the open eucalypt forest that dominates the UBx area. The species is an aerial forager in open forests and woodlands, coastal sand dunes, shrublands, vine thicket, mangroves and heathlands, as well as cleared farmlands and disturbed areas (DotE, 2016a). They are common throughout mainland Australia (DotE, 2016a).	Present. Given the known habitat requirements for the species and extent of habitat outside of the UBx area, impacts are unlikely.
Eastern Osprey (<i>Pandion haliaetus</i>)	M	This species is a migratory wetland bird inhabiting the open water and shoreline of estuaries in the vicinity of the UBx.	Present. Given the extent of habitat outside of the UBx area, impacts are unlikely.

M = Migratory

Nature and extent of likely impact

Under the *Significant Impact Guidelines 1.1* (DotE, 2013) the activities associated with a proposed Project are unlikely to result in significant impacts on listed migratory species as the Project:

- Will not substantially modify, destroy or isolate an area of important habitat for a migratory species;
- Is unlikely to result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- Will not seriously disrupt the lifecycle of an ecologically significant proportion of the population of a Migratory species.

The White-bellied Sea-Eagle and Eastern Osprey nest in large, often dead, trees, which may be some distance from water. One Osprey nest was identified (not confirmed active) within Area B of the UBx. It is highly unlikely that the loss of a single nest site for the species would limit local populations.

There are no anticipated impacts on the Eastern Great Egret from the UBx.

Habitat for the Rainbow Bee-eater will be lost through the clearing of open woodland to accommodate the UBx. Rainbow Bee-eaters forage throughout most of the proposed mine footprint. The loss of habitat will be temporary, as Rainbow Bee-eaters readily utilise open, shrubby habitats (DotE, 2016a) and are expected to recolonise mined areas. Similar habitat types occur over an estimated 200,000 ha in a 50 km radius of the UBx. Consequently, the overall impacts of the UBx on the Rainbow Bee-eater are expected to be negligible.

3.1 (f) Commonwealth marine area

(If the action is in the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

The proposed action is not located within, or in the vicinity of, a Commonwealth marine area.

Nature and extent of likely impact

The proposed action is located on the western side of Cape York, Queensland and is not within, or in vicinity of, a Commonwealth marine area. Therefore, the proposed action will not have an impact on any Commonwealth marine areas.

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description

The proposed action is not proposed on Commonwealth land.

Nature and extent of likely impact

The proposed action will have no impact to Commonwealth land and no impacts from the action area are expected to affect Commonwealth land.

3.1 (h) The Great Barrier Reef Marine Park**Description**

Under the *Significant Impact Guidelines 1.1* (DotE, 2013) the action will require approval if:

1. The action is taken in the Great Barrier Reef Marine Park and the action has, will have, or is likely to have a significant impact on the environment, or
2. The action is taken outside the Great Barrier Reef Marine Park and the action has, will have, or is likely to have a significant impact on the environment in the Great Barrier Reef Marine Park.

The proposed action is located approximately 200 km west of the Great Barrier Reef Marine Park.

Nature and extent of likely impact

The proposed action is located approximately 200 km west of the Great Barrier Reef Marine Park. Management measures have been proposed to ensure that runoff from the site is managed and that the proposed action will not impact waterways draining to the Great Barrier Reef Marine Park.

3.1 (i) A water resource, in relation to coal seam gas development and large coal mining development**Description**

The proposed action is not a significant coal seam gas development or large coal mining development.

Nature and extent of likely impact

The proposed action will not impact a water resource, in relation to a significant coal seam gas development or large coal mining development.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	Is the proposed action a nuclear action?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment			
3.2 (b)	Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment			
3.2 (c)	Is the proposed action to be taken in a Commonwealth marine area?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))			
3.2 (d)	Is the proposed action to be taken on Commonwealth land?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))			
3.2 (e)	Is the proposed action to be taken in the Great Barrier Reef Marine Park?	X	No
			Yes (provide details below)
If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))			

3.3 Other important features of the environment

3.3 (a) Flora and fauna

Field surveys carried out in April and November 2015 detected 245 species of vascular plant, 8 species of amphibian, 14 species of reptile, 91 species of bird and 16 species of mammal. This diversity is typical for the Weipa region and is 47% of the floral diversity and 48% of the faunal diversity recorded in the adjacent Amrun Project area, despite being only 1.6% of the total area. This reflects the homogeneity of the habitats at a regional scale, rather than a particular value attributable to the UBx area, specifically.

Species communities were generally representative of Western Cape York Peninsula, and most species are widespread across the bioregion. All species recorded in the survey were known to occur in the Weipa region (Winter and Atherton, 1985), with the exception of a few plant species that are known from the broader Cape York region.

Flora

The UBx area largely consists of open woodland dominated by *Eucalyptus tetrodonta* with *Corymbia nesophila* and *Corymbia novoguineensis* being common co-dominant species. Despite comprising a number of subtly different REs, these open woodlands constitute a relatively homogenous habitat type for fauna. *Eucalyptus tetrodonta* forest is the most abundant habitat across Cape York Peninsula

and is estimated to occur over a 200,000 ha area in a 50 km radius from the UBx. There are no barriers to dispersal within *E. tetradonta* forests of the UBx area, or to the east and south. The Embley River presents a natural barrier to the north of the UBx whereas Roberts Creek and Wooldrum Creek are the natural barriers to the west.

A range of habitat types occur in small patches around the periphery of the UBx area, and this mosaic of mangroves, saltmarsh, grasslands, vine thicket and paperbark swamps supports a different community of wildlife to the surrounding eucalypt woodland. Due to the small sizes of these habitat fragments, the maintenance of connectivity between them is likely to be important to their long-term viability. The design of the UBx includes a buffer of minimum 50 m width that generally overlays the vine thicket habitats and extends to the estuarine ecotone. Further, these areas may act as refugia for fauna during periods of annual fire (refer **Appendix A**). The remainder of the habitats outside of the required mining Areas will remain unmined (refer to **Figure 5**)

One area of Essential Habitat for threatened species is mapped as occurring on the western side of Area B and the seaward side of Wooldrum Creek, outside of the Project footprint. This habitat is mapped as supporting nesting sites for sea turtles along the coastline. As discussed above, these marine areas are outside of the UBx area and are unlikely to experience direct or indirect impacts as a result of the Project.

No TECs protected under the EPBC Act occur within or directly adjacent to the UBx.

Fauna

State and regionally significant species have been recorded in the Biodiversity Planning Assessment for the Cape York Peninsula Heritage Area (EHP, 2012). This assessment lists 129 species of priority fauna (Least Concern species of conservation significance within Cape York), of which 10 were recorded in the UBx area (**Appendix A**). For species of NES refer to Section 3.1 (d).

3.3 (b) Hydrology, including water flows

The UBx is located on the south bank of the Embley River, which is 2.6 km wide in the vicinity of the Project. The UBx is bounded by the Embley River to the north, Roberts Creek to the west and Triluck Creek to the south. All of the waterways bordering the site are mangrove-lined, tidal estuaries. The entire UBx area consists of a flat, sandy plain, which slopes gradually towards the estuarine creeks. Low sand dune systems are in proximity to these creeks. In the swales and at the landward edge of mangroves, the seepage of groundwater and tidal waters has created localised ephemeral wetlands, generally outside of the proposed UBx footprint and within the proposed buffer to be established for the Project.

Due to the geomorphological composition of the peninsula being sand, the amount of annual runoff is limited and the site generally drains to an ephemeral wetland area located in association with the saltmarsh area in the south east of the site (Oresome Australia Pty Ltd, 2012). Surface water is replenished in the wet season when runoff drains to the ephemeral wetlands by a combination of surface runoff and subsurface flow (Oresome Australia Pty Ltd, 2012). The majority of the wetlands present on the peninsular are located just outside the tidal zone. It is likely that some estuarine waters enter these wetland systems during spring tides, storm surges or other tidal peaks. However, the inflow of freshwater is sufficient to maintain low salinity, favourable for the growth of most salt-intolerant plants.

Satellite imagery and site investigations suggest that all ephemeral wetlands adjacent to the UBx area dry completely on an annual basis (METServe, 2016).

3.3 (c) Soil and Vegetation characteristics

The topography of the UBx area comprises a largely flat to gently undulating bauxite plateau landform which contains mostly Red Kandosol soils with low potential to develop accelerated erosion when cleared of vegetation for mining or infrastructure development (RTA, 2011).

Analysis of the soil, bauxite and tailings material from the Amrun Project area and the existing RTA East Weipa operations indicates that both materials are benign (RTA, 2011). Soil or water contamination from the benign excavated soils and bauxite is unlikely to occur. Material stockpiling will be minimised through direct handling and placement of soils on areas awaiting rehabilitation, reducing potential contamination risks.

Acid Sulphate Soils (ASS) investigations undertaken around the UBx indicated materials which did not represent actual or potential ASS (RTA, 2011).

The UBx is located within the Cape York Peninsula bioregion, in the Weipa Plateau IBRA subregion. Within the Weipa Plateau Subregion, 97.8% of pre-European vegetation remains intact. This low level of vegetation clearing is typical for the dry tropics of Queensland.

Vegetation is discussed in more detail in Section 3.3 (a) Flora.

3.3 (d) Outstanding natural features

The site for the proposed action is adjacent the approved Urquhart Point Heavy Mineral Sands project, Amrun bauxite project and HPBP. To the north is a large bauxite mining precinct and numerous other mines are either in operation or planned for the region. Despite the heavy mining presence, the region does represent large tracts of generally intact vegetation that are representative of western Cape York. These features, of themselves, are not considered to have outstanding natural features.

3.3 (e) Remnant native vegetation

Certified RE mapping indicated the entire UBx area comprises remnant vegetation, a Category B area under Queensland's Regulated Vegetation Management Map. This remnant vegetation comprises 12 regional ecosystems, with RE 3.2.10c dominating the northern half of the survey area (Area A) and RE 3.5.2 dominating the southern half (Area B) (refer to **Figure 4**).

None of the 17 REs recorded on-site are listed as Endangered under the QLD *Vegetation Management Act 1999* (VM Act). Furthermore, none have an Endangered biodiversity status. Four REs had the conservation status (under the VM Act) and/or biodiversity status, Of Concern. Combined, these comprised 693.2 ha of which 604.5 ha was a single RE (3.2.10c: *Eucalyptus tetrodonta*, *Corymbia novoguineensis* and *Erythrophleum chlorostachys* woodland on old sand dunes). These same REs are mapped as representing some 200,000 ha within a 50 km radius from the UBx and will not be limited as a result of the Project (refer to **Figure 6**).

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The UBx area is generally flat to gently undulating.

3.3 (g) Current state of the environment

The Project area is generally covered by native, remnant vegetation as described in Section 3.3 (a) and 3.3 (e) above. However, a number of weed plant and animal pest species are known to occur.

Weeds

Three species of weeds were recorded within the UBx area (**Table 6**). All were in low density, and were confined to sand dunes in close proximity to Roberts Creek, where they have likely been introduced by feral pigs and cattle.

Table 6 Weeds recorded in the UBx area

Family	Species	Common Name
Asteraceae	<i>Bidens bipinnata</i>	Bipinnate Beggar's Tick
Convolvulaceae	<i>Ipomoea triloba</i>	Pink Convolvulus, Aiea Morning Glory
Poaceae	<i>Rottboellia cochinchinensis</i>	Itchgrass

No introduced plant species detected on-site were listed under State or Commonwealth legislation.

Pest Animals

Four non-native (pest) animals were recorded within the UBx area. Two of these are Class 2 declared pests under QLD State legislation - Dingo (*Canis lupus dingo*) and Feral Pig (*Sus scrofa*). Landowners are required by law to take reasonable steps to keep land free of these species.

Feral Pigs were recorded at three of the six fauna trap sites, and were observed at highest densities in habitats near water, including *Melaleuca* swamps, mangroves, saltmarsh. Of the 19 secondary vegetation sites assessed, 58% were disturbed by the activities of Feral Pigs. Dingos were recorded at one remote-sensory camera, as well as on numerous targeted surveys during the day and night. Feral Cattle (*Bos taurus*) were recorded on-site on several occasions, primarily at swampy sites (regional ecosystems 3.1.5, 3.2.4, 3.3.14b and 3.5.22c). Damage caused by trampling was most evident in saltmarsh (RE 3.1.5) and the edges of wetlands (REs 3.2.4 and 3.3.14b). Cane Toads (*Rhinella marina*) were common wherever there was standing fresh water, but were rarely observed in the open eucalypt forests away from swamps. (METServe, 2016)

The impacts of Feral Pigs and Cane Toads are listed as key threatening processes under the EPBC Act:

1. Predation, habitat degradation, competition and disease transmission by Feral Pigs
2. The biological effects, including lethal toxic ingestion, caused by Cane Toads.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

Not applicable.

3.3 (i) Indigenous heritage values

The Mamngaith people have traditional links to the Urquhart Point area, while the Lathamngith and Linngithigh people occupied land along the southern bank of the Embley River. Little is published about the cultural heritage of these peoples, with respect to significant flora and fauna.

However, the cultural use of native plants and animals for food, wood, fibres, medicines, dyes, totems, magic or calendars is likely to have many similarities with neighbouring peoples such as the Wik (from the Aurukun area), a people with a well documented cultural history. According to the Customary Medicinal Knowledgebase (Gaikwad *et al.*, 2008), 45 of the plant species recorded within the UBx area are used by Aboriginal peoples for medicinal uses. Many of these (e.g., *Dioscorea* and *Vigna* spp) have tubers that are important as food sources. One of the plant species (*Erythrophleum chlorostachys*) frequently possesses scars in the Weipa region, reflecting its use to make woomeras or to harvest honey from native bees (Shiner and Morrison, 2009).

Fauna that have cultural significance to other indigenous peoples of Cape York Peninsula include (Ziembicki, 2010):

- Dugongs (*Dugong dugon*);
- Sea turtles (*Chelonia mydas*, *Caretta caretta*, *Eretmochelys imbricata*, *Lepidochelys olivacea*, *Natator depressus*);
- Macropods (*Macropus agilis*);
- Brolgas (*Grus rubicunda*); and
- Megapodes (*Alectura lathami*, *Megapodius reinwardt*).

3.3 (j) Other important or unique values of the environment

Not applicable.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

A MLA has been lodged for the activity – MLA100044. All exploration works are being conducted under EPM15268. Oresome is pursuing a right to negotiate process in regards Native Title.

3.3 (l) Existing land/marine uses of area

The UBx is in a largely undisturbed state, albeit unmitigated fires do affect the area annually and have likely influenced the abundance and distribution of threatened species in the region. Historically, nearby areas were used for cattle grazing on unimproved pastures, although stocking rates were low and it is likely that the Urquhart Point area was never subjected to significant grazing pressure (Winter and Atherton, 1985). Feral cattle are present on the site. No rural or residential properties are in the vicinity of the UBx. Small vehicular tracks occur within the UBx area, which have been used for mineral exploration. The waters off the UBx are used for recreational fishing, and are accessed via boat from Weipa by fishing tour operators, Traditional Owners and private vessels.

3.3 (m) Any proposed land/marine uses of area

Not applicable.

4 Measures to avoid or reduce impacts

Potential impacts to MNES are discussed in Section 3 above. A qualitative risk assessment was undertaken to assess the risks to MNES for relevant impacts and is shown in **Table 7** below. Risks were then reassessed considering mitigation and management measures. Hence, the residual risk is the risk following implementation of the mitigation and management measures. Each mitigation measure is then discussed in relation to the engineering solutions and/or best available technology.

Table 7 Qualitative Risk Assessment of Potential Impacts with and without Mitigation Measures

Potential Impacts	Initial Risk	Measures to Avoid and Reduce Impacts	Residual Risk	Comments
Disturbance to habitat for threatened species known to occur at UBx	Medium	<ul style="list-style-type: none"> - Restriction of activities within the identified project footprint - Seasonal limit on mining activity to avoid peak wet season ecological activities - Establish designated buffers between the action and areas of known to be utilised by threatened species 	Low	Minimal vegetation on the site provides habitat opportunities for Palm Cockatoo. Buffer to avoid impacts to <i>Dendrobium</i> spp.
Loss of habitat connectivity	Low	<ul style="list-style-type: none"> - Project is located on land affected by fire and will be situated outside of habitats that provide complex fauna habitat - Habitat mapping indicates the Project will not result in disconnection of habitat - Project accounts for less than 0.4% of similar habitat covering a 200,000 ha area within a 50 km radius 	Low	Project area is surrounded by similar habitat and will not reduce connectivity of this habitat
Direct fauna mortality from habitat clearing	Medium	<ul style="list-style-type: none"> - Pre-construction verification surveys will be undertaken by a suitably-qualified professional. If breeding individuals are discovered in hollows they will be relocated to areas of suitable habitat - Areas will only be cleared for the Project footprint and associated infrastructure - During clearing a qualified fauna spotter will be present to relocate species - Flagging will be used to restrict activities to the Project footprint - Monitoring of feral populations and implementation of a control program if necessary - Appropriate speed limits will be put in place 	Low	Direct mortality of avian species is considered unlikely
Noise may lead some species to avoid noisy areas, potentially resulting in the fragmentation of species habitat	Low	<ul style="list-style-type: none"> - All engine covers will be kept closed while equipment is operating - Machines and plant will be switched off when not in use and not left running unnecessarily - As far as reasonably practicable, sources of significant noise will be enclosed - Plant will always be used in accordance with manufacturers' instructions 	Low	Project will not result in significant indirect impacts associated with noise

Management and Mitigation Measures

Mitigation measures have been developed to minimise impacts associated with construction and operation of the Project. Strategies have been developed based on the follow criteria:

- Avoid potential impacts where possible
 - Known refugia will be avoided and contained within buffers from the mine Areas
 - Mining will be generally restricted to the defined mine Areas
 - No material washing or tailings storage
 - Bauxite will be hauled, stockpiled and exported from sites under existing approvals
- Minimise the severity and/or duration of the impact
 - Mining will occur seasonally, avoiding the wet season
 - Mining will occur over a relatively short period for each mine Area
- Restore land to as close to its original characteristics as soon as possible
 - Based on the panel mining method, rehabilitation will commence at the end of each dry season of mining
- Offset residual and unavoidable impacts where required

Disturbance to Habitat for Threatened Species

Although the habitat in the UBx area is regularly disturbed by fire, it does still provide habitat values for the Palm Cockatoo and some migratory species such as the Rainbow Bee-eater. The UBx will result in the loss of up to 760 ha of habitat identified as suitable for these species, but not essential or critical for their survival. The design of the UBx will minimise habitat disturbance wherever possible (e.g. seasonal mining operation with limited (less than 2 ha) disturbance footprint during any single mining season and the use of off-site stockpile and export infrastructure) and will maintain buffers of native vegetation adjacent the mining operation to protect known areas of refuge for significant fauna and flora species. The areas of refuge are known to support significant species during times of seasonal fire (METServe, 2016).

Site investigations of the broader area indicate suitable habitat is available throughout the area surrounding the UBx (RTA, 2011; GCR, 2015) and regionally. An initial spatial assessment of known vegetation types surrounding the UBx was completed (refer to **Figure 6**) and showed an estimated coverage of over 200,000 ha of potential habitat (comprising RE 3.5.2 and 3.2.10c) within a radius of 50 km from the Project. Based on this approximation, the UBx will impact less than 0.4% of habitat within a 50 km radius of the site. Accordingly, the habitat for Palm Cockatoo is considered widespread throughout the area and the scale of impact is not considered significant. This assessment is consistent with the Conservation Advice prepared for the species (TSCC, 2015).

Prior to commencement of construction, a Management Plan will be prepared for the Palm Cockatoo primarily and could include migratory species known from the site (METServe, 2016) such as the Rainbow Bee-eater. Measures will focus on ameliorating threats to the species where possible and managing or enhancing suitable habitats, and will include:

- Pre-construction validation surveys by suitably qualified personnel;
- During clearing of potential habitat, a qualified fauna handler will be present. If breeding or nesting hollows for Palm Cockatoo are discovered, they will be relocated to areas of suitable habitat;
- Monitoring of feral populations or potential predators of the species during construction and operation, and implementation of a control program if necessary; and
- Preparation of a Rehabilitation Plan for disturbed areas.

Furthermore, an offset strategy will be developed and implemented, where required.

Habitat Connectivity

Local habitat connectivity is not anticipated to be disrupted as a result of the Project. The UBx area is within a MLA that includes vegetation habitat that is heavily affected by fires that have reduced both

the complexity and structure of available habitats (METServe, 2016). Regarding habitat for the Palm Cockatoo, the area is adjacent habitat known to support breeding and foraging for the species (RTA, 2011; GCR, 2015; METServe, 2016), but will not affect it directly or indirectly as a result of the works. Habitat areas within the MLA, but outside of the mine footprint could be maintained or improved by actions such as:

- Integrated water management system that allows for capturing of surface water and water reuse schemes to be incorporated where feasible. Mine-affected water to be kept separate from clean water;
- Designated buffer zones that will protect foraging habitats for the Palm Cockatoo;
- Maintaining buffer areas that will not be cleared for mining; and
- Fuel and chemicals will be handled and stored in accordance with *Australian Standard 1940 – The Storage and Handling of Flammable and Combustible Liquids (AS1940)*.

Direct Fauna Mortality

To minimise potential fauna mortality the following measures will be implemented:

- Prior to any vegetation/earthwork disturbance, a suitably qualified fauna spotter/handler will be on-site to identify and remove fauna (if required);
- Fauna crossing signs will be erected in trafficked zones where fauna crossing/utilisation areas have been identified to warn drivers; and
- Appropriate speed limits will also be in place in trafficked areas to minimise fauna strike.

The measures implemented above will reduce direct impact to fauna values. Given the ecology of the target avian species, the residual impact to fauna populations in the area is considered low.

Noise

It is not anticipated that noise will have an effect on the fauna population due to the low noise levels associated with the Project. However, a suite of mitigation measures are proposed to further reduce noise impacts:

- All engine covers will be kept closed while equipment is operating;
- Machines and plant will be switched off when not in use and not left running unnecessarily;
- As far as reasonably practicable, sources of significant noise will be enclosed;
- Plant will always be used in accordance with manufacturers' instructions; and
- When purchasing new equipment or machinery, noise emissions will be considered as part of the procurement process.

Mitigation of Impacts on Protected Matters

Dendrobium bigibbum

The protection of habitats for *D. bigibbum* through implementation of a buffer to protect habitat for the species, is expected to lead to negligible loss arising from the UBx. Prohibition of unauthorised entry into the protected buffers will deter illegal collecting. Mitigation measures to manage weed invasion and intense fires within the corridor will benefit the species. No residual impacts on *D. bigibbum* are anticipated to occur from the UBx.

Palm Cockatoo

Most of the key feeding, and roosting habitats for Palm Cockatoos will be protected within the buffer along Roberts Creek and Triluck / Wooldrum Creek, and unauthorised entry to these habitats should be prohibited to limit disturbance to nest sites. Fauna spotter-catchers should inspect hollow trees for potential nests prior to any clearing within the Project footprint to avoid direct mortality as a result of the UBx. Some residual impacts may result from the UBx from the loss of potential nest sites in *E. tetrodonta* forest. However, no nesting hollows or breeding behaviours were recorded on site so it is unlikely the site provides breeding habitat. Further, the spatial extent of similar habitat is vast

compared to the areas to be cleared and no residual impacts on the species' nesting habitats are anticipated as a result of the Project.

Migratory Species

Protection of estuarine and palustrine habitats with the buffer of remnant vegetation will result in no loss of foraging habitat for the Eastern Great Egret, Eastern Osprey or White-bellied Sea-Eagle. Restriction of access to coastal areas will protect habitat for these species from disturbance while foraging. No nest sites of the Eastern Great Egret will be lost as a result of the UBx. Key nesting habitat for the Eastern Osprey and White-bellied Sea-Eagle (tall trees in close proximity to water) will be protected within buffers of eucalypt forest to be protected around estuarine habitats. However, at least one nesting site for the Eastern Osprey (located 800 m from the nearest estuary) will be removed to accommodate the UBx. This should not take place during the nesting period, to avoid direct mortality. The nest could be relocated to a suitable location if it is confirmed as a viable site. Nesting usually begins in April-May and continues until the wet season (DotE, 2016c).

Whilst no direct or indirect impacts to the Rainbow Bee-eater are anticipated, measures to mitigate disturbance to the species include:

- Staged clearing and rehabilitation using panel mining methods to ensure a steady progression of feeding habitats are developing as new areas are cleared;
- Management of feral pigs and dogs to improve breeding success;
- The cessation of mining during the wet season, which is the principal breeding period for the specie; and
- Restricted entry into sandy coastal areas where breeding densities are likely to be highest.

Overall, no long-term residual impacts to the Rainbow Bee-eater are expected to occur as a result of the UBx.

Additional Species Likely to Occur On-site

No species are believed to utilise the Project area exclusively. However, of those significant species not detected during surveys and considered likely to use the UBx area, the Cicadabird and Oriental Cuckoo are the only ones likely to experience some form of impact as a result of clearing for the Project. Management measures to benefit these species include:

- Staged clearing and rehabilitation using panel mining methods to limit the amount of foraging habitat removed at any one time;
- Cessation of mining in the wet season (when Oriental Cuckoos potentially visit the site); and
- Connected corridors will be maintained to enable dispersal.

No long-term residual impacts are anticipated for either of these species.

Biodiversity Offsets

The EPBC Act Environmental Offsets Policy specifies offsetting requirements when developments have residual impacts on MNES protected under the EPBC Act.

According to the *EPBC Act Environmental Offsets Policy*, avoidance and mitigation measures can remove the need for offsets if the residual impact is not significant. The significance of impacts is defined under the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*. Significant impacts were assessed for the one threatened and three migratory species that could experience residual impacts of the UBx (Refer attached **Table 7-1**; METServe, 2016).

Based on this assessment, the UBx will not have significant residual impacts on any MNES.

5 Conclusion on the likelihood of significant impacts

5.1 Do you THINK your proposed action is a controlled action?

X	No, complete section 5.2
	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Planning for the Project identified a number of opportunities to either avoid or limit the extent of impacts on MNES, including:

- Reducing the extent and scale of the UBx to two Areas and with a maximum anticipated mine life of five seasons for each Area;
- Avoid direct impacts to MNES by focusing mine works to areas of land that experience annual burning and offer limited habitat qualities;
- Establishing designated buffers between the mine Areas and known refugia for threatened species;
- Allocating large tracts of the Project as unmined areas;
- Reduce mining duration to, generally, dry season works to avoid annual wet season;
- Avoiding habitats that may offer exclusive use by threatened or migratory species;
- Focussing the mine design on areas of habitat that are represented extensively at sites surrounding the UBx – potentially less than 0.4% loss of habitat represented in a 200,000 ha area within 50 km radius of the site;
- Reduce active mining area per season;
- Reduce processing required on-site to screening and through production/mining of direct shipping of ore;
- Avoiding impacts to marine and surface waters by no requirement for material washing or tailings storage areas;
- Avoid marine impacts by using existing third-party infrastructure for stockpiling and export of mined ore;
- Reduce clearing footprint required for each season of mining and implementation of progressive rehabilitation prior to the shut-down of a given mining area;
- Reduce impacts to soil through careful separation of top-soil from overburden to ensure seed stock is protected and available for progressive rehabilitation;
- Avoid direct impacts to MNES critical habitats and refugia by establishing designated buffer areas and no-go zones between sensitive environmental receptors and the proposed mining Areas; and
- Avoid direct impacts to MNES during construction and operation through implementation of sound fauna and flora management principles.

Section 3 outlines the presence of Palm Cockatoo recorded during field ecological surveys. Further, the section discusses the clearing of potential Palm Cockatoo habitat as a trigger for making a referral. Otherwise, no triggers for lodging a referral were identified.

As the clearing of habitat is minor in the context of the known distribution of Palm Cockatoo in the Weipa region (and considering the extensive representation of similar habitat within a 50 km radius) and does not impact habitat connectivity, it is concluded that the proposed action will not result in a significant impact on Palm Cockatoo or other MNES.

Suitable mitigations are proposed and in the context of regional habitat suitability, no significant negative impacts to MNES were determined.

In addition, as outlined in sections 2.4 and 2.5, the proposed action will be assessed via several key approvals required under Queensland legislation including a SSA EA to be assessed and conditioned

by DEHP. The approval conditions imposed by DEHP will provide another layer of regulation over and above the engineering and best available technology measures proposed by Oresome to-date.

Based on a comprehensive ecological survey encompassing dry season and wet season periods, no evidence was found to suggest significant, long-term negative impacts to any MNES as a result of the UBx. Further, the implementation of extensive buffer areas between the proposed mining Areas and known sites of ecological importance will continue to provide refugia for species during periods of fire. Habitat within the UBx area is represented extensively within a 50 km radius from the Project and covers an estimated 200,000 ha of habitat that could be utilised by species also identified at UBx.

5.3 Proposed action IS a controlled action

Matters likely to be impacted

<input type="checkbox"/>	World Heritage values (sections 12 and 15A)
<input type="checkbox"/>	National Heritage places (sections 15B and 15C)
<input type="checkbox"/>	Wetlands of international importance (sections 16 and 17B)
<input type="checkbox"/>	Listed threatened species and communities (sections 18 and 18A)
<input type="checkbox"/>	Listed migratory species (sections 20 and 20A)
<input type="checkbox"/>	Protection of the environment from nuclear actions (sections 21 and 22A)
<input type="checkbox"/>	Commonwealth marine environment (sections 23 and 24A)
<input type="checkbox"/>	Great Barrier Reef Marine Park (sections 24B and 24C)
<input type="checkbox"/>	A water resource, in relation to coal seam gas development and large coal mining development (sections 24D and 24E)
<input type="checkbox"/>	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
<input type="checkbox"/>	Protection of the environment from Commonwealth actions (section 28)
<input type="checkbox"/>	Commonwealth Heritage places overseas (sections 27B and 27C)

6 Environmental record of the responsible party

	Yes	No
<p>6.1 Does the party taking the action have a satisfactory record of responsible environmental management?</p> <p>Provide details Yes, Oresome has a satisfactory record of responsible environmental management. Oresome's values are expressed through its business principles, policies and procedures, ensuring environmental compliance at all levels. Oresome has in place a strong Environment Policy (Appendix C) which further outlines their Environmental Policy Principles, Policy Statement and drive for environmental leadership.</p> <p>Evidence of Oresome's environmental record is demonstrated in their gaining approval for works at an adjacent location, the Urquhart Heavy Mineral Sands project (EPBC 2010/5707), and meeting all legal, industry and internal environmental obligations. Environmental management strategies applied at the planning stages, followed by the successful completion of pre-construction and operational planning activities, have ensured that Oresome has not been the subject to any proceedings under relevant legislative environmental framework.</p> <p>Oresome believes that consideration of the environment, people and community is integral to sustainable development of their business so that these drivers guide the company's activities to provide accountability during all stages of works.</p> <p>Environmental performance is regularly evaluated for any changes to managed aspects/impacts. This is completed in order to ensure there are no additional concerns/impacts that have developed. The evaluation of planning and works is aimed to provide continuous improvement and further develop the company's environmental performance.</p>	X	
<p>6.2 Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?</p> <p>No, Oresome has not been subject to any proceedings under a Commonwealth, State or Territory law.</p> <p>If yes, provide details</p>		X
<p>6.3 If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?</p>	X	

If yes, provide details of environmental policy and planning framework

Yes, the action will be taken in accordance with Oresome's Environment Policy (**Appendix C**). The Environment Policy outlines the company's five Environmental Policy Principles as:

1. Working closely with the local communities in which we operate;
2. Preventing where possible or minimising adverse environmental impacts;
3. Reducing our environmental footprint by continually improving efficiency;
4. Adopting a safe and environmentally conscious lifestyle both at work and at home; and
5. Endeavouring to protect and to restore biodiversity through land stewardship and rehabilitation.

6.4 Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

Provide name of proposal and EPBC reference number (if known)

2010/5707 - Oresome Australia Pty Ltd/Mining/ML20669 located 3 km south west of Weipa at Urquhart point/QLD/Urquhart Point mineral sands project.

X

7 Information sources and attachments

(For the information provided above)

7.1 References

- Aumann, T. and Baker-Gabb, D. (1991). RAOU Report 75. *A Management Plan for the Red Goshawk*. RAOU. Royal Australasian Ornithologists Union, Melbourne.
- Department of Environment and Resource Management (DERM) (2010). *Cape York Peninsula Natural Resource Management Region Back on Track Actions for Biodiversity*. Department of Environment and Resource Management, Brisbane.
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7.2 Reliability and date of information

Information provided in Section 3 was sourced from:

- DotE EPBC Protected Matters Report (**Appendix B**);
- Ecological field surveys conducted in April and November 2015 (METServe 2016; **Appendix A**);
- Technical reports based upon field survey and existing data including a range of publically available report, including:
 - Urquhart Point Heavy Mineral Sands EIS (Oresome 2012)
 - South of Embley EIS (RTA 2011)
 - Preliminary Documentation Report for the HPBP (Green Coast Resources 2015)

The reliability of information and any uncertainties associated with the survey effort is discussed within each of the published documents. Works were in accordance with Commonwealth and State requirements.

7.3 Attachments

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	GIS data
	GIS file delineating the boundary of the referral area (section 1)		
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figures

If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)	✓	Urquhart Point Bauxite Project Terrestrial Ecology Report
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

8 Contacts, signatures and declarations

Project title:

8.1 Person proposing to take action

1. Name and Title:

Chris Broadhead. General Manager

2. Organisation: Oresome Bauxite Pty Ltd

3. EPBC Referral
Number:

4. ACN / ABN: 606 362 252

5. Postal address GPO Box 122. Brisbane QLD. 4001

6. Telephone: 07 3249 3000

7. Email: admin@oresome.com.au

8. Name of proposed
proponent (if not the
same person at item 1
above [and if applicable](#)):

9. ACN/ABN of proposed
proponent (if not the
same person named at
item 1 above):

**COMPLETE THIS SECTION ONLY IF YOU QUALIFY FOR EXEMPTION FROM THE
FEE(S) THAT WOULD OTHERWISE BE PAYABLE**

I qualify for exemption
from fees under section
520(4C)(e)(v) of the
EPBC Act because I am:

- ☐ an individual; OR
- ☐ a small business entity (within the meaning given by section 328-110 (other than subsection 328-119(4)) of the *Income Tax Assessment Act 1997*); OR
- ☐ not applicable.

If you are small business
entity you must provide
the Date/Income Year
that you became a small
business entity:

Note: You must advise the Department within 10 business days if you cease to be a small business entity. Failure to notify the Secretary of this is an offence punishable on conviction by a fine (regulation 5.23B(3) *Environment Protection and Biodiversity Conservation Regulations 2000 (Cth)*).

COMPLETE THIS SECTION ONLY IF YOU WOULD LIKE TO APPLY FOR A WAIVER

I would like to apply for a
waiver of full or partial
fees under Schedule 1,
5.21A of the [EPBC
Regulations](#). Under sub
regulation 5.21A(5), you
must include information

- ☐ not applicable.

about the applicant (if
not you) the grounds on
which the waiver is
sought and the reasons
why it should be made:

Declaration

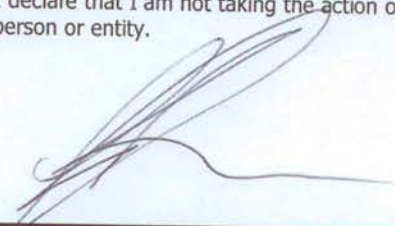
I declare that to the best of my knowledge the information I have given on, or attached
to this form is complete, current and correct.

I understand that giving false or misleading information is a serious offence.

I agree to be the proponent for this action.

I declare that I am not taking the action on behalf of or for the benefit of any other
person or entity.

Signature



Date

17/5/16.

8.2 Person preparing the referral information (if different from 8.1)

Name Dr Mark J Breitfuss

Title Director / Principal Environmental Scientist

Organisation Epic Environmental Pty Ltd

ACN / ABN (if applicable) 54 169 579 275

Postal address Level 10, 500 Queen Street. Brisbane. QLD. 4000

Telephone 0400412212

Email mbreitfuss@epicenvironmental.com.au

Declaration

I declare that to the best of my knowledge the information I have given on, or attached
to this form is complete, current and correct.

I understand that giving false or misleading information is a serious offence.

Signature



Date

17.05.16

REFERRAL CHECKLIST

HAVE YOU:

- ☐ Completed all required sections of the referral form?
- ☐ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ☐ Provided a map showing the location and approximate boundaries of the project area?
- ☐ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ☐ Provided a digital file (preferably ArcGIS shapefile, refer to guidelines at [Attachment A](#)) delineating the boundaries of the referral area?
- ☐ Provided complete contact details and signed the form?
- ☐ Provided copies of any documents referenced in the referral form?
- ☐ Ensured that all attachments are less than three megabytes (3mb)?
- ☐ Sent the referral to the Department (electronic and hard copy preferred)?