Government of South Australia
Department for Energy and Mining

9 September 2022

Mr Rohan Hine
Manager Exploration
Iluka Resources Limited
GPO Box U1988
PERTH WA 6845

Dear Mr Hine,

Approval Notification - Exploration Program for Environment Protection and Rehabilitation (EPEPR 2014-056) Review (EL 5878, EL 5879, EL 5947, EL 6159, EL 6251, EL 6369, EL 6376, EL 6461, EL 6462, EL 6542, EL 6543, EL 6544, EL 6545)

The program review for EL 5878, EL 5879, EL 5947, EL 6159, EL 6251, EL 6369, EL 6376, EL 6461, EL 6462, EL 6542, EL 6543, EL 6544, EL 6545, final version submitted on 30 August 2022 to conduct low impact and drilling activities for the Eucla Basin Project, has been approved in accordance with Section 70B(5) of the *Mining Act, 1971 (the Act)*.

In accordance with section 70B(7a)(b) of the Act, the approved program is subject to the conditions listed in the attached notice.

You are reminded that:

1. You must at all times implement and comply with the approved EPEPR.
2. The approved PEPR will be made publicly available on the Mining Register.
3. Exploration operations on “native title land” (as defined in the *Native Title (South Australia) Act, 1994)* must be conducted in accordance with Part 9B of the Act.
4. In accordance with Section 70C of the Act, the licensee must review the EPEPR on request of the Minister’s Delegate within a time specified in the request and submit the revised PEPR for approval.
5. As the operator for the approved EPEPR you must take all reasonable and practical measures to avoid undue damage to the environment and meet all the approved outcomes (when measured against the approved criteria) listed within the EPEPR.
6. In accordance with regulation 78 of the *Mining Regulations 2020* and Terms of Reference 012 (TOR 012), the licensee must submit an Exploration Compliance Report to the Mineral Exploration Branch each year, within 60 days after the anniversary of the date the licence was granted, and 60 days after the expiry or surrender of the EL, or in accordance with joint reporting requirements agreed to with the Minister.

7. In accordance with regulation 16(4) of the *Mining Regulations 2020*, drillhole and geological samples must be kept in accordance with guidelines issued by the Department for the term of the relevant tenement and for 7 years after the expiry, surrender, cancellation or forfeiture of the tenement to which the sample relates. Furthermore, samples must be retained by the tenement holder, or provided to the Director, in accordance with those guidelines (unless the Minister has authorised, on application by the tenement holder in a manner and form set out in the guidelines, the destruction or disposal of the samples).
8. Requirements under the *National Parks and Wildlife Act 1972* and the park proclamation must be known and adhered to.
9. The EPEPR is approved for the term of Exploration Licences: EL 5878, EL 5879, EL 5947, EL 6159, EL 6251, EL 6369, EL 6376, EL 6461, EL 6462, EL 6542, EL 6543, EL 6544, EL 6545.

This approval does not constitute endorsement of the systems that you have in place to manage your exploration operations in compliance with the Act and licence conditions. In granting the approval, the EPEPR and your capacity to undertake the proposed activities have been considered. However, responsibility for compliance with the Act and the licence conditions, remains at all times with the licensee.

This approval relates only to the requirements of the Act. Other legislation relevant to this application includes the *South Australian Work Health and Safety Act, 2012* and Regulations. For example, Chapter 10 of the *Work Health and Safety Regulations, 2012 (SA)* introduced new requirements for mine operators in South Australia. The new requirements include a notification for mining operations and the establishment of a Safety Management System. For further information on your responsibilities, including a guide to Chapter 10 and the Mine Operator Notification Form, contact SafeWork SA on 08 8303 0255 or via its website at www.safework.sa.gov.au.

The proposed program may be subject to the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Mineral exploration industry-specific information is contained in an appendix in the EPBC Matters of National Environmental Significance – Significant impact guidelines 1.1. This document is available on the Australian Government's Department for Agriculture, Water and the Environment website at http://www.environment.gov.au/resource/significant-impact-guidelines-11-matters-national-environmental-significance. For further information, contact the Department for Agriculture, Water and the Environment, or visit its website at www.environment.gov.au/.

Proposed changes to exploration operations stated in the approved EPEPR may require a *PEPR review* to be submitted for assessment. Where a *PEPR review* is required, implementation of the operational changes can only occur after the revised EPEPR is approved. Further information on when an exploration PEPR review is required can be found in Departmental guideline *MG22 Conducting mineral exploration.*

If you require any further information, please contact Jack White on 8429 2490 or Simon Constable on 8429 2516 or email DEM.exploration@sa.gov.au.

Yours sincerely

Benjamin Zammit
DIRECTOR MINERAL EXPLORATION
MINERAL RESOURCES
In accordance with delegated
Ministerial powers and functions

CC: DEW Adelaide Office DEWMiningReferrals@sa.gov.au

The Department's Regulatory Guidelines, Ministerial Determinations and Information Sheets are available at: http://energymining.sa.gov.au/minerals/knowledge_centre

Notice of Approval Conditions – EPEPR 2014-056

In accordance with section 70B(7a)(b) of the Act, the approved program is subject to the following conditions:

1. Prior to conducting exploration operations, a Program Notification (which includes the Park Access Form) must be submitted to the Department for Energy and Mining and DEW, 21 days prior to commencement of each new exploration program. Forward all Program Notifications to the contact list below:
   a. DEW Adelaide Office - Attn. Coordinator - Conservation and Mining, email: DEWMiningReferrals@sa.gov.au
   b. Mineral Exploration Branch – Attn: Exploration Regulation, email: DEM.exploration@sa.gov.au

   The program notification must be submitted using the template provided on the DEM Minerals website;

APPLICATION Mining Act 1971 and Mining Regulations 2020

EXPLORATION PROGRAM FOR ENVIRONMENT PROTECTION AND REHABILITATION (PEPR)

Government of South Australia
Department for Energy and Mining

USE THIS TEMPLATE TO: Apply to conduct mineral exploration operations not covered by the Generic PEPR (Adopted Program) for an ongoing period on one or more exploration licences (ELs), retention leases (RLs) or mineral claims (MCs) in South Australia.

- **Refer to the Exploration PEPR Terms of Reference and to Minerals Regulatory Guidelines MG22 when completing this application. Further information on exploration requirements in South Australia is available on the Department for Energy and Mining (DEM) Minerals website www.energymining.sa.gov.au .**

SECTION A – GENERAL DETAILS

Operational approval period	**Ongoing approval period.** **A program notification is required to be provided to DEM 21 days prior to the start date of each new program of works (PEPR program notification template is available from the DEM Minerals website). All rehabilitation is to be completed within 3 months after the expiry of each program notification.**
Tenement details	EL5878, EL5879, EL5947, EL6159, EL6251, EL6369, EL6376, EL6461, EL6462, EL6542, EL6543, EL6544, EL6545
Tenement holder(s) (for each tenement)	EL5878; Iluka (Eucla Basin) Pty Ltd (100%) EL5879; Iluka (Eucla Basin) Pty Ltd (100%) EL5947; Iluka Resources Limited (100%) EL6159; Iluka (Eucla Basin) Pty Ltd (100%) EL6251; Iluka (Eucla Basin) Pty Ltd (100%) EL6369; Iluka (Eucla Basin) Pty Ltd (100%) EL6376; Iluka (Eucla Basin) Pty Ltd (100%) EL6461; Iluka Resources Limited (100%) EL6462; Iluka Resources Limited (100%) EL6542; Iluka (Eucla Basin) Pty Ltd (100%) EL6543; Iluka (Eucla Basin) Pty Ltd (100%) EL6544; Iluka (Eucla Basin) Pty Ltd (100%) EL6545; Iluka (Eucla Basin) Pty Ltd (100%)
Operating company	Iluka Resources Limited, GPO Box U1988, Perth WA 6845
Agency agreement (if applicable)	N/A
PEPR prepared by	Melissa Taylor SA Tenement Manager Iluka Resources Limited melissa.taylor@iluka.com 0428 935 951
Project supervisor/contact person(s)	Rohan Hine Manager Exploration BSc (Hons) 26 years experience Iluka Resources Limited rohan.hine@iluka.com 0427 081 592 Tess Reynolds Senior Geologist BSc (Hons) 14 years experience Iluka Resources Limited tess.reynolds@iluka.com 0407 562 870
Project/prospect name	Eucla Basin Project. Project/prospect names include (but not limited to) Jacinth, Ambrosia, Jacinth-Ambrosia Brownfields Area, Atacama, Sonoran, Typhoon, Tripitaka
Location details	Approximately 190km north-west of Ceduna
Project description, commodity type and mineralisation model	**Proposed Program** This Program for Environmental Protection and Rehabilitation EPEPR 2014-056 supports heavy mineral regional exploration on Eucla Basin tenements. Iluka proposes to continue and expand upon a series of geological investigations in an effort to identify minerals and assess their economic potential. This is a review of EPEPR 2014-056 with the following information updated: • Exploration Licences, contacts, maps, and biological datasets; • methods for reverse circulation drilling, diamond drilling and track maintenance; • new details for passive seismic techniques and sonic drilling; and • environmental management of potential impacts and events updated.

Commodity type

Heavy Mineral Sands (Zircon, Ilmenite, Rutile, Monazite, Tin, Leucoxene) and non-heavy minerals including but not limited to (Ni, Cu, Au, Ag,).

Mineralisation Model

The Eucla Basin extends approximately 2,000 km from Norseman in Western Australia through to Ceduna in South Australia. The eastern margin of the basin is dominated by the Ooldea, Paling and Barton ranges. The Eucla Basin contains sequences up to 300 m thick of Tertiary marine, coastal and palaeochannel sediments.

Four sets of shorelines range in age from middle Eocene to Pliocene result from several marine incursions into the Eucla Basin over the last 50 million years. These shoreline sequences demonstrate a potential to host heavy mineral sand deposits. Iluka explores the unconsolidated Tertiary cover sequences overlying crystalline basement and sedimentary rock. More detailed descriptions of the geology of the sub regions are provided below.

DECLARATION

I, the tenement holder, declare under regulation 84 of the Mining Regulations 2020, that I have taken reasonable steps to review the information in this PEPR/revised PEPR to ensure its accuracy.

Name	Rohan Hine	Signature (digital allowed)	
Position	Manager Exploration, Iluka Resources Ltd	Date	30 August 2022

Note: An authorised representative from each tenement holder must sign the declaration (eg in accordance with the Corporations Act 2001).

SECTION B – PROGRAM PREPARATION AND ACCESS TO LAND

Work undertaken in preparing the proposal

Summarise the research and fieldwork undertaken in preparing the proposal including:

- desktop reviews of existing information
- field visits for reconnaissance
- contractor consultation (i.e. equipment scale, type)
- other information used when planning the proposed program.

Iluka has been exploring in the Eucla Basin for many years and have completed several geophysical surveys and drilling programs in the area, leading to the discovery of a district of heavy mineral deposits. The Jacinth mine, developed on the largest of these discoveries, is nearing end of life, and preparation for mining at the nearby Ambrosia deposit is in an advanced stage. Both Jacinth and Ambrosia are overlain by mining license ML6315, and the other significant discoveries, namely the Atacama, Sonoran and Typhoon deposits are overlain by exploration licenses EL5947 and EL5879.

Desktop reviews

Experience gained and data collected during previous field programs in the Eucla Basin will form the basis of planning and design of future work, and may include all or some of the following:

- desktop studies to identify high value areas within previously discovered mineralised areas;
- review of historical exploration, environment, rehabilitation, cultural heritage and logistics data and experience in the area;
- establishing the locations of heritage (Aboriginal and European) sites;
- reviewing known sightings of rare and endangered fauna and flora; and
- planning routes for undertaking field reconnaissance.

Field visits for reconnaissance

In preparation for drilling activities field visits are conducted to inspect access tracks and assess the ground conditions.

Consultation

Consultation with the Far West Coast Aboriginal Corporation continues to be channelled through the Far West Coast Liaison Committee managed by the operations team at the Jacinth Mine.
Discussions with contractors for drilling operations and rehabilitation are on-going.
Company policies and procedures for safety and environmental management have been reviewed and are aligned with this PEPR. Copies of these documents and the PEPR will be available on site and all field staff will be briefed on these before program commencement and within pre-start meetings when drilling is underway.

EPEPR Review

This EPEPR supports exploration on Iluka's exploration tenements and replaces EPEPR 2014-056 (dated 12 March 2014). This EPEPR is submitted due to a change in tenement holdings (detailed in Section A), new EPEPR format necessitated from updated 2021 Mining Regulations and the inclusion of low impact exploration activities detailed in the Generic PEPR.

Consultation (r. 64)

Using the table below, provide a summary of the individual or group of similarly affected persons and summarise the results of consultation that has been undertaken on the proposed operation. Types of interested or affected parties include residents, council, government agencies etc (exclude native title groups and defence owned or controlled lands – refer to relevant sections below).

Tenement	Stakeholder	Land tenure	Land use	Date and type of NOE served	Type of exempt land	Date waiver obtained	Date consultation/access agreement and/or permits signed/authorised	Stakeholder concerns raised and how addressed
ELs 5878+5879+5947 +6159+6251+6369+6461 +6462+6544+6545	Department of Environment and Water (DEW)	Yellabinna & Nullabor Regional Reserves	Conservation		N/A	N/A		None
EL6542	Euria Station	Miscellaneous Lease	Cropping		Cropping	N/A	Access agreement signed 18 Dec 2006 (for EL3316 and including any renewals or extensions)	Concern regarding introduction of snails to property. Iluka sent environmental staff to property and subsequently eradicated snails with snail pellets and spreader. Concern over the rehabilitation of Club Med. Does not want the helicopter pad, gravel camp area (with buried electrical conduiting and plumbing) and septic tank rehabilitated.
EL6376	Nundroo Station	Freehold Land	Cropping and grazing		Cropping		Before exploration commences, a land access agreement will be negotiated with the landholder	None
ELs 6251+6543	Aboriginal Lands Trust (ALT)	Aboriginal freehold land	Traditional indigenous uses		N/A	N/A	Permission granted to carry out regulated activities on the Trust Land subject to entry conditions (26 June 2017)	None
EL6251, EL6376 and EL6543	Department Infrastructure and Transport	Roadside reserve	Buffer between road and adjacent property		N/A	N/A	Will consult if any roadside exploration activities planned along the Eyre Highway and road permits will be obtained	None

If any individual or group of similar affected persons were not able to be consulted, what steps were taken to consult with them?

N/A

Provide any additional relevant information.

N/A

SECTION C – DESCRIPTION OF THE ENVIRONMENT

Include a description of the features of the environment that are expected to be affected by the proposed operations. Each of the elements of the existing environment listed below must be described only to the extent that they may need to be considered in assessing the impacts that the proposed exploration operations are reasonably expected to have on the environment. If the element is not likely to be impacted by the operation, a statement to that effect must be included.

Where the terms and conditions of an RL include environmental outcomes, include any new baseline environmental data relevant to the control strategies or measurement criteria, and where changes to the environment are identified, provide an updated description of the environment to describe the changes.

Proximity to infrastructure and housing

Provide the following information:

- Settlements – indicate the name and distance of the nearest town, and residences within, or near the proposed exploration operations.
- Roads and tracks – indicate existing fence lines, roads and tracks, including those which are to be used in the exploration program.
- Other human infrastructure such as schools, hospitals, commercial or industrial sites, roads, sheds, bores, dams, ruins, pumps, scenic lookouts.
- Railway lines, transmission lines, gas and water pipelines, communication lines – e.g. fibre optic cables etc., if these may be impacted by the exploration operations.

Provide this information on a locality plan/map.

There are two settlements located within the tenement area; the Iluka-owned Jacinth-Ambrosia Mineral Sands Mine village is within EL5947, and the Yalata township is located within EL6543.
The Eyre Highway runs through the southern tenements of EL6251, EL6376 and EL6543 area. The Old Eyre Highway runs through EL6251 and EL6543. The Iluka Jacinth Mine road (private road) and the Ooldea Road run in a north-south direction and extends to the east-west transnational railway access road.
There is an old dog fence running north south directly adjacent and parallel to the Ooldea Road. Tracks to be used in specific programs will be identified in more detail during the notification process.
The transnational railway runs through the southern extent of ELA2020/00088 and ELA2020/00089. Information is provided in Map 1.

Land use and tenure

Using the table below, select the land tenure and land use that the proposed exploration activities will occur in. Include additional information where prompted.

Land tenure/type	Applicable
Freehold	☒
Pastoral lease	☒
Perpetual lease	☐
Crown land	☒
Mining reserve	☐
Aboriginal freehold/leasehold land (e.g. Anangu Pitjantjatjara Yankunytjatjara and Maralinga Tjarutja lands)	☐
Forestry reserve	☐
Marine parks	☐
National parks, conservation parks, conservation reserves, regional reserves*	☒
Yellabinna Regional Reserve; Nullabor Regional Reserve (Map 2)	
Adelaide Dolphin Sanctuary	☐
Murray Darling Basin	☐
Other*	☐

Land use	Applicable
Grazing	☒
Cultivated land	☒
Residential	☐
Township	☒
Industrial	☐
Tourism	☒
Conservation	☒
Defence activity	☐
Road reserve	☒
Sites of scientific significance (geological monuments, fossil reserves etc.)	☐
Orchard/vineyard	☐
*Native vegetation heritage agreements	☒
*European heritage sites	☐
*Other (e.g. historic mining)	

* Indicates more information required in field immediately below.

Describe any council policies (or out of council) or development plans that may impact the program area.

N/A

Provide a description of any known plans for future land use changes by other parties.

Iluka Resources are not aware of any known plans for future land use changes by other parties.

Provide any additional relevant information.

N/A

Woomera Prohibited Area (WPA)

Will activities be conducted within the WPA	Yes ☐	No ☒	Do you have a resource exploration permit in place?	Yes ☐	No ☒
In which zone will activities be conducted?			Green – Defence infrequent zone		
Does the Exploration Permit allow the operator to conduct exploration operations in the WPA?				Yes ☐	No ☐
What is the expiry date of the resource exploration permit?					
Identify closure periods that may impact on the exploration program.					
Iluka will apply for WPA permit on a campaign basis and provided evidence with relevant Program Notification.					

Other land owned or controlled by the Commonwealth Department of Defence

Lands in South Australia that are owned or controlled by the Commonwealth Department of Defence, which they manage either as a training or test area, include the Port Wakefield Proof and Experimental Establishment, Murray Bridge Training Area, and Cultana Training Area.

These lands remain to be mineral land under the Mining Act 1971 (SA) and can be accessed for mineral exploration and mining subject to certain restrictions and conditions under the Defence Act 1903 (Cth) and the Defence Regulation 2016 (Cth).

Will operations be conducted within the Port Wakefield Proof and Experimental Establishment, Murray Bridge Training Area, or Cultana Training Area?	Yes ☐	No ☒
N/A		
Do you have a Deed of Access with Defence? N/A	Yes ☐	No ☐
What is the expiry date of the Deed of Access? N/A		
Provide the date the Range Control Officer granted access permission to conduct the proposed exploration operations. N/A Describe the results of consultation and how any concerns raised were addressed. N/A		

Native title

Using the table below, describe how you have complied with the requirements of Part 9B of the Mining Act for each tenement (for further information refer to Minerals Regulatory Guidelines MG22).

Native title			
Is the proposed area of exploration located on native title land?	Yes ☒ No ☐ (If no, no further information in this section required.)		
Are there registered native title party/parties in the area of proposed exploration?	Yes ☒ No ☐	Far West Coast Aboriginal Corporation (FWCAC) for all tenements Yalata Aboriginal Lands Trust (ALT) for EL6251 and EL6543 only	If no, an Environment, Resources and Development (ERD) Court determination is required.
Have you negotiated a native title mining agreement?	Yes ☒ No ☐	Is the agreement registered?* Yes ☒ No ☐	Registered NTMA with FWCAC for EL5878, EL5879, EL5947, EL6159, EL6251, EL6369, EL6376, EL6461, EL6462, EL6542, EL6543, EL6544, EL6545
Have you accepted an Indigenous land use agreement (ILUA)?	Yes ☐ No ☒	Is the ILUA registered?* Yes ☐ No ☐	
Have you obtained ERD Court determination?†	Yes ☐ No ☒	Is the determination registered?* Yes ☐ No ☐	

* The registration date refers to the date the agreement, determination or ILUA was registered with DEM.

† An ERD Court determination cannot be conjunctive (i.e. cannot apply to subsequent licences).

Provide any additional relevant information.

The Eucla Basin holds cultural value to the local Indigenous people, who still use the land to hunt and gather bush food, and conduct cultural business. The Gugadu, Wirangu and Mirning people comprise the Far West Coast Native Aboriginal Corporation, whose claim includes the program area.

To date Iluka, through the Far West Coast Liaison Committee (FWCLC), comprising personnel from FWCAC and the Jacinth Mine operations team, has enjoyed a healthy working relationship with FWCAC. Exploration updates are provided quarterly to the FWCLC and the Board. Statutory forms and notifications have been delivered to FWCAC by email, and registered mail, and more recently by email.

Landform and topography

Describe the topography of the general area affected by the exploration program. Include the susceptibility to erosion and visual attributes (steep or undulating slopes, plains, rocky outcrops, dunes, saltpans, claypans etc.).

Seven IBRA (Interim Biogeographic Regionalisation for Australia) sub-regions extend over the region of the tenement area, including the Commonwealth Hill, Eyre Mallee, Kingoonya, Maralinga, Nullarbor Plain, Yalata and Yellabinna sub-regions (Map 3).

The predominant IBRA sub-regions in the tenement area are the Nullarbor Plain, Yalata and Yellabinna sub-regions, which are described below.

Nullarbor Plain sub-region – The predominant landforms comprise of plains, sand plains, lakes and flood outs. To the west of the Jacinth-Ambrosia mine, the landform transitions from Myall dominated sparse woodlands to the chenopod dominated Nullarbor low shrubland. Drainage lines occur in the west, generally connecting to Lake Ifould which are only active after significant rainfall events.

The Yalata sub-region contains lakes and a swamp as well as the coastline. The location of the tenements, in the north eastern part of the sub-region, lie within the Yellabinna Regional Reserve and freehold land comprising Chundaria Lake and pastoral land. Predominant landforms are dunes and interdune swales or corridors. The northeastern margin of the Yalata sub-region is dominated by the Ooldea Range. The Ooldea Range forms an extensive ridge running for hundreds of kilometres from Western Australia into South Australia. The Ooldea Range, 10 - 20km wide, flanks the Nullarbor Plain to the east and northeast, rising 40 - 200m above the adjacent terrain. The Range area is characterised by a semi-arid to arid sand dune system covered by low, open mallee and acacia shrubland and woodland communities.

Yellabinna sub-region – The predominant landforms are dunes and interdune swales or corridors. There is some variation in dune type but predominately parallel, longitudinal, narrow crested, linear dunes with an overall orientation of approximately east to west overlay the region. The dunes are generally 5 – 30m high and around 500m apart. A water body is indicated in a number of available data sets within the sub-region, however this has been investigated and has found to be a low lying area only unlikely to hold water at any time.

Soil and surface cover

Describe soil types and soil surface cover - e.g. gibber, rocky - in the general area affected by the exploration program. Include details on the susceptibility to compaction, erosion, dust, runoff and any other soil characteristics – e.g. acid sulphate – that may require control strategies to reduce environmental impacts during operations or rehabilitation.

The PEPR area comprises undulating calcareous dune sand, mainly fine to silty with some areas containing soils with sand, silt and clay, as well as calcareous loamy soils. Dune fields predominantly exist in the northern half of the tenement area, such as Atacama, as shown in Photo 1.

Tracks have the potential to become soft, particularly near or on dune crests. However, with careful management of tyre pressures and vehicle speed, as well as minimising traffic movements, it is anticipated that travel and environmental risk will be significantly reduced. Full description of the management plans in place for tracks is included in a subsequent section.

When tracks are cleared using the dozer and roller method, vegetation will remain in the ground which will help hold soils together and minimise any erosion of these tracks. The drill vehicles Iluka use generally have a small footprint and all vehicles will travel single file along the line and keeping traverses down tracks to a minimum. Programmes are planned to ensure impact on dunes is reduced by minimising dune crossings and the number of passes, avoiding high dune ridges and avoiding the soft dune areas, such as the nose of the dune.

Additionally, it is proposed that four wheel drive tractors may be used to transport larger items such as caravans if the weather conditions and terrain require. If the camp mobilisation is completed during a warmer period dune crossings can be challenging so the pulling power of a tractor may be required.

Where soils are calcareous loam, which can become powdery when disturbed and become bulldust, procedures are put in place to mitigate and reduce these effects. These procedures include:

- Restricting speed limits on tracks to 40kmh,or lower if necessary and reducing tyre pressures to as low as considered safe, and on drill traverses to 10kmh;
- Planning drilling in the order that minimises track use;
- Using light vehicles for transferring crew and supplies to and from drill sites;
- Positioning of water sources (large water tanks) close to drill lines and camps to avoid heavy vehicle access; and
- Using a water truck on main access routes, where possible, to water the track.

A helicopter may be used as required for transport of personnel, fuel, water and samples to help minimise potential environmental impact caused by repeated use of access tracks. Where new tracks are required, the roller method will be utilised for clearing.

It is expected that final track rehabilitation will leave a smoothed broken surface conducive to regrowth. Where possible, areas of thicker vegetation will be avoided by weaving tracks through more open areas.

Surface water

Will the proposed program interfere with surface water bodies and natural drainage (e.g. drainage lines, creeks, floodplains, wetlands)? If yes, describe the potential interference and surface water bodies and natural drainage on maps. If no, indicate why.	Yes ☐	No ☒
Generally, surface water is seasonal and rare. However, the tenement area does contain a number of ephemeral saline water bodies including Lake Tallacootra located within the tenements of the Yalata sub-region and Red Lake located within the tenements of the Yellabinna sub-region. Additional scattered unnamed water bodies are indicated in a number of available data sets within the program area and investigation shows these areas to be depressions in the landscape largely bare of vegetation with no standing water or salt accumulation is observed at these locations. Proposed programs are not expected to interfere with these water bodies. There are also drainage lines located within the tenement area, which under significant rainfall, would form ephemeral streams. In order to limit the risk of disturbance during exploration activity a 200m exclusion zone will be established around these water courses. Rock holes throughout the region provide localised water and these sources are important to aboriginal people. No exploration activities will be conducted within these water bodies, and a minimum 200m exclusion zone will be applied to these features. Southwest of the Ooldea Range, the topography is gently undulating with low lying areas containing salt lakes. This surface topography is not indicative of the subsurface palaeochannel systems that dominate this area. Palaeochannel depths are in excess of 120m and are bound by weathered basements gneisses, granitoids and amphibolites. Palaeochannel and palaeovalley fill can be up to 3km wide and depths in excess of 20m. This fill contains fine to very coarse sands and gravels and hosts saline, acidic groundwater. The water is in large volumes with a high recovery rate, but is not under enough pressure to flow up a drillhole. Outside of the tenement area there are also a number of ephemeral saline water bodies including: • Lake Ifould and 3-4 unnamed lakes to the north of Lake Ifould, all located on the boundary of the Nullarbor Plain – Yellabinna sub-region; • Locke Claypans located in the south-eastern part of the Yellabinna sub-region; and • Chundaria Lake located in the Yalata sub-region.		
Is the program area located within water protection areas defined under the *River Murray Act 2003*? If yes, provide the name(s).	Yes ☐	No ☒
N/A		
Is the program area located within any prescribed watercourses or prescribed surface water areas under the *Landscape South Australia Act 2019*? If yes, provide the name(s).	Yes ☐	No ☒
N/A		

Groundwater

Is groundwater likely to be intersected when conducting the exploration program? If yes, use the table below to describe the expected groundwater (hydrogeological) conditions, and identify groundwater aquifers in the exploration area(s) that may be affected. Indicate the approximate depth of drillholes in each area. Copy and paste a new table for each area where different groundwater conditions are expected. If no, provide evidence or any supporting information demonstrating this.	Yes ☒	No ☐
Regional groundwater (estimated salinity > 50 000 mg/L, pH < 5) will be restricted to semi-confined to unconfined aquifers, and hosted within basement (more likely) or Cainozoic sediment (probably Ooldea Formation?) aquifers. The depth to groundwater within regional aquifers may vary between 50-80 metres below ground level. Localised, perched aquifers may also occur at the basement-sediment interface containing groundwater of similar quality to deeper regional aquifers. The Gawler Craton comprises Archaean to Middle-Proterozoic granite and gneiss rocks underlying the eastern Eucla Basin of Cambrian through to Tertiary-age sediments. Based on field measurements, background water levels at the locations closest to Atacama range from 95 - 106 mAHD (at Ambrosia), and salinities range from 21,900 mg/L (Ambrosia) to >36,000 mg/L (Jacinth mine). Future drilling is not expected to intersect aquifers in the basement as drilling depth is too shallow and the drilling method Is not amenable to penetrate hard rock layers. Exploration drilling targets beach sand environments where a complete record of sand deposits is preserved. In palaeochannel environments, where groundwater is most likely to occur at relatively shallow depths, the target sand horizons would be removed by erosion and as such would not constitute drill targets. Iluka therefore consider the risk of intersecting and contaminating aquifers in the Eucla Basin Project tenement area to be very low, and a management strategy proportionate to the risk has been developed, as follows: • Field personnel dig a small hole to contain any runoff when drillers encounter groundwater, the water is then drained back down the hole once drilling is complete. • The depth to water is noted and information recorded and reported in the annual report. • If unconfined aquifers are intersected they will be rehabilitated in accordance with the PIRSA Information Sheet M21 guidelines by backfilling drill holes with cuttings. • Abandonment of a drillhole that intersects a confined aquifer requires a cement plug to maintain original groundwater conditions in accordance with information relating to the backfilling of drillholes in Information Sheet M21. The depth and length of the cement plug will be recorded and included within the exploration compliance report if such an event occurs.		

Description of the locality/area where different groundwater conditions may be encountered					
Formation age and/or stratigraphic unit	**Stratigraphic intervals (depth range) (m)**	**Aquifer formation name**	**Aquifer interval/thickness (from–to) (m)**	**Type of aquifer(s) intersected (e.g. unconfined, confined, artesian)**	**Provide aquifer salinity, depth to water level and any other relevant comments**
Quaternary (Aeolian Sands)	0 – 5	N/A		N/A	
Quaternary (Pleistocene)		Bridgewater Formation	5-15 m thick (10-25 m depth to base)	Potential aquifer	May contain minor quantities of groundwater, unconfined to semi-confined aquifers, often containing small fresh lenses.
Upper Ooldea Sands – Tertiary	~5-40	N/A	~20 -30	Unconfined (small)	> 50,000 mg/L, pH < 5
Cainozoic (mid-late Eocene)		Ooldea Sands	10-30 m thick (15-42 m depth to base)	Potential aquifer	Generally depth to water >50 m precludes this unit as an aquifer. Potential to become an unconfined aquifer with moderate transmissivities.
Mid-late Eocene		Pidinga Formation	26-70 m thick	Confined aquifer	Occurs in palaeochannels. Major water supply for JA mine
Khasta Formation – Tertiary	~40-50	N/A	~40 – 50	Unconfined (small)	> 50,000 mg/L, pH < 5
Basement – Proterozoic	40 – 80m	N/A	~50 – 80	Perched aquifer	> 50,000 mg/L, pH < 5
Precambrian		Gawler Craton	100-150 m depth to top of unit	Saprolite/fractured rock aquifer	Weathering/duricrust surface of basement. Hosts palaeochannels

Provide the environmental value of each aquifer present determined according to the current Environment Protection (Water Quality) Policy.

Under the Environment Protection (Water Quality) Policy, groundwater aquifers of TDS > 13,000 mg/L have no defined environmental value (EPP Schedule 1 Section 3).

Provide a description of the existence, location and value of all Groundwater Dependent Ecosystems (GDEs) within and immediately surrounding the project area.

A search of the BOM GDE Atlas indicated no known GDE's within the tenement areas. However, there are a number of potential GDEs within the tenement areas associated with existing salt lakes and waterholes. Potential for these ecosystems to be GDE's range from low to high and are primarily Lacustrine and Palustrine, with rare seasonal/intermittent saline lakes. An exclusion zone of 200m will apply to all salt lakes and clay pans.

Is the proposed program located within a prescribed wells area or prescribed water resource area? If yes, provide the name of the area.	Yes ☐	No ☒
N/A		

Provide any additional information, if required.

N/A

Native vegetation

Will you be working within areas of native vegetation? If yes, provide the following information: • description of the formation and structure of vegetation in the area (e.g. woodland, shrubland, grassland) • list of the dominant species. If no, indicate why you will not be working within areas of native vegetation?	Yes ☒	No ☐
Vegetation is described in accordance with the National Vegetation Information System (NVIS) version 5.1. There are four main vegetation types for the three predominant IBRA sub regions (Nullarbor Plain, Yalata and Yellabinna) in the tenement area: • Arid and semi-arid acacia low open woodlands and shrublands with chenopods; • Acacia low open woodlands and shrublands with tussock grass; • Chenopod shrublands; • Mallee with hummock grass; and • Mixed chenopod, samphire or forblands.		

The vegetation types for the seven IBRA sub-regions extending over the region of the tenement area are described in Table 1.

Table 1: Vegetation Types by IBRA Sub-Region

IBRA Sub Region	Vegetation Type
Yellabinna	• Arid and semi-arid acacia low open woodlands and shrublands with chenopods • Acacia (+/- low) open woodlands and shrublands +/- tussock grass • Chenopod shrublands • Mallee with hummock grass • Mixed chenopod, samphire or forblands • Mallee with an open shrubby understorey • Mallee heath and shrublands • Mallee with a tussock grass understorey • Other shrublands • Other Acacia tall open shrublands and shrublands • Casuarina and Allocasuarina forests and woodlands • Other forests and woodlands • Temperate tussock grasslands
Nullarbor Plain	• Arid and semi-arid acacia low open woodlands and shrublands with chenopods • Acacia (+/- low) open woodlands and shrublands • Chenopod shrublands • Mallee with hummock grass • Mixed chenopod, samphire or forbland • Other forests and woodlands • Casuarina and Allocasuarina forests and woodlands • Other Acacia tall open shrublands and shrublands • Mallee with a tussock grass understorey • Melaleuca shrublands and open shrubland
Yalata	• Acacia woodland • Chenopod shrubland • Mixed chenopod, samphire or forblands • Eucalyptus mallee forest and mallee woodland • Tussock grassland • Casuarina woodland • Melaleuca shrubland >1m • Melaleuca shrubland • Rushland/sedgeland • Coastal shrubland
Maralinga	• Acacia (+/- low) open woodlands and shrublands +/- tussock grass • Mallee with hummock grass • Chenopod shrublands • Other forests and woodlands • Casuarina and Allocasuarina forests and woodlands • Other Acacia tall open shrublands and shrublands
Commonwealth Hill	• Acacia (+/- low) open woodlands and shrublands +/- tussock grass • Chenopod shrublands • Mallee with hummock grass • Mixed chenopod, samphire or forblands • Casuarina and Allocasuarina forests and woodlands • Mallee with an open shrubby understorey • Other Acacia tall open shrublands and shrublands • Other shrublands
Kingoonya	• Arid and semi-arid acacia low open woodlands and shrublands with chenopods • Acacia (+/- low) open woodlands and shrublands +/- tussock grass • Chenopod shrublands • Mixed chenopod, samphire or forblands • Casuarina and Allocasuarina forests and woodlands • Other Acacia tall open shrublands and shrublands • Other shrublands
Eyre Mallee	• Arid and semi-arid acacia low open woodlands and shrublands with chenopods • Chenopod shrublands • Mallee with hummock grass • Mixed chenopod, samphire or forblands • Callitris forests and woodlands • Casuarina and Allocasuarina forests and woodlands • Mallee heath and shrublands • Mallee with a tussock grass understorey • Mallee with an open shrubby understorey • Melaleuca shrublands and open shrublands • Other shrublands • Other tussock grasslands • Temperate tussock grasslands • Wet tussock grassland, herbland, sedgeland or rushland

Baseline flora and fauna surveys were conducted by F. Badman over the Jacinth-Ambrosia mine lease; a portion of EL5947, concluding that sandalwood (*Santalum spicatum*) is probably the most significant of the flora species found at the Jacinth site. The Jacinth Ambrosia baseline vegetation survey (Badman, F., 2006, Eucla Basin Vegetation Survey: Jacinth and Ambrosia Deposits, Report prepared for Iluka Resources) identified three vegetation types of the numerous vegetation types found throughout the various IBRA subregions defining the tenement areas, as described below. Additional flora surveys have been conducted for other deposits within EL5947 (EBS 2013, EBS 2015).

Group 1: Emergent or very open *Acacia papyrocarpa* low woodland with a chenopod low shrubland understorey

Group 1 vegetation (Photo 2) comprises scattered *Acacia papyrocarpa* with a chenopod low shrubland understorey. It is dominated by *Maireana sedifolia* and/or *Atriplex vesicaria*, and represents a transition in vegetation from the Nullarbor Plain to the west and the Yellabinna dunefield to the east. Average tree canopy cover for sites in this group is 5%. This vegetation type is present over the Jacinth and Ambrosia deposits; however outlying sites in this group were recorded both to the west and east. Although this group is present only in a transition zone between Groups 2 and 3 in the survey area, it is common over large areas to the east of the Yellabinna dunefield. As outlined in Badman, 2006, the western myall trees that exist in this vegetation group are considered to be mature trees. Further anecdotal evidence suggests they could be in excess of 200 years old.

Group 2: Chenopod shrubland

Group 2 vegetation (Photo 3) comprises of low shrubland vegetation dominated by *Maireana sedifolia* and/or *Atriplex vesicaria*, with no woodland species present. *Austrostopa nitida, Erichiton sclerolaenoides* and *Sclerolaena obliquicuspis* are all common in the understory. Vegetation is growing on shallow soils over limestone, with soils usually no more than 20-30 centimetres deep. These shallow soils generally do not allow the establishment of trees, with only trees that are present growing in places where soil is deeper. *Rhagodia spinescens* was not recorded at sites in this group.

In the 2006 survey the sites relating to this group were the lowest species richness of any group in the survey area and are representative of vegetation of the Nullarbor Plain.

Group 3: Open mallee or *A. papyrocarpa* low woodland

Group 3 vegetation (Photo 4) comprises open mallee or *Acacia papyrocarpa* low woodland. It is associated with the dunefields of the Yellabinna dunefield on the eastern side of the project area. Some of the sites have no mallee species represented; however all of the sites contain *Acacia papyrocarpa*. A number of mallee species were recorded within this group, with *Eucalyptus oleosa ampliata* being the most common. This is a large group with soils being deeper and sandier than in areas to the west. The average tree canopy cover for this group is 16%. Understorey consists of low shrublands including *Maireana spp*. and other species. *Eremophila scoparia* and other small trees or tall shrubs such as *Santalum acuminatum* and *Alectryon oleifolius* occur as a mid-layer in the vegetation at most sites.

In the 2006 survey, monitoring sites in this group had the highest and second highest species richness of the four groups. This vegetation group is present over a large area on the western edge of the Yellabinna dunefield and the program area.

There are seven IBRA sub regions that extend over the region of the tenement area, with many of the vegetation types being common to each sub region (see Table 1). The predominant IBRA sub-regions in the tenement area are the Nullarbor Plain, Yalata and Yellabinna sub-regions.

Significant habitats and flora

If you are working within areas of native vegetation, use the table below to list any significant habitats and any rare or endangered flora species located or reported to have been in the area that may be impacted by the proposed program. Include known sightings of listed species on a locality plan/map.

Flora and threatened ecological communities known or potentially present across the seven IBRA Sub-Regions are listed in Table 2 and the locations shown Maps 4-8.

Table 2: Flora and threatened ecological communities known or potentially present across the seven IBRA Sub-Regions

Species/Threatened ecological community (significant habitat)	Common name	EPBC Act rating†	NPW Act rating*
Yellabinna Sub-Region			
Acacia hemiteles	-	-	R
Acacia jennerae	Coonavittra Wattle	-	R
Austrostipa nullanulla	Club Spear-grass	-	V
Austrostipa plumigera	-	-	R
Ceratogyne obionoides	Wingwort	-	R
Choretrum chrysanthum	Yellow Sour-bush	-	R
Corynotheca licrota	Sand Lily	-	R
Crassula peduncularis	Purple Crassula	-	R
Dampiera lanceolata var. intermedia	Aldinga Dampiera	-	E
Daviesia benthamii ssp. humilis (NC)	Mallee Bitter-pea	-	R
Eremophila hillii	Hill's Emubush	-	R
Eremophila praecox	-	-	R
Frankenia cinerea	-	-	R
Geijera parviflora	Wilga	-	R
Gilesia biniflora	Western Tar-vine	-	R

/cont…

Goodenia glandulosa	-	-	R
Gratwickia monochaeta	-	-	R
Hibbertia crispula	Ooldea Guinea-flower	VU	V
Lechenaultia aphylla	Leafless Lechenaultia	-	V
Leiocarpa pluriseta	-	-	R
Limosella granitica	Granite Mudwort	VU	V
Maireana suaedifolia	Lax Bluebush	-	R
Melaleuca leiocarpa	Pungent Honey-myrtle	-	R
Ophioglossum polyphyllum	Large Adder's-tongue	-	R
Santalum spicatum	Sandalwood	-	V
Sarcozona bicarinata	Ridged Noon-flower	-	V
Scaevola myrtifolia	Myrtle Fanflower	-	R
Sclerolaena symoniana	Symon's Bindyi	-	V
Spyridium tricolor	Rusty Spyridium	-	V
Swainsona pyrophila	Yellow Swainson-pea	VU	R
Templetonia battii	Spiny Templetonia	-	R
Teucrium grandiusculum ssp. pilosum	-	-	E
Nullarbor Plain Sub-Region			
Austrostipa vickeryana	Vickery's Spear-grass	-	R
Eremophila hillii	Hill's Emubush	-	R
Eremophila parvifolia ssp. parvifolia	Small-leaf Emubush	-	R
Frankenia cinerea	-	-	R
Gratwickia monochaeta	-	-	R
Hibbertia crispula	Ooldea Guinea-flower	VU	V
Lepidium pseudoruderale	-	-	R
Santalum spicatum	Sandalwood	-	V
Sclerolaena symoniana	Symon's Bindyi	-	V
Yalata Sub-Region			
Austrostipa plumigera	-	-	R
Bothriochloa macra	Red-leg Grass	-	R
Daviesia benthamii ssp. humilis (NC)	Mallee Bitter-pea	-	R
Eremophila hillii	Hill's Emubush	-	R
Eremophila parvifolia ssp. parvifolia	Small-leaf Emubush	-	R
Eremophila praecox	-	-	R
Leiocarpa pluriseta	-	-	R
Maireana rohrlachii	Rohrlach's Bluebush	-	R
Microlepidium alatum	-	VU	V
Microlepidium pilosulum	Hairy Shepherd's-purse	-	R
Phlegmatospermum eremaeum	Spreading Cress	-	R
Phlegmatospermum richardsii	Nullarbor Cress	-	V
Poa drummondiana	Knotted Poa	-	R
Poa fax	Scaly Poa	-	R
Santalum spicatum	Sandalwood	-	V
Scaevola myrtifolia	Myrtle Fanflower	-	R
Templetonia battii	Spiny Templetonia	-	R
Maralinga Sub-Region			
Austrostipa tenuifolia	-	-	R
Eremophila hillii	Hill's Emubush	-	R
Eucalyptus canescens ssp. beadellii	Beadell's Mallee	-	R
Eucalyptus wyolensis	Wyola Mallee	-	R

/cont…

Commonwealth Hill Sub-Region			
Ceratogyne obionoides	Wingwort	-	R
Swainsona microcalyx	Wild Violet	-	R
Kingoonya Sub-Region			
Goodenia cycnopotamica	-	-	R
Grevillea treueriana	Mt Finke Grevillea	VU	V
Maireana rohrlachii	Rohrlach's Bluebush	-	R
Plantago sp. A (A.C.Robinson 704)	Pearson Island Plantain	-	R
Santalum spicatum	Sandalwood	-	V
Senecio laceratus	Cut-leaf Groundsel	-	R
Swainsona pyrophila	Yellow Swainson-pea	VU	R
Wurmbea stellata	Star Nancy	-	R
Eyre Mallee Sub-Region			
Austrostipa nullanulla	Club Spear-grass	-	V
Austrostipa tenuifolia	-	-	R
Chondropyxis halophila	Salt Button-daisy	-	R
Choretrum chrysanthum	Yellow Sour-bush	-	R
Eremophila parvifolia ssp. parvifolia	Small-leaf Emubush	-	R
Eremophila praecox	-	-	R
Haegiela tatei	Small Nut-heads	-	R
Isotoma scapigera	Salt Isotome	-	R
Lawrencia berthae	Showy Lawrencia	-	R
Leiocarpa pluriseta	-	-	R
Maireana rohrlachii	Rohrlach's Bluebush	-	R
Microlepidium alatum	-	VU	V
Microlepidium pilosulum	Hairy Shepherd's-purse	-	R
Olearia picridifolia	Rasp Daisy-bush	-	R
Phlegmatospermum richardsii	Nullarbor Cress	-	V
Poa drummondiana	Knotted Poa	-	R
Poa fax	Scaly Poa	-	R
Podolepis jaceoides	Showy Copper-wire Daisy	-	R
Prasophyllum catenemum	-	-	E
Prostanthera calycina	West Coast Mintbush	VU	V
Scaevola myrtifolia	Myrtle Fanflower	-	R
Spyridium tricolor	Rusty Spyridium	-	V
Tecticornia flabelliformis	Bead Samphire	VU	V
Templetonia battii	Spiny Templetonia	-	R

* *National Parks and Wildlife Act 1972* (NPW Act) conservation status includes extinct, endangered, vulnerable, threatened and rare.
† *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) listings include extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent.

EPBC listed threatened flora potentially present across exploration tenement areas are listed in Table 3.

Table 3: EPBC listed threatened flora potentially present across exploration tenement areas

Species	Common name	Threatened Category
Frankenia plicata	-	E
Grevillea treueriana	Mt Finke Grevillea, Scarlet Grevillea	VU
Hibbertia crispula	Ooldea Guinea-flower	VU
Limosella granitica	Granite Mudwort	VU
Microlepidium alatum	-	VU
Prostanthera calycina	West Coast Mintbush, Limestone Mintbush, Red Mintbush	VU
Pterostylis xerophila	Desert Greenhood	VU
Swainsona pyrophila	Yellow Swainson-pea	VU
Tecticornia flabelliformis	Bead Glasswort	VU

* *National Parks and Wildlife Act 1972* (NPW Act) conservation status includes extinct, endangered, vulnerable, threatened and rare.
† *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) listings include extinct, extinct in the wild, critically endangered, endangered, vulnerable and conservation dependent.

Weeds and pathogens

Provide information of the extent the area is affected or potentially affected by weeds and pathogens (e.g. phytophthora; buffel grass *Cenchrus ciliaris*).

Weeds

A number of weed species have been identified in the Eucla Basin and may occur in the tenement area. Bridal Creeper or Smilax Asparagus (*Asparagus asparagoides*) is a Weed of National Significance (WONS) with its own strategic plan. SA-proclaimed noxious weeds found in the Eucla Basin include Horehound (*Marribum vulgare*). The plant occurs throughout cropping and grazing lands of the Eucla Basin. Badman (2006) recorded this species along the Ooldea Road in the Yellabinna region. Additionally Buffel Grass (*Cenchrus ciliaris*) and Ruby Dock (*Acetosa vesicaria*) have also been identified at the Jacinth Ambrosia Mine.

Researchers have recorded several other weeds along the road corridor to the Jacinth Ambrosia Mine including *Asphodelus fistulosus, Avena sp., Brassica tournefortii, Carrichtera annua, Carthamus lanatus, Hordeum glaucum* and *Medicago sp.* African boxthorn (*Lycium ferocissimum*) (not proclaimed) occurs on Colona Station (located in the Yalata subregion) and other grazing lands.

Several weeds have been recorded within the relevant IBRA sub-regions and therefore may occur in the tenements (Table 4).

Pathogens

The pathogen Phytophthora has a negligible impact risk in the tenements that have low rainfall in the area. Phytophthora Management Guidelines state that areas vulnerable to *Phytophthora cinnamomi* are those areas with an average annual rainfall of 400 mm or more and neutral to acid soils. The pathogen Phytophthora is therefore only likely to be a problem in areas with annual rainfall of 400 mm or above.

Table 4: Weeds recorded per relevant IBRA sub-region, listed under LSA Act

Family	Species/habitat	Common Name
Yellabinna Sub-Region		
BORAGINACEAE	*Echium plantagineum*	Salvation Jane
CACTACEAE	*Opuntia robusta*	Wheel Pear
CRUCIFERAE	*Lepidium draba*	Hoary Cress
GRAMINEAE	*Cenchrus ciliaris*	Buffel Grass
GRAMINEAE	*Cenchrus pennisetiformis*	Buffel Grass
SOLANACEAE	*Lycium ferocissimum*	African Boxthorn
Nullarbor Plain Sub-Region		
BORAGINACEAE	*Echium plantagineum*	Salvation Jane
EUPHORBIACEAE	*Euphorbia terracina*	False Caper
GRAMINEAE	*Cenchrus ciliaris*	Buffel Grass
LABIATAE	*Marrubium vulgare*	Horehound
TAMARICACEAE	*Tamarix aphylla*	Athel Pine
Yalata Sub-Region		
BORAGINACEAE	*Echium plantagineum*	Salvation Jane
CACTACEAE	*Opuntia elata*	Riverina Pear
CACTACEAE	*Opuntia stricta*	Erect Prickly Pear
CRUCIFERAE	*Diplotaxis tenuifolia*	Lincoln Weed
EUPHORBIACEAE	*Euphorbia terracina*	False Caper
GRAMINEAE	*Cenchrus ciliaris*	Buffel Grass
GRAMINEAE	*Eragrostis curvula*	African Love-grass
LABIATAE	*Marrubium vulgare*	Horehound
SOLANACEAE	*Lycium ferocissimum*	African Boxthorn
SOLANACEAE	*Solanum elaeagnifolium*	Silver-leaf Nightshade
Maralinga Sub-Region		
CACTACEAE	*Opuntia elatior*	-
GRAMINEAE	*Cenchrus ciliaris*	Buffel Grass
SOLANACEAE	*Solanum elaeagnifolium*	Silver-leaf Nightshade
TAMARICACEAE	*Tamarix aphylla*	Athel Pine
Commonwealth Hill Sub-Region		
SOLANACEAE	*Lycium ferocissimum*	African Boxthorn
ZYGOPHYLLACEAE	*Tribulus terrestris*	Caltrop

/cont…

Kingoonya Sub-Region		
GRAMINEAE	*Cenchrus ciliaris*	Buffel Grass
ZYGOPHYLLACEAE	*Tribulus terrestris*	Caltrop
Eyre Mallee Sub-Region		
CRUCIFERAE	*Diplotaxis tenuifolia*	Lincoln Weed
GRAMINEAE	*Cenchrus ciliaris*	Buffel Grass
GRAMINEAE	*Eragrostis curvula*	African Love-grass
LABIATAE	*Marrubium vulgare*	Horehound
RESEDACEAE	*Reseda lutea*	Cut-leaf Mignonette
SOLANACEAE	*Lycium ferocissimum*	African Boxthorn

Weeds recorded in the tenement area are listed in Table 5.

Table 5: Weeds Recorded in the Tenement Area

Family	Species/habitat	Common Name
AMARANTHACEAE	*Alternanthera pungens*	Khaki Weed
BORAGINACEAE	*Amsinckia calycina*	Hairy Fiddle-neck
	Echium plantagineum	Salvation Jane, Paterson's Curse
CACTACEAE	*Opuntia stricta*	Erect Prickly Pear, Common Prickly Pear
CARYOPHYLLACEAE	*Silene vulgaris*	Bladder Campion, Blue Root
COMPOSITAE	*Carthamus lanatus*	Saffron Thistle, Woolly Star-thistle
	Chondrilla juncea	Skeleton Weed, Naked Weed
	Chrysanthemoides monilifera ssp. monilifera	Boneseed, Bitou Bush
	Xanthium spinosum	Bathurst Burr, Spiny Cocklebur
CRUCIFERAE	*Brassica tournefortii*	Wild turnip
	Cakile maritima ssp. maritima	Two-horned Sea Rocket, Beach Rocket
	Carrichtera annua	Ward's Weed
	Diplotaxis tenuifolia	Lincoln Weed, Sand Rocket
EUPHORBIACEAE	*Euphorbia terracina*	False Caper, Terracina Spurge
GRAMINEAE	*Avena fatua*	Wild Oat, Black Oat
	Cenchrus incertus	Spiny Burr-grass, Coast Burr-grass
	Cenchrus longispinus	Spiny Burr-grass, Innocent Weed
	Eragrostis curvula	African Love-grass, Weeping Love-grass
	Hordeum glaucum	Blue Barley-grass, Northern Barley-grass
IRIDACEAE	*Moraea flaccida*	One-leaf Cape Tulip
LABIATAE	*Marrubum vulgare*	Horehound
LEGUMINOSAE	*Medicago truncatula*	Barrel Medic, Caltrop Medic
LILIACEAE	*Asparagus asparagoides*	Bridal Creeper, Smilax Asparagus
	Asphodelus fistulosus	Onion Weed, Wild Onion
LIMONIACEAE	*Limonium companyonis*	Sea-lavender
OLEACEAE	*Olea europaea ssp. europaea*	Olive
OXALIDACEAE	*Oxalis pes-caprae*	Soursob, Soursop
POACEAE	*Cenchrus ciliaris*	Buffel Grass
POLYGONACEAE	*Emex australis*	Three-corner Jack, Spiny Emex
GRAMINEAE	*Acetosa vesicaria*	Ruby Dock
RANUNCULACEAE	*Adonis microcarpa*	Pheasant's Eye, Red Chamomile
RESEDACEAE	*Reseda lutea*	Cut-leaf Mignonette, Yellow Mignonette
RUBIACEAE	*Galium spurium ssp. ibicinum*	Bedstraw
SOLANACEAE	*Lycium ferocissimum*	African Boxthorn
	Solanum elaeagnifolium	Silver-leaf Nightshade, Silver Nightshade

Fauna

Describe the native and feral fauna that may be present in the application area, including feral species.

Several significant fauna species are known or predicted to occur within the exploration tenement areas (Table 6 below). Introduced and feral mammal species have been identified from the search of the NPW and EPBC databases and include:

- Dingo (*Canis lupus dingo*);
- Fox (*Vulpes Vulpes*);
- Feral Cat (*Felis catus*);
- Feral deer
  - Fallow deer (*Dama dama)*
  - Red deer (*Cervus elaphus*)
  - Hog deer (*Axis porcinus*)
  - Chital deer (*Axis axis*)
  - Rusa deer (*Cervus timorensis*)
  - Sambar deer (*Cervus unicolor*)
- Rabbit (*Oryctolagus cuniculus*);
- One-humped Camel (*Dromedary Arabian Camel*);
- House Mouse (*Mus musculus*);
- Pig (*Sus Scrofa*); and
- Domestic Dog (*Canis lupus familiaris*).

Other invasive species that are known to be in the region include:

- White Italian Snails (*Theba Pisana*);
- House Sparrow (*Passer domesticus*);
- Common Starling (*Sturnus vulgaris*); and
- Rock Pigeon, Rock Dove, Domestic Pigeon (*Columbia Iivia*).

Significant fauna factsheets are used during all drilling programs, especially when undertaking track creation to ensure any sightings are recorded and alternative routes for access determined. Iluka also undertakes inductions for field based staff and contractors to educate on the significance of the fauna and flora of the area.

Significant fauna

Where possible, using the table below, list any rare or endangered fauna species located or reported to have been in the area that may be impacted by the proposed program. Include known sightings of listed species on a locality plan/map.

Significant fauna factsheets are used during all drilling programs, especially when undertaking access track creation to ensure any sightings are recorded and alternative routes for access determined. Iluka also undertakes inductions for field-based staff and contractors to educate on the significance of the fauna and flora of the area.

Significant fauna know or likely to occur across the seven IBRA Sub-Regions are listed in Table 6 and the locations shown in Maps 4-8.

Table 6: Significant fauna known or likely to occur across the seven IBRA Sub-Regions

Species	Common name	NPW Act rating*	EPBC Act rating†
Yellabinna Sub-Region			
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R	-
Acanthophis pyrrhus	Desert Death Adder	V	-
Amytornis textilis myall	Western Grasswren	V	VU
Amytornis whitei aenigma	Yellabinna Rufous Grasswren	R	-
Ardeotis australis	Australian Bustard	V	-
Cinclosoma castanotum	Chestnut Quailthrush (Chestnut-backed Quailthrush)	R	-
Cinclosoma castanotus castanotus (NC)	Chestnut Quailthrush (eastern)	R	-
Climacteris affinis	White-browed Treecreeper	R	-
Corcorax melanorhamphos	White-winged Chough	R	-
Ctenophorus mckenziei	McKenzie's Dragon	R	-
Dasycercus blythi	Brush-tailed Mulgara (Mulgara)	E	-
Falco peregrinus macropus	Peregrine Falcon	R	-
Hieraaetus morphnoides	Little Eagle	V	-
Hylacola cauta cauta	Shy Heathwren (EP, YP, FR, MM, upper SE)	R	-
Leipoa ocellata	Malleefowl	V	VU
Leporillus conditor	Greater Stick-nest Rat	V	VU
Lophochroa leadbeateri	Major Mitchell's Cockatoo	R	-

/cont…

Lophoictinia isura	Square-tailed Kite	E	-
Macrotis lagotis	Greater Bilby (Bilby)	V	VU
Morelia spilota	Carpet Python	R	-
Myiagra inquieta	Restless Flycatcher	R	-
Neelaps bimaculatus	Western Black-naped Snake	R	-
Neophema splendida	Scarlet-chested Parrot	R	-
Notomys cervinus	Fawn Hopping-mouse	V	-
Notomys fuscus	Dusky Hopping-mouse	V	VU
Pachycephala inornata	Gilbert's Whistler	R	-
Sminthopsis psammophila	Sandhill Dunnart	V	E
Taphozous hilli	Hill's Sheath-tailed Bat	R	-
Turnix varius varius	Painted Buttonquail	R	-
Tyto novaehollandiae novaehollandiae	Australian Masked Owl	E	-
Varanus brevicauda	Short-tailed Pygmy Goanna	R	-
Nullarbor Plain Sub-Region			
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R	-
Ardeotis australis	Australian Bustard	V	-
Hieraaetus morphnoides	Little Eagle	V	-
Leporillus conditor	Greater Stick-nest Rat	V	VU
Yalata Sub-Region			
Acanthiza iredalei iredalei	Slender-billed Thornbill (western)	R	-
Ardeotis australis	Australian Bustard	V	-
Arenaria interpres interpres	Ruddy Turnstone	R	-
Calidris alba alba	Sanderling	R	-
Calidris tenuirostris	Great Knot	E	CE
Corcorax melanorhamphos	White-winged Chough	R	-
Ctenophorus mckenziei	McKenzie's Dragon	R	-
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	R	-
Haematopus longirostris	Pied Oystercatcher	R	-
Hieraaetus morphnoides	Little Eagle	V	-
Hylacola cauta cauta	Shy Heathwren (EP, YP, FR, MM, upper SE)	R	-
Leipoa ocellata	Malleefowl	V	VU
Lerista arenicola	Beach Slider	R	-
Lichenostomus cratitius occidentalis	Purple-gaped Honeyeater (mainland SA)	R	-
Lophochroa leadbeateri	Major Mitchell's Cockatoo	R	-
Lophoictinia isura	Square-tailed Kite	E	-
Mesoplodon grayi	Gray's Beaked Whale (Scamperdown Whale)	R	-
Morelia spilota	Carpet Python	R	-
Myiagra inquieta	Restless Flycatcher	R	-
Neophema splendida	Scarlet-chested Parrot	R	-
Northiella narethae	Naretha Bluebonnet	R	-
Pachycephala inornata	Gilbert's Whistler	R	-
Pandion haliaetus cristatus	Eastern Osprey	E	-
Sminthopsis psammophila	Sandhill Dunnart	V	E
Thinornis cucullatus cucullatus	Hooded Plover	V	VU
Varanus rosenbergi	Heath Goanna	V	-
Maralinga Sub-Region			
Anhinga novaehollandiae novaehollandiae	Australasian Darter	R	-
Ardeotis australis	Australian Bustard	V	-

/cont…

Cinclosoma castanotum	Chestnut Quailthrush (Chestnut-backed Quailthrush)	R	-
Climacteris affinis	White-browed Treecreeper	R	-
Falco subniger	Black Falcon	R	-
Hieraaetus morphnoides	Little Eagle	V	-
Hylacola cauta cauta	Shy Heathwren (EP, YP, FR, MM, upper SE)	R	-
Leipoa ocellata	Malleefowl	V	VU
Lophochroa leadbeateri	Major Mitchell's Cockatoo	R	-
Neelaps bimaculatus	Western Black-naped Snake	R	-
Neophema splendida	Scarlet-chested Parrot	R	-
Pachycephala inornata	Gilbert's Whistler	R	-
Commonwealth Hill Sub-Region			
Ardeotis australis	Australian Bustard	V	-
Falco peregrinus macropus	Peregrine Falcon	R	-
Falco subniger	Black Falcon	R	-
Hieraaetus morphnoides	Little Eagle	V	-
Neophema elegans elegans	Elegant Parrot	R	-
Nyctophilus gouldi	Gould's Long-eared Bat	E	-
Kingoonya Sub-Region			
Climacteris affinis	White-browed Treecreeper	R	-
Falco peregrinus macropus	Peregrine Falcon	R	-
Hieraaetus morphnoides	Little Eagle	V	-
Pseudomys australis	Plains Mouse	V	VU
Eyre Mallee Sub-Region			
Ardeotis australis	Australian Bustard	V	-
Bubulcus ibis coromandus	Eastern Cattle Egret	R	-
Calidris alba alba	Sanderling	R	-
Calidris ferruginea	Curlew Sandpiper	E	CE
Cereopsis novaehollandiae (NC)	Cape Barren Goose	R	-
Cladorhynchus leucocephalus	Banded Stilt	V	-
Corcorax melanorhamphos	White-winged Chough	R	-
Egretta sacra sacra	Pacific Reef Heron	R	-
Haematopus fuliginosus fuliginosus	Sooty Oystercatcher	R	-
Haematopus longirostris	Pied Oystercatcher	R	-
Haliaeetus leucogaster	White-bellied Sea Eagle	E	-
Hieraaetus morphnoides	Little Eagle	V	-
Lophochroa leadbeateri	Major Mitchell's Cockatoo	R	-
Morelia spilota	Carpet Python	R	-
Myiagra inquieta	Restless Flycatcher	R	-
Neophema petrophila zietzi	Rock Parrot	R	-
Neophema splendida	Scarlet-chested Parrot	R	-
Pachycephala inornata	Gilbert's Whistler	R	-
Pandion haliaetus cristatus	Eastern Osprey	E	-
Thinornis cucullatus cucullatus	Hooded Plover	V	VU
Zanda funerea whiteae	Yellow-tailed Black Cockatoo	V	-

* National Parks and Wildlife Act 1972 (NPW Act) conservation status includes extinct (Ex), endangered (E), vulnerable (V), and rare (R).

† Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) listings include extinct, extinct in the wild, critically endangered (CE), endangered (E), vulnerable (VU) and conservation dependent.

EPBC listed threatened fauna predicted to occur within the exploration tenement areas are listed in Table 7.

Table 7. EPBC listed threatened fauna predicted to occur within the exploration tenement areas

Species	Common name	Threatened Category
Calidris canutus	Red Knot, Knot	E
Calidris ferruginea	Curlew Sandpiper	CE
Falco hypoleucos	Grey Falcon	VU
Leipoa ocellata	Malleefowl	VU
Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit	VU
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	CE
Pedionomus torquatus	Plains-wanderer	CE
Pezoporus occidentalis	Night Parrot	Presumed Ex
Phoebetria fusca	Sooty Albatross	VU
Polytelis alexandrae	Princess Parrot, Alexandra's Parrot	VU
Pseudomys australis	Plains Rat, Palyoora, Plains Mouse	VU
Pterodroma mollis	Soft-plumaged Petrel	VU
Sminthopsis psammophila	Sandhill Dunnart	E
Sternula nereis nereis	Australian Fairy Tern	VU
Thinornis cucullatus cucullatus	Eastern Hooded Plover, Eastern Hooded Plover	VU

* National Parks and Wildlife Act 1972 (NPW Act) conservation status includes extinct (Ex), endangered (E), vulnerable (V), and rare (R).
† Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) listings include extinct, extinct in the wild, critically endangered (CE), endangered (E), vulnerable (VU) and conservation dependent.

References for Table 1 to Table 7

Dawe 2021, Protected Matters Search Tool, Australian Government, accessed January 2022 via https://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf
Department for Environment and Water, n.d.b, NatureMaps, Government of South Australia, accessed 22 December 2021 via http://spatialwebapps.environment.sa.gov.au/naturemaps/?locale=en-us&viewer=naturemaps
Dee (2020). BDBSA Metadata - Vascular Plant Taxonomy. Webpage accessed: http://www.environment.sa.gov.au/Science/Information_data/Biological_databases_of_South_Australia. Date accessed: 24/01/2022

Environmentally sensitive locations

Are there any environmentally sensitive locations within or close to the proposed exploration area (e.g. areas having particular ecological, cultural, scientific, aesthetic or conservation value)? If yes, provide a description of identified environmentally sensitive location(s). Mark these areas on a locality plan to identify any areas of conflict so that access roads or other activities can be planned and located effectively.	Yes ☒	No ☐

The majority of the tenement area is located within the Yellabinna Regional Reserve with portions of the western tenements located within the Nullarbor Regional Reserve. The Yellabinna Wildernes Protection Area is adjacent to the eastern tenements and the Wahgunyah Conservation Park is adjacent to the south western tenements. Yumbarra Conservation Park is located to the south of the south eastern tenements. DEW manage the Parks and Reserves under the *National Parks & Wildlife Act* and the Wilderness Protection Area under the *Wilderness Protection Act*. Native Vegetation Heritage Areas are located within EL6376 and EL6543. The location of all of these environmentally sensitive locations are shown on Map 2.

Yellabinna Regional Reserve

The majority of the Eucla Basin Project tenements (EL5878, EL5879, EL5947, EL6159, EL6251, EL6369, EL6461, EL6462, EL6544 and EL6545) are located within the Yellabinna Regional Reserve. The Yellabinna Regional Reserve extends over an area of 2,000,896 ha. The Governor of South Australia proclaimed the Yellabinna Regional Reserve under section 34A of the National Parks and Wildlife Act 1972 on 25 January 1990 for the conservation of wildlife and natural features while at the same time permitting the use of its natural resources. The Yellabinna Regional Reserve consists of large areas of red quartzitic sand dunes with mallee, mulga an spinifex and supports a number of rare, vulnerable and endangered species.

Nullarbor Regional Reserve

The western tenements EL6159 and EL6251 have portions located within the Nullarbor Regional Reserve. The Nullarbor Regional Reserve extends over 2,281,244 ha. The Governor of South Australia proclaimed the Nullarbor Regional Reserve on 31 August 1989. The reserve is located 1,000km northwest of Adelaide on the South Australian and Western Australian border between the Great Australian Bight and the Trans-Australian Railway. The Nullarbor Regional Reserve conserves the largest semi-arid karst landscape in the world and of the Nullarbor Plain, which has an extensive limestone karst extending over 2,000km between Norseman and Ceduna with numerous caves containing artefacts that provide evidence that Indigenous people have survived in the region for over 40,000 years. The Nullarbor Regional Reserve provides habitat for many plant species and culturally significant animals.

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Yellabinna Wilderness Protection Area

The Yellabinna Wilderness Protection Area is adjacent to the eastern tenements and extends over an area of 500,706 ha. The Governor of South Australia proclaimed the Yellabinna Wilderness Protection Area under the Wilderness Protection Act for the conservation of natural and cultural values. The Yellabinna Wilderness Protection Area contains one of the largest and most intact natural areas in South Australia, being particuraly important for the conservation of natural vegetation communities and culturally significant sites such as Mt Finke. Exploration and mining are not permitted in the Wilderness Protection Area and the construction of roads is prohibited. Iluka will not be accessing the Yellabinna Wilderness Protection Area.

Wahgunyah Conservation Park

The Wahgunyah Conservation Park is adjacent to the south western tenements and extends over an area of 48,354 ha. The Wahgunyah Conservation Park supports dense coastal mallee and coastal heath understory as well as culturally significant sites to the Far West Cost Aboriginal people. Exploration and mining are not permitted in the Conservation Park and the construction of roads is prohibited. Iluka will not be accessing the Wahgunyah Conservation Park.

Yumbarra Conservation Park

The Yumbarra Conservation Park is located to the west of EL6542 and extends over an area of 324,352 ha. The Yumbrra Conservation Park contains natural and culturally significant sites to the Far West Cost Aboriginal people, such as the Yumbarra Rock Hole. The Park also upports a number if rare, vulnerable and endangered species including a major population of sandhill dunnart. Exploration and mining are not permitted in the Conservation Park and the construction of roads is prohibited. Iluka will not be accessing the Yumbarra Conservation Park.

Native Vegetation Heritage Agreement Areas

Native Vegetation Heritage Agreements are a contract between a landholder and the South Australian Government to enable the protection of native vegetation on a property owner's land. Native Vegetation Heritage Agreement Areas are located within EL6376 and EL6543. Iluka will not be accessing the Native Vegetation Heritage Agreement Areas.

Are you likely to impact on the environmentally sensitive area? If yes, detail the likely effects the proposed program may have.	Yes ☒	No ☐

The impact of the exploration programmes will be limited to ground cover vegetation which will occur by vehicle movement through the tenement area.

Include a statement concerning whether or not an Aboriginal heritage survey has been conducted by the proponent and if so, the results of the survey.

The Gugadu, Wirangu and Mirning people comprise the Far West Coast Native Title Claim Group, whose claim includes the tenement areas. Under the terms of the Native Title Mining Agreement between Iluka Resources and the Far West Coast Aboriginal Corporation, Iluka requests cultural heritage clearance surveys prior to proposed drilling programs and project works being undertaken. The recommendations from the heritage clearance survey inform where work can be undertaken.

SECTION D– DESCRIPTION OF PROPOSED EXPLORATION OPERATIONS

Include a description of the proposed operations. Each of the elements listed in below must be described only to the extent that they apply to the proposed exploration program.

Exploration scope

Describe the scope of the proposed exploration operations and detailing the following:

- all exploration methods to be covered by the PEPR.
- extent of exploration operations – e.g. drillhole spacing and drill line density.
- geographic extent of the area covered by the PEPR, including a general locality plan with tenement details, landowner boundaries and areas with environmental classifications or sensitivities.
- specific environments where exploration operations will not be conducted – e.g. parks, reserves, salt lakes etc.

SCOPE OF WORKS

The scope of works may include all or some of the following actions, as deemed appropriate for the size and location of each individual work program, on the current exploration licences and licences granted from the EL Applications listed in Section A and shown on Figure 1.

Reconnaissance

Iluka undertake reconnaissance prior to conducting drilling and associated activities, identifying the access routes to target areas and camps. The route for reconnaissance is determined in conjunction with the DEW regional officer (for parks and reserves) on behalf of the landowner.

Reconnaissance personnel follow a route established during desktop planning to determine the suitability of this route and to refine it, taking into account existing tracks, accessibility, vegetation, sites of significance and dune access. Drones may be used for short distances. Field personnel record the reconnaissance routes using a GPS unit and store the track logs.

Track creation and maintenance

As far as is practical, existing tracks are used, and these may need to be re-cleared or upgraded. When existing tracks are not available, new tracks are created. Tracks are created either using a dozer and rock roller or in some cases a wheeled loader with bucket up or scrub rake attachment. Both upgrading of existing tracks and creation of new tracks follow established and tested procedures designed to minimise environmental impact and improve the likelihood of successful rehabilitation.

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Use of vehicles

Drilling will be undertaken using track mounted rigs and track mounted support vehicles in dune areas where possible but may utilise a 4WD light vehicle or light truck mounted rig and support vehicle depending on local environment and track conditions.

Helicopter support

Helicopter(s) may be used to provide assistance with drilling activities, including aerial reconnaissance, passenger charter and emergency response. The helicopter will operate out of an established base camp, in all likelihood the Jacinth mine camp and airfield, and will ferry field personnel, consumables and drill samples on a daily basis to and from designated, cleared landing zones within the drill operations area.

Iluka maintains an aircraft charter operator policy that specifies a minimum standard of a turbine-powered helicopter. Charter operators are subject to a strict prequalification process prior to working for Iluka in the Eucla Basin.

EXPLORATION METHODS

Exploration Methods to be covered by this PEPR are surface sampling, augering, geophysical surveys and drilling.

Surface Sampling

Soil sampling is undertaken by digging a shallow hole into the ground with a trowel and collecting 1 – 2 kg of surface soil into calico bags.

Hand or Power Head Augering

Iluka use the hand or power head augering method during early exploration work for augering holes up 30 metres deep. The auger drives a hollow probe into soft ground. Personnel use augering during reconnaissance to eliminate non-prospective ground at an early stage.

Geophysical Surveys

Geophysical surveys may include the following across the tenement area and are described in more detail in the section "*Other exploration methods and/or ancillary operations*":

- airborne survey;
- gravity survey;
- ground electromagnetic survey;
- moving loop electro Magnetic survey;
- passive seismic survey; or
- ambient noise tomography survey.

Drilling

Exploration drilling includes Regional Stratigraphic Drilling and Targeted Shoreline programs. Table 8 presents information about the scope and scale of the program types including their line and hole spacing. The depth of holes for mineral sands drilling range between 10 and 100 metres, but occasionally deeper as required. The depth of holes for non-HM (Ni, Cu) range between 80-800m.

Table 8: Types of drill programs - their length and spacing

Drill program type	Purpose	Line Length	Line spacing	Collar spacing	Infill drilling	Edge definition
Stratigraphic	Regional scale drilling for improving geological understanding Mineral sands	20 – 100km	5 – 20km	1000m	100m	N/A
Targeted shoreline	Test specific interpreted or known shorelines Mineral Sands	5 – 30km	1 – 5km	400m	100m	50m
Magnetic anomaly targets	Non-HM nickel, copper etc.	Discrete magnetic anomalies	Discrete magnetic anomalies	To be assessed on a case by case basis, via Program Notification	To be assessed on a case by case basis, via Program Notification	N/A

Aircore Drilling

Aircore drilling is conducted on long broad spaced traverses aiming to intercept targeted shorelines. The drilling is confined to the access track.

The air core drilling uses 'NQ' sized drill-string which creates a drill hole approximately 75mm in diameter. Drill rigs extract approximately 4.5 kg of cuttings per metre of drilling and 1.5 kg to 2.0 kg of this is for logging and assaying where necessary. Iluka record the depth, number and location of drill holes. Drilling density for aircore is regional in scale with traverses spaced at greater than one kilometre and holes drilled spaced down to 100 metre along traverses.

Reverse Circulation Drilling

The Reverse Circulation (RC) drilling uses 'HQ' sized drill-string which creates a drill hole approximately 120mm in diameter. Drill rigs extract approximately 5- 20 kg of cuttings per metre of drilling and 1.5 kg to 2.0 kg of this is for logging and assaying where necessary. Holes will be cased with PVC to prevent cave-in from unconsolidated sediments, the casing will be removed at the end of the hole and if not completely removed will be cut off and capped below surface as per DEM M21 Earth Resources Information Sheet. RC drilling is most often used for non-HM drilling and targeting of basement magnetic anomalies.

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Diamond Core Drilling

Iluka propose to conduct diamond drilling only at sites where RC drilling results are favourable. Diamond core drilling is conducted at non-HM RC drilling targets where the RC drilling results warrant further investigation. Diamond core drilling uses a diamond bit on the end of the drill string, that rotates and allows a solid column of rock to move up the drill pipe and be recovered at surface. Core is recovered in 3 or 6m runs, and boxed up to be logged and sampled. The outside diameter of the hole can vary from 48mm to 122.6mm depending on the diameter of rock core required. Diamond core allows for detailed structural and geotechnical analysis as well as providing a wealth of geological and geochemical information.

Sonic Drilling

Sonic drilling is a technique, where a high-frequency vibration is combined with rotation to advance the drill stem. The core barrel is retrieved, and the sample vibrated into a plastic sleeve or core trays. This technique is relatively continuous and undisturbed geological samples are obtained generally without the need for drilling fluids or other potential contaminants. There is minimal drilling fluid circulation loss. This technique is best suited to drilling unconsolidated formations but is also capable of drilling through rock. Typically, holes are drilled to 150mm diameter with 100mm core extracted.

Soil Extraction

Iluka extract soil/mineral samples for analysis using techniques as mentioned previously – most commonly by soil sampling, augering and aircore drilling. Table 9 summarises the purpose and scope for each of these methods.

Table 9: Soil extraction methods used during exploration

Technique	Purpose	Description	Transport / Access
Soil sampling	Surface soil sampling	1 – 2kg of surface soil collected in calico bags	• Polaris / UTV • 4WD • Helicopter • Foot
Hand or power head augering	Sub surface sampling to 30m depth	50kg sample from holes 0 – 30m in depth	• 4WD • Helicopter • Polaris / UTV
Air core drilling	Soil/ mineral sampling up to 100m	Vehicle mounted drill rig holes 0 – 100m in depth	• Track/truck mounted rig • 4WD or light truck support vehicle
Reverse circulation	Soil/ mineral sampling up to 100m	Vehicle mounted drill rig holes 0 – 250m in depth	• Track/truck mounted rig • 4WD or light truck support vehicle
Sonic drilling	Soil/ mineral sampling up to 100m	Vehicle mounted drill rig holes 0 – 100m in depth	• Track/truck mounted rig • 4WD or light truck support vehicle

EXCLUSIONS

Heritage

Iluka exploration does not drill within 50 metres of aboriginal heritage sites. Where field crews suspect that site maybe of heritage value the Iluka supervisor will:

- Contact the DEW Heritage Branch to ascertain details;
- Apply an exclusion zone of 200m;
- Consult the Geological Monument subcommittee (in the case of Geological Monuments); and
- The location of these sites, exclusion zone requirements and statement of consultation and summary of outcomes will be included in the program notification documentation.

Salt Lakes and Clay Pans

Salt lakes and clay pans are particularly susceptible to soil disturbance, vegetation disturbance and weed invasion. Additionally they usually are of Aboriginal heritage significance. An exclusion zone of a minimum of 200m will be applied to all salt lakes and clay pans.

Townships and Settlements

Iluka does not conduct any activties in any area within 400m of townships or settlements.

Designated Exploration Licences

Iluka does not conduct any activties in any lands outside the designated exploration licences.

Vegetation Heritage Agreement Areas

A Vegetation Heritage Agreement is a contract between a landholder and the South Australian Minister for Environment and Conservation relating to the protection of a particular area of native vegetation. The Agreement is registered on the land title (DWLBC 2009). Iluka does not conduct any activities within Vegetation Heritage Agreement areas.

PEPR REVIEW TRIGGERS

- The identification of new potential impacts, that would affect achievement of agreed outcomes;
- A substantial change to land tenure;
- Program notification not within the scope of the PEPR; and
- Upon request by DEM through Mining Act provision (e.g. due to non-compliance issues).

Equipment and personnel requirements

Describe the maximum composition of field crews (operator, contractors, and geologists) and proposed working hours/days for each type of activity.

Maximum personnel numbers depend on the number of drill rigs deployed. Usually one air core rig will suffice but it is conceivable that a second rig may be required to complete a program within required timeframes.

A typical staff plan, per rig, for air core drilling is as follows:

- 1 x geologist (Iluka or contracted);
- 1 x field assistant/technician (Iluka or contracted);
- 3 x drilling contractor personnel; and
- Occasional Iluka HSEC inspector/visitor.

A typical staff plan, per rig, for diamond drilling is as follows:

- 1 x geotechnical engineer/geologist (Iluka or contracted);
- 2 x field assistant/safety supervisor (Iluka or contracted);
- 3 x drilling contractor personnel; and
- Occasional Iluka HSEC inspector/visitor.

A typical staff plan, per rig, for hydrogeological drilling is as follows:

- 1 x hydrogeologist (Iluka or contracted);
- 1 x field assistant/safety supervisor (Iluka or contracted);
- 3 x drilling contractor personnel; and
- Occasional Iluka HSEC inspector/visitor.

A typical staff plan, for preparation and rehabilitation of tracks and drill clearings is as follows:

- 3 x Iluka/ contractor personnel.

All programs in the Yellabinna Regional Reserve are supported by a designated Logistics co-ordinator who provides logistical support to the teams, manages safety in the field and is responsible for track maintenance and monitoring rehabilitation compliance.

All personnel typically work 10-12 hours per day during daylight hours, 7 days a week, on a rotating roster. During winter months some site travelling may occur before sunrise to maximise daylight time at the rig.

Using the table below, describe the equipment (size, number and contractor details) required to conduct the proposed operations.

Equipment type	Owner/operator	Description/capacity	Activity/purpose
Truck mounted 4WD drill rig (multipurpose) (Photo 5)	Drill contractor	UDR1000 or Mantis 150 or similar equipment (to be confirmed with contractor)	Aircore, reverse circulation drilling, diamond drilling, rotary mud and air percussion drilling
Truck mounted 4WD sonic drill rig (Photo 6)	Drill contractor	LS600 Boart Longyear or Terrasonic, mounted on a freight liner heavy rigid truck	Sonic drilling
Track mounted drill rig (Photo 7)	Drill contractor	X350, Mantis 150 or similar, mounted on a VD3000 Morooka track base	Aircore, reverse circulation drilling
Track mounted support vehicle (AC) (Photo 7)	Drill contractor	X350 mounted on a VD3000 Morooka track base	Carry/supply water, fuel and supplies for rig
Track mounted diamond drill rig (Photo 8)	Drill contractor	Comacchio 450P1 rig mounted on a track base	Diamond drilling
Ancillary support vehicle truck	Drill contractor	<10 tonnes	Carry/supply water, fuel and supplies for rig
4WD vehicle	Iluka, Iluka Contractor or Drill Contractor	Standard 4WD, either single or dual cab	Reconnaissance, field support activities, drilling and rehabilitation
4WD logger (Photo 9)	Iluka or Iluka contractor	4WD single or dual cab ute, with canopy over tray	Drill and geology movement to/from rig. Also used for geological logging and sampling at rig
Utility Terrain Vehicle (Photo 10)	Iluka or Iluka contractor	Side by side UTV vehicle. Carries two to four people and minimal equipment	For reconnaissance prior to drilling and associated activities during drilling, i.e. scouting ahead when creating tracks
Skid steer or track loader (Photo 11)	Iluka or Iluka contractor	Small engine powered machine with shoevel/bucket on the front	Dig drill sumps
Backhoe (Photo 12)	Iluka or Iluka contractor	Tractor-like unit fitted with a loader-style shovel/bucket on front and backhoe on the back	Dig drill sumps

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4WD light truck or similar with trailer (Photo 13)	Iluka or Iluka contractor	Standard 4WD truck with dual axle trailer	Reconnaissance, field support, water transport, sample transport and rehabilitation
D6 dozer towing a roller (Photo 14)	Iluka or Iluka contractor	D6 dozer Roller is a water filled cylinder 1.2m high & 3.4m wide, weighing ~8tonne	Dozer used for towing roller and establishing access tracks. Dozer blade may be used for benching or cutting of dunes to establish safe drill platforms
Forklift or Tele-handler (Photo 15)	Iluka or Iluka contractor	Machine with a forklift fitted on a boom, allowing it to act like a crane	Loading & unloading trucks at exploration camps or drill sites
4X4 tractor (Photo 16)	Iluka or Iluka contractor	Either small 4x4 tractor or large agricultural 4x4 tractor	Towing caravans and/or water carts to remote sites in the sand dunes using a large agricultural 4x4 tractor. Rehabilitation of legacy tracks (where required) using a small 4x4 tractor with a disc plough or ripper
Cat 740 articulated water truck	Iluka contractor	6 Wheeled articulated truck carrying 8,000 gallons of water	Track construction
4x4 truck	Iluka or Iluka contractor	<10 tonnes	For water carting
Scarifier (Photo 17)	Iluka or contractor	Device purchased from PIRSA for scarifying tracks to assist rehabilitation	For track rehabilitation
Tyre dragging frame(Photo 18)	Iluka or contractor	Metal frame with 5 tyres attached and a connecting chain yoke	For ongoing track maintenance
Helicopter (Photo 19)	Charter	Turbine-powered helicopter, at minimum: Bell 206 Long Ranger (6 passenger) or equivalent	Reconnaissance, field exploration activities support and rehabilitation
Aviation fuel truck (Photo 20)	Licenced and VOC contractor only	5,000 - 30,000L Fuel Truck	Refuelling of helicopter.
Tromino passive seismic meter (Photo 21)	Iluka or Iluka contractor	Geophone-like in appearance and measures low frequency earth movements	Passive seismic surveys
Ambient noise tomography passive seismic meter (Photo 22)	Iluka or Iluka contractor	Geophone-like in appearance and measures low frequency earth movements	Ambient noise tomography passive surveys
Gravity survey equipment (Photo 23)	Iluka or Iluka contractor	Base station and ground based instrument to measure density properties of subsurface	Gravity surveys
Magnetometer (Photo 24)	Iluka or Iluka contractor	Measures direction and strength of the magnetic field at a particular location	Ground magnetic surveys

Low impact exploration activities

Will low impact exploration operations be conducted that are not covered by the Generic program for environment protection and rehabilitation – low impact mineral exploration in South Australia, (generic PEPR)? If yes, describe each type of low impact operations proposed.	Yes ☒	No ☐

The following low impact activities will take place within the Yellabinna Regional Reserve and the Nullabor Regional Reserve:

- Reconnaissance
- Using drones for short distances in reconnaissance work
- Heritage surveys
- Surface sampling
- Soil sampling
- Sampling using hand held augers
- Geophysical techniques (gravity surveys, magnetic surveys, ground penetrating radar surveys, aeromagnetic surveys, passive seismic surveys, ambient noise tomography passive surveys)
- Digging shallow holes (30cm deep) into the ground with a trowel on a 50m x 50m grid to bury sensor in each hole to measure passive seismic waves for duration of 1 week for ambient noise tomography passive surveys
- Environmental studies required to support the development of a RL/ML application and a PEPR submission, which are not reasonably expected to have any significant adverse impacts on the environment.

Passive Seismic

Passive seismic (refer Photo 21) is a very low impact exploration activity that Iluka Resources uses to define basement architecture. No site preparation or vegetation clearance is required, access to the area under investigation is by using existing tracks and using a UTV to access off track areas.

Geophysical survey locations are usually located along east west traverses which are repeated at different northings. Station spacing ranges from between 50 and 400m centres, with the passive seismic meter placed on the ground surface. Off track geophysical survey locations are accessed utilising a small UTV. The impact on vegetation is limited to light compaction when driving between survey locations. No vegetation clearing is required to access survey locations. To minimise the visibility of UTV tracks in close proximity to main tracks a speed limit of 10km/h will be enforced within 50m of access tracks. Speed limits of UTV's will be limited to 30km/h when driving off tracks.

Ambient Noise Tomography Passive Seismic

Ambient Noise Tomography passive seismic is a very low impact exploration activity used to determine depth of cover and basement structures. No site preparation or vegetation clearance is required, access to the area under investigation is by using existing tracks and using a UTV to access off track areas.

Geophysical survey locations are usually located on a 200m x 200m grid, although the grid spacing could vary down to 50m x 50m. Shallow holes (30cm deep) are dug with a trowel at the grid intersections and a sensor buried in each hole to measure passive seismic waves for the duration of one week (refer Photo 22). Sensors are retrieved after the survey is completed. Off track geophysical survey locations are accessed utilising a small UTV. The impact on vegetation is limited to light compaction when driving between survey locations. No vegetation clearing is required to access survey locations. To minimise the visibility of UTV tracks in close proximity to main tracks a speed limit of 10km/h will be enforced within 50m of access tracks. Speed limits of UTV's will be limited to 30km/h when driving off tracks.

Airborne Surveying

Airborne survey techniques including geophysical and radiometric methods, are used occasionally across the tenements areas. Such surveys utilize existing airstrips within the region and are flown by fixed wing aircraft.

Gravity Surveying

This geophysical method measures the changes in the Earth's gravitational field. Changes in the Earth's gravitational field occur when there are large scale density changes between lithologies. For example gravity methods can discern between sand and subsurface granite. The change in the gravitational field around sand and shallow granite bodies assists in Iluka's targeting efforts, and helps minimise disruption in the local environment.

Gravity methods use a base station and a ground based instrument tied to a peg driven into the ground (refer Photo 23). Field personnel carry the ground based instrument in a 4WD (or in a backpack) along defined traverses. Measurements are made by placing the instrument on the ground for several minutes. This reading is cross referenced with the base station measurement. Environmental impacts are limited to access via 4WD, UTV or by foot traffic.

Ground Electromagnetic Survey

Iluka Resources conduct ground electromagnetic (EM) geophysical surveys to identify conductive (i.e. metalliferous) zones at depth and to define targets for further exploration (e.g. drilling).

The Moving Loop Electro Magnetic Survey Method (MLEM) is a low impact method for measuring the geoelectric section of the earth generally for environmental, forensic or mineral exploration. A generator drives an electric current around a wire loop to create a primary magnetic field (refer Photo 24).

For mineral exploration, personnel drag four wires (generally 200 metres long) on foot or UTV, and then connect the wires to create a square or rectangle loop. The transmitter, generally carried on an UTV, will transmit from a corner of the loop. The secondary magnetic field is observed using a small induction coil located in the centre of the loop and data logger such as a tough book. On completion of an observation the loop is then moved along line one half a loop size generally being 100m.

The transmitter is generally powered by a small generator or batteries to around 100VDC and around 30 amperes. This creates a primary field of around 120nanoTesla (nT) in a bi-polar square waveform. The Earth's field in Perth is 60000nT so the inducing field is quite small compared to those encountered in nature and are considered harmless. The secondary fields are very small and measured in picoTesla (pT).

/cont…

This is a non-invasive safe method for environmental and mineral surveying. Iluka assess the risks to public safety and advise landowners and other at risk groups that an EM survey is in progress and that they should stay clear of the survey area.

Equipment required for the ground EM survey includes:

- 240 volt petrol Honda portable generator;
- Rectifier;
- ZT30 geophysical transmitter;
- UTV/s; and
- 4 mm insulated copper wire - ~200 metre lengths.

The ZT30 will output into a 200m x 200m square loop of 4mm insulated copper wire. The 200 metre wire lengths will be laid on the ground using personnel on foot or UTV and joined to create the loop. Existing tracks are used where possible however, off-track UTV / foot traffic traversing is generally required to create the loop.

The ZT30 will be connected to a geophysical transmitter controller that can be set by the operator. Generally the output from the transmitter will be a square wave at 1Hz to 4Hz at 20A. When the transmitter loop has been energised and stable, the receiver operator will collect measurements of the resulting electromagnetic fields. The receiver operator is positioned in the centre of the 200m x 200m loop and is approximately 100m away from any live wires. The measurement takes approximately 5 minutes to collect.

During the data acquisition period the loop operators keep well away from the transmitter wires, or are engaged in pulling the back wire to the front of the loop. No one will be crossing the cables or moving within the loop when the transmitter is operation.

When the data has been collected for a station the transmitter system is shut down and the transmitter, the receiver and the loop are moved forward 100m to the next station. All of the equipment is moved by hand or UTV/s with the loop wires being carefully dragged into place.

When the loop is in place and connected all personnel move away from the loop and the process starts again. This procedure is repeated along a grid line to create a profile of soundings that is used to build a model of conductive potential targets for further exploration methods.

The survey crew can read up to 25 stations per day dependent on terrain and access within the survey area. Because of this, the survey crew could be a long way away from the start position of the day. Generally the surveys are conducted on grids to produce a map of the data, so the total survey area is often limited to a footprint of several square kilometres.

Drilling Operations

Will exploration drilling activities be conducted? If yes, identify all the drilling methods that may be used.										Yes ☒	No ☐
AC	**RAB**	**RM**	**RC**	**DD**	**AC/DD**	**RAB/DD**	**RM/DD**	**RC/DD**	**Vibracore**	**Auger**	**Other**
☒	☒	☒	☒	☒	☐	☐	☐	☒	☐	☒	☒

AC = aircore, RAB = rotary air blast, RM = rotary mud, RC = reverse circulation, DD = diamond drilling, AC/DD = aircore with diamond tails, RAB/DD = rotary air blast with diamond tails, RM/DD= rotary mud with diamond tails, RC/DD = reverse circulation with diamond tails.

Where 'Other' drilling method is selected, provide a description of the drilling method.

Sonic Drilling

Sonic drilling is a technique, where a high-frequency resonant energy generated inside the sonic drill head is used to advance the drill stem into subsurface formations. During drilling, the resonant energy is transferred down the core barrel to the bit face at various sonic frequencies. Simultaneously rotating the drill string evenly distributes the energy and impact at the bit face. The core barrel is retrieved, and the sample vibrated into a plastic sleeve or core trays. This technique is relatively continuous and undisturbed geological samples are obtained generally without the need for drilling fluids or other potential contaminants. There is minimal drilling fluid circulation loss. This technique is best suited to drilling unconsolidated formations but is also capable of drilling through rock. Typically, holes are drilled to 150mm diameter with 100mm core extracted.

Drillsite preparation

If exploration drilling activities are proposed, describe the methods used to prepare sites, including vegetation clearance requirements, site levelling and digging of sumps.

Air Core Drilling

The equipment selected for air core drilling programs have a small footprint and drilling can occur within the width of a track (~3.5m wide), with all vehicles (including truck or track-mounted rig, support truck and 4WD light vehicles) working in single file. When the drill rig and other vehicles line up on a drill site, hazards and obstructions that may impede movement around the drill site are moved along with any combustible materials to manage fire hazards.

Drill holes are sited in a manner that minimises the risk of erosion. Note that whilst some tolerance is provided for drill hole placement, drilling on a nominal 25m spacing on section will require some holes to be drilled on dune slopes and possibly also on dune crests. This may require benching or cutting of the dunes with the dozer blade or bobcat to establish safe drill platforms. The minimum area required for safe operation would be disturbed and the disturbed sand will be pushed sideways either side of the track to assist in subsequent rehabilitation.

Sumps to catch overflow material during the drilling process will be dug by skid steer or by hand, as dictated by the size of sump required. Branches, rocks, leaf litter, bark and twigs will be removed from a small area for the sump and stockpiled. If any vegetation is uprooted, care will be taken to preserve as much of the root ball as possible and placed in a shady position. Topsoil and subsoil dug up will be stockpiled separately and replaced in sequence.

Diamond / RC / Sonic Drilling

For diamond, RC and sonic drilling an area of 30m x 20m provides sufficient space for the drilling rig, supporting work and laydown of equipment and consumables, and allows some flexibility for turning equipment around. Within this area vegetation clearance will be minimised. The placement of the drill rig and other vehicles at a drill site, will consider hazards and obstructions that may impede movement around the drill site, along with any combustible materials, to manage fire hazards. Equipment will be placed and operate directly on the intact ground surface. Some hand trimming of branches and understorey vegetation may be required. A typical arrangement is shown in the figure below. There will be no

wholesale topsoil or vegetation clearance of drilling areas. The only area requiring physical removal of the topsoil in the drilling area will be the mud sumps.

Drillholes are sited in a manner that minimises the risk of erosion. Drillhole placement will target the swales between the dunes. The minimum area required for safe operation would be disturbed and the disturbed sand will be pushed sideways either side of the track to assist in subsequent rehabilitation.

Sumps will be dug by a backhoe (Photo 25). Sumps are required to catch overflow material and water return during the drilling process (Photo 26). Each diamond and RC drill site will require one sump, 2m x 3m x 2m deep, with one side sloped to allow animal egress if required. Branches, rocks, leaf litter, bark and twigs will be removed from a small area for the sump and stockpiled. If any vegetation is uprooted, care will be taken to preserve as much of the root ball as possible and this will be placed in a shady position. Topsoil and subsoil dug up will be stockpiled separately and replaced in sequence.

For sonic drilling, a shallow excavated sump (2m x 3m 2m deep), vacuum truck and transportable tank (Photo 27) is used to collect water return and drill cuttings at the drillhole locations.

Drillhole construction and decommissioning

Have the personnel responsible for implementing the proposed program read and understood the Earth Resources Information Sheet M21, Mineral exploration drillholes – general specifications for construction and backfilling?	Yes ☒	No ☐

Describe how drillholes will be constructed, including the casing material to be used, depth of casing, if the casing will be cemented, cementing intervals and the class of driller that will install the casing.

Air core drilling

Air core drilling (Photo 28) uses NQ sized drill-string that creates a hole approximately 75mm in diameter. The hole is open and does not require casing. Most commonly a blade bit is used to break ground and drilled cuttings are lifted to surface via the inner tube with compressed air. At surface, the cuttings are collected in a cyclone unit. If harder ground is encountered different bits, suited to the task, are used, i.e. a rock roller, hammer or PCD bit. Drilling is sometimes completed using no drilling fluids, however if necessary, biodegradable drilling polymer or drilling foam are used, especially if dust suppressing is required. At the site subsurface disturbance is limited to the hole and a sump (if required).

Reverse Circulation drilling

The reverse circulation drilling technique is used to create a hole approximately 152 mm in diameter. Step-blade tricone drill bits will be used to break ground. Circulated drilling mud is pumped through the rod string, cooling the drill bit, and lifting drilled cuttings back up the borehole annulus to the surface. The drilling mud comprises a mixture of biodegradable additives which increases hole stability. Drilling muds will be captured in a sump dug adjacent to each hole. Sumps will be dug by a skid steer or track loader or similar.

Sonic Drilling

The sonic drilling technique uses high frequency resonant energy generated inside the sonic drill head to advance a core barrel and casing into subsurface formations. Casing is advanced down outside the core barrel to prevent subsidence whilst the core sample is extracted. Typically, holes are drilled to 150mm diameter with 100mm core extracted. Drilling fluids will be captured using a transportable tank, except where access of the tank if not possible, and then a sump will be dug adjacent to each hole.

Diamond drilling

Diamond drilling (Photo 29) uses PQ sized drill string that creates a hole approximately 123mm in diameter. Drilling may be assisted by the use of biodegradable drill muds and the return of injected water and drilling muds will be captured in a sump dug adjacent to each hole. Sumps will be dug by a skid steer or track loader or similar.

The hole does not need casing. A diamond bit with high rotation is utilised to cut an undisturbed sample of material that is collected in the inner tube of the core barrel. The cut sample is then retrieved by tripping the core barrel to surface where it is removed from the inner tube and prepared for transport by the onsite geologist. Depending on the length of the core barrel used and the thickness of the target horizon(s), multiple core runs will be required to collect a representative sample of the target horizons. On completion, a concrete plug is inserted at 0.3 to-3m depth after which the hole is filled to surface with material excavated from the sump.

When describing drillhole decommissioning requirements, include the materials to be used, stratigraphic intervals where cement plugs will be placed, if the casing will be removed and when decommissioning will occur after drilling is completed.

Aircore and RC Drilling

Rehabilitation of aircore drill sites is undertaken immediately after the hole has been completed. Any drill cuttings not selected for analysis is returned to the drill hole or sump which is then backfilled according to M21 – General Specifications for Construction and Backfilling. The area of disturbance is raked, flagging removed, and the site left clean after the drilling of each hole is completed. Any vegetation, rocks, etc. moved from the site before drilling, are placed back over the disturbed areas to minimise the visual impact of the site. Excess drill spoil that cannot be placed back into the hole is buried in a sump and covered with at least 0.3m of topsoil.

Sonic Drilling

Rehabilitation of sonic drill sites is undertaken as soon as possible after the hole has been completed. Any material not selected for analysis is returned to the drill hole or sump which is then backfilled according to M21 – General Specifications for Construction and Backfilling. The area of disturbance is raked, flagging removed, and the site left clean after the drilling of each hole is completed. Where sumps have been used (instead of transportable tank) the sumps will be allowed to dry by evaporation and seepage, and in-filled with dried mud and excess drill cuttings. The sumps will then be in-filled by stockpiled subsoil and then covered by at least 0.3m of re-instated stockpiled topsoil at the surface. The soil will be levelled and smoothed to match the surrounding topography. Any vegetation, rocks, etc. moved from the site before drilling, are to be placed back over the disturbed areas to minimise the visual impact of the site.

Diamond drilling

When the diamond drill site is rehabilitated, cuttings and unused sample is returned to the hole (last out, first in), and any remains are buried in the sump and covered by by least 30 cm of topsoil. The hole is plugged at 0.3 - 3m below surface and backfilled with cuttings (deeper than 30 cm) and topsoil (surface to 30 cm.)

Where confined or artesian conditions are expected, include a schematic diagram demonstrating how drillholes will be constructed and decommissioned

Costeans and bulk sample disposal pits

Will costeans/bulk sample disposal pits be required for the proposed program? If yes, indicate the maximum dimensions and size of pits and costeans.	Yes ☐	No ☒
N/A		
Describe site preparation methods, vegetation clearance, and safety and maintenance requirements if pits and costeans are required.		
N/A		

Sample management

Describe the size of samples collected (including drilling samples and bulk sampling), collection methods, materials used when collecting the sample, sample disposal methods (including removal of sample bags), safety management and any other sample management requirements at the exploration site (e.g. tarps or matting used to contain cuttings). Include requirements for on-site geological sample management (splitting of archive samples, bag farms, core processing and storage).

Air core drilling

NQ sized drilling extracts approximately 7.5kg of cuttings per metre of drilling. Samples are collected from every hole at 1.0 - 1.5m intervals via the cyclone unit. Around 1.0 - 3.0kg of material is contained in calico bags (Photo 30) that bear a unique number identifier. The remainder of the cuttings (excess drill spoil) is collected on a tarp next to the drilling rig (Photo 31). Each sample is visually scanned to record geological information and to seek indications of contained heavy minerals.

Excess drill spoil on the tarp and material from calico bags no longer required is placed downhole (Photo 32) or in the sump. Samples of interest will removed from site and submitted to a laboratory for analysis. All disused calicos and tarps are collected and disposed off-site.

Sonic drilling

During drilling, the core barrel is retrieved, and the sample is vibrated into a plastic sleeve and kept in core trays. The core trays and taken offsite for logging and sampling. Any excess drill spoil (unconsolidated sediments can expand when drilled) is returned.

Diamond Drilling

Diamond drilling uses diamond bits with high rotation rates to cut an undisturbed sample that is collected in the inner tube, a split steel core barrel. After each core run the core barrel is retrieved by wireline while the drill string remains in place in the hole. The core sample is marked up to show depths and is then stored in suitable core trays (Photo 33).

Undisturbed sections of the core sample is required for test work, but fragmented core will be logged and then collected on a tarp. When the drill site is rehabilitated, cuttings and unused sample is returned to the hole (last out, first in), and any remains are buried in the sump and covered by by least 0.3m of topsoil. The hole is plugged at 0.3 - 3m below surface and backfilled with cuttings (deeper than 0.3m) and topsoil (surface to 0.3m.)

Access routes to work areas

Will existing tracks require upgrading and/or maintenance? If yes, detail the work required to upgrade/maintain existing tracks.	Yes ☒	No ☐

Track Upgrades

Some of the existing tracks that will be utilised throughout the program may have become overgrown and unsuitable for vehicle access, to and from site. In areas where regrowth is minimal, driving the rig through may be enough to clear the track for all other vehicles. Where there is more regrowth and overgrowth, chainsaws may be used to upgrade the tracks. Only appropriately trained personnel use a chainsaw to prune over hanging branches to increase the width of existing tracks to approximately 3.5m to allow for the safe passage of drill rigs and support vehicles.

Chainsaw usage may be used for the occasional trimming of vegetation along existing tracks and for the removal of branches at helicopter pads, camp sites and for short access creation for fuel drops. Chainsaws are not used for the creation of access tracks.

The dozer and roller method (described below) may be utilised on existing tracks that are very overgrown and require too much work for the chainsaw.

Track Maintenance

Iluka aims to keep tracks in a condition that are suitable for vehicle use. Track rutting through vehicle overuse is the activity that can render a track unusable. Track rutting occurs on fragile clay soils, more so than on sandy soils. Iluka implements the following strategies to maintain tracks in a usable condition:

- Conducting inductions and training regarding vehicle management on tracks and traverses;
- Monitoring tracks throughout the drilling program (daily);
- Imposing maximum speed limits on tracks and traverses;
- Reducing tyre pressures on vehicles. In practice the site supervisor will advise that tyre pressures of 20psi are required for daily travel should track conditions deteriorate to a point where vehicles run the risk of frequent bogging leading to preventable track churning during recovery actions. Further reduction to 15psi may be required, however, under load tyres under 15psi can spin off the rims. As a last resort, tyres may be reduced to 10psi for retrieval operations only. Once the vehicle is retrieved and can be driven safely and independently, tyres are to be re-inflated to 15psi;
- Reporting degrading track conditions through Iluka's Loss Control Card (LCC) system; and
- Prompt rehabilitation of degrading tracks using tyre levelling method (dragging tyres on a tyre frame to remove ruts and level tracks-refer Photo 18) or similar.

Will access off existing tracks be required? If yes, detail the method(s) for gaining access and if vegetation clearance is required. Details of the total area of disturbance (includes drill traverses and seismic lines) required off existing tracks (i.e. length (km) and width (m) of new tracks) must be provided in the program notification.	Yes ☒	No ☐

Planning of Track Location

A proposed route for a new access track is planned in the office using aerial photography or satellite imagery. A review of available information of local conditions, landowner consultation and program requirements is also considered. In the field Iluka use helicopter or vehicle reconnaissance to approximate the position of tracks. The final track position is determined at the site where there is some latitude for variation – up to 250m. Iluka create tracks that are approximately 3.5m wide to allow for the safe passage of drill rigs and support vehicles.

When tracks are installed consideration is given to weather conditions. For instance the installation of tracks over sparsely covered ground in times of high rain is avoided as it may lead to excessive rutting. There is no definitive criteria for the best ambient conditions for track installation however; it is left to the judgment of the experienced field operators.

Dozer and Roller Method for Access Creation

Iluka uses DEM (2004) *M33 – Statement of environmental objectives and environmental guidelines for mineral exploration activities in South Australia* as a minimum standard for track creation. The Iluka procedures *Procedure PRC4751: Exploration Dozer/Roller Track Creation* and *TWI-012 EBEXP-Track access creation* are followed to create access tracks whereby a roller is towed by a dozer with the blade up (known as the roller method).

Iluka has an established history of using the dozer and roller combination with good results throughout the Eucla Basin/ Yellabinna Regional reserve since trials were first conducted with Parks and Wildlife staff in 2008.

The dozer/roller method uses a dozer (blade up) towing a heavy roller to crush vegetation and establish a track (Photos 14 and 34), leaving root stock and minor vegetation in place on the track. This has the benefit of making the track less susceptible to vehicle damage, while also improving (and potentially expediting) natural revegetation. The roller will cover approximately 15-25km per day and the track is up to 3.5m wide.

The dozer/roller method requires three field people (a forward scout, a dozer operator and support person) and the following equipment:

- Small tracked dozer (raised blade only) with a blade width of 3.2m and outside track width within the blade width. The 3.2m width is satisfactory to allow for access of exploration vehicles (including drill rigs) that are up to 2.4m in width.
- Roller - is a water filled cylinder 1.2m high and 3.4m wide with towbar weighing approximately 9 tonnes.
- Communications - UHF radio between forward scout, dozer operator and support vehicle. A satellite phone for other communication.
- GPS Units x 3 – for forward scout, dozer operator and support vehicle.
- Support vehicle (4WD) - the master track log of the track created for the drilling is created by the support vehicle. Also transports the camping supplies and 600L bulk diesel tank to support the roller crew.

In environmentally sensitive areas a forward scout drives the UTV well in front of the dozer guiding the operator by following the planned route with a GPS. The scout identifies by weaving across the proposed route, uncommon flora and fauna and their habitat and any heritage articles and relays this to the dozer operator via UHF so they can alter the route as required. The dozer operator can also relay information to the scout on the location of lower angle dune crossing sites (often easier to see when sitting high up in the dozer).Where tracks are to be created within areas consisting of multiple and often large sand dunes, the following guidelines from DEM (2004) *M33 – Statement of environmental objectives and environmental guidelines for mineral exploration activities in South Australia* will be observed:

- limit access created over dunes, and instead travel along interdunal corridors;
- where necessary to cross dunes, select sites to minimise impact on soil and vegetation;
- tracked rig and support truck to be used for the program;
- low dunes preferable for crossing and to be cut at right angles;
- if any dune material to be moved when track cut through, push material to either side of the track, rather than pushing down slope; and
- for drill sites located on the slope or crest of dunes, all dune material movement required to create a safe drill platform will be sideways.

The total area of disturbance for new tracks is dependent on the requirements for the particular exploration program. Nominally, per deposit, the area of new disturbance may vary between 35,000m^2 and 200,000m^2 (including tracks and drill platforms), and will be confirmed by way of the EPN preceding each program.

Access creation considerations for Non-HM drilling

A greater disturbance occurs at Non-HM drill sites (RC, diamond, sonic drilling) where a sump is required, vehicles are larger and the area for managing samples is larger. Support vehicles used for non-HM drilling are larger than those used for HM drilling. However, the track access created using the roller is sufficiently wide enough to accommodate the heavy vehicles. Additional pruning of overhanging limbs may be required to facilitate access for the higher vehicles. The Non-HM program creates a larger impact footprint than is required for HM drilling where:

- Vehicles are larger;
- Water carting is required;
- Impacts extend beyond the rolled access track; and
- A greater volume of drill material is produced.

Where possible, indicate planned access routes on a locality plan and distinguish between existing and proposed new access tracks and drill lines (including fence lines).

Campsites, storage and equipment laydown areas

Provide a description of campsites and/or laydown areas required. Indicate the campsite and laydown area on a locality plan.

Campsite details		
Indicate where staff and contractors will be accommodated during the exploration program.		
Iluka establishes regional camps (Photo 35) where drilling targets are located too far from the existing JA mine camp or other existing camp sites. Currently the only existing camp is Club Med as all the other camps have been rehabilitated. Iluka uses regional camps as required and rehabilitates the camp once it is no longer required. Iluka may establish short term camps which would contain a maximum of 5 people and be required for no more than a month at a time. Short term camps would be used during reconnaissance, low impact exploration activities or rehabilitation activities. Equipment would be limited to a maximum of two caravans, tents and generators. Associated 4WD vehicles, helicopters and UTVs would be located at the camp. Low impact exploration equipment would also be located at the camp if being used. Iluka may also establish fly camps comprising 2-3 tents or swags for short periods of time eg days at a time only. Fly camps would be used during reconnaissance or rehabilitation activities.		
What is the maximum number of personnel requiring accommodation?	7-17, depending on the number of rigs deployed on the program	
Is a campsite required to be established? If no, no further information is required.	Yes ☒	No ☐
Provide a description and justification of the camp location (e.g. previously cleared areas etc.), and any other relevant information.		
A campsite location will be selected in conjunction with the Far West Coast Group to ensure no heritage sites are disturbed. The selection of the campsite will be made to ensure minimal disturbance to native vegetation and will be located within a clearing of low shrubland. Depending on local conditions, minor clearing of small shrubs may be required. The campsite location will be selected close to the area of planned work to reduce traffic movement and associated environmental and safety risks. All camp infrastructure will be delivered to site by 4WD light vehicles or 4WD tractor or similar. The use of a 4WD tractor (or similar) is preferred as it reduces the potential for a vehicle accident whilst reducing the overall impact upon the environment. A forklift may be required for loading/unloading crates in the defined laydown area within the footprint of the camp. The following criteria are used for the location and establishment of a camp: • Existing campsites are used where possible. • Campsite locations are determined after consultation with land owner representatives (local DEW representatives on parks and reserves). • Elevated sites are chosen to minimise drainage problems during storm events. • The area of disturbance is kept to a minimum with designated driving, parking and working areas marked with stakes and flagging. • All materials and equipment will be located in one place, on the proposed site, to reduce ground abrasion, compaction and damage to the surrounding vegetation. • No earthworks are undertaken except the digging of a drainage sump. Any drainage sumps are constructed with sloped edges to allow inadvertently trapped fauna to escape. • Sumps are regularly checked for trapped fauna. • Significant vegetation is marked off to prevent damage by vehicle and foot traffic.		
What will be the total area (ha) of the campsite(s)?	1 ha	
What will be the total area (ha) of vegetation clearance for the campsite?	1 ha	
If vegetation clearance is required, describe the methods used to prepare the site.		
If a remote camp is established it will be in a naturally clear area (as much as possible) with only low shrubland which has minimal taller vegetation. The camp facilities will be established by driving over the low vegetation and modifying any other vegetation (trimming, cutting at the base, as necessary) to provide access and prevent an immediate fire risk. If a helicopter support option is utilised, no remote camp will be established inside the Yellabinna Regional Reserve. As outlined in the '*Other exploration Methods and/or ancillary activities*' section, the campsite includes provision for a 50m x 50m open/grassed area adjacent to the camp, to be used as a helicopter landing area (no ground clearing required).		
Will any excavations be required? If yes, describe the purpose of the excavation and the maximum volume (m^3) of material to be excavated.	Yes ☒	No ☐
Iluka dig earth drains to channel grey-water runoff from the showers, kitchen and washing machine. A 50 cm deep sump captures the kitchen run-off, and in addition to this, a fine weave bag over the outlet of the drain catches food scraps and seeds. Iluka remove food scraps from site and backfill the drains and sumps upon closure of the camp. Iluka investigated the removal of all grey water from site but deemed it impractical because this would significantly increase the frequency of travel by heavy vehicles. The nature of the near surface soil profile in the region allows grey water to soak in and drain away. Excavations at the camp site will not exceed $5m^3$.		
Are the proposed ablution facilities endorsed/approved for use by the Department of Health or local council, where applicable? If no, indicate why.	Yes ☒	No ☐
Where access allows toilets on a trailer to be brought to camp, Iluka use portable chemical toilets. The liquid chemical waste is disposed of by a qualified chemical toilet supplier in Ceduna when the toilet is full or at the end of the program. Should the unit become full prior to the end of the program it will be replaced with a new unit sourced form Ceduna. In remote areas outside of parks and reserves liquid chemical waste may be disposed of in a pit dug to a depth allowing for a metre of sand cover over the waste.		

Proposed infrastructure (includes caravans, tents, offices)	Quantity	Description/capacity
Tents	5 - 10	~3 x 3m canvas tent (suitable for 1 person)
4 berth caravan	2	Caravan for 4 people
Office van (Photo 36)	1	Dual axle ~6m x 2.4m caravan
Kitchen van (Photo 36)	1	Dual axle ~6m x 2.4m caravan
Annexe (Photo 36)	1	Kitchen and office caravans are setup parallel to each other and enclose an annexe
Portable Chemical Toilet (Photo 37)	1	The liquid chemical waste is disposed by a qualified chemical toilet supplier in Ceduna when the toilet is full
Sump (Photo 38)	1	For kitchen run off (approximately 2m x 2m)
Diesel / petrol generator	1	For electricity generation
Water tank	1 – 3	1,000L pods or water tank (up to ~13,000L) positioned as close to camp as possible may be utilised during the program.
Waste Management Bins	4 -5	Iluka generate rubbish at campsites and drill sites. Rubbish is segregated and recycled where practical and stored in secure bins in designated areas to prevent scavenging by animals. Rubbish is regularly removed and transported to the nearest registered disposal site. Iluka implement management strategies that discourage the activities of feral pests, particularly foxes and cats. Campsites present the major risk for attracting feral animals. Iluka place food in vermin proof receptacles and return those waste to Ceduna for appropriate disposal.

Laydown area details		
Will laydown areas be required? If no, no further information is required.	Yes ☒	No ☐
Will the laydown area(s) be located at the same location as the campsite?	Yes ☒	No ☐
What will be the maximum area (ha) required for the laydown area(s)?	0.32 ha	
What will be the total area (ha) of vegetation clearance for the site?	0.32 ha	
If vegetation clearance is required, describe the methods used to prepare the site.		
The laydown will be established within the footprint of the camp whenever possible, in a naturally clear area (as much as possible) with only low shrub land that has minimal taller vegetation. The laydown will be established by driving over the low vegetation and modifying any other vegetation (trimming, cutting at the base, as necessary) to provide access and prevent an immediate fire risk.		

Will any excavations be required? If yes, describe the purpose of the excavation and volume (m^3) of material to be excavated.	Yes ☐	No ☒
N/A		

Proposed infrastructure (includes hydrocarbon and water storage requirements)	Quantity	Description/capacity
Hydrocarbon Storage (bunded areas) (Photo 39)	1	Iluka implement procedures for managing hydrocarbons and hydrocarbon spills. Iluka locate the hydrocarbon storage area at the campsite. Field personnel refuel machinery and the camp generator from the camp fuel store. Diesel fuel is stored in plastic fuel pods mounted on purpose built bunding in a trailer at a designated fuel storage area. The camp generator is self bunded and is stored on a trailer. Field personnel install rubber conveyor matting or hydrocarbon spill matting at the refuelling locations to catch drips during the refuelling process. Iluka use only high quality rotary drum pumps with the ability to 'reverse pump' excess fuel. Fuel is transported between the camp and drill site in 44 gallon drums which is emptied into bulk fuel storage tanks on drilling equipment. It is unlikely that 44 gallon drums containing fuel will be stored for long periods of time at camp, however if they are required they will be stored on bunding and covered by tarps. If helicopter operations are used, diesel fuel (for the drilling) will be stored at a temporary fuel storage site (as described above) and transported using a self bunded air cargo tank (Photo 40). Jet-A1 fuel will be stored at Club Med in an industry compliant fuel truck on bunding.
Drill Equipment	As Necessary	Drill rods, drilling muds, pumps, casing and other drilling equipment, stored and stacked neatly with bunding (where necessary) to capture leaks/spills.
Fuel Truck (Heli Support option only)	1	Storage of Jet-A1 fuel for use in Helicopter. Truck parked on portable bunding. Spill kits available
Shipping Container (Heli Support option only)	1	Storage of helicopter related equipment and parts, safety equipment and documents

Other exploration methods and/or ancillary operations

Are any other proposed exploration methods (e.g. seismic) and/or ancillary exploration operations required? If yes, describe the activity(s), site preparation, vegetation clearance, and safety and maintenance requirements.	Yes ☒	No ☐

Helicopter support

A helicopter may be required to support drilling activities in remote dune areas for the following activities:

- Transport of drilling and geological support personnel;
- Transport of water and diesel and general drilling supplies for drilling activities; and
- Transport of samples back to base camp.

Proposed Helicopter Base(s)

- Iluka Jacinth Ambrosia Mine – Stone Quarry (previously used for Iluka helicopter supported drilling operations);
- Existing helipad and proposed camp area; and
- Base for helicopter refuel and supply.

Proposed Exploration Camp Locations, as far as is possible, at previously established camp locations

- Designated heli-pad location and refuelling area site located adjacent to camp (~50 X 50m);
- Re-supply of Jet A1 fuel using a Jet A1 specific purpose/certified fuel truck (refer Photo 20),or
- Using 200L Jet A1 fuel drums; temporary fuel storage within designated bunded area, with 120% hydrocarbon capacity.
- Re-supply access via Iluka haul roads (where available) or established/existing exploration access tracks if based at remote exploration camps.

Remote Landing Sites adjacent drilling operations

- Selected in clear/open areas (15x15m area required) located in close proximity to/within 1km of the drill-rig location;
- Located in interdunal areas / dune swales / flat areas;
- Landing sites accessible by LV along existing tracks; and
- No additional mechanised equipment clearing required.

Resupply Methods

- Water transported/slung in fit for purpose aviation pods to the rig/LV (Photo 40); and
- Diesel transported/slung in fit for purpose double wall aviation pods (Photo 40).

Water supply and management

Will camp and/or drilling water be required? If yes, describe how and where water will be sourced for drilling, track maintenance and camping purposes (e.g. groundwater, surface water, mains). Indicate how wastewater and/or runoff water will be managed.	Yes ☒	No ☐

Water supply

Water will be required for drilling activities and at the camp. All water will be potable, sourced from either the JA mine site, Ceduna, Penong or Yalata.

Water management

Drilling

Non-HM drilling requires a supply of water and sumps to manage water. Water to support drilling activity will be transported to drill sites in a tank mounted on a trailer. The tracks used for transporting water may require additional maintenance to facilitate access.

In addition, Iluka sets up 5,000 – 25,000L water tanks at strategic locations along suitably prepared tracks, from where water may be pumped to additional holding tanks as close as possible to drill operations. Water pumps and pipelines will conform to engineering specification as dictated by the requirements of the task. Pipelines will be routed optimally along existing tracks to allow access for regular inspection and maintenance. Pipelines will be recovered once work in the area is completed.

Water levels in the tanks are maintained through supplies of water helicopter or truck support.

- Water will be transported using a Marooka track-mounted or 6WD vehicle with a 10,000L water trailer tank to prevent having a number of runs for water.
- Water will be sourced from JA, Penong or nearby landholders.
- Water will be replenished via helicopter for small volumes.
- In the event that all water is consumed during diamond drilling a temporary tank and pump will be placed at a strategic location. The track mounted Marooka or other 6WD vehicle will tram to refill the water tanks. This will be pumped from a tank located near Myng Plan (Tarcoola Plain) on Phillip Price's station. This will prevent tramming an additional 25km back to Club Med for extra water supplies. In addition, the Isuzu 4WD light truck is fitted with water tanks (3,000L capacity) and can provide water to the support vehicle.
- A 13,500 – 15,000L poly tank will be placed at each of the drilling targets to allow for the storage of fresh water for the drilling process.
- If ground water is intersected during drilling there may be potential to pump ground water and to store the water in a temporary tank for later use during drilling. Water is confined to tanks or sumps during this process.

Camp

A bulk water storage container is located at the closest point to the camp. Iluka dig earth drains to channel grey-water runoff from the showers, kitchen and washing machine. A 50 cm deep sump captures the kitchen run-off, and in addition to this, a fine weave bag over the outlet of the drain catches food scraps and seeds. Iluka remove food scraps from site and backfill the drains and sumps upon closure of the camp.

/cont…

Iluka investigated the removal of all grey water from site but deemed it impractical because this would significantly increase the frequency of travel by heavy vehicles. The nature of the near surface soil profile in the region allows grey water to soak in and drain away. Excavations at the camp site will not exceed 5m^3. In small quantities and at low frequency, water will be carted to site on the support vehicle (refer Photo 13).

Will surface water and/or mineral drillholes be used as a water source/supply? If yes, indicate if a licence for water extraction/usage is required (refer to relevant Natural Resources Management water allocation plan available on the *Department for Environment and Water* (DEW) website. If a licence is required and has been obtained please attach a copy. Where a licence has not been obtained, include a statement confirming that a licence will be obtained before the extraction and/or usage of water.	Yes ☐	No ☒
N/A		

Groundwater and drilling investigation activities

Will any water bores be required and/or water investigation activities (e.g. pump testing, water monitoring sites, water storage, turkey nests/dams) be conducted? If yes, describe the water drilling and investigation activities, including site preparation, vegetation clearance, and safety and maintenance requirements.	Yes ☐	No ☒

Indicate if well permits have been obtained and whether or not a water extraction licence is required in accordance with the Landscape South Australia Act 2019. If yes, attach a copy of the permit(s)/licences. If no, provide a statement confirming that permits/licences will be obtained prior to commencement of water investigation activities.	Yes ☐	No ☒

Water affecting activities

Will any water affecting activities, other than drilling a water well, be undertaken (refer to s. 127 of the Landscape South Australia Act 2019)? If yes, attach a copy of the permit. If a permit has not been obtained, provide a statement confirming that a water affecting activity permit(s) will be obtained and provide a description of the site preparation, vegetation clearance, and safety and maintenance requirements.	Yes ☐	No ☒
N/A		

Management of hazardous materials

Will activities be conducted in areas of known uranium and thorium mineralisation? If yes, attach a Radiation Management Plan and confirmation of endorsement of the plan by the Environment Protection Authority South Australia (EPA).	Yes ☐	No ☒
Will any other hazardous material be encountered when exploring in the area? If yes, list the types of hazardous materials and provide a management plan on how these materials will be managed.	Yes ☐	No ☒
N/A		

Rehabilitation

Detail all the activities and strategies relating to the remediation of all impacts associated with the proposed exploration operations (includes exploration camps and laydown areas, tracks). Completion of rehabilitation must be achieved within 3 months after the expiry of each program notification.
Drillholes Air core and Reverse Circulation drilling Rehabilitation of aircore drill sites is undertaken immediately after the hole has been completed. Any drill cuttings not selected for analysis is returned to the drill hole or sump which is then backfilled according to M21 – General Specifications for Construction and Backfilling. The area of disturbance is raked, flagging removed, and the site left clean after the drilling of each hole is completed (Photo 41). Any vegetation, rocks, etc. moved from the site before drilling, are placed back over the disturbed areas to minimise the visual impact of the site. Excess drill spoil that cannot be placed back into the hole is buried in a sump and covered with at least 0.3m of topsoil. Sonic Rehabilitation of sonic drill sites is undertaken as soon as possible after the hole has been completed. Any material not selected for analysis is returned to the drill hole or sump which is then backfilled according to M21 – General Specifications for Construction and Backfilling. The area of disturbance is raked, flagging removed, and the site left clean after the drilling of each hole is completed. Where sumps have been used (instead of transportable tank) the sumps will be allowed to dry by evaporation and seepage, and in-filled with dried mud and excess drill cuttings. The sumps will then be in-filled by stockpiled subsoil and then covered by at least 0.3m of re-instated stockpiled topsoil at the surface. The soil will be levelled and smoothed to match the surrounding topography. Any vegetation, rocks, etc. moved from the site before drilling, are to be placed back over the disturbed areas to minimise the visual impact of the site.

Diamond drilling

When diamond drill sites are rehabilitated, cuttings and unused sample is returned to the hole (last out, first in), and any remains are buried in the sump and covered by by least 30 cm of topsoil. The hole is plugged at 0.3 - 3m below surface and backfilled with cuttings (deeper than 0.3m) and topsoil (surface to 0.3m.)

Exploration Camps

Rehabilitation of remote campsites is undertaken immediately after the work program is completed and the camp is no longer required. All camp infrastructure is removed. All fuel storage equipment, rubber conveyor matting/hydrocarbon spill matting is removed from the laydown area. All rubbish from the capsite is removed. Excavations are backfilled. Roads into the camp are rehabilitated. The camp area is raked.

Tracks

Tracks that are no longer required will be rehabilitated. The rolled tracks that have had minimal use are left to self-rehabilitate. Any high traffic areas are scarified and road/track junctions closed off with the berms raked and wheel ruts removed with either a scarifier or manually (Photos 42 and 43). The traverse is then covered using natural dead trees and foliage to hide the area from third party access (Photos 44 and 45). Particular attention is paid when rehabilitating tracks to the access points from existing public tracks.

State the estimated budget required to rehabilitate all impacted sites.

Sites will be rehabilitated immediately after drilling and therefore no specific budget has been prepared. The cost is considered part of the cost of drilling. Track rehabilitation for extensive length can cost up to $1000/day.

Vegetation Clearance

Will any area of cleared native vegetation be unrehabilitated after the authorised period? If yes, provide a map and description of the vegetation present in the application area, the extent of any proposed vegetation clearance and the likelihood of the presence of threatened flora. State the estimated quantum of significant environmental benefit (SEB) to be gained in exchange for the proposed native vegetation clearance and describe how the SEB will be provided.	Yes ☐	No ☒

N/A

SECTION E – LEASE CONDITIONS

Retention leases

Where the retention lease includes specific conditions that are not environmental outcomes, demonstrate where these have been addressed in the PEPR (if relevant) or demonstrate how otherwise they have or will be complied with.

N/A

SECTION 6 – MANAGEMENT OF ENVIRONMENTAL IMPACTS

Use the table below (instructions provided) to identify all of the potential environmental, social and economic impact events that are likely to occur as a result of the proposed exploration operations, how each of the identified impacts will be managed, and the residual risk, i.e. the level of risk remaining after implementing control and management strategies. Identified potential impact events should be developed based on the aspects of the environment that may be impacted on and the proposed operational details. Potnetial impact events must have corresponding outcomes and measurement criteria.

Where the terms and conditions of an RL include environmental outcomes, list them (where different) in the table below and complete all sections (receptor, potential impacts, control strategies, risk assessment and measurement criteria).

Environmental management – potential impacts/events, outcomes, measurable criteria and monitoring plan

			Likelihood of consequence (LH)				
			1	2	3	4	5
			Rare	Unlikely	Possible	Likely	Almost certain
Severity of consequence (CQ)	A	Insignificant	Low	Low	Low	Low	Low
	B	Minor	Low	Low	Moderate	Moderate	Moderate
	C	Moderate	Moderate	Moderate	High	High	High
	D	Major	High	High	Extreme	Extreme	Extreme
	E	Catastrophic	High	Extreme	Extreme	Extreme	Extreme

How to fill out the table

1. Based on the description of the environment and exploration operations, indicate which potential impacts are applicable to the proposed program. Note that some potential impacts are applicable to all programs.
2. For each applicable potential impact (and corresponding receptor), describe control strategies that will reduce the risk of the potential impact to an acceptable level, and achieve the corresponding environmental outcomes.
3. Conduct an impact assessment to determine if the control strategies address the potential impact (i.e. reduce the risk to an acceptable level). Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level.
4. For each applicable potential impact, the corresponding outcome and outcome measurement criteria are required.
5. Based on the description of the environment and proposed exploration activities, determine if any other potential impacts are applicable. For each new potential impact, describe proposed control and rehabilitation strategies, conduct an impact assessment, and develop corresponding outcomes and outcome measurement criteria.

Use the above matrix to conduct an impact assessment for each potential impact.

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	**Potential impacts** Lists are not exhaustive.	**Is the potential impact applicable (Yes/No)** Some potential impacts are applicable to all programs.	**Control strategies** Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	**Risk assessment** LH = likelihood of consequence CQ = severity of consequence				
				LH	**CQ**	**Risk**		
Stakeholders: • freehold land owners • perpetual lease holders • pastoral lease holders • Aboriginal land (Anangu Pitjantjatjara Yankunytjatjara and Maralinga Tjarutja lands) • Department of Defence • state government departments. • local government (councils) • federal government native title parties.	Interference to: • existing or permissible land use (includes loss of income, noise, dust, light and other emissions). • buildings, structures, existing tracks or other infrastructure. • aesthetic values of an area. Noncompliance with legislative requirements.	Yes (Applicable to all programs.)	• Native Title Agreement (NTMA) in place and registered with Mining Registrar. • Compliance with Landowner requirements • Advise landholder of rights (Minerals Regulatory Guidelines – MG4) • Landholder consultation will occur through Form 21B ongoing phone/email communication (as necessary) and on program completion. • The location and condition of relevant Infrastructure (e.g. tracks) will be documented and agreed with landowners, as will the required post activity condition. • Existing tracks (where possible) selected for program to minimise disturbance. • All vehicle movements will be restricted to established and designated new tracks. • Restrict vehicle movement during/following wet weather to avoid track damage. • All field personnel instructed on land conditions and requirements before going on-ground (inductions). • Drill hole planning and camp location will be used to minimise the number of individual vehicle movements. • Rehabilitation of the drill site will occur directly after drilling. • During the program resources will be in place to conduct maintenance on all tracks impacted by increased traffic flow.	1	B	Low	**Stakeholders are fully informed and satisfied with the proposed methods used to conduct exploration activities on their land, and all prescribed forms are served and agreements obtained in accordance with the Mining Act.**	Provide the information requested within the 'Complaints' section of the annual exploration compliance report demonstrating that all reasonable complaints from stakeholders are resolved to the satisfaction of both parties prior to and ongoing during the course of exploration program, without the involvement of DEM. Provide the information requested within the 'Landowner details and liaison' section of the annual exploration compliance report demonstrating that prescribed forms were served and agreements obtained in accordance with the Mining Act prior to the commencement of exploration activities.
Stakeholder: DEW	Interference to: • existing or permissible land use. • buildings, structures, existing tracks or other infrastructure. • aesthetic values of an area. Noncompliance with legislative requirements.	Yes (Applicable to programs located adjacent to or within parks and reserves.)	• Drilling activities will be communicated to and approved by DEW prior to commencement of the program (via Program Notifications). • Early consultation with key staff to cover scope of program, flagging any potential concerns. • If any changes to the original program arise, DEW will be notified promptly.	1	B	Low	**For activities located within or adjacent to regional reserves, national, conservation and marine parks only:** • **no unauthorised interference with park management activities.**	Provide confirmation that: • Park access notification forms were submitted to DEW and DEM at least 10 days prior to entry into regional reserves, national, conservation and marine parks, or • Program notifications for PEPRs approved for an ongoing period of time, were submitted to DEW and the DEM at least 21 days prior to entry into regional reserves, national, conservation and marine parks.

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	**Potential impacts** Lists are not exhaustive.	**Is the potential impact applicable (Yes/No)** Some potential impacts are applicable to all programs.	**Control strategies** Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	**Risk assessment** LH = likelihood of consequence CQ = severity of consequence				
				LH	**CQ**	**Risk**		
Flora and fauna and their habitats; includes Commonwealth and state scheduled species.	Loss/modification of native vegetation and associated habitats through the clearance of vegetation.	Yes (Applicable to exploration programs located within or impacting on native vegetation.)	• Desktop research and existing field survey data to identify sites of known flora and fauna (rare and endangered) sightings. • DEW notified when rare fauna encountered e.g. Malleefowl nest. • Iluka fact sheets inform personnel of rare and endangered flora and fauna. • Facts sheet booklet instructs personnel on the actions to take when rare and endangered flora or fauna is encountered. All vehicles carry a fact sheet booklet. • Satellite and topographic data used to plan routes and identify suitable access points. • Existing tracks identified in desktop planning. • Drill sites selected to avoid trees and rare and endangered flora and fauna. • Drill sites characterised by dense vegetation (tea tree, Mallee, native pine) and fauna habitat are avoided. • Vegetation flattened or pruned to retain rootstock. • Trees are pruned if necessary and rootstock left intact. • Dead limbs removed and replaced at drill sites upon completion. • Track creation and upgrade – listed flora and fauna species in environmentally sensitive areas identified and avoided during heritage surveys. Maps and GPS data provided during the clearing process so dozer operator alters path to avoid impacts to species. • Use roller and dozer method to minimise pressure (psi) exerted onto ground in all areas of known listed species. • Install rolled track with a width approx. 3.5m to minimise total hectares clearance. • Provision and communication of program-specific listed species and habitat information to site staff prior to works. • Weather conditions checked daily with implementation of Bushfire Risk Assessment for days over 35°C. • Fire bans observed. • Fire Ban ratings (CFS website) checked daily and a risk assessment of prevailing situations is completed/discussed in morning pre-start meeting. Work will continue on Low-Very High days and conditions monitored. Where fire danger is Extreme-Catastrophic, work is stopped, and crew is on standby until rating reduced. • All vehicles fitted with fire extinguishers. • Domestic pets not allowed on sites. • Firearms are not permitted on site. • Site specific inductions. • Pre-employment inductions and training for all employees and contractors.	2	C	Moderate	**No permanent loss/modification of native flora and fauna populations and their habitats through:** • **clearance** • **fire** • **other** **unless prior approval under the relevant legislation is obtained.**	Maintain before, during and after photographic evidence of all exploration sites (e.g. drillsites, new track exit/entry points off existing tracks, costeans, campsites) demonstrating that: • The area and method of disturbance is consistent with that described in the PEPR. • No uncontrolled fires* occurred as a result of exploration activities. Representative photos to be included within the annual exploration compliance report.
All flora and fauna, especially listed species.	Loss/modification of the environment (biological, social and economic) through the introduction of weeds and pathogens.	Yes (Applicable to all programs.)	• Vehicles and equipment are to be clean and free of weeds and seeds prior to mobilisation to site. • Regular inspection of vehicle under carriage to remove plant debris. • Leaving the main road/formed track. If weeds, mud or vegetative debris identified vehicles to be cleaned and reinspected. • Field personnel clean down vehicles and ripping equipment prior to departing known weed infestation sites. • Interrogate relevant SA Govt. GIS databases to determine presence and extent of current weed infestation. • Make observations of current weed presence and distribution during the reconnaissance phase.	2	C	Moderate	**No introduction of new species of weeds and plant pathogens, nor increase in abundance of existing weeds species.**	Provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report, confirming that: • Vehicle logs were kept during the exploration program, demonstrating that all vehicles are clean and free of plant and mud material prior to entering properties† within the tenement areas, unless otherwise agreed to with the relevant landowners. • Photographic evidence before and during exploration operations and after rehabilitation of disturbed sites was captured, demonstrating that no new weeds and plant pathogens were introduced, nor an increase in abundance of existing weeds recorded.
All fauna	Entrapment of fauna through open drillholes and excavations.	Yes (Applicable to exploration programs that involve drilling and/or require excavations.)	• Sumps fordrill holes (except AC) to be fenced with orange barricading and will be dug with sloping ingress / egress to allow an exit for any fauna that may fall in. • Drill holes backfilled or capped immediately after drilling. • Sump filled in and rehabilitated on completion of drilling hole if dry, otherwise filled in once dried out.	1	B	Low	**No fauna traps created as a result of exploration activities.**	Maintain before, during and after photographic evidence of all drillholes and/or excavations demonstrating that: • All drillholes were permanently or temporarily capped/plugged immediately upon completion. • No fauna and livestock became trapped in drillholes and/or excavations throughout the duration of the program. • All rehabilitation was completed within 3 months of expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	**Potential impacts** Lists are not exhaustive.	**Is the potential impact applicable (Yes/No)** Some potential impacts are applicable to all programs.	**Control strategies** Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	**Risk assessment** LH = likelihood of consequence CQ = severity of consequence **LH**	**CQ**	**Risk**		
			• Sumps drained into drill hole on completion. If a sump is not emptied till dry it is fenced and left open to allow to dry before being backfilled and rehabilitated.					a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Representative photos are to be included within the annual exploration compliance report. Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.
Aboriginal heritage sites	Disturbance to Aboriginal heritage.	Yes (Applicable to all programs.)	• Routes planned to avoid heritage sites. • Employees, contractors and visitors inducted to understand environmental and heritage obligations. • Aboriginal Heritage surveys conducted - exclusion zones delineated in consultation with claimants, and then communicated to planning / site staff as appropriate. • Aboriginal heritage sites (State register) – Locate all sites on a map and implement appropriate buffer zones (i.e.200m). If drilling is required within a buffer zone, a section 23 process under the SA Aboriginal Heritage Act would need to be completed. • Known sites close to work areas included in GPS and flagged on-ground. • Track creation and upgrade – Aboriginal heritage sites identified during planning and/or by appointed heritage monitors. Buffer maintained by dozer operator to avoid impacts to sites.	1	B	Low	**No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.**	Maintain a database and provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report demonstrating that: • Heritage sites were not impacted during the conduct of the exploration program, unless prior approval was obtained under the appropriate legislation. • Work ceased on discovery of a significant site and recommenced only after authorisation. • Aboriginal heritage sites identified during the exploration program were appropriately recorded and reported to authorities, if not previously known.
European heritage sites and sites of scientific and environmental significance	Disturbance to European heritage sites and sites of scientific and environmental significance (e.g. geological monuments, fossil reserves).	No (Applicable to exploration programs located close to or within European heritage sites and sites of scientific and environmental significance.)	N/A				**No disturbance to European heritage sites and to sites of scientific and environmental significance unless prior approval under the relevant legislation is obtained.**	Demonstrate no impact to heritage sites and sites of scientific and environmental significance by: • Maintaining evidence, including detailed maps showing sites compared to the location of exploration activities, and photographic evidence of sites before and after the conduct of the exploration program. • Providing a statement within the annual exploration compliance report confirming sites were not impacted during the conduct of the exploration program.
Soil/vegetation/fauna	Soil/vegetation contamination (e.g. hydrocarbons, rubbish, drill samples/cuttings, ablutions, other sources).	Yes (Applicable to all programs.)	• Inductions include section on drill site rehab/clean-up. • Vehicles serviced regularly. • Daily and scheduled inspection of vehicles (especially leaks). • All vehicles carry spill kits. • All spills are immediately cleaned up and all contaminated soil is removed off site and disposed in a registered waste management facility. • All excess drill spoil replaced down hole or buried in a shallow pit if necessary. • All fuel, oil and chemical storages bunded in accordance with Australian Standard AS1940. • Records of spill events and corrective actions maintained in accordance with company procedures. Personnel inductions with focus on hydrocarbons for all staff. • Random audit and inspection during and at completion of program. • Rubbish placed in adequate bags and disposed of at approved waste facilities. • Preliminary rehabilitation occurs immediately after drilling, including hole back filling, hydrocarbon and rubbish removal, raking collar area and wheel tracks (sumps back filled later if waiting to dry). • Final rehabilitation completed within specified timeframe.	1	B	Low	**No contamination of soil and vegetation as a result of exploration activities.**	Demonstrate that all domestic or industrial waste (includes general rubbish and hydrocarbons) is disposed of in accordance with the *Environment Protection Act 1993* within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), and that all fuel and chemicals are stored in accordance with EPA requirements, by providing: • The name, location and contact details of the authorised waste disposal facility. • A statement within the 'Compliance with approved programs' section of the annual exploration compliance report confirming domestic and industrial waste was removed from all exploration sites and disposed of at an authorised waste disposal facility. • Photographic evidence within the annual exploration compliance report demonstrating that all fuel and chemical storage facilities were managed in accordance with EPA requirements. Maintain photographs of all exploration sites and provide representative photos within the annual exploration compliance report demonstrating that drill cuttings are: • removed from site and disposed of at a licensed facility • buried under a minimum of 30 cm of soil, or in accordance with EPA guideline, *Radiation protection guidelines on mining in South Australia: mineral exploration*, available on the EPA website, or • backfilled down the drillhole, within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	**Potential impacts** Lists are not exhaustive.	**Is the potential impact applicable (Yes/No)** Some potential impacts are applicable to all programs.	**Control strategies** Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	**Risk assessment** LH = likelihood of consequence CQ = severity of consequence				
				LH	**CQ**	**Risk**		
Soil	Disturbance to the soil profile and topography, and accelerated soil erosion caused by exploration activities (e.g. construction of sumps, new tracks and drill pads; ground compaction at laydown areas and camps).	Yes (Applicable to all programs.)	• Desktop route planning aims to minimise length of tracks and vehicle movements. • To minimise impacts vehicle movements will be kept to an absolute minimum. • Inductions and regular tool boxes inform Iluka personnel and contractors about their obligation to drive responsibly. • Induction and toolboxes inform Iluka personnel and contractors about their obligation to maintain speed limits: o 10kmh on traverses; o 30 kmh on remote/exploration tracks; and o 80 kmh on dirt roads. • At all times speed should be appropriate for local conditions, taking into consideration the vehicle type and track conditions. Speeds should be adjusted if track conditions start to deteriorate. • Typically Iluka vehicles use tyres designed for use in sandy terrains – these vehicle will be used in transportation of crew. • Track Creation/Upgrade – Dozer/roller installs gentle bends to create access thereby reducing cornering impacts. Any tight bends created during the initial heritage survey will not be re- used- instead these will be rehabilitated and gentle bends installed. • Where dune cutting is required for drill pads, material will be pushed sideways and deposited either side of the track and to minimise disturbance. On completion of the program this material will be pushed back and the original profile restored to best efforts. • Tyre pressures will be adjusted to suit conditions - reduced to 20psi where necessary for soft dune crossings. Lower pressures in the 18-20psi range will help to reduce wear and tear on tracks and should be considered as standard where there are no safety related counter indications. • Topsoil set side during the construction of the sump to be replaced during rehabilitation. • Field personnel clean up off track marks (e.g. turnarounds). • Driving in wet conditions restricted. • Areas where ruts are starting to occur will be levelled using tyres or similar to reduce deep ruts occurring. • Small sumps (1m x 1m x 1m depth) created for aircore drilling to bury excess soil, sumps are backfilled with topsoil.	2	C	Moderate	**Where soil disturbance occurs as a result of exploration activities, ensure that:** • **topsoil quality and quantity is maintained** • **the soil profile and topography is reinstated to original conditions** • **there is no accelerated soil erosion.**	Maintain before, during and after photographic evidence of all excavations, drillsites, camps, laydown areas and new tracks demonstrating that: • The soil profile and topography is reinstated to original conditions and is consistent with natural surroundings within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. • Where required, sufficient topsoil is removed (depending on soil profile), stored separately from subsoil and reinstated (in the correct order) within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. • There are no signs of accelerated soil erosion during and post rehabilitation of disturbed sites. Representative photos to be included within the annual exploration compliance report. Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.
Surface water	Alteration to surface water – interference to surface drainage.	Yes (Applicable to exploration programs that are likely to impact on surface drainage channels.)	• Establishing a 50m exclusion zone around all drainage channels. • Track alignment within area of water courses to consider contour and local topography and limit erosion potential. • No additional crossings on drainage lines to be established, existing tracks to be assessed for stability prior to use.	2	A	Low	**No permanent modification to hydrological features caused by exploration activities without obtaining a water affecting permit from the relevant Landscape Board (under Landscapes Act SA 2019).**	Provide before, during and after photographic evidence within the annual exploration compliance report demonstrating that original drainage contours are consistent with the natural relief post rehabilitation within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period). This applies to any drainage lines intersecting the drill traverses or access tracks. Alternatively, provide copies of water affecting permits within the annual exploration compliance report.
Groundwater/aquifer	Groundwater contamination: • contamination of aquifers through entry of pollutants from the surface • interconnection between aquifers • degradation of natural hydrostatic conditions (maintain pre-drilling pressures).	Yes (Applicable to all exploration programs that may intersect groundwater.)	• Basement unit is expected to be very low yielding. • Drilling fluids used downhole are to be biodegradable products.	1	A	Low	**Drillholes restored to controlling geological conditions that existed before the hole was drilled or, where it is intended to re-enter the hole, the hole must be completed with casing of adequate strength and the casing cemented so that all aquifers are isolated to prevent the movement of any fluids behind the casing.**	Maintain evidence demonstrating that drillholes are decommissioned in accordance with Earth Resources Information Sheet M21, *Mineral exploration drillholes – general specifications for construction and backfilling*, and/or specific conditions from DEW (Groundwater) within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Provide the information requested within the 'Groundwater' section of the annual exploration compliance report.

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	**Potential impacts** Lists are not exhaustive.	**Is the potential impact applicable (Yes/No)** Some potential impacts are applicable to all programs.	**Control strategies** Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	**Risk assessment** LH = likelihood of consequence CQ = severity of consequence				
				LH	**CQ**	**Risk**		
Soil/vegetation/fauna	Discharge of groundwater into the surrounding environment.	Yes (Applicable to all exploration programs that may intersect groundwater or where activities require the discharge of groundwater into the surrounding environment.)	• No drilling in prescribed wells areas. • Sumps rehabilitated once dry to prevent saline groundwater contamination.	1	A	Low	**No discharge of groundwater outside of the exploration site (e.g. drillsite) into the surrounding environment and no discharge of water into a watercourse, unless prior approval under the relevant legislation is obtained.**	Maintain photographic evidence of all drillsites demonstrating that groundwater was not discharged into the surrounding environment, unless water affecting activity permits were obtained allowing the discharge of groundwater into watercourses and/or lakes. Representative photos and water affecting activity permits (where applicable) to be included within the annual exploration compliance report.
Groundwater users	Interference to existing water users when extracting water from existing dams, water bores or mineral drillholes.	No (Applicable to all exploration programs that may require the use of water from existing dams, water bores or mineral drillholes.)	N/A				**No public nuisance impacts resulting from the extraction of water for exploration purposes, unless prior approval under the relevant legislation is obtained.**	Provide the information requested within the 'Complaints' section of the annual exploration compliance report demonstrating that all reasonable complaints from stakeholders were resolved to the satisfaction of both parties, prior to and ongoing during the course of the exploration program without the involvement of DEM. Where permits are required for the extraction and/or usage of groundwater, provide copies of the licence or permit within the annual exploration compliance report.
Soil/vegetation/fauna	Degradation of rehabilitated access tracks caused by third party access (includes previously closed and rehabilitated access tracks).	Yes (Applicable to exploration programs that create new access tracks.)	• Tracks to be closed off when no longer required. • Tracks that are no longer required will be rehabilitated. The rolled tracks that have had minimal use are left to self-rehabilitate. Any high traffic areas are scarified and road/track junctions closed off with the berms raked and wheel ruts removed with either a scarifier or manually. The traverse is then covered using natural dead trees and foliage to hide the area from third party access. Particular attention will be provided when rehabilitating tracks to the access points from existing public tracks. Entries to old tracks will be disguised with scarifying. • When track created, a J-bend is put in at the start to reduce track visibility.	2	B	Low	**Rehabilitated access tracks remain permanently closed, unless prior approval under the relevant legislation is obtained.**	Maintain before and after photographic evidence demonstrating that all tracks are closed and rehabilitated within 3 months of the expiry of the PEPR approval (for PEPRs approved for a period of 12 months), or 3 months after the expiry of a program notification (for PEPRs approved for an ongoing period), unless otherwise authorised. Representative photos are to be included within the annual exploration compliance report. Provide the information requested within the 'Rehabilitation' section of the annual exploration compliance report.
Community/landowners	Damage to infrastructure and loss of income through fire.	Yes (Applicable to all programs.)	• Site inductions will highlight fire risk and associated emergency procedures. • Drill rig to hold a minimum of 400L of water to extinguish fire in the remote chance fire is ignited. • Drill rig to carry fire-fighting pump and equipment. • Fire extinguishers located in every vehicle and at appropriate locations around the rig and support vehicle. • All fire extinguishers to comply with Australian Standards. • Vehicles to be parked in clear areas and avoid any dry, thick vegetation. • If vehicles travel through any vegetation, they must be thoroughly checked in daily prestart to ensure there is no build-up of grasses or other plant matter. • CFS website and fire risk assessments completed each morning and work stopped on Extreme-Catastrophic rated days. • CFS Fire Danger Rating applies for a 24-hour period from midnight to midnight – crews stand down until the rating decreases.	1	C	Moderate	**No loss of infrastructure or income through fire as a result of exploration activities.**	Provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report confirming that no uncontrolled fires* occurred. Alternatively, provide a report on the independent investigation of all uncontrolled fires* demonstrating that the licensee could not have reasonably prevented the fire through the implementation of precautionary measures.
General public	Injury or death to members of the public as a result of exploration activities.	Yes (Applicable to all programs.)	Area can be accessed by indigenous communities, landowners and the public (including tourists): • Signage to be put in place along access tracks in areas where public access is considered a risk (i.e. closer to main populations or indigenous communities, roadside verges). • Communication of proposed exploration activities as detailed in the EPEPR to all necessary parties – indigenous, land owners, etc. • Drilling operations to cease operations until member of public is outside of the drill rig exclusion zone. • No exploration activities are to be conducted around public infrastructure.	1	C	Moderate	**No accidents involving the public that could have been reasonably prevented by the licensee.**	Provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report confirming no accidents occurred involving the public during and after the exploration program. If an accident involving the public did occur, provide a copy of the independent investigation report within the annual exploration compliance report demonstrating that the licensee could not have reasonably prevented the accident through the implementation of precautionary measures.

Impact assessment							Outcomes	Outcome measurement criteria (inc. monitoring plan)
Receptor Lists are not exhaustive.	**Potential impacts** Lists are not exhaustive.	**Is the potential impact applicable (Yes/No)** Some potential impacts are applicable to all programs.	**Control strategies** Indicate where there is uncertainty pertaining to the likely effectiveness of the control strategies. Where the risk is not considered low, provide justification that the risk is acceptable, or consider additional strategies to reduce the risk to an acceptable level. – refer to Minerals Regulatory Guidelines MG22 for more information.	**Risk assessment** LH = likelihood of consequence CQ = severity of consequence				
				LH	**CQ**	**Risk**		
General public, employees, contractors and the environment	Contamination of the environment when exploring for known uranium and thorium deposits. Public and employee/contractor exposure to low level radiation.	No (Applicable to exploration programs located within known uranium or thorium deposits.)	N/A				**No increase in background radiation levels, and employee/contractor exposure levels during the exploration program are within safe limits.**	Maintain a database and provide a statement within the 'Compliance with approved programs' section of the annual exploration compliance report demonstrating that: • Radiation levels post exploration and rehabilitation are consistent with pre-existing background levels. • Employee and contractors exposure levels were within safe limits during the exploration program.
Other (if applicable)								

* Uncontrolled fires = fires that escape outside of the work area (e.g. drillsite).

† Properties = freehold (cropping and grazing land); perpetual/pastoral lease land; council land; regional reserves; national, conservation and marine parks; Aboriginal land; Commonwealth land etc.

SECTION G - OPERATOR CAPABILITY

Provide information demonstrating that the tenement holder and operator (where applicable) has the capability to conduct the program in a manner that consistently ensures ongoing achievement of the environmental outcomes. This may be demonstrated within the PEPR by providing an overview of the following:

Manuals or standard operating procedures that outline the safe and environmentally sound operation of all critical operations associated with the exploration program that ensure compliance with the PEPR.

Systems in place to monitor, audit and assess compliance against the criteria approved in the PEPR.

Systems in place to identify and report any noncompliance with regulatory requirements or relevant environmental outcomes (e.g. measures in place to report incidents in accordance with regulation 79(3)).

Practices and procedures in place to provide appropriate communication of regulatory requirements to employees and contractors (e.g. induction programs).

Practices and procedures in place to respond to, and communicate with landowners and external parties on the proposed program and compliance matters (e.g. complaints)

Iluka has a long history of working in South Australia, with the majority of work completed within the Eucla Basin. Iluka has undertaken extensive exploration activities and has mining operations at Jacinth Ambrosia. Iluka has consulted closely with many government agencies throughout exploration activities to ensure the best possible environmental outcomes are achieved.

Policies and Procedures

Iluka's policies and procedures, listed below, are used by supervisors and field crews to ensure that the environmental factors of exploration programs are understood by staff and contractors working on Iluka exploration tenements/programs.

- Iluka HSEC Policy
- Iluka Group Standard – Risk and Hazard Management
- Iluka Group Standard – Incident Reporting and Investigation
- Iluka Group Standard – Auditing and Assurance
- Iluka Group Standard – Contractor Management
- Iluka Group Standard – Environmental Management
- Iluka Group Procedure – Social Performance
- Iluka Group Procedure – Greivance Management
- Group Guideline – Recording External Engagement
- Safe Work Instruction – Aus Ex-EHS-SWI 028 Fire Prevention and Readiness
- Safe Work Instruction – SWI 020 - Site Rehabilitation
- Safe Work Instruction – SWI 001 - Hydrocarbon Spill Clean Up
- Safe Work Instruction – Drill Site Setup
- Safe Work Instruction – SWI 014_ Helicopter Management for Field Operations
- Technical Work Instruction – TWI artefact discovery during exploration activities
- Technical Work Instruction – TWI-074_DEXP_Work Site Photography
- Technical Work Instruction – TWI-012_EBEXP_Track Access Creation
- Drilling Contractor Safe work Instructions – Aircore drilling
- Iluka Procedure Operations
- Iluka Resources Exploration – Drilling Operations Procedure
- Iluka Resources Exploration – Stakeholder Management Plan

Safety and Incident Response/Reporting

Iluka has a strong commitment to safety. Pre-mobilisation inspections on all field equipment are undertaken and drill and support equipment is inspected on a daily basis on site. Incident response/reporting is mandatory with the following systems in place:

- Iluka Incident Management System
- Incident Response Plans
- Incident Reporting and Investigation – 5 Whys and ICAM

Inductions/Communications

Inductions of all field staff and crew, listed below, are undertaken before exploration activities commence, including training on significant flora and fauna in the area, protection of threatened species and the provision of threatened flora and fauna fact sheets. During the exploration program, environmental performance is assessed during daily pre-start meetings and weekly toolbox meetings.

- Induction – Iluka Generic Induction
- Inductions – Exploration and Geology
- Induction – Project Specific Induction (Immarna North East Project)
- Daily Pre-start Meetings – Safety and Environmental performance assessed each day
- Weekly Safety Meeting/Toolbox Meetings
- Planned Work Place Inspections by Drill site supervisor are undertaken on a daily basis to ensure compliance with PEPR requirements.

Risk Assessments

- Risk Assessment – Bushfire Risk Assessment
- Group Risk Assessment Workshop prior to commencement of Exploration Programs – Project Environmental Risks assessed inline with PEPR with controls put in place, communicated through inductions and site supervision.
- Job Hazard Analysis (JHA) – mobilisation, drilling operations (including drill site set up, drilling, rehabilitation)

Take 2 – Personal Risk assessments completed by field crew for all tasks (e.g. Take 2 prior to grinding bits to ensure controls are in place)

Monitoring

Iluka maintains a (GIS) spatial database data and maps to record exploration and rehabilitation activities. Information stored in the database includes drilling traverses, access tracks, rehabilitated tracks, camp locations and photographic records.

Iluka install photo points at drillholes and entrances to new tracks and take before and after photographs. Photopoint photographs, data and maps are stored electronically on Iluka's local network drive.

Reporting

Iluka submit compliance reports to DEM detailing the work and demonstrating compliance with agreed outcomes, including photographs of sites.

Auditing

Iluka and stakeholders conduct environmental audits through a system of internal and external documentation, reporting and inspection processes.

Complaints

The exploration grievance management process sets out:

- Clear methods which allow stakeholders to make contact with grievances;
- A process with timeframes, to receive, manage and resolve grievances; and
- Responsibilities and the process of recording and closing out grievances.

Comments and grievances may be lodged with Iluka by external stakeholders through the following:

- Phone 1800 305 993;
- Email communities.support@iluka.com;
- Online www.iluka.com.au/contact-us; or
- In person during fieldwork.

SECTION H –ADDITIONAL INFORMATION

List any other supporting information and/or documents submitted with the application, including land access approvals/permits required to conduct the proposed exploration program.

N/A

SECTION I – PHOTOS

Photos

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 1				High dune field area at Atacama

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 2				Group 1 vegetation (Emergent or very open Acacia papyrocarpa low woodland with a chenopod low shrubland understorey)

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 3				Group 2 vegetation (Chenopod shrubland)

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 4				Group 3 vegetation (Open mallee or *A. papyrocarpa* low woodland)

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 5				Truck Mounted Air Core Drilling Rig & Truck Support Vehicle

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 6				Truck Mounted 4WD sonic drill rig

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 7				Track Mounted Mantis Air Core Drilling Rig & Track Mounted Support Vehicle

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 8				Track mounted diamond drill rig

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 9				Toyota 4WD logger vehicle

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 10				Utility Terrain Vehicle

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 11				Skid steer loader

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 12				Backhoe

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 13				Light 4WD support truck fitted with 3000 litre capacity water tanks

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 14				Dozer and Roller set up

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 15				Telehandler

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 16				4WD Tractors

Large 4WD tractor

Small 4WD tractor

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 17				Scarifier

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 18				Tyre dragging frame

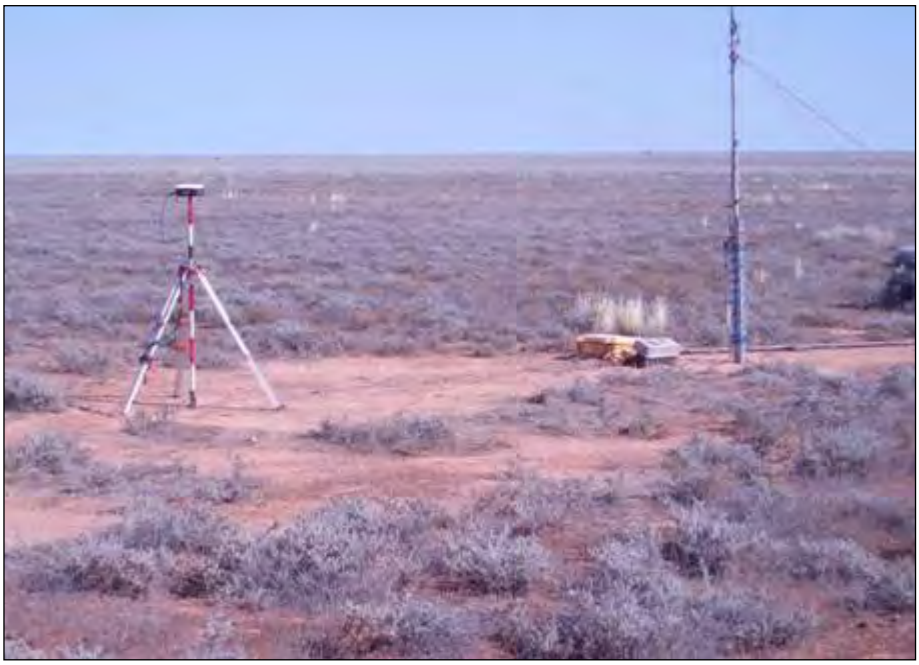
Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 19				Example of 6 passenger Bell 206L Long Ranger helicopter

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 20				Example of Jet A1 specific purpose/certified fuel truck

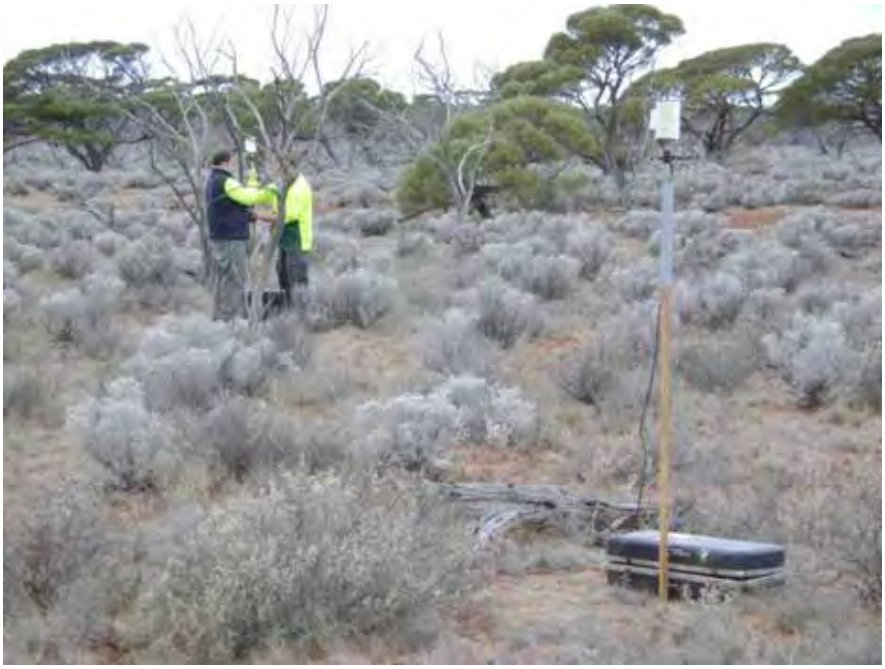
Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 21				Example of passive seismic meter prior to data collection

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 22				Ambient noise tomography passive seismic meter before and after burial; preparation of hole for burying seismic meter

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 23				Gravity survey equipment with GPS base station on left and ground station on right



Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 24				Magnetic survey equipment



Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 25				Drill site preparation - backhoe digging sump for diamond drilling

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 26				Use of sump to contain water during RC and diamond drilling

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 27				Transportable tank used to collect water return with sonic drilling

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 28				Aircore drilling

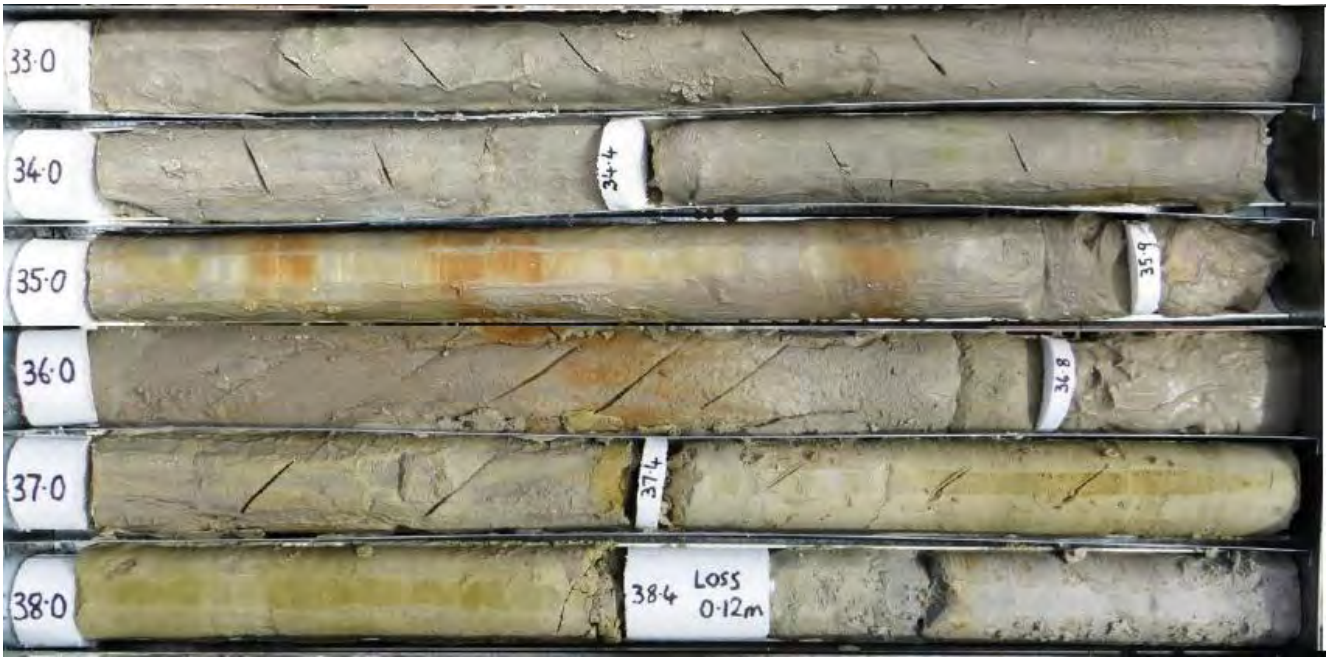
Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 29				Diamond drilling

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 30				Drill samples from AC drill rig collected in calico bags and placed on adjacent table

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 31				Excess drill spoil is collected on tarp

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 32				Excess drill spoil returned downhole post drilling

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 33				Drill core samples stored in core trays ready for transport



Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 34				Track creation using roller – post drilling

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 35				Example of remote camp layout

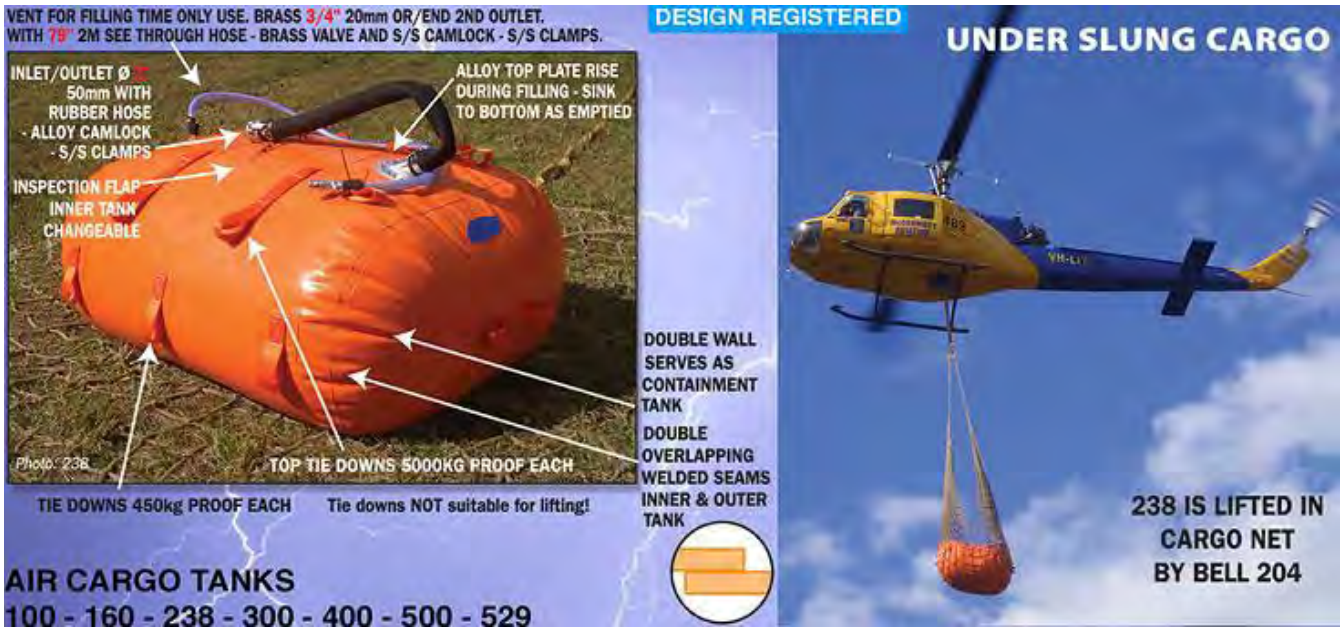
Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 36				Kitchen and office caravans setup parallel to each other and enclosing an annexe

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 37				Typical trailer mounted portable toilet

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 38				Regional camp kitchen sump showing mesh covering

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 39				Bunded hydrocarbon storage

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 40				Example of water/fuel bladder transported by helicopter for water supply purposes



/cont…

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 41				Process of rehabilitation of drill site

Top left: Exploration drill hole.
Top right: Excess drill spoils placed on sheet and poured back down the hole.
Bottom left: Drill hole area raked and levelled.
Bottom right: Rehabilitated drill hole .

/cont…

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 42				Scarifier with middle tines removed to leave themiddle of the track in tact

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
		Photo 43				Rehabilitated Gobi track using modifed scafier

	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
Nundroo Wm northern track entry after drilling	3/7/2018	Photo 44	744951	6523166	52	This photo indicates the condition of existing track Wm after the drilling program had been completed but prior to any rehabilitation. Taken at the northern entry to the track.

Site identification/details	Date taken	Photo number and PEPR section reference	Easting (GDA94)	Northing (GDA94)	Zone	Comments
Nundroo Wm northern track entry after rehabilitation	3/7/2018	Photo 45	744951	6523166	52	Track Wm after rehabilitation. Taken at the northern entry to the track.

SECTION J – MAPS

Provide a map(s) showing the following information that is located adjacent to or within the proposed area of operations, where applicable:

tenement boundaries,

cadastral information,

existing surface contours,

existing vegetation,

location of the proposed exploration operations (includes drillholes, existing and new access tracks, drill traverses, campsites, laydown areas and other applicable information) and/or the target exploration area(s),

location of existing ephemeral and permanent rivers, creeks, swamps, streams or watercourses and water management structures,

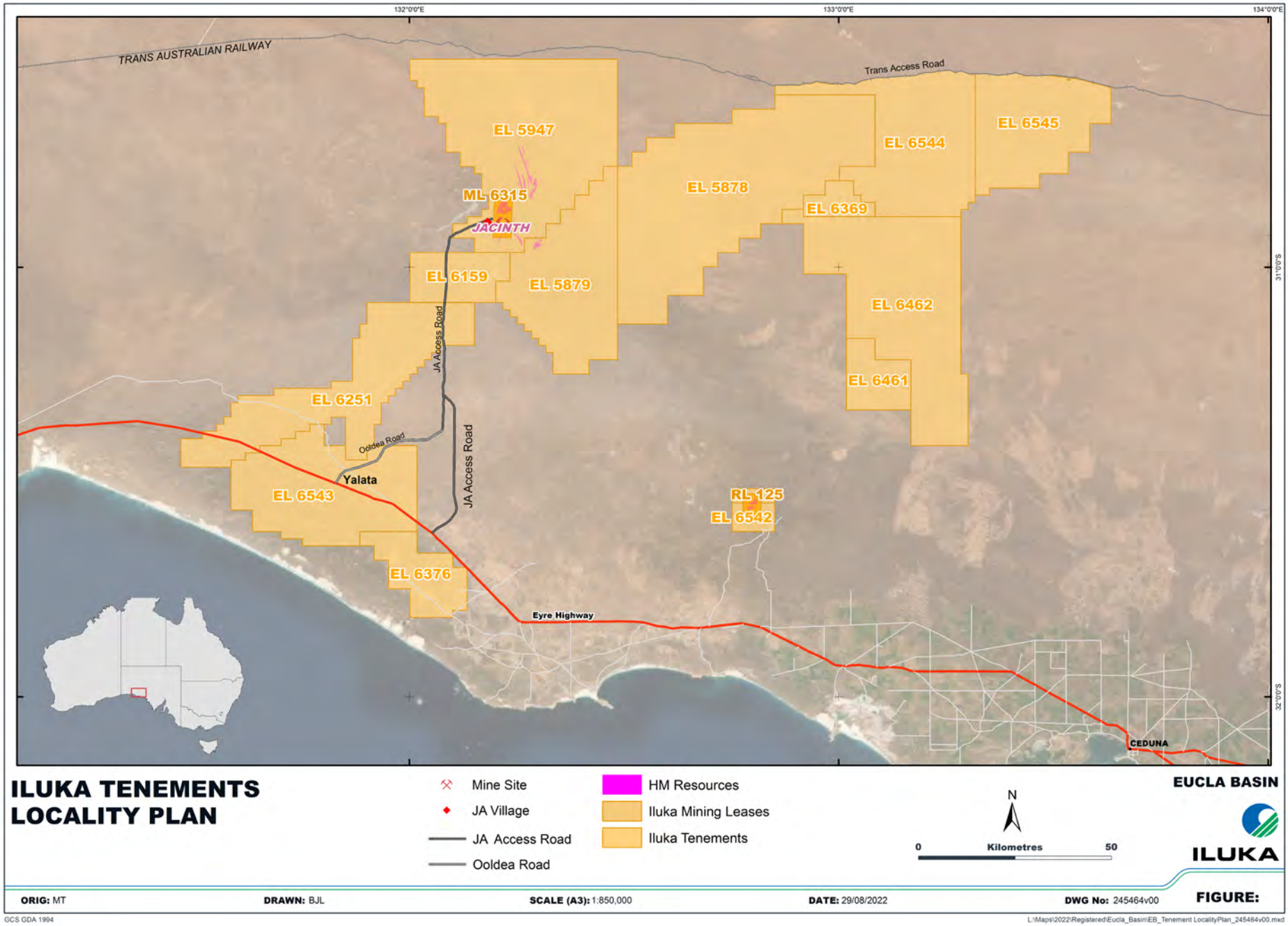
location of towns, houses and homesteads, existing roads, rails, fences, transmission lines, buildings, dams and pipelines

known sightings of listed species,

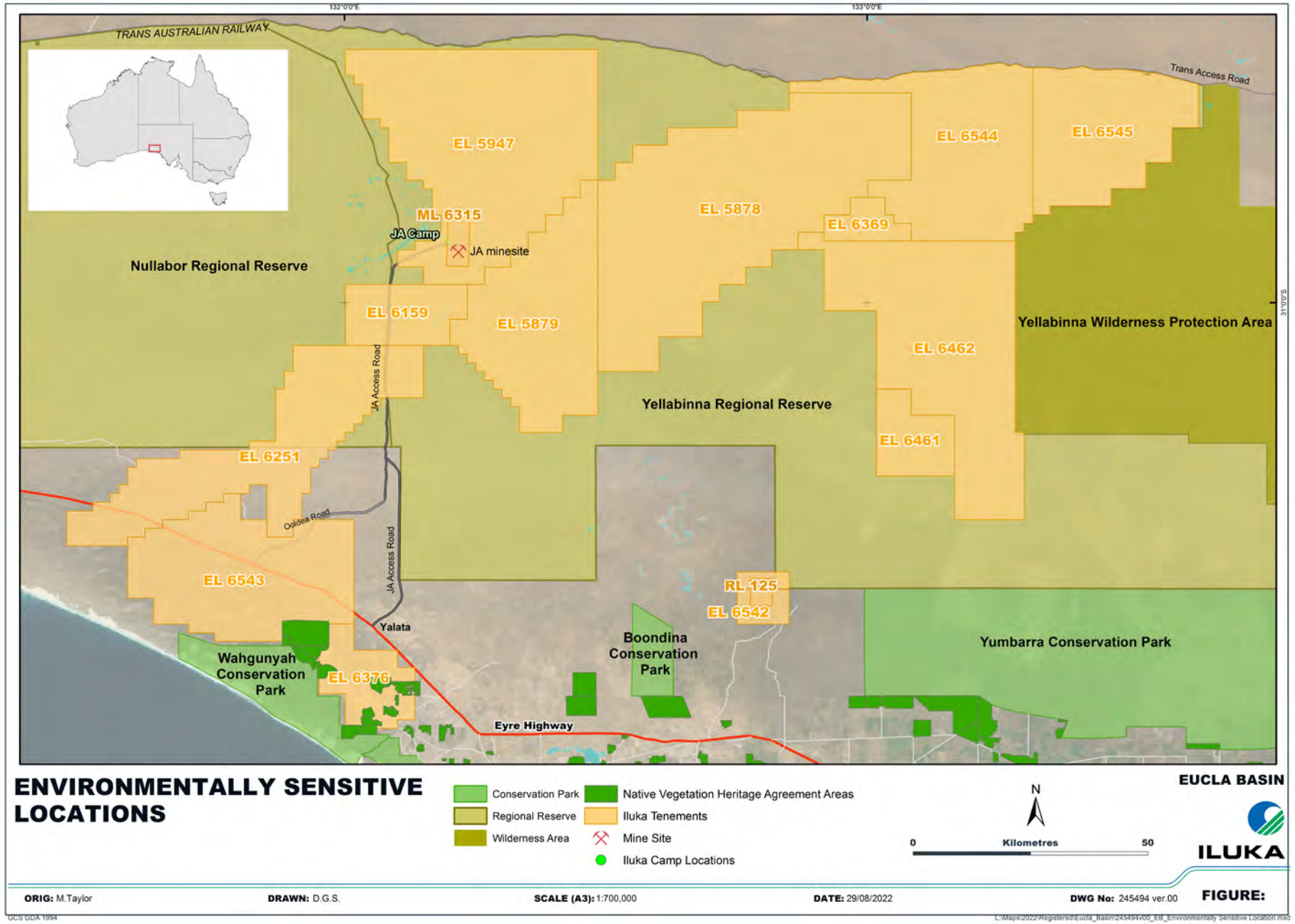
location and extent of all environmentally sensitive areas,

any relevant land use types (e.g. parks and reserves, Aboriginal freehold land, Woomera Prohibited Area).

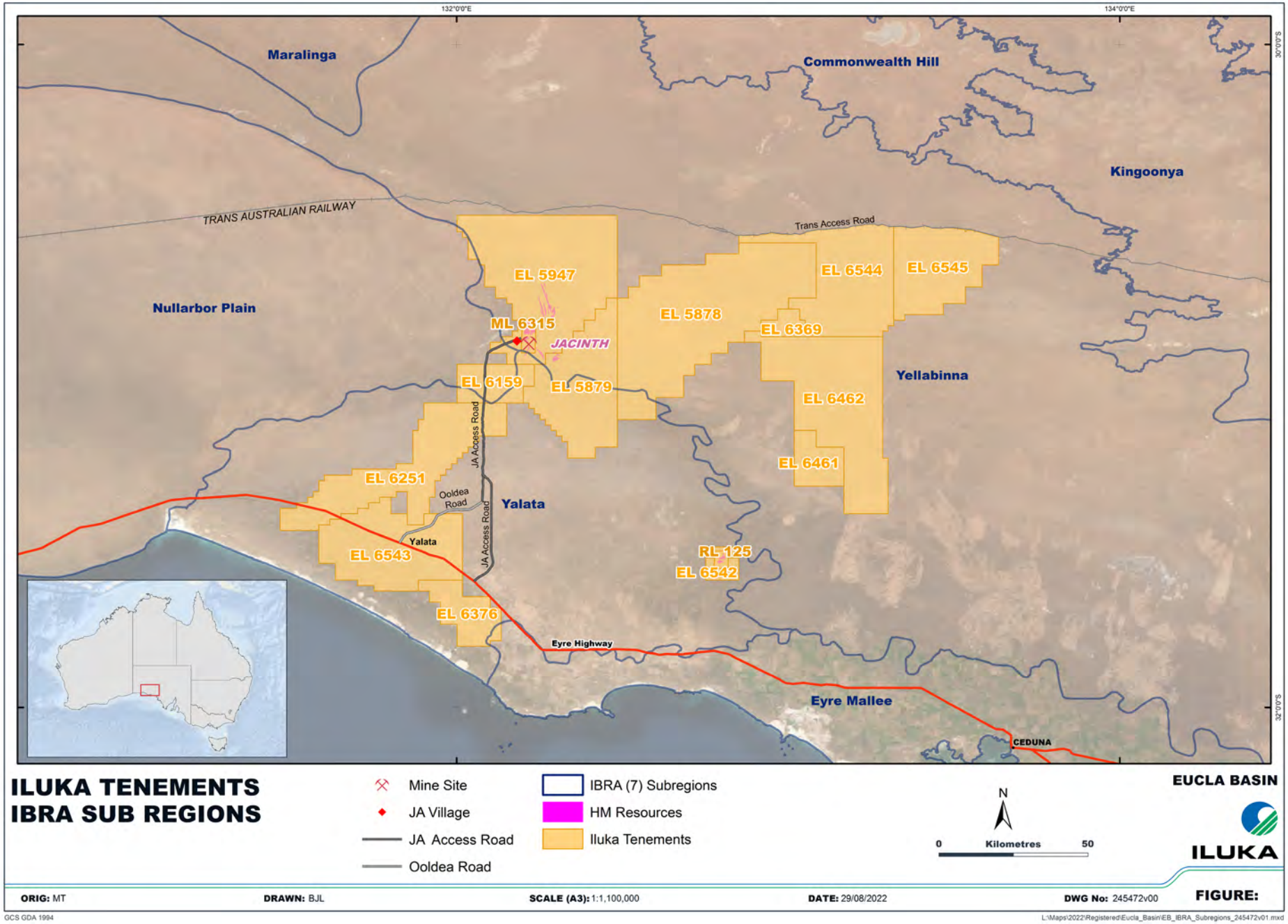
All maps and sections must conform to the standards outlined in the Exploration PEPR Terms of Reference.



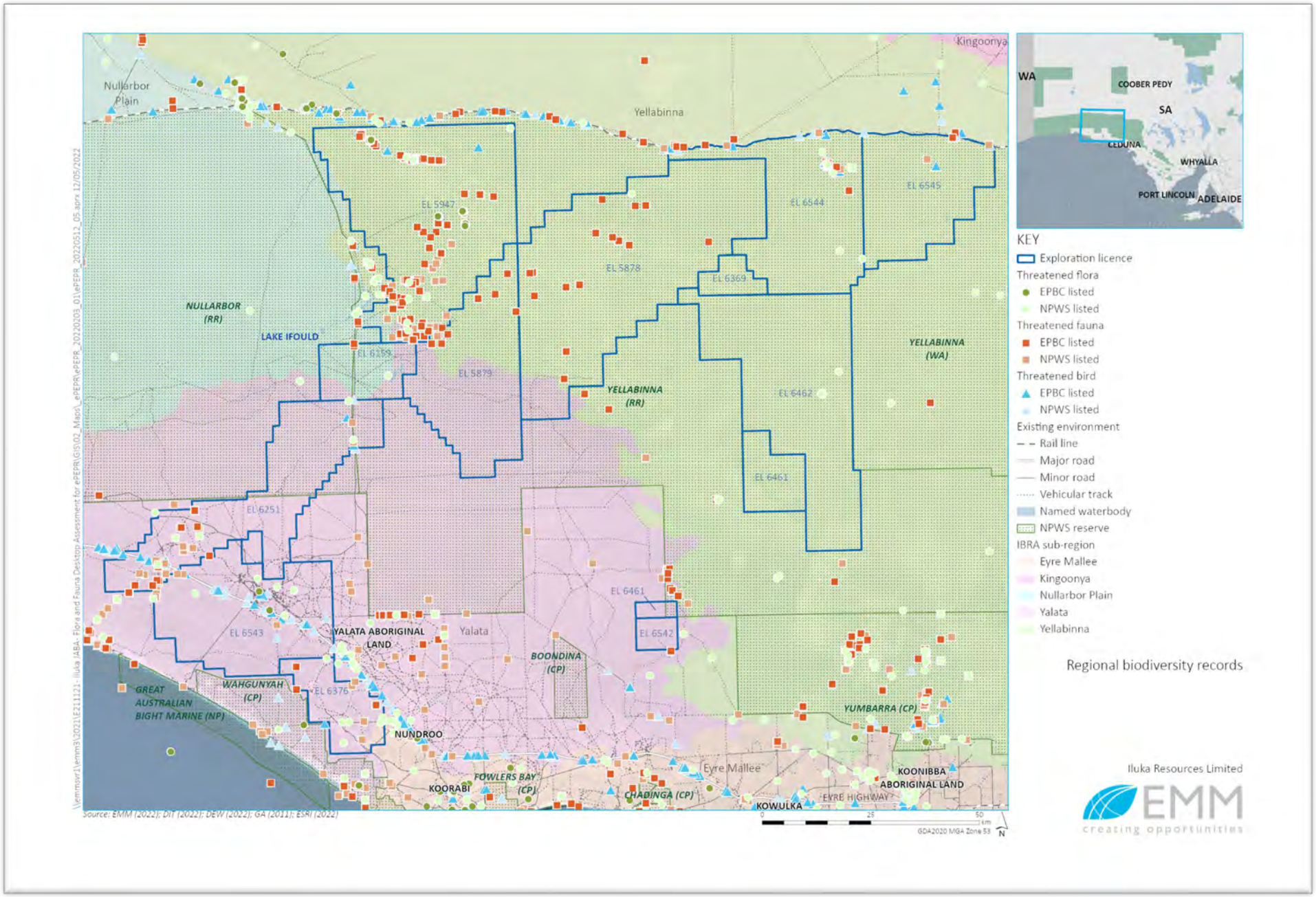
Map 1: Iluka Tenements Locality Plan



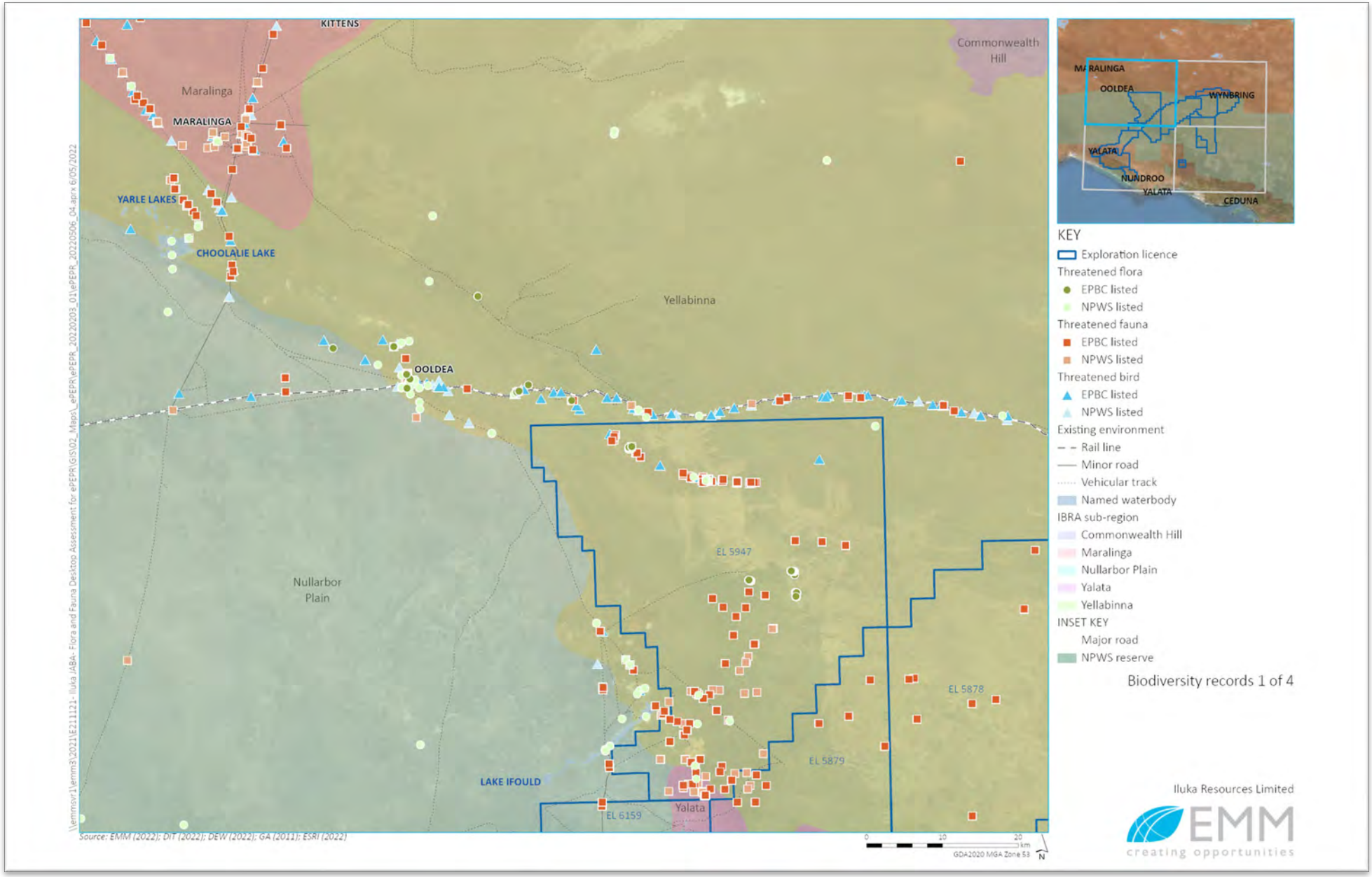
Map 2: Environmentally Sensitive Locations



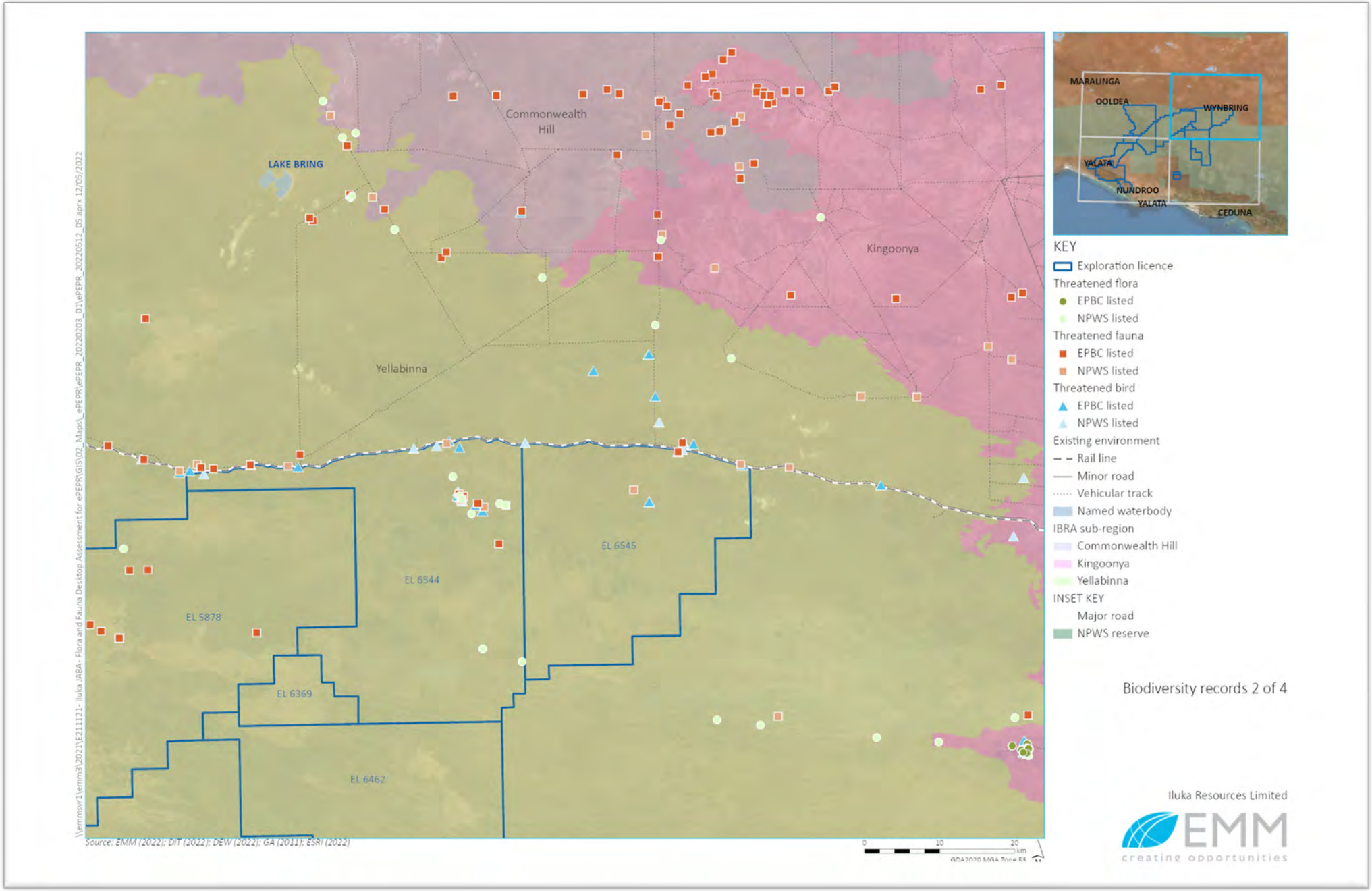
Map 3: IBRA Sub Regions



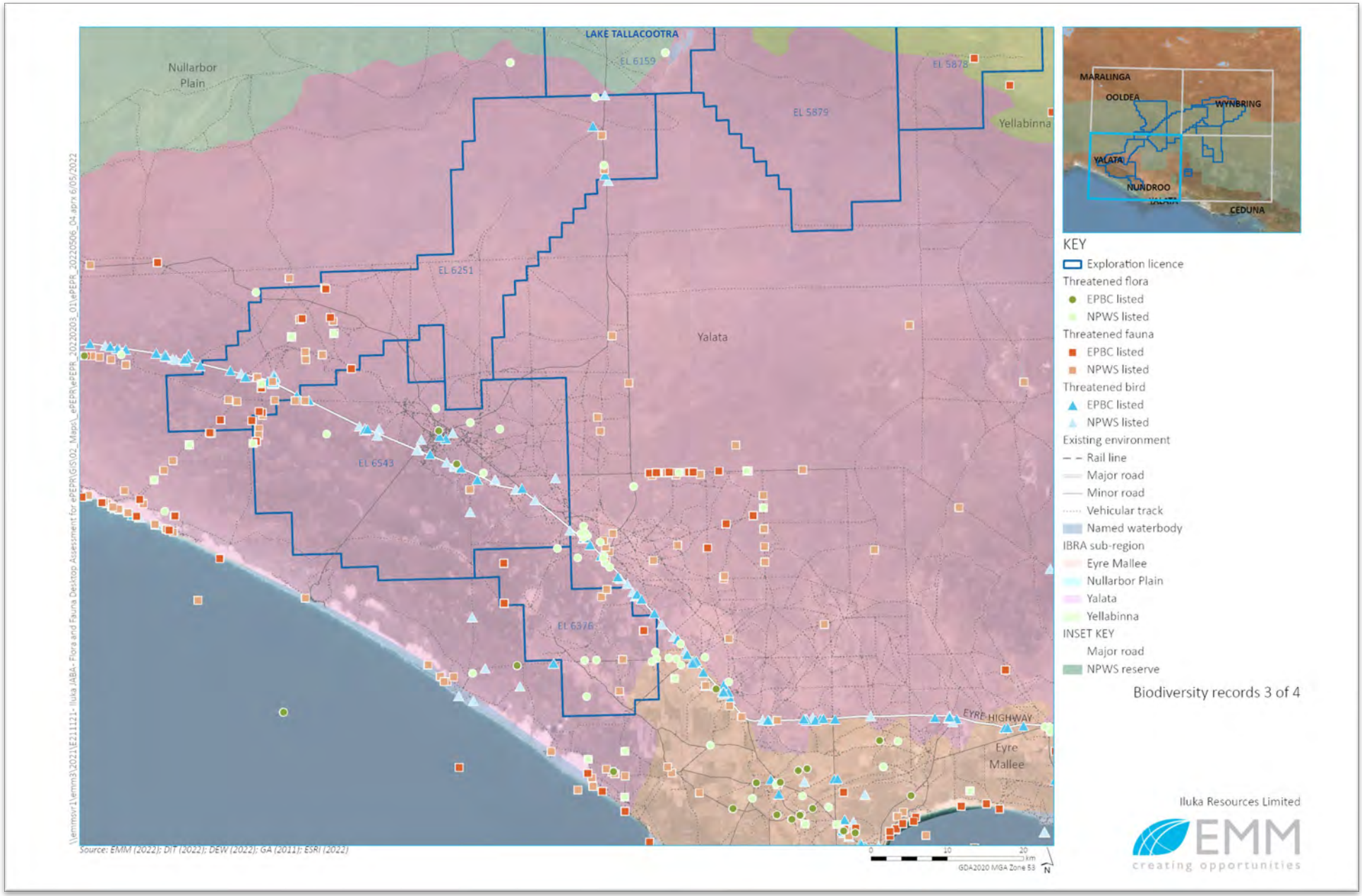
Map 4: Regional Threatened Flora and Fauna



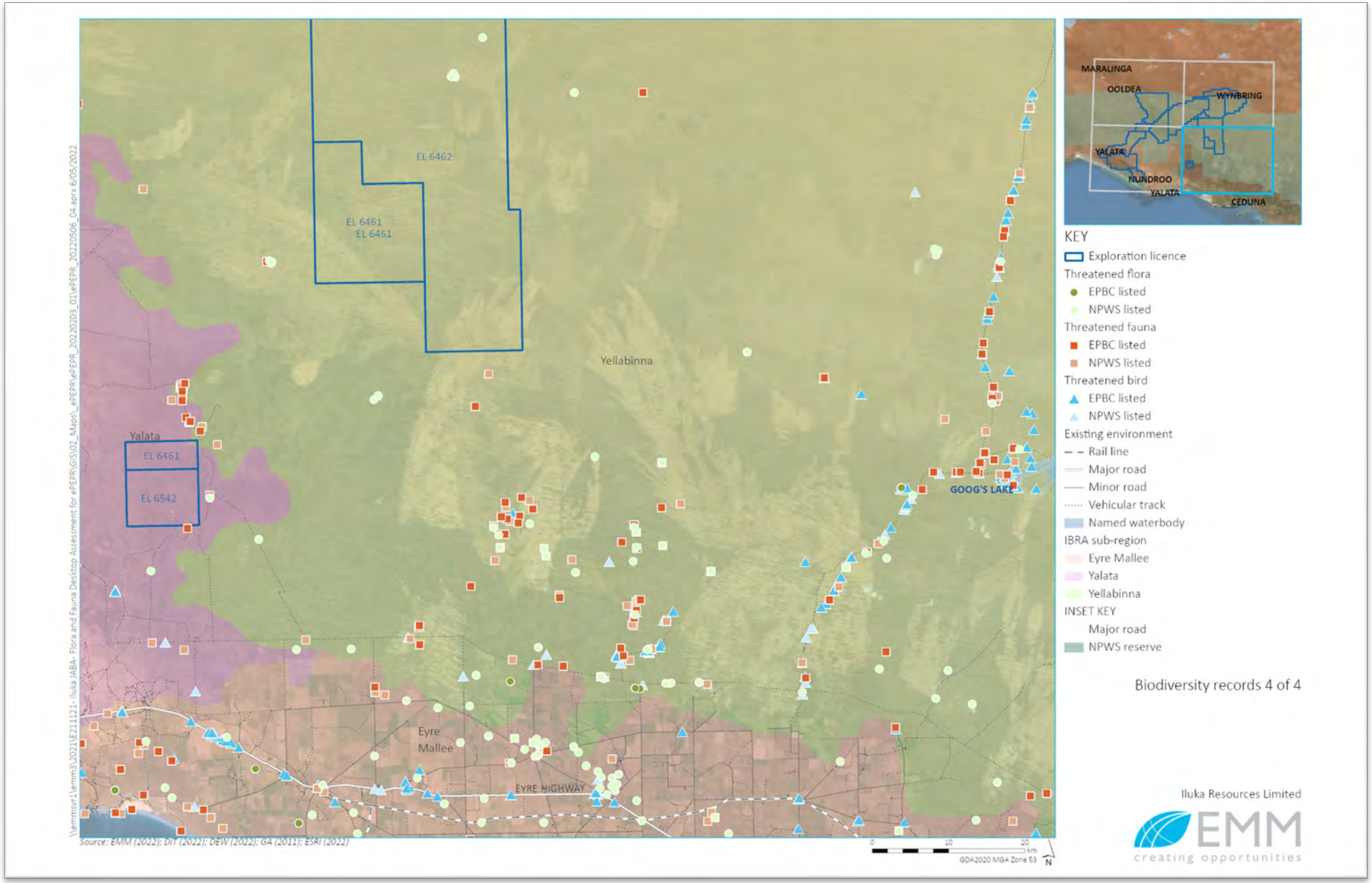
Map 5: Area 1 - Threatened Flora and Fauna



Map 6: Area 2 - Threatened Flora and Fauna



Map 7: Area 3 - Threatened Flora and Fauna



Map 8: Area 4 - Threatened Flora and Fauna

SECTION K – PUBLIC RELEASE

PEPR documents will be registered on the mining register and publicly released in full without the need to request consent from the tenement holder(s). Ultimately, it is the applicant's responsibility to ensure that confidential, or commercially sensitive, information is not included within the PEPR application.

SECTION L – SUBMISSION OF THE APPLICATION

An application for an Exploration PEPR or PEPR review, must be submitted in the following form, unless otherwise specified by the Director of Mines or an authorised officer:

an electronic version of the PEPR must be submitted using the exploration PEPR template(s) provided on the DEM Minerals website,

the electronic version must be submitted online through the DEM Minerals website using the exploration PEPR submission form,

the electronic version must be submitted in one single Acrobat PDF file, and

Microsoft Word-compatible files must be submitted if requested by the Director of Mines (or delegate), or other authorised officers.