Esmeralda Graphite Project

Application Number: **02819** Commencement Date: **14/03/2025** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Esmeralda Graphite Project

1.1.2 Project industry type *

Mining

1.1.3 Project industry sub-type

Other

1.1.4 Estimated start date *

01/01/2027

1.1.4 Estimated end date *

01/01/2087

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Graphinex Pty Ltd (through its subsidiary Qld Aus Graphite Pty Ltd) proposes to develop the Esmeralda Graphite Project (the Project), located on light grazing land approximately 70 km south of Croydon (Attachment 2, Figure 1), Queensland, Australia. The Project proposes mining of the Esmeralda Granite unit and on-site concentration of graphite ore.

Graphite is recognised as a 'critical mineral' by both the Queensland and Commonwealth Government, reflecting its strategic importance and limited global availability. Local production of graphite will aid the state's renewable energy transition. Furthermore, the advancement of this project will contribute significantly to establishing a sustainable, long-term supply of high-grade graphite, essential for a wide range of renewable energy applications. This initiative aligns with broader national and state objectives to secure vital resources for the emerging green economy and enhance energy independence.

The area of the MLA is approximately 4,418 ha, while the area of the disturbance footprint is approximately 3,025 ha. The avoidance footprint area is approximately 1,393 ha.

The Project proposes to construct and develop an open cut graphite mine, producing up to ~3.5 Mtpa of Run-of-Mine (ROM) ore over a mine life of approximately 50 years. Mining is proposed to be via conventional truck and excavator methods, to a depth of ~280 m below ground level. Ore extraction necessitates the implementation of controlled blasting techniques. Mine construction is scheduled to span 18 months, with mining ramping up over the first three years.

Excavated overburden and non-ore-bearing material will be deposited in one of two out-of-pit waste dumps located adjacent to the mining void. The majority of waste movement will occur within the first 18 years of the mine life, with an estimated 143.8 Mt moved over the entire 50-year production life of the Project.

Graphite ore (~ 6% total graphite) will be trucked to the mineral processing plant for stockpiling and concentration via conventional flotation methods. The processing method includes an initial crushing and milling circuit that liberates the graphite in 300-micron product. Ore is then fed to a flotation circuit consisting of rougher and flotation stages. A combination of standard flotation reagents will be used such as diesel and MIBC. Flotation tailings produced from the mineral processing circuit will be transferred to one of three purpose designed storage facilities, to be constructed in stages over the production life of the mine.

Other infrastructure necessary to support project operations will include:

- mine access, tracks and haul roads;
- on-site solar array and energy storage system with back-up diesel generation;
- accommodation facility, ablutions, sewage treatment plant, airfield;
- water management infrastructure including a permanent watercourse diversion, flood levee, dams, drains and bunds;
- mine infrastructure areas including mine offices, bathhouse, crib rooms, warehouse/stores, workshop, fuel storage, refuelling facilities, wash bay, laydown area, effluent and liquid waste storage;
- ROM and product stockpiles and product loading area; and
- Concentrator plant
- airfield
- power, water and other minor plant and equipment.

Final infrastructure locations and extent will remain subject to ongoing assessment, with indicative locations presented in Attachment 2 (Figure 2).

Existing regional infrastructure, facilities and services may be utilised to support Project activities. These include, but are not limited to, local and regional public road network, regional airports, the Port of Townsville, and the procurement of goods and services from local providers.

Rehabilitation will occur progressively over the mine life as land becomes available for reclamation. Progressive rehabilitation will focus on areas of waste rock dump and tailings cells during operations, with the remainder of rehabilitation to occur post-mining over an estimated 10-year period. The final landform design is likely to include final void and drainage channel, which will be engineered to ensure safety, structural stability, and environmental compliance.

The Esmeralda Graphite Project has prepared this *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Referral to address requirements of the EPBC Act. The referral addresses the potential risk to Matters of National Environmental Significance. The referral is supported by comprehensive ecological assessment of the Project, addressing Project risks to nationally listed threatened species and communities and listed migratory species (Attachment 3).

The relevant state approval process will be a Coordinated Project, Environmental Impact Statement (EIS), administered by the Office of the Coordinator General. The proponent considers the Project is unlikely to impact any MNES and as such, should not be a controlled action.

This report is supported by the following EPBC Act referral attachments:

- Attachment 1 – EPBC Act Protected Matters Search Tool
- Attachment 2 – Supporting Figures
- Attachment 3 – Terrestrial Ecology Assessment
- Attachment 4 – Assessment of Likelihood of Occurrence and Impacts
- Attachment 5 – Graphinex Environmental Policy

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

A referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) is required to determine whether assessment of potential impacts to Matters of National Environmental Significance (MNES) is required under the EPBC Act.

The proponent considers the Project is unlikely to impact any MNES and as such, should not constitute a controlled action.

The Project is expected to be assessed as a Coordinated Project, requiring an EIS, under the Queensland *State Development and Public Works Organisation Act 1971* (SDPWO Act).

A site-specific Environmental Authority application (EA) for a new resource activity under the *Environment Protection Act 1994* (EP Act) will be prepared for the Project and lodged with the Queensland Department of Environment, Technology, Science and Innovation (DETSI). Concurrently, a Progressive Rehabilitation and Closure Plan (PRCP) will be lodged with DETSI – presenting the detail on Project activities as they relate to rehabilitation and a return to a stable post mining land use. The PRCP will include milestones for rehabilitation, in addition to criteria and completion dates.

The Project is also subject to a Mining Lease (ML) application, which has been pre-lodged with the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (DNRMMRRD) under the *Mineral Resources Act 1989* (Qld).

The Proponent will develop a Cultural Heritage Management Plan under the *Aboriginal Cultural Heritage Act 2003*. This will be registered with the Queensland Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and Arts.

In regard to other State legislation applicable to the Project, the following Acts have been identified as potentially relevant to approvals:

- *Biosecurity Act 2014*
- *Environmental Offsets Act 2014*
- *Fisheries Act 1994*
- *Local Government Act 2009*
- *Nature Conservation Act 1992*
- *Queensland Heritage Act 1992*
- *Planning Act 2016*
- *State Development and Public Works Act 1971*
- *Strong and Sustainable Resource Communities Act 2017*
- *Transport Infrastructure Act 1994*
- *Vegetation Management Act 1999*
- *Water Act 2000*

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

Consultation with the surrounding community and relevant stakeholders has commenced and will continue during the environmental and social impact assessment process. A comprehensive consultation program will ensure that relevant community members are made aware of the Project, its benefits, and its potential impacts. Ongoing consultation will ensure stakeholders are afforded the opportunity for input into Project development considerations and on issues of relevance. Objectives of Project consultation have included the following principles:

- Ensure community members have understood the Project details, timing, and workforce arrangements so that discussions about impacts and benefits are meaningful.
- Provide community members with the opportunity to identify and assess potential social impacts.
- Ensure transparent and inclusive community engagement to facilitate the ongoing management and monitoring of potential social impacts.
- Ensure Project planning and delivery are informed by community views.
- Ensure post-mining land use is consistent with community expectations.

A comprehensive Social Impact Assessment will be included in the EIS.

The land on which the Project is situated is subject to an active Native Title Claim (Tagalaka People #2 – Tribunal ID QCD2012/013). The relevant Native Title Representative Body is the Tagalaka Aboriginal Corporation Registered Native Title Bodies Corporation (RNTBC). Consultation with the Tagalaka People has commenced with a negotiating protocol executed between the parties and discussions will continue during Project development.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

Personal information may be disclosed to other Australian government agencies, persons or organisations where necessary for the above purposes, provided the disclosure is consistent with relevant laws, in particular the Privacy Act 1988 (Privacy Act). Your personal information will be used and stored in accordance with the Australian Privacy Principles.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	71620818920
Organisation name	AARC ENVIRONMENTAL SOLUTIONS PTY LTD
Organisation address	164 Wharf Street, Spring Hill, 4000 QLD

Referring party details

Name	Aditi Awati
Job title	Environmental Scientist
Phone	61 7 3217 8772
Email	aawati@aarc.au
Address	164 Wharf Street, Spring Hill, QLD 4000

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	21656523965
Organisation name	QLD AUS GRAPHITE PTY LTD
Organisation address	Level 4, 10 Eagle Street Brisbane, 4000 QLD

Person proposing to take the action details

Name	Blair Richardson
Job title	Chief Operating Officer
Phone	+61 417 981 878
Email	brichardson@graphinex.com.au
Address	Level 4, 10 Eagle Street Brisbane, QLD, 4000

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

The person proposing the action (PPA) is QLD Aus Graphite Pty LTD (ABN 21 656 523 965), a subsidiary of Graphinex Pty Ltd (ABN 52 671 823 368). The PPA has no current or historical records of proceedings against them under Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. Graphinex is an ethical and sustainability driven organisation.

Graphinex and the company executives have adhered to their regulatory responsibilities regarding exploration activities and have not been the subject of any environmental legal proceedings that have resulted in fines or prosecution. Graphinex and the company executives are committed to operating in an environmentally and socially responsible manner during the design, approvals, construction, operation and closure of the Project.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

This Graphinex Environmental Policy (Attachment 5) establishes the framework for the management of environmental performance and explains our responsibilities and commitment to the environment. This policy applies to all employees of Graphinex, its contractors and / or suppliers, along with all visitors to Graphinex projects.

Graphinex Pty Ltd is committed to sustainable development and acknowledges that sound environmental management strategies are essential to the continued expansion of the Company. Management is committed to excellence in environmental management and aims to prevent unnecessary environmental impact from the Company's operations through a policy of minimisation of disturbance and degradation of ecosystems. Prompt and effective rehabilitation of any areas disturbed during the course of exploration activities is a key strategy to mitigate environmental harm.

To attain this objective, Graphinex Pty Ltd will:

- Develop, implement and maintain a framework to identify, assess and manage impacts on the environment and community at all stages of our operations.
- Ensure employees work within Graphinex's policies and procedures, which are designed to take account of environmental and community considerations. Identify, report and fix (if possible) any environmental or community risks and/ or incidents.
- Incorporate environmental and community considerations into development plans and designs, looking for appropriate technologies which are environmentally sound and community savvy.
- Protect indigenous sites of environmental, cultural or spiritual significance. Ensure personnel understand the environmental effects of their activities.
- Ensure operational compliance with all relevant laws, regulations and standards as a minimum. Listen to community needs and expectations and seek regular feedback.
- Ensure that impacts on the community or environment are thoroughly investigated and recommendations followed up.
- Build a culture of environmental and community awareness.
- Implement exploration programs to conserve resources, reduce waste and promote recycling.
- Observe all environmental laws and conduct activities in compliance with applicable legislation, regulations and license requirements.
- Actively promote environmental awareness among Company personnel and contractors to increase the understanding of environmental matters.

Incorporate environmental matters into planning and operational decisions and conduct regular audits of operations including those of contractors to ensure performance standards are maintained at the highest level.

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	21656523965
Organisation name	QLD AUS GRAPHITE PTY LTD
Organisation address	Level 4, 10 Eagle Street Brisbane, 4000 QLD

Proposed designated proponent details

Name	Blair Richardson
Job title	Chief Operating Officer
Phone	+61 417 981 878
Email	brichardson@graphinex.com.au
Address	Level 4, 10 Eagle Street Brisbane, QLD, 4000

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	71620818920
Organisation name	AARC ENVIRONMENTAL SOLUTIONS PTY LTD
Organisation address	164 Wharf Street, Spring Hill, 4000 QLD
Representative's name	Aditi Awati
Representative's job title	Environmental Scientist
Phone	61 7 3217 8772
Email	aawati@aarc.au
Address	164 Wharf Street, Spring Hill, QLD 4000

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	21656523965
Organisation name	QLD AUS GRAPHITE PTY LTD
Organisation address	Level 4, 10 Eagle Street Brisbane, 4000 QLD
Representative's name	Blair Richardson
Representative's job title	Chief Operating Officer
Phone	+61 417 981 878
Email	brichardson@graphinex.com.au
Address	Level 4, 10 Eagle Street Brisbane, QLD, 4000

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)?

Yes

1.4.2 Select reason for exemption

Small Business

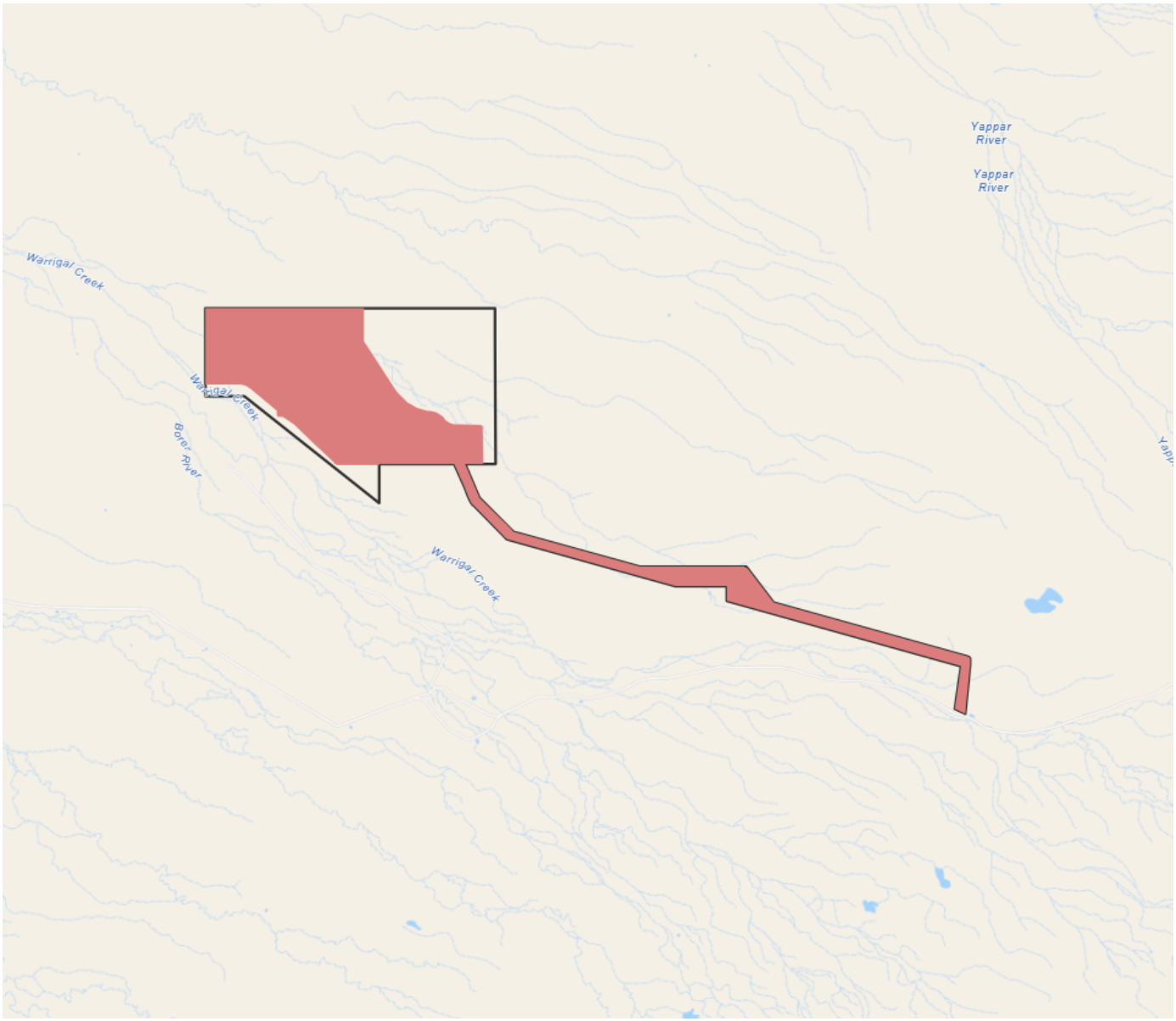
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment?

Person proposing to take the action

2. Location

2.1 Project footprint



Project Area: 4431.52 Ha **Disturbance Footprint:** 3034.95 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Lot 75 on Plan SP273198

2.2.2 Where is the primary jurisdiction of the proposed action? *

Queensland

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The Project spans a proposed Mining Lease Application (MLA). The relevant tenure is described as follows:

- Mining, processing and access will occur within the proposed Production MLA, which is located within exploration permit for minerals (EPM) 28274 held by Graphinex, and EPMs 27818 and 27195 held by Moho Resources Ltd, and EPM 25210 held by IGO Newsearch Pty Ltd. Graphinex has a signed contract with these parties to acquire the relevant tenements.

The area of the MLA is approximately 4,418 ha. There are no additional resource tenements underlying or adjacent to the proposed MLA.

Land located within and adjacent to the Project is leasehold or road/stock route land parcels. Land ownership as it relates to the Project is described as follows:

- The ML will be located entirely within Lot 75 on Plan SP273198
- Adjacent properties include Road Parcel: Esmeralda Prospect Road (81, 48262015) and Lot 3881 on Plan PH1911.

No State Forests, National Parks or conservation tenure are located within or on land adjacent to the Project.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The Project is located inland within the Gulf Plains Bioregion, which encompasses approximately 121,000 km2 of low-lying country and offshore islands of north-west Queensland. The inland vegetation of the Gulf Plains bioregion is dominated by grasslands, Eucalypt woodlands, Melaleuca and Acacia which cover the landscape of plains and river channels comprising clay and alluvial soils (EHP 2015).

The land in the Project area is currently used for low-intensity cattle grazing of native pastures and resource exploration activities, which is consistent with the predominant land use of north-west Queensland. Evidence of cattle grazing has been observed throughout the Project area.

The Project land is classified as Class C2, based on agricultural land class mapping. The Project is not located within Strategic Cropping Areas (SCA), Strategic Environmental Areas (SEA), Priority Agricultural Areas (PAA) or Priority Living Areas (PLA).

No historical mining has occurred in the underlying or surrounding Project area. Exploration drilling has been conducted as part of resource definition and for the development of groundwater monitoring bores.

3.1.2 Describe any existing or proposed uses for the project area.

Land underlying the project is currently used for low intensity cattle grazing.

The land within and surrounding Project area is designated as 'Rural' zone under the Croydon Shire Planning Scheme 2019. Queensland Land Use Mapping classifies the Project area as 'Grazing Native Vegetation' (DNRMMRRD 2024).

Development of the Project area would involve new disturbance for the purposes of resource recovery and infrastructure establishment.

Rehabilitation will occur progressively over the mine life, as land becomes available. Where possible, land will be returned to a sustainable post-mining land use of grazing and/or native ecosystems.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

There are no World Heritage areas within the Project area or within 150 km of the Project footprint. Several state protected areas (established under the *Nature Conservation Act 1992* (Qld) (NC Act)) within 100 km of the Project footprint, namely Tagalaka National Park (also listed as Littleton Resources Reserve), Rungulla National Park and several Nature Refuges. The Esmeralda Nature Refuge is located over 40 km to the west of the Project.

The Project is located within the Norman Drainage Basin in north-west Queensland, which encompasses an area of 50,667 km2 and only contains the Norman River sub-catchment areas (DESI 2023). The Norman Drainage Basin is part of the Gulf Drainage Division.

The Project site is located northeast of Warrigal Creek, between the Warrigal Creek and the Yappar River. The Warrigal Creek flows into the Clara River, which then converges into the Norman River eventually discharging into the Gulf of Carpentaria. The Project is traversed by unnamed tributaries of the Warrigal Creek.

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The topography of the Project area is generally flat. Elevations ranging between 120 m and 140 m Australian Height Datum (AHD).

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

This section is informed by Attachment 3 (MNES Ecology Assessment).

A terrestrial ecology assessment of the Project area has been completed, including three terrestrial ecology surveys undertaken for the Project in 2024 and early 2025 (Attachment 3).

Flora Results:

A desktop assessment of conservation significant flora species records was undertaken for the Project. No flora species listed as Critically Endangered, Endangered or Vulnerable under the EPBC Act were identified by the desktop assessment as having known records within the region (50 km search area from the main Project area) (Attachment 3, Section 4.1.3).

A total of 71 native flora species were confirmed during the field surveys, representing 27 families and 54 genera. The dominant family group was Poaceae (15 species), with Leguminosae (12 species) and Myrtaceae (9 species) also prominent. The dominant family groups demonstrate the overall composition of the vegetation communities surveyed, with the ground layer being the most diverse (Attachment 3, Section 4.2.3).

No Critically Endangered, Endangered, Vulnerable, or Near Threatened Flora species under the EPBC Act were identified in the Project area, despite seasonal surveys across the survey area by suitably qualified ecologists (Attachment 3, Section 4.2.3).

The EPBC Act Protected Matters Search Tool identified only one Threatened Ecological Community (TEC) with the potential to occur within the Project area (Attachment 3, Section 4.2.2) being 'The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin'. The TEC is associated with springs within the Great Artesian Basin area that are the natural surface discharge points of aquifers in the Triassic, Jurassic and Cretaceous sedimentary sequence of the Great Artesian Basin (DCCEEW 2024b).

No springs, active or inactive, have been mapped within 30 km radius of the Project area (DNRMMRRD 2024). No natural discharge from the Great Artesian Basin has been identified within the Project area during field surveys. Field surveys confirmed that there are no natural discharges of groundwater. This includes springs, mound springs, mud springs, boggomoss springs, spring pools or groundwater seeps. Consequently, no vegetation associated with the above-mentioned TEC has been identified within or surrounding the Project area during the surveys (Attachment 3, Section 4.2.2).

Fauna:

A desktop assessment of conservation significant fauna species records was undertaken for the Project. Of the 28 EPBC fauna species of conservation significance (threatened and/or migratory under the EPBC Act) identified, 12 species were assessed to potentially occur within the Project area, with the remainder classed as unlikely to occur (Attachment 3, Section 4.1.3). The 12 species are:

- Common Sandpiper (*Actitis hypoleucos*);
- Fork-tailed Swift (*Apus pacificus);*
- Sharp-tailed Sandpiper (*Calidris acuminata*);
- Red-necked Stint (*Calidris ruficollis*);
- Gouldian Finch (*Chloebia gouldiae*);
- Latham's Snipe (*Gallinago hardwickii);*
- Painted Honeyeater (*Grantiella picta*);
- Glossy Ibis (*Plegadis falcinellus*);
- Black-throated Finch (White rumped subspecies) (*Poephila cincta cincta*);
- Australian Painted Snipe (*Rostratula australis);*
- Common Greenshank (*Tringa nebularia*); and
- Marsh Sandpiper (*Tringa stagnatilis*).

Two bird species of conservation significance, the White-throated Needletail (*Hirundapus caudacutus*), listed as vulnerable and migratory under the EPBC Act, and the Fork-tailed Swift (*Apus pacificus*), listed as migratory under the EPBC Act, were identified during the field surveys (Attachment 3, Section 4.3.4).

A total of 144 native vertebrate species were identified during the field surveys, comprising six amphibians, 25 reptiles, 100 birds and 13 mammals (nine of them confirmed micro-bat species). (Attachment 3, Section 4.3.2).

Five introduced fauna species have been recorded in the Project area through the detection of scats, tracks, sensor camera detection and/or direct observation (Attachment 3, Section 4.3.3):

- Cane Toads (*Rhinella marina*);
- Dingo (*Canis lupus dingo*) or Wild Dog;
- Feral Cat (*Felis catus*);
- Cows (*Bos taurus*); and
- Feral Pig (*Sus scrofa*).

Three of the introduced species, the Feral Cat, the Feral Pig and the Wild Dog/Dingo, are listed as a restricted matter under the Biosecurity Act (Qld). However, none of the species are listed as a prohibited matter under the Biosecurity Act (Qld). These species are also part of the Croydon Shire Biosecurity Plan 2019 (GCB&AI 2019).

A list of flora and fauna species recorded during field surveys is provided in Attachment 3 (Appendix E and Appendix F, respectively).

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

This section is informed by Attachment 3 (MNES Ecology Assessment).

The Queensland Government regulated vegetation map identified all vegetation within the study area as remnant vegetation. All mapped vegetation in the study area is listed as Least Concern under the VM Act.

Field studies verified that the Project area supports remnant vegetation consisting of nine vegetation communities, all of which are 'Least Concern' under the Vegetation Management Act (Attachment 3, Section 4.2.1).

The vegetation communities (VC) associated with the Project area are characterised by:

River Red Gum woodland with Weeping Tea-tree fringing sandy, seasonal channels (VC1) within the north section of the Project area. This VC is generally consistent with RE 2.3.26b. VC1 has a sparse ground layer, primarily dominated by Handsome Lovegrass (*Eragrostis speciosa*). On average, live ground cover typically ranges from 14.4% to 19.2% of the total area, while bare ground accounts for 25% to 49%, and organic litter comprises 37% to 61%.

Broad-leaved Paperbark low woodland on alluvial plains (VC2) is present throughout the Project area. This VC is generally consistent with RE 2.3.29b. The ground cover is primarily dominated by Handsome Lovegrass, Mountain Wanderrie (*Eriachne mucronata*), and *Schizachyrium crinizonatum*. Bare ground comprised 15% to 22% and organic litter covered 53% to 57% of the ground layer.

Broad-leaved Paperbark low open woodland with emergent Long-fruited Bloodwood on broad sand sheets (VC3) is widely distributed throughout the Project area, becoming more prominent in the west and along the transport corridor. This VC is generally consistent with RE 2.5.14a. The ground layer is dominated by Handsome Lovegrass, Golden Beard Grass (*Chrysopogon fallax*), *Schizachyrium crinizonatum*, and (*Setaria surgens*). On average, live ground cover comprised of 14% to 31%, while bare ground equalled to 6% to 35% and organic litter 42% to 80%.

Gulbarn low open woodland on broad sand sheets (VC4) is widely distributed throughout the Project area with a large portion being in the west and centre. This VC is generally consistent with RE 2.5.17b. The ground layer is dominated by *Schizachyrium crinizonatum* and Handsome Lovegrass, with an average live ground cover of 7% to 69% and bare ground cover of 8% to 65%.

Long-fibred Paperbark open woodland with occasional Bloodwood on sandy deposits plains (VC5) is primarily found in the southern section of the Project and within the transport corridor. This VC is consistent with RE 2.5.28a. The ground layer is dominated by *Schizachyrium crinizonatum* and Handsome Lovegrass, with Firegrass (*Schizachyrium fragile*) and Golden Beard Grass. On average, live ground cover accounted for 4.4% to 15% of the total area, with bare ground ranging from 8% to 12% and organic litter covering 77% to 84% of the total area.

Mixed paperbark open woodland with *Terminalia* spp., Smoothed-leaved Quinine and dense shrub layer (VC6) is a shrubby vegetation community aligning with RE 2.3.29a. The ground layer is primarily composed of *Schizachyrium crinizonatum*, with live ground cover accounting for 6.8% of the total area. Bare ground makes up 65%, while organic litter covers 28% of the area.

Coolibah low open woodland with Gulbarn on alluvial plains (VC7) has been identified in three areas across the Project, all of which were along watercourses and adjacent to RE 2.5.17b (VC4). This VC closely aligns with RE 2.3.42a. The ground layer is mostly large patches of bare ground and tussock grasses, with live ground cover ranging from 11% to 52% and bare ground covered between 31% and 82%. The ground layer of this community has scattered shallow depressions that temporarily fill with water following rain events

Torulosa Wattle woodland with occasional emergent Corymbia sp. (VC8) is found in southwest part of the transport corridor. This VC is consistent with RE 2.5.18a. The ground layer is dominated by Firegrass, with occasional *Aristida ingrata*. On average, live ground cover comprised 6% of the total area, while bare ground covered 27%, and organic litter accounted for 67% of the total area.

Seasonal swamp with Broad-leaved Paperbark woodland in shallow closed depressions (VC9), aligns with RE 2.3.55a, with the exception of River Red Gum, which was not observed in the areas visited during field surveys. The ground layer is dominated by tussock grasses and organic litter, with some areas of bare ground scattered throughout. This area has been mapped as a wetland under the VM Act.

The Atlas of Australian Soils (broadscale national mapping at 1:1,000,000 scale) describes the Project Area being majority deep sandy mottled yellow earths on very gently undulating alluvial plains. Numerous sandy rises and shallow sandy stream beds are also described from the southern area of the transport corridor, while the western edge of the mine area includes yellowish brown earthy sands on stream levees, small flood plains and infilled channels.

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

There are no known Commonwealth Heritage Places relevant to the Project.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

There are no known Indigenous heritage sites within the Project area. The land on which the Project is situated is subject to an active Native Title Claim (Tagalaka People #2 – Tribunal ID QCD2012/013). The relevant Native Title Representative Body is the Tagalaka Aboriginal Corporation Registered Native Title Bodies Corporation (RNTBC).

The Proponent will comply with the *Aboriginal Cultural Heritage Act 2003* and the supporting ‘Duty of Care Guidelines’ (DATSIP 2004) when undertaking activities within proposed Project MLs.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The Esmeralda Graphite Project is a critical minerals mining project. Water is not a Matter of National Environmental Significance for the Project. There are no known TECs on within 30km of the Project. The potential for water related impacts to any MNES is very low.

Surface water

The Project is located within the Norman Drainage Basin in north-west Queensland, which encompasses an area of 50,667 km2 and only contains the Norman River sub-catchment areas (DESI 2023). The Norman River is approximately 420 km in length, originating in the Gregory Range (200 km south-east of Croydon) and flowing in a north-westerly direction, eventually discharging into the Gulf of Carpentaria.

The Norman River is joined by three major tributaries, the Carron, Clara and Yappar Rivers. The Project is situated between the Clara and Yappar Rivers, approximately 7 km north of the Clara River and 8 km south-west of the Yappar River, at its closest point.

The Warrigal Creek, a 5th order stream that converges with the Clara River, is situated to the south of the Project. The Warrigal Creek originates approximately 50 km south-east of the Transport ML boundary, flowing north-west before converging with the Borer River and flowing into the Clara River, approximately 45 km north-west of the Project ML boundary. Several unnamed tributaries of the Warrigal Creek also traverse the Project area. Periods of flow in the Warrigal Creek and its tributaries are restricted to the wet season events between the months of December to late March, as a result of the monsoonal climate that can result in alternating periods of inundation over much of the region during the summer wet season followed by a long dry season in winter (EHP 2015).

Several unnamed VM Act watercourses, tributaries of the Warrigal Creek, and three ephemeral swamps areas (mapped VM Act wetlands) have been identified in the Project area.

There are no TECs and no unique or important breeding or habitat areas for listed species, associated with surface water values on or near the Project site.

Groundwater

The project mining area is located within basement intrusive rocks, these basement rocks are overlain by the Carpentaria Basin, a sedimentary basin that was deposited between the Cretaceous and Jurassic time periods. The Carpentaria Basin strata are overlain by a covering of unconsolidated Quaternary alluvium, and by semi-consolidated Tertiary sediments. The weathered profile is present within the Carpentaria Basin strata across the entire project mining area where it extends to depths of between 15 m to 30 m below ground level. Locally, the Tertiary sediments and the Carpentaria Basin strata have also been altered by weathering. With the exception of a basement fault, there does not appear to be any significant regional scale faults mapped within overburden sequence (Carpentaria Basin or Quaternary / Tertiary sediments).

The Quaternary alluvium is described as a clay, silt, sand, and gravel deposits that form active flood plain alluvium deposits. The alluvium is mapped along Warrigal Creek and along the unnamed tributary that extends through the project mining area.

The Claraville Beds are described as poorly consolidated clayey quartzose sand and sandy mud, and minor gravel. The Claraville Beds are referred herein as Tertiary sediments. The Tertiary sediments unconformably overlies the Cretaceous and Jurassic strata. The thickness of Tertiary sediments is approximately 10 m over the project mining area. The base of Tertiary sediments is generally located above the base of weathering. Initial data collected from monitoring bores in the formation indicate the Tertiary sediments to be dry.

The Cretaceous / Jurassic strata locally comprises the Gilbert River Formation. The Cretaceous / Jurassic strata, whilst not mapped at the surface, occurs within the project mining area, within the study area and for tens and hundreds of kilometres beyond the study area boundary. The Gilbert River Formation is generally regarded as a moderate to high permeability formation and a regional aquifer. The Gilbert River Formation aquifer supports numerous pastoral users for livestock (beef cattle) watering. The two existing monitoring

bores that target the Gilbert River Formation confirm it is sub-artesian in the project mining area. Artesian conditions are likely to occur in the aquifer further to the west, south-west and to the north-west. The observed groundwater elevation within the Gilbert River Formation is approximately 113 mAHD which provides a good correlation to the regional dataset. Data from the Gilbert River Formation monitoring bores shows that EA ranges between 803 uS/cm and 1298 uS/cm; and pH is generally between 8.76 and 9.25.

The cover sequence in the project mining area is underlain by Mesoproterozoic aged igneous and metamorphic basement rocks, and Permian aged igneous intrusive rocks. These basement rocks are laterally extensive and are expected to occur to a significant depth. The basement rocks host the orebody proposed to be mined as part of the project. The basement rocks are typically intersected at a depth of 50 mbGL or an elevation of approximately 70 mAHD. Hydrogeologically, the basement rock would be expected to behave as an aquiclude or aquitard. Fracturing (due to faulting or structural controls) may locally increase permeability and porosity of the basement rocks.

There are 12 registered bores located within 10 km of the Project mining area with all bores drilled and constructed to take groundwater from the Gilbert River Formation.

Database searches indicate the possible presence of terrestrial groundwater dependant ecosystems (GDEs) around the proposed mining area and further afield. These GDEs are generally linked to riverine / floodplain ecosystems. These terrestrial ecosystems within the Project vicinity do not represent TECs and are not known to form unique or important habitat for any listed flora or fauna species under the EPBC Act.

The nearest publicly mapped spring is located more than 30 km from the project mining area. Drawdown from the mine will not extend to this known spring location. No impact to any associated TEC is likely considering this distance.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	No	Yes
S20	Migratory Species	No	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	No	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The EPBC Act Protected Matters Search Tool was used to identify any World Heritage properties located within the Project area.

No World Heritage properties were identified within a 150 km radius surrounding the Project.

The nearest World Heritage property to the Project is the Wet Tropics of Queensland World Heritage property, which occurs approximately 345 km east of the Project, at its nearest point.

The next nearest World Heritage property to the Project is the Australian Fossil Mammal Sites (Riversleigh). At its nearest point, the Australian Fossil Mammal Sites (Riversleigh) is located approximately 365 km south-west of the Project.

The degree and nature of the separation between lands underlying the proposed action and the World Heritage property areas suggests that the ecosystems associated with each area are not contiguous and function independently of one another. Given the Project’s occurrence in a separate catchment to the World Heritage property areas, the proposed action is considered to pose no direct or indirect impacts to the World Heritage properties.

The distance from the nearest World Heritage property to the Project (approximately 345 km) indicates a significant disconnect from any such properties, and therefore no Significant Impact will occur.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The EPBC Act Protected Matters Search Tool was used to identify any National Heritage places located within the Project area.

No National Heritage places were identified within a 50 km radius surrounding the Project.

The nearest National Heritage property to the Project is the Wet Tropics of Queensland World Heritage property, which occurs approximately 345 km east of the Project, at its nearest point.

The degree and nature of the separation between lands underlying the proposed action and the National Heritage place suggests that the ecosystems associated with each area are not contiguous and function independently of one another. Given the Project's occurrence in either a separate catchment or downstream of the National Heritage place, the proposed action is not considered to pose any direct or indirect impacts to National Heritage places.

The distance from the nearest World Heritage property to the Project (approximately 345 km) indicates a significant disconnect from any such properties, and therefore no Significant Impact will occur.

The degree and nature of the separation between lands underlying the proposed action and the National Heritage place suggests that the ecosystems associated with each area are not contiguous and function independently of one another. Given the Project's occurrence in a separate catchment to the National Heritage place, the proposed action is not considered to be a controlled action.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The EPBC Act Protected Matters Search Tool was used to identify any Ramsar Wetlands located within the Project area. Searches were based on 10 km and 50 km buffers.

No Ramsar Wetlands were identified within a 50 km radius surrounding the Project.

The nearest Ramsar Wetland to the Project is Bowling Green Bay, which is located approximately 470 km south-east of the Project at its nearest point.

The second nearest Ramsar Wetland to the Project is the Coral Sea Reserves (Coringa-Herald and Lihou Reefs and Cays), which is located approximately 720 km north-east of the Project at its nearest point.

The degree and nature of the separation between lands underlying the proposed action and the Ramsar Wetlands suggests that the ecosystems associated with each area are not contiguous and function independently of one another. Given the Project's occurrence in a separate catchment to the Ramsar sites, the proposed action is not considered to pose any direct or indirect impacts to Ramsar Wetlands.

The degree and nature of the separation between lands underlying the proposed action and the Ramsar Wetlands suggests that the ecosystems associated with each area are not contiguous and function independently of one another. Given the Project's occurrence in a separate catchment to the Ramsar sites, the proposed action is not considered to pose any significant impact to Ramsar Wetlands.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Chloebia gouldiae	Gouldian Finch
No	No	Erythrotriorchis radiatus	Red Goshawk
No	No	Falco hypoleucos	Grey Falcon
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Macroderma gigas	Ghost Bat
No	No	Pristis pristis	Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish
No	No	Rostratula australis	Australian Painted Snipe
No	No	Tyto novaehollandiae kimberli	Masked Owl (northern)
No	No	Varanus mertensi	Mertens' Water Monitor, Mertens's Water Monitor

Ecological communities

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4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.4.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

Conservation significant species listed under the EPBC Act were assigned a likelihood of occurrence based on knowledge of ecologists, species' distribution, potential habitat suitability, known records, and scientific literature (Attachment 3, Appendix C). Species assessed as likely or potentially occurring within the study area were targeted in the field survey design, including 15 species are listed as threatened under the EPBC Act and 13 species are listed as migratory under the EPBC Act.

Three field surveys were carried out by suitably qualified ecologists across a range of seasons and weather conditions in 2024 and 2025 (Attachment 3, Appendix C).

Only one TEC has the potential to occur within or near the study area: 'The community of native species dependent on natural discharge of groundwater from the Great Artesian Basin'. Field surveys identified and mapped nine vegetation communities within the proposed MLA area, all of which are least concern under the Queensland NC Act and none of which constitute a TEC as defined under the EPBC Act. Direct impacts associated with clearing for mine development will not impact a TEC. The nearest publicly mapped spring is located approximately 30 km from the project mining area. Vegetation associated with this spring may constitute a TEC. Indirect impacts associated with groundwater, surface water, noise or dust from the mine will not extend to this location. Therefore, indirect impacts to any TEC are unlikely.

A total of 71 native flora species were confirmed during the field surveys representing 27 families and 54 genera. The dominant family group was Poaceae (15 species), with Leguminosae (12 species) and Myrtaceae (9 species) also prominent. No flora species of conservation significance under the EPBC Act were identified in or near to the study area (Attachment 3, Appendix C). Direct impacts associated with clearing for mine development will not impact any listed flora species. Potential indirect impacts associated with groundwater, surface water noise and dust are unlikely to impact listed flora species under the EPBC Act.

A total of 144 native vertebrate species were identified during the field surveys, comprising six amphibians, 25 reptiles, 100 birds and 13 mammals. Two bird species of conservation significance, the *Hirundapus caudacutus* (White-throated Needletail), listed as vulnerable and migratory under the EPBC Act, and the *Apus pacificus* (Fork-tailed Swift), listed as migratory under the EPBC Act were both positively identified during the November 2024 field survey, with the Fork-tailed Swift also being recorded during the February 2025 field survey.

The White-throated Needletail distribution is widespread within Queensland during its non-breeding season. Primarily an aerial species, it is known to occur across a variety of habitats including wooded areas, open forests, and rainforests. Individuals identified within the Project area are not considered to form an important population, as defined under the EPBC Act. The Project site contains no unique or important habitat for the species. Similar low woodland habitat is widespread around the Project and in the broader region (Attachment 3, Appendix C). Direct impact associated with clearing for mine development is unlikely to impact this listed species. Indirect impacts such as surface water, groundwater, noise and dust are also unlikely to impact the species.

Following the field surveys, the likelihood of occurrence for all the species identified during the desktop searches was reassessed. This reassessment classified the species' presence as either known, likely, or potentially occurring in the area. An assessment of the likelihood of Project impacts (direct and indirect) for each species was undertaken (Attachment 4). The assessment concludes that potential impacts all listed species are unlikely.

The Project is unlikely to contribute to cumulative impacts upon any MNES. There are no major towns, industrial developments, or mining projects within the vicinity of the Project, with the closest MLs located near Croydon, a former gold mining town over 60 km north of the Project.

Significant impact assessment

See Attachment 3, Section 6.2.

No impact is considered likely for any listed species or TEC under the EPBC Act. A significant impact assessment was undertaken for the listed vulnerable species (White-throated Needletail), which was observed during the field surveys.

The Project is unlikely to lead to a long-term decrease in the size of an important population of the White-throated Needletail as the population of the White-throated Needletail that may use habitat within the Project area is considered not to be an important population. Additionally, the clearing of remnant vegetation for the Project is unlikely to decrease the size of the population given the extent of habitat available to this species across eastern and south-eastern Australia.

The Project is unlikely to reduce the area of occupancy of an important population as the population of the White-throated Needletail that may use habitat within the Project area is considered not to be an important population. Additionally, the extent of vegetation clearing required for the Project is unlikely to reduce the area of occupancy of this species. Expansive areas of woodland vegetation will remain within the Project area and widespread throughout the region.

The Project will not fragment an existing important population into two or more populations as the population of the White-throated Needletail that may use habitat within the Project area is considered not to be an important population and the species is widespread across eastern and south-eastern Australia during the non-breeding season. The species is not dependant on habitat values specific to the Project area. Equivalent woodland habitat is widespread in the Project region.

The Project will not adversely affect habitat critical to the survival of the White-throated Needletail as habitat within the Project disturbance area does not represent habitat critical to the survival of the species. There is currently no habitat for the White-throated Needletail listed on the Register of Critical Habitat (DCCEEW 2025b). The species is not dependant on habitat values within the Project area. Expansive areas of equivalent woodland vegetation will remain within the Project area and widespread throughout the region.

The Project will not disrupt the breeding cycle of an important population as the White-throated Needletail does not breed in Australia.

The Project will not modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the White-throated Needletail is likely to decline. Vegetation clearing for the Project will not reduce the quality or availability of habitat to the extent that the species is likely to decline, as the White-throated Needletail is primarily an aerial species, predominantly foraging aerially and roosting in forests and woodlands.

The Project is unlikely to result in invasive species that are harmful to the White-throated Needletail becoming established in the species' habitat. Invasive species are not listed as a serious threat to the White-throated Needletail. Nevertheless, the Project will manage invasive species as part of weed and pest management activities.

The Project is unlikely to introduce disease that may cause the White-throated Needletail to decline. Disease is not a known threat to the White-throated Needletail.

The Project is unlikely to interfere substantially with the recovery of the White-throated Needletail. There is no recovery plan for this species. Priority conservation actions identified for this species include working with governments in East Asia to minimise disturbance to breeding habitats and the identification and protection of important habitats in Australia (TSSC 2019).

The proposed action is not expected to pose a significant impact to any threatened species or ecological communities listed under the EPBC Act, where factors including Project design and scope, and mitigation and management methods have been considered, therefore, it is assessed that the proposed action should not be a controlled action.

Mitigation Measures

A range of mitigation measures and management strategies will be adopted for the Project; including, but not be limited to:

- minimising impacts to remnant vegetation through considered design of Project infrastructure (where feasible) and implementation of vegetation clearing protocols;
- developing and implementing noise and vibration, dust, artificial lighting, and vehicle management measures such as warning signs in sensitive areas and enforced speed limits;
- developing and implementing surface water control measures and monitoring programs designed to minimise impacts on surface flow regimes and quality;
- developing and implementing groundwater control measures and monitoring programs designed to minimise and detect potential impacts;
- developing and implementing erosion and sedimentation management as part of the site water management plan;
- developing and implementing weed and pest control measures, in accordance with a Weed and Pest Management Plan to be prepared for the Project;
- developing and implementing appropriate waste management measures to aid pest management, in accordance with a Waste Management Plan to be prepared for the Project; and
- implementing progressive rehabilitation of disturbance areas.

The assessment of significance indicates that the Project is unlikely to result in a significant impact on threatened species or ecological communities. Therefore, offsets in accordance with the ‘Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy’ (DSEWPaC 2012) will not be required.

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
No	No	Actitis hypoleucos	Common Sandpiper
No	No	Apus pacificus	Fork-tailed Swift
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Calidris melanotos	Pectoral Sandpiper
No	No	Charadrius veredus	Oriental Plover, Oriental Dotterel
No	No	Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Glareola maldivarum	Oriental Pratincole
No	No	Hirundo rustica	Barn Swallow
No	No	Motacilla cinerea	Grey Wagtail
No	No	Motacilla flava	Yellow Wagtail
No	No	Pristis pristis	Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.5.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

Conservation significant species listed under the EPBC Act were assigned a likelihood of occurrence based on knowledge of ecologists, species' distribution, potential habitat suitability, known records, and scientific literature (Attachment 3, Appendix C). Species assessed as likely or potentially occurring within the study area were targeted in the field survey design, including 15 species are listed as threatened under the EPBC Act and 13 species are listed as migratory under the EPBC Act.

Three field surveys were carried out by suitably qualified ecologists across a range of seasons and weather conditions in 2024 and early 2025 (Attachment 3, Appendix C).

Two species listed as migratory under the EPBC Act were identified during the November 2024 field survey, the White-throated Needletail (*Hirundapus caudacutus*) and the Fork-tailed Swift (*Apus pacificus*). The Fork-tailed Swift was also observed during the February 2025 surveys.

The White-throated Needletail is also listed as Vulnerable under the EPBC Act and the potential for impact was discussed in the previous section 'Sub-section 4.1: Threatened Species and Ecological Communities'.

The Fork-tailed Swift is a non-breeding visitor to all states and territories of Australia. It is widespread throughout Queensland, with sightings common from February to March. This species is almost exclusively aerial, known to forage and probably roost aerially, but is occasionally observed to land and recorded to roost in trees. The Project site contains no unique or important habitat for the species. Similar low woodland habitat is widespread around the Project and in the broader region (Attachment 3, Appendix C). Direct impact associated with clearing for mine development is unlikely to impact this listed migratory species. Indirect impacts such as surface water, groundwater, noise and dust are also unlikely to impact the species.

Following the field surveys, the likelihood of occurrence for all the species identified during the desktop searches was reassessed. This reassessment classified the species' presence as either known, likely, or potentially occurring in the area. An assessment of the likelihood of Project impacts (direct and indirect) for each species was undertaken (Attachment 4). The assessment concludes that potential impacts all listed species are unlikely.

The Project is unlikely to contribute to cumulative impacts upon any MNES. There are no major towns, industrial developments, or mining projects within the vicinity of the Project, with the closest MLs located near Croydon, a former gold mining town over 60 km north of the Project.

Significant Impact:

See Attachment 3, Section 6.3.

No impact is considered likely for any migratory species listed under the EPBC Act. A significant impact assessment was undertaken for the Fork-tailed Swift, which was observed during the field surveys.

The Project will not substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for any migratory species, including the Fork-tailed Swift. The Project area does not represent important habitat for the Fork-tailed Swift.

The Project is unlikely to result in an invasive species that is harmful to any migratory species, including the Fork-tailed Swift, becoming established in an area of important habitat for the species. The Project area is unlikely to represent an area of important habitat for any migratory species, including the Fork-tailed Swift. Predation by feral species, such as the Feral Cat, recorded in the Project area, is a recognised threat to bird species. The Project is unlikely to increase this threat or result in invasive species becoming established in potential habitat for migratory species.

The Project is unlikely to seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of any migratory species, including the Fork-tailed Swift. The Fork-tailed Swift does not breed in Australia. The Project will not disrupt the breeding cycle of the species.

Based on the absence of important or unique habitat for the Fork-tailed Swift within the Project site and surrounding region, the Proposed action is not expected to significantly impact the species.

The proposed action is not expected to impact any migratory species listed under the EPBC Act, where factors including Project design and scope, and mitigation and management methods have been considered. Therefore, it is assessed that the proposed action should not be a controlled action.

Mitigation Measures:

A range of mitigation measures and management strategies will be adopted for the Project; including, but not be limited to:

- minimising impacts to remnant vegetation through considered design of Project infrastructure (where feasible) and implementation of vegetation clearing protocols;
- developing and implementing noise and vibration, dust, artificial lighting, and vehicle management measures such as warning signs in sensitive areas and enforced speed limits;
- developing and implementing surface water control measures and monitoring programs designed to minimise impacts on surface flow regimes and quality;
- developing and implementing groundwater control measures and monitoring programs designed to minimise and detect potential impacts;
- developing and implementing erosion and sedimentation management as part of the site water management plan;
- developing and implementing weed and pest control measures, in accordance with a Weed and Pest Management Plan to be prepared for the Project;
- developing and implementing appropriate waste management measures to aid pest management, in accordance with a Waste Management Plan to be prepared for the Project; and
- implementing progressive rehabilitation of disturbance areas.

The assessment of significance indicates that the Project is unlikely to result in a significant impact on migratory species. Therefore, offsets in accordance with the 'Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy' (DSEWPaC 2012) will not be required.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project does not propose any activities relating to nuclear actions and will not require approval for nuclear actions. The proposed action will not pose direct or indirect impacts related to a nuclear action.

The Project does not propose any activities relating to nuclear actions and will not require approval for nuclear actions, therefore the proposed action is not considered to be a controlled action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is located approximately 290 km south-east of the Gulf of Carpentaria Special Purpose Zone (Trawl) and approximately 340 km south-east of the Gulf of Carpentaria National Park Zone.

The mine will implement water management and erosions control protections to minimise the risk of sediment or contaminated water release. Furthermore, given the distance between the site of the proposed action and the waters of the Gulf of Carpentaria, the potential for impact to marine water within the Gulf of Carpentaria are minimal.

The proposed action is not expected to pose a direct or indirect impact to any Commonwealth Marine areas.

Considering the mine water management practices which will reduce the risk and magnitude of impacts to water, and the significant distance from Commonwealth Marine areas, the proposed action is not considered to be a controlled action.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is located approximately 410 km west of the Great Barrier Reef (GBR) and is not located in a catchment upstream of the GBR.

The Project is not expected to pose a direct or indirect impact to the GBR.

The proposed action is located approximately 410 km west of the GBR and is not located in a catchment upstream of the GBR, therefore the proposed action is not considered to be a controlled action.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project does not relate to a large coal mining development or coal seam gas Project.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.10.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Australian Government National Map search tool was used to identify Commonwealth Land in relation to the Project.

The Project is not located on or near any Commonwealth owned land (50 km search area from the Project).

The nearest Commonwealth Land (Lot 45 on SP248023) is located approximately 350 km south-west of the Project area, in Mount Isa.

The proposed action does not occur in the region of Commonwealth Land.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project does not occur in the region of a Commonwealth Heritage Place overseas.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

None

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

Graphite is recognised as a ‘critical mineral’ by both the Queensland and Commonwealth Government, reflecting its strategic importance and limited global availability. The advancement of the Project will contribute significantly to establishing a sustainable, long-term supply of high-grade graphite, essential for a wide range of renewable energy applications. This initiative aligns with broader national and state objectives to secure vital resources for the emerging green economy and enhance energy independence.

Local production of graphite will aid renewable energy transition for Australia, with alternative graphite supply mostly limited to overseas producers. Within Queensland, the largest known deposit of graphite occurs at the Project location. As such, alternative locations for the Project have not been advanced as priority development.

The Project design has considered a number of different mining and production scenarios which have been refined through ongoing feasibility studies:

- Analysis of varying mining and production scenarios which have been refined through ongoing resource exploration, mine planning and environmental assessment.
- Ongoing assessment of processing techniques to optimise recovery methods and minimise environmental impacts.
- Ongoing investigation of different rehabilitation outcomes, aligned where possible with land use policy and minimising long-term environmental risk.
- Various mine site water management scenarios are being assessed to minimise risk to watercourses and waterways in the vicinity of the Project.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1_Protected Matters Search Tool Report 20250117.pdf Protected Matters Search Tool Report	14/03/2025	No	High
#2.	Document	Att 2_Supporting figures.pdf Supporting Figures	14/03/2025	No	High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 5_Graphinex Environmental Policy.pdf Graphinex Environmental Policy	14/03/2025	No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	(EHP 2015) A biodiversity assessment for the Gulf Plains Bioregion https://www.qld.gov.au/__data/assets/pdf_file/00..			High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	(DNRMMRRD 2024) Queensland Spatial Catalogue – Qspatial http://qldspatial.information.qld.gov.au/catalog..			High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3_MNES Ecology Assessment.pdf MNES Ecological Assessment	14/03/2025	No	High

4.1.4.3 (Threatened Species and Ecological Communities) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3_MNES Ecology Assessment.pdf MNES Ecological Assessment	13/03/2025	No	High
#2.	Document	Att 4_Assessment of Likelihood of Occurrence and Impacts.pdf	14/03/2025	No	High

Assessment of Likelihood of Occurrence and Impacts

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	71620818920
Organisation name	AARC ENVIRONMENTAL SOLUTIONS PTY LTD
Organisation address	164 Wharf Street, Spring Hill, 4000 QLD
Representative's name	Aditi Awati
Representative's job title	Environmental Scientist
Phone	61 7 3217 8772
Email	aawati@aarc.au
Address	164 Wharf Street, Spring Hill, QLD 4000

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Aditi Awati of AARC ENVIRONMENTAL SOLUTIONS PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	21656523965
Organisation name	QLD AUS GRAPHITE PTY LTD
Organisation address	Level 4, 10 Eagle Street Brisbane, 4000 QLD
Representative's name	Blair Richardson

Representative's job title	Chief Operating Officer
Phone	+61 417 981 878
Email	brichardson@graphinex.com.au
Address	Level 4, 10 Eagle Street Brisbane, QLD, 4000

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Blair Richardson of QLD AUS GRAPHITE PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Blair Richardson of QLD AUS GRAPHITE PTY LTD**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☐ I would like to receive notifications and track the referral progress through the EPBC portal. *