

Wonarah Phosphate Project

Draft Environmental Impact Statement

Executive Summary

November 2009



MINEMAKERS
AUSTRALIA PTY LTD

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SPECIALISTS IN PEOPLE AND PLACE

DRAFT ENVIRONMENTAL IMPACT STATEMENT

EXECUTIVE SUMMARY

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Guide to the Wonarah Phosphate Project Draft Environmental Impact Statement

The EIS comprises four volumes:

- Executive Summary.
- Main Report.
- Appendices Volume 1.
- Appendices Volume 2.

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Wonarah Phosphate Project

EXECUTIVE SUMMARY

1 Introduction

Minemakers Australia Pty Ltd (Minemakers) proposes to develop the Wonarah Phosphate Project, hereafter referred to as 'the project', in the Barkly Tableland of the Northern Territory (Figure ES1). The project involves the mining of two phosphate deposits, known as 'Arruwurra' and 'Main Zone'. The project has an Indicated Joint Ore Reserves Committee (JORC) compliant resource estimate of 399 Mt at 21% phosphorite (P_2O_5) (15% cut-off grade) and will be developed over two discrete stages.

Stage 1 involves the mining of the deposits for direct shipping ore (DSO). DSO is of a quality that requires minimal processing to meet market requirements. Mining during Stage 1 is expected to occur for approximately ten years, although exploration currently underway may extend this period even further. Production will commence at a rate of 0.5 Mt/a and increase to 3 Mt/a after two and a half years. Mining of the DSO is scheduled to commence at the end of quarter 2, 2010, provided all necessary permits and approvals are in place.

Minemakers submitted a Notice of Intent (NOI) for Stage 1 of the Wonarah Phosphate Project to the Northern Territory Government Department of Regional Development, Primary Industry, Fisheries and Resources (DRDPPIFR) on 10 March 2009 and the project was then referred to the Minister for Natural Resources, Environment and Heritage for consideration. The minister determined that the project required the preparation of an Environmental Impact Statement (EIS) under the Northern Territory *Environment Assessment Act* on 5 May 2009.

Guidelines for the preparation of the EIS were issued on 11 July 2009; this EIS document addresses these guidelines and provides the basis upon which assessment and approval by the Northern Territory Government will be made.

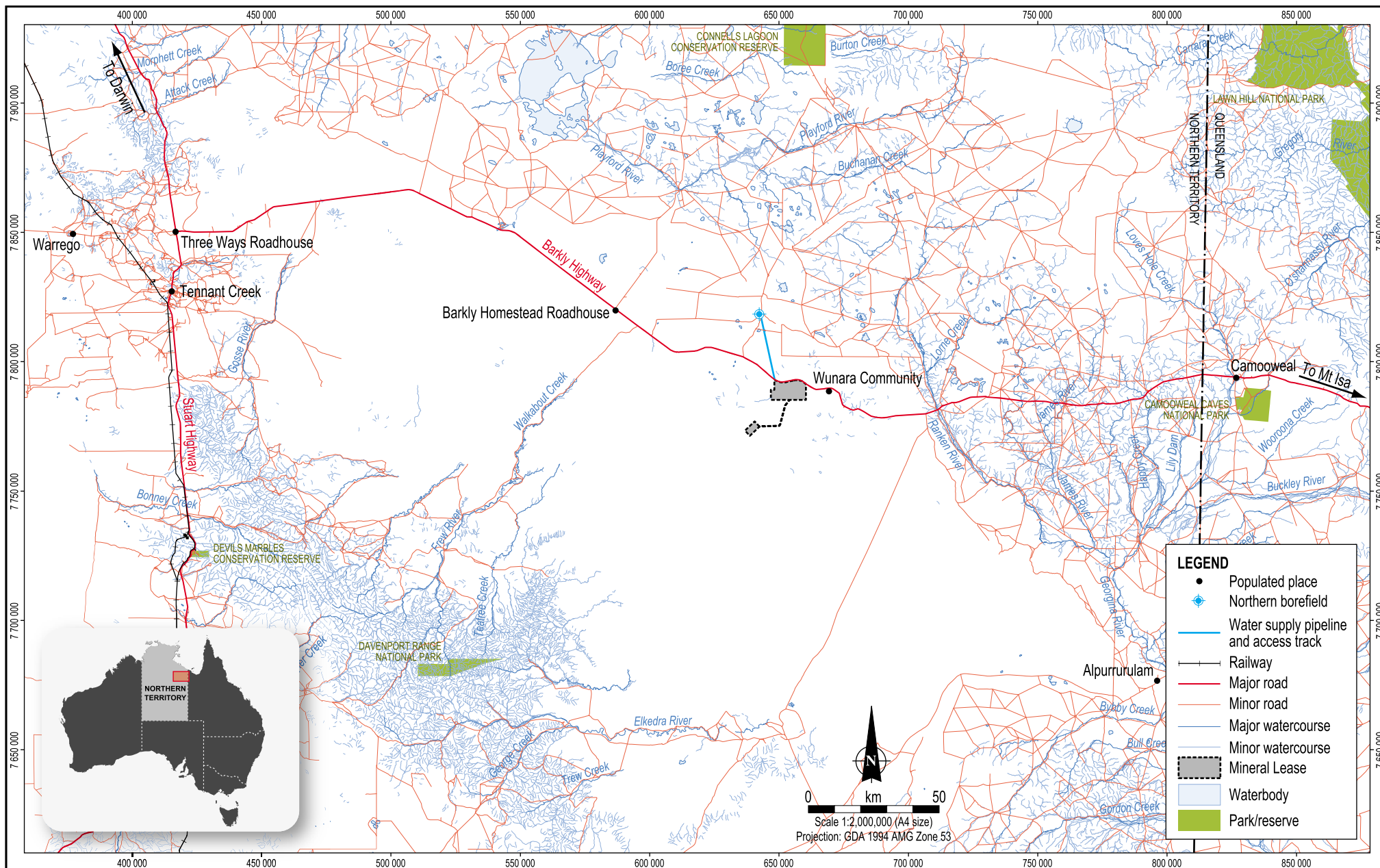
Stage 2, if pursued, will involve an expansion of the mining and processing operations to develop the lower grade ore, i.e., the non-DSO material, and possibly extend operations beyond the current Mineral Lease. Stage 2 will be permitted separately if and when a decision is made by Minemakers to proceed with this development.

2 Project Background

Location

The project is located in the Barkly Tableland of the Northern Territory directly south of the Barkly Highway, approximately 240 km east of Tenant Creek and approximately 960 km southeast of Darwin (see Figure ES1). The Wunara Community is the closest populated area to the project. It is located adjacent to the Barkly Highway and is approximately 10 km to the east of the Mineral Lease boundary.

The project area includes the Mineral Lease area, which is located south of the Barkly Highway, the borefield which is on the northern side of the highway on the Dalmore Downs pastoral lease and the water supply pipeline corridor that connects these two areas.



Proponent

Minemakers is an Australian company and has been listed on the Australian Stock Exchange (ASX) since October 2006 (ASX code: MAK). Along with the Wonarah Phosphate Project, the company owns, or has options over, mineral projects and prospects located in the Northern Territory, Tasmania, Western Australia and Namibia.

Legislative Context

This EIS provides the basis upon which the project's assessment and approval by the Northern Territory Government under the Environmental Assessment Act will be made. Following this, approval under the *Mining Act* and *Mining Management Act* is required. This will involve the preparation of an application for an authorisation to carry out mining activities and preparation of a mining management plan (MMP). The MMP will be based upon the information contained in the EIS and any EIS approval conditions and will be the operational document by which the mine will be managed.

The Central Land Council (CLC) is the statutory body through which Minemakers deals with the Traditional Owners of the project area and surrounds.

Project Rationale

The primary objective of the project is to effectively, efficiently and profitably mine and process ore from the Wonarah deposits in accordance with the project's environmental and social objectives. Minemakers will continue exploration activity at Wonarah so as to further identify mineral resources that may extend the life of the project.

The development of the project will contribute to employment and business opportunities within the region. The project will also bring other benefits to the regional, territory and national economies in the form of royalties and taxes (both direct and indirect). Total annual (unescalated) revenue generated by the project is estimated to be \$500 million, while estimated annual operating expenses and royalties (excluding capital costs) will be about \$457 million.

Minemakers will work with local Indigenous training providers to ensure programs are focused on maximising skill development and employment opportunities for members of the Indigenous community.

Stakeholder Consultation

Minemakers has consulted with key stakeholders throughout the project's planning process.

Consultation activities during the initial planning or scoping stage of the project (up to February 2009) were focused on introducing the project concept, facilitating land access for exploration activities, establishing and initiating the assessment and approvals process for the project, and providing information on the exploration activities being undertaken. Stakeholders involved in consultation activities during this phase were the Traditional Owners, CLC, Northern Territory and Australian government agencies and local pastoralists.

Since the project progressed from the scoping study to the preparation of the EIS phase, consultation has expanded to include a broader range of organisations and individuals, including residents of Tennant Creek and Alice Springs, local training providers, local businesses, the Northern Territory Mineral Resources Council (formally NT Resources Council), the Northern Territory Industry Capability Network (NTICN) and the Environment Centre Northern Territory (ECNT).

Along with listening to stakeholders interests and concerns, and providing general updates on the project and its progress, topics that have been discussed as part of consultation activities include issues specific to the Wunara community, the project approvals process, training, land access, employment and business opportunities, the source of water for the project and land access.

The broad outcomes of consultation activities to date have included:

- Increased government and community awareness and understanding of the project.
- Liaison with regulatory authorities regarding the assessment and permitting route.
- Relationship building with Traditional Owners and the CLC.
- Identification of areas of concern to key stakeholders.
- Identification of potential employment opportunities for local Indigenous people.

A database is being, and will continue to be, kept to record all stakeholder contact. A stakeholder consultation plan has been developed to continue consultation during the operation and rehabilitation phases of the project.

3 Project Description

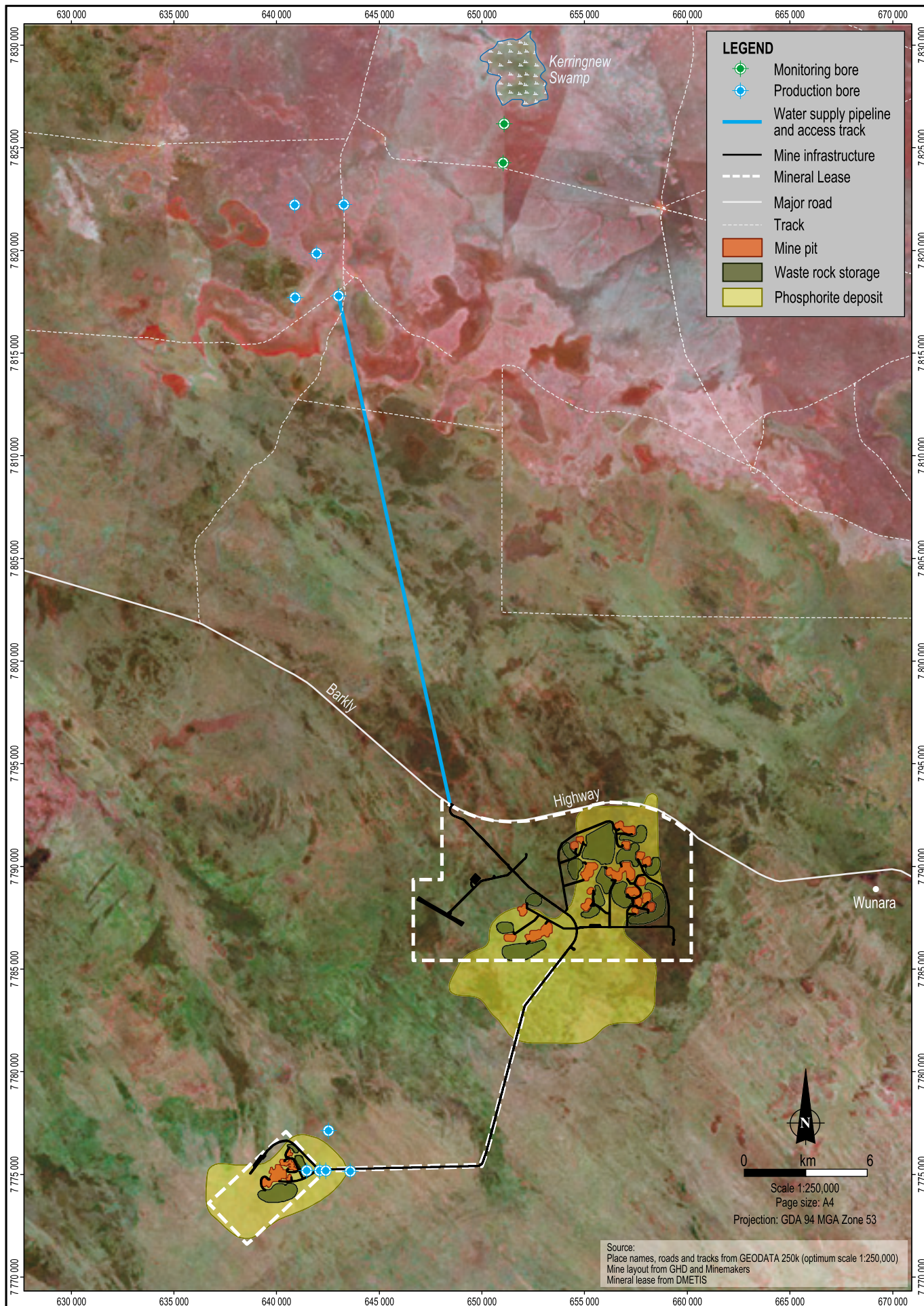
Overview

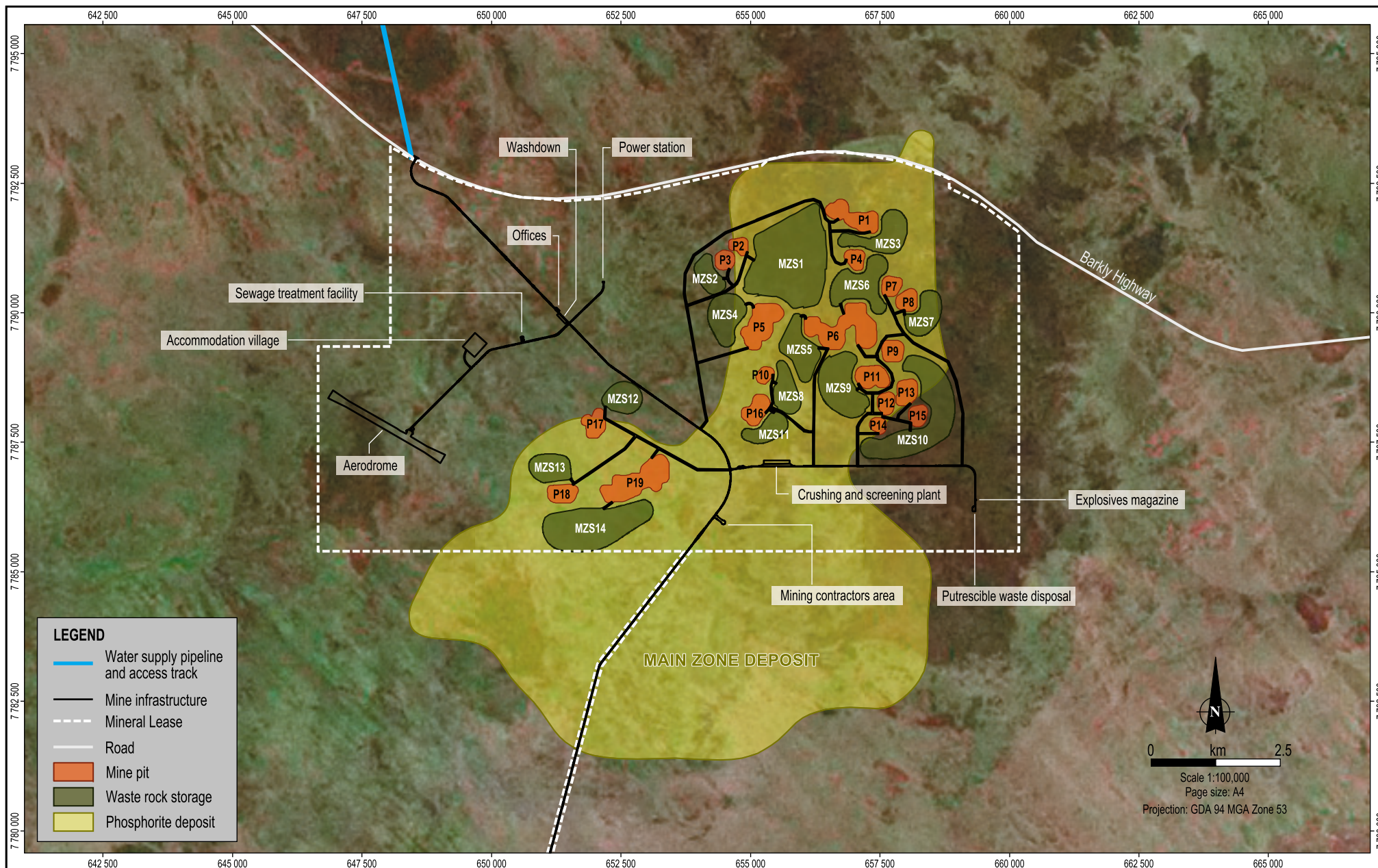
Stage 1 of the project will involve the mining of DSO from up to 23 open pits (4 in the Arruwurra deposit and up to 19 in the Main Zone, Figure ES2), two mobile crushing and screening plants and associated mine infrastructure (Figure ES3). The cut-off grade for DSO is at least 30% P₂O₅ and the location of the open pits reflects the areas of the deposit containing the highest proportion of DSO.

Based on currently defined resources Stage 1 has a mine life of around ten years and will produce approximately 19.9 Mt of DSO; however, exploration currently underway may extend the mine life even further. The ore will initially be mined at a rate of 0.5 Mt/a, increasing to 3 Mt/a after about two and a half years.

The Arruwurra and Main Zone deposits will be developed using conventional shallow open pit and strip mining methods, which will allow, to varying extents, for progressive rehabilitation of some disturbed areas to occur. A number of pits will be operated concurrently to allow blending of ore types to achieve optimum blends for market requirements. Pits will be between 10 and 30 m deep in the Arruwurra deposit and between 20 and 60 m deep in the Main Zone deposit.

The phosphate produced at the mine will be transported by road to Global Port Solutions' multi-user hub north of Tennant Creek, and then transported by rail to the Port of Darwin, where it will be stored in a shed and then loaded onto ship for export. The construction and operation of these two purpose-built facilities will be permitted separately to the mine development and are outside the scope of this EIS.





Source:
Place names, roads and tracks from GEODATA 250k (optimum scale 1:250,000)
Mine layout from GHD and Minemakers
Proposed mineral lease from DMETIS

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Main Zone mine layout

Figure No:
ES3

The key characteristics of the project are summarised in Table ES1.

Table ES1 Key characteristics of the Wonarah Phosphate Project

Item		Description
Project location		240 km east of Tennant Creek, Northern Territory
Mineral Lease		ML27244, 10,846 ha in size
Project footprint (excluding support infrastructure, i.e., road haulage worker accommodation village at multi-user hub)		2,325.6 ha
Mining method		Shallow open pit and strip mining methods
Mining inventory	Arruwurra deposit	2.6 Mt
	Main Zone deposit	17.3 Mt
	Total	19.9 Mt
Mine life		10 years, commencing in Q2 2010
Mining rate		0.5 Mt/a initially, building to 3 Mt/a after 2.5 years
Processing method		Conventional crushing and screening
Crushing and screening throughput		Initial capacity of each crushing and screening plant will be 0.5 Mt/a, will be expanded over mine life to meet marketing and mining requirements
Operating hours		Continuous operation, 24 hours per day, 7 days per week
Power source		Dual fuel power station on site
Power requirement		4 MW
Raw water source		Groundwater (northern borefield)
Raw water requirement		Average 7.7 ML/d, peak 9.6 ML/d
Accommodation on site		120 persons
Employees at 3 Mt/a production	Mining	Construction: 50 to 100 people Operations: approximately 120 positions (Minemakers and contractors) Nominal two weeks on, one week off fly-in, fly-out (FIFO) roster. FIFO will be from the aerodrome at the mine site to respective home cities.
	Road Haulage	Operations: 180 positions Nominal two weeks on, one week off fly-in, fly-out (FIFO) roster. FIFO will be from the Tennant Creek Airport to respective home cities.
Capital expenditure		\$107 million

Mining and Treatment of Ore

Mined ore will be transported via haul trucks to the ROM stockpile adjacent to each of the mobile crushing and screening plants located at Arruwurra and Main Zone. Non-DSO stockpiles will store lower-grade material adjacent to each pit for later treatment as part of Stage 2. If Stage 2 does not proceed, these stockpiles will be rehabilitated as part of the waste rock stockpiles.

Treatment of ore for the project will be a simple process and no chemicals will be involved. A primary crusher will reduce the size of the ore to 75 mm; the crushed product will be screened and then fed into a secondary crusher to reduce the size of the ore to less than 2 mm. Once ore

has passed through the crushing and screening process, it will be stockpiled ready to be transported to market.

Geochemical characterisation testwork has shown that waste rock and ore material will not generate acid rock drainage. No special waste rock management measures are therefore required for the waste rock storages or non-DSO stockpiles.

Elevated radiation levels are sometimes associated with phosphate rock deposits. Results of testwork demonstrate that uranium is present at background levels only, usually less than 20 ppm. This is typical for normal weathered and leached sedimentary rocks.

Water Management

The project area is located in a semi-arid environment where evaporation far exceeds rainfall. Project design and ongoing water management methods have been based on the principals of minimising water consumption and maximising water recycling. Site water management will include a combination of flood protection berms, sediment basins, drains and oily water separators to protect the downstream fauna and habitats from impacts from mining activities and to protect mine infrastructure and operations from flooding, particularly at Arruwurra.

Infrastructure

The main features of infrastructure to be developed for the project can be summarised as:

- A 4 MW per day power station fuelled by both diesel and natural gas.
- A borefield to the north of the Mineral Lease will provide the long-term raw water supply to the project via a 30 km pipeline. While the northern borefield is being constructed (approximately three months), raw water will be sourced from a borefield located at Arruwurra.
- A reverse osmosis plant for potable water treatment at a rate of approximately 27 kL/d.
- A sewage treatment plant located northeast of the accommodation village for domestic wastewater treatment.
- An office complex comprising site reception, administration, technical services, meeting and training rooms will be located adjacent to the site access road.
- A permanent accommodation village will be constructed to accommodate approximately 120 workers.
- An aerodrome will be constructed southwest of the accommodation village.
- A designated waste landfill for disposal of putrescible and domestic waste.

Road Access and Transport

Mineral Lease road access and transport will be by:

- A new all-weather, heavy-vehicle road from the Barkly Highway.
- Site roads to provide access to project infrastructure components within the Mineral Lease.
- Haul roads to connect each pit to the nearest ROM stockpile and workshop and office areas.

Ore will be transported by road trains from the Mineral Lease via the Barkly and Stuart highways to the multi-user hub located outside and north of Tennant Creek (Figure ES4). Transport of ore will be carried out 24-hours per day, 365-days per year. Truck movements will gradually increase from 32 round trips per day at 1 Mt/a to 91 round trips per day at 3 Mt/a; this equates to approximately one truck every 46 minutes increasing to one truck every 16 minutes.

Workforce and Accommodation

Minemakers will preferentially employ local people during the construction and operation of the project. The construction workforce will peak at about 100 people, who will be initially housed in the existing exploration camp. The operations workforce will peak at approximately 120 people, who will be housed in the accommodation village on site. Most contractors and employees will travel to site by charter aircraft.

The road haulage workforce will peak at approximately 180 people. An accommodation village will be constructed by the haulage contractor close to the multi-user hub outside and north of Tennant Creek to accommodate the road haulage workforce; this infrastructure component is outside the scope of this EIS.

4 Existing Environment

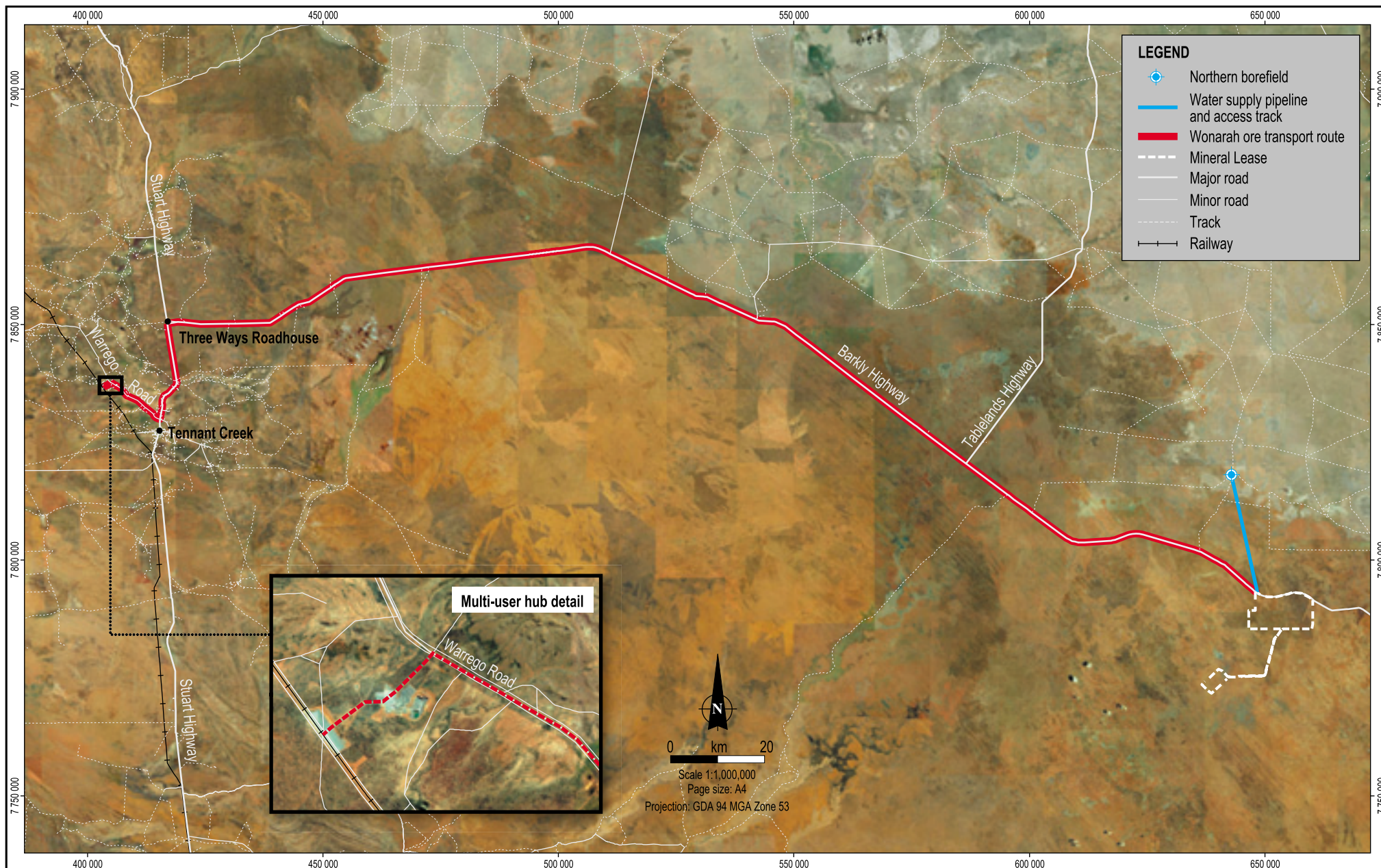
The physical setting of the project can be characterised as semi-arid, relatively flat, open grasslands/open woodland which are common across the Barkly Tableland; while the socio-economic setting of the region can be characterised as being sparsely populated, remote and heavily dependant on Tennant Creek and Mount Isa for services and employment. Within the project area there are no residents or existing infrastructure, apart from an exploration camp. A brief description of the existing physical and socio-economic environment follows.

Air Quality

The existing air quality in the vicinity of the project is relatively pollutant free and is typical of a remote, semi-arid rural environment. Dust generated by wind erosion of exposed surfaces is the main air pollutant present. Other pollutants sources are combustion emissions from bushfires and minor emissions from vehicles travelling along the Barkly Highway.

Noise

No significant, permanent man-made noise sources are located at or near the project, other than passing vehicles travelling on the Barkly Highway and noise when exploration activities are underway. The only ongoing noise present is caused by wind blowing over vegetation and noises from insects and birds.



Source:
Place names, roads, tracks and railways from GEODATA 250k (optimum scale 1:250,000).
Cadastral from NT DPL. Proposed mineral lease tenure from DMETIS.
Mine infrastructure from GHD.
Wonarah ore transport route from CNS.
Imagery from Google Earth (15/07/2009) approximate georeferencing only

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ore transport route to multi-user hub

Figure No:

ES4

Landform and Soils

The landform of the project area has a general low relief, although small rocky outcrops are locally common (Plates ES1 and ES2). Across the Barkly Tableland there is generally only a very gentle relief, which varies less than 50 m in elevation from the highest to lowest point.

Soils within the project area have been classified into four major soil classifications: Kandosols, Vertosols, Calcarosols and Rudosols (Figure ES5). Kandosols and Rudosols dominate the sand plains within the project area, while Vertosols and Calcarosols are restricted to areas subject to inundation such as ephemeral lakes and calcareous plains, respectively.

Land Uses

Traditional Owners use the Mineral Lease and surrounds for hunting and gathering and for accessing culturally significant sites. While the Mineral Lease area is suitable for grazing beef cattle, no pastoral activities currently occur on the land. The borefield area to the north of the Barkly Highway is used for grazing beef cattle.

Flora

The distribution and composition of vegetation within the project area is influenced by soil types. Field surveys identified five vegetation communities within the project area:

1. Sand plains supporting *Eucalyptus* and *Acacia* open woodland over hummock grassland.
2. Black soil and clay pans supporting coolibah low open woodland over grassland.
3. Calcareous plains supporting supplejack low open woodland over open grassland.
4. Ephemeral lakes supporting coolibah low open woodland over grassland.
5. Rocky rises supporting *Acacia* and mallee shrubland over hummock grassland.

The project lies within the Davenport Murchinson Ranges bioregion; the vegetation communities listed above are widespread and common across this bioregion.

None of the vegetation communities present in the project area are listed under the EPBC Act or the *Territory Parks and Wildlife Conservation Act* (TPWC Act). Of the 144 flora species recorded in the project area none are listed under the EPBC Act. However, 13 flora species listed under the TPWC Act have been recorded in the region, with 4 of these being recorded in the project area (Figure ES6): two near threatened species, *Bergia barklyana* and *Hibiscus brachychlaenus*; and two data deficient species, *Distichostem barklyanus* and *Heliotropium pulvinum*. Forty-four flora species of Indigenous utilitarian, cultural or mythical significance were recorded during the field surveys.

One record of *Sporobolus latzii* is listed in the NT Parks and Wildlife Flora Atlas within an Indigenous cultural exclusion zone adjoining the Mineral Lease. This is the only known collection site of this species in Australia. Although targeted searches for this species were performed as part of the field surveys no specimens were identified.

No weed species listed under the Northern Territory *Weeds Management Act* have been identified in the Mineral Lease. However, two environmental weed species, *Cenchrus ciliaris* (buffel grass) and *Aerva javanica* (kapok bush) were recorded during the field surveys.