Section 1

Introduction

PREAMBLE

This section introduces the proposed Copi Mineral Sands Project (the "Project") and provides:

- *an outline and scope of the document;*
- *an overview of the key terms and terminology used in this document;*
- *an introduction to the Applicant, RZ Resources Limited;*
- *the objectives and relevant background information to the Project;*
- *an overview of the key strategies to avoid and minimise Project-related impacts; and*
- *the personnel involved in the design of the Copi Mineral Sands Project, preparation of this document and Specialist Consultant investigations and assessments.*

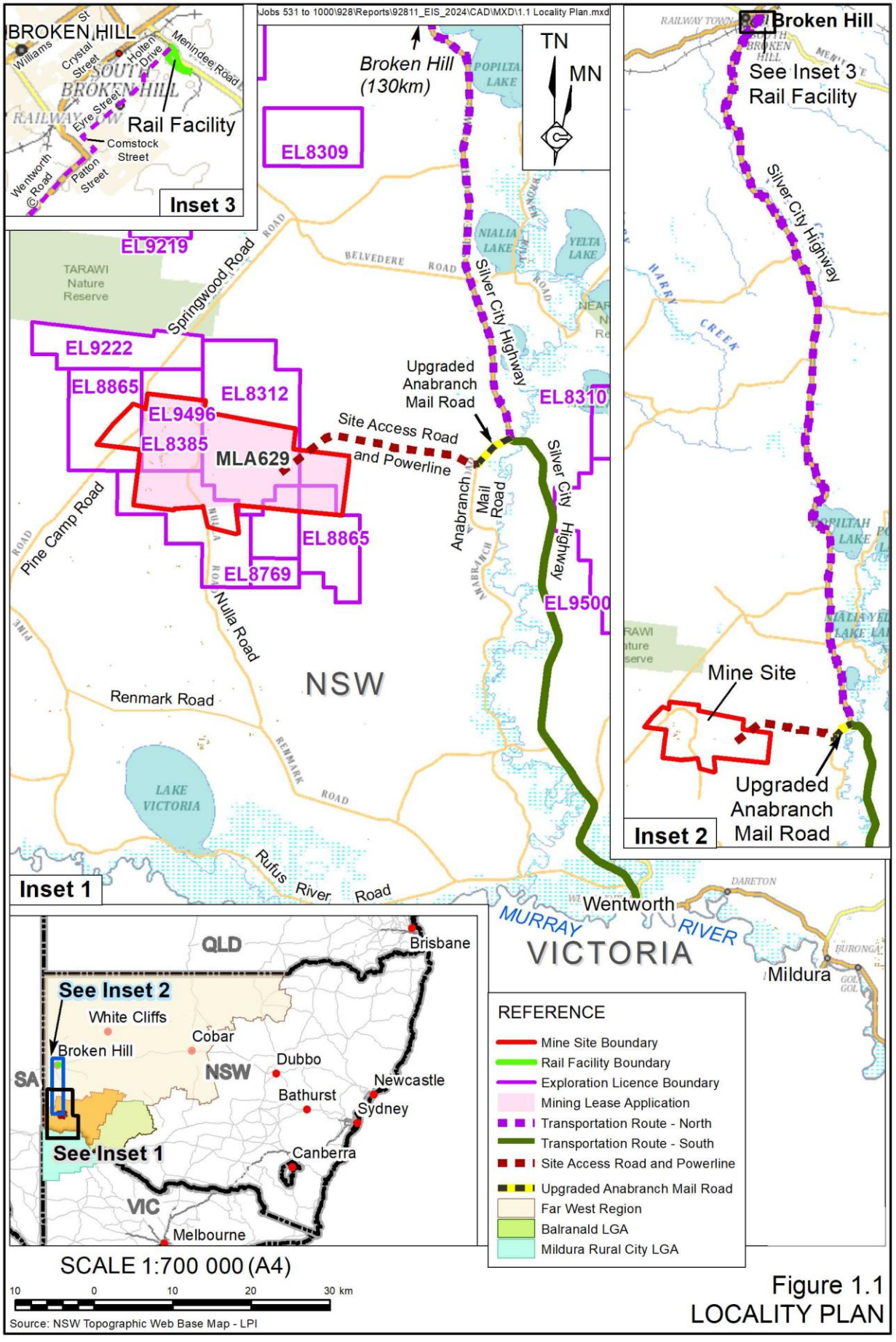
1.1 Scope and Overview

RZ Resources Limited ("the Applicant") proposes to develop and operate the Copi Mineral Sands Project (the "Project"), an open cut mineral sands mine for the extraction and processing of mineral sands to produce a variety of mineral products (mine products). The proposed mine and its associated infrastructure would be located on grazing land within an area referred to as the Mine Site (see Section 1.2 and 3.2), located approximately 75km northwest of Wentworth and 180km south-southwest of Broken Hill, within the Wentworth Local Government Area (LGA) of New South Wales (**Figure 1.1**). Mine products would be transported via the proposed transportation route to a rail load out facility (Rail Facility) located on Holten Drive in the Broken Hill LGA.

The Project has been recognised as a Critical Minerals Project by the NSW and Commonwealth governments.

The Project would comprise the following. Section 3.1.1 presents a Project overview and site layout and **Figure 1.2** presents a schematic overview of the proposed activities.

- Open cut mining using a combination of traditional dry (excavate, load and haul) and wet (dredging) mining techniques to extract up to approximately 28.2 million tonnes per annum (Mtpa) of overburden, 48.0Mtpa of interburden and 27.7Mtpa of ore.
- On-site processing of extracted ore using a floating Wet Concentrator and land-based Rare Earth Concentrate Plant to produce up to 511,000tpa of mine products.
- Transportation of mine products in sealed containers from the Mine Site to the Rail Facility via a Site Access Road, an upgraded Anabranch Mail Road and the Silver City Highway to Broken Hill.
- Initial placement of overburden and reject into an Off Path Storage Facility until sufficient area within the dredge pond has been established. Following this, reject would be placed within completed sections of the dredge pond, with overburden used to cap the placed material and for construction of the final landform.
- Progressive establishment of a final landform, including a realigned Nulla Road, that would, to the extent practicable, mimic the existing landform and revegetation of that landform with native species to re-establish ecosystem function and agricultural productivity within the Mine Site.
- Use of the existing Rail Facility in Broken Hill for the purposes of loading of mine product containers onto trains.
- Construction and use of a range of ancillary infrastructure, including the following.
  - An Infrastructure Area comprising:
    - a Mine Camp for 200 people;
    - a Solar Farm (if required);
    - a diesel-powered Power Station (for construction operations and emergency backup only);
    - offices and administration facilities; and
    - workshops and stores.


Jobs 531 to 1000\928\Reports\92811_EIS_2024\CAD\MXD\1.1 Locality Plan.mxd
BROKEN HILL
Rail Facility
Comstock Street
Inset 3
Broken Hill (130km)
TN
MN
EL8309
EL9219
EL9222
EL8865
EL8312
EL9496
EL8385
MLA629
EL8865
EL8769
EL8310
EL9500
TARAWI Nature Reserve
Springwood Road
Silver City Highway
Upgraded Anabranch Mail Road
Site Access Road and Powerline
Anabranch Mail Road
Pine Camp Road
Nulla Road
Renmark Road
NSW
LAKE VICTORIA
Rufus River Road
Broken Hill
See Inset 3
Rail Facility
Mine Site
Upgraded Anabranch Mail Road
Inset 2
Inset 1
Wentworth
MURRAY RIVER
VICTORIA
Mildura
QLD
Brisbane
See Inset 2
White Cliffs
Cobar
Broken Hill
SA
NSW
Dubbo
Newcastle
Bathurst
Sydney
See Inset 1
Canberra
VIC
Melbourne
REFERENCE
Mine Site Boundary
Rail Facility Boundary
Exploration Licence Boundary
Mining Lease Application
Transportation Route - North
Transportation Route - South
Site Access Road and Powerline
Upgraded Anabranch Mail Road
Far West Region
Balranald LGA
Mildura Rural City LGA
SCALE 1:700 000 (A4)
10 0 10 20 30 km
Source: NSW Topographic Web Base Map - LPI
Figure 1.1
LOCALITY PLAN

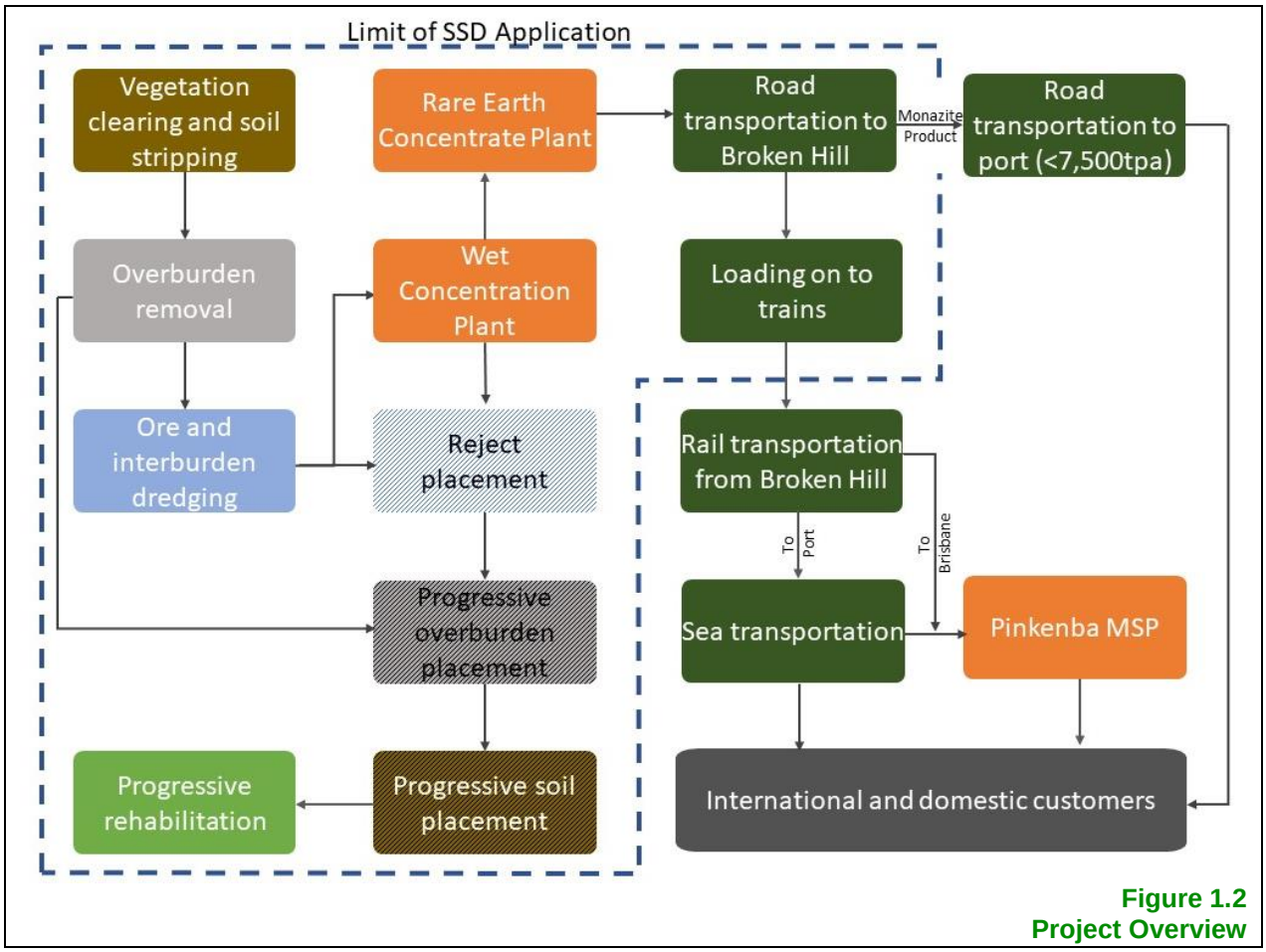


Figure 1.2
Project Overview

- A Site Access Road between the Infrastructure Area and Anabranch Mail Road.
- A 66kV powerline adjacent to the Site Access Road from the 220kV Buronga to Broken Hill Transmission Line to an onsite substation, as well as associated power distribution infrastructure.
- A Water Storage Dam for managing pond water levels during the initial mining operations.
- Internal roads, stockpiles and related infrastructure.

The Project would not include the following components which would be undertaken under separate approval, where required (**Figure 1.2**).

- Transportation of up to approximately 511,000tpa of mine products from the Rail Facility to either the Applicant's Mineral Separation Plant at Pinkenba in Brisbane Queensland, or port facilities in South Australia for sea transportation to Brisbane or elsewhere.
- Transportation of up to approximately 7,500tpa of Monazite Product (a component of the mine products) from the Rail Facility to port via road or rail.
- Further processing of the mine products at the Pinkenba Mineral Separation Plant.

The life of the Project would be 26 years, comprising an initial 2 year construction period, followed by 17 years of mining operations and a further period of 7 years of rehabilitation.

The Project is classified as a State Significant Development (SSD) under Clause 5(1)(a) of Schedule 1 of the *State Environmental Planning Policy* (SEPP) *(Planning Systems) 2021* because the Project is for the purpose of 'mineral sands mining'. The Development Application will therefore require assessment under Division 4.7 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The consent authority for the Project will be either:

- the Independent Planning Commission should the thresholds identified in Section 2.7 of the *State Environmental Planning Policy (Planning Systems) 2021* be achieved; or
- the Minister for Planning or their delegate.

Preparation of this *Environmental Impact Statement* (EIS) has been supervised by Mitchell Bland (BSc(hons), MEconGeol, LLB(hons), REAP) of R.W. Corkery & Co. Pty Limited. This document describes all components of the Project and provides information on the key environmental issues addressed in the design and assessment of the Project. These aspects are presented in a manner that addresses the specific requirements of the Secretary's Environmental Assessment Requirements (SEARs) and the requirements of other consulted government agencies. A table recording where each of the relevant requirements nominated in the SEARs and relevant matters raised by the agencies are addressed in this document is presented in **Appendix 1**. This document has been prepared generally in accordance with the draft document *State Significant Development Guidelines – Preparing an Environmental Impact Statement*, dated July 2022.

The issues addressed throughout this document and their relevant importance to the assessment of the Project have been identified through consultation with government agencies, the local communities, surrounding landowners, a risk analysis (presented as **Appendix 2**) and a range of specialist consultant assessments.

1.2 Key Terms and Terminology

The following presents key terms and terminology used in this document. A full glossary of technical terms, acronyms, symbols and units is provided in Section 9.

- **The Applicant** is RZ Resources Limited (ABN: 23 160 863 892).
- **The Project** incorporates all activities the subject of this SSD application and presented in **Figure 1.2**. The Project does not include activities subject to separate approval.
- **The Project Site** (**Figure 1.1**) generally comprises all land to be disturbed by the Project, including:
  - the Mine Site within the Wentworth LGA, comprising all land the subject of the proposed mining activities;
  - the Rail Facility within the Broken Hill LGA, comprising all land associated with the rail siding and related infrastructure; and
  - the Transportation Route, comprising the public roads that would be used to transport mine products from the Mine Site to the Rail Facility.

- **Overburden**, comprising material from above the existing water table with insufficient heavy mineral to justifying processing.
- **Interburden**, comprising material from below the existing water table with insufficient heavy mineral to justifying processing.
- **Ore,** comprising material from below the existing water table with sufficient heavy mineral to justifying processing.
- **Reject,** comprising material from which heavy mineral has been removed.
- **Mine products**, a collective term for all heavy mineral separated from the ore and transported from the Mine Site. Mine products incorporates a range of different products including:
  - Primary and Secondary Ilmenite Products;
  - Monazite Product; and
  - Non-Magnetic Concentrate.

1.3 The Applicant

The Applicant, RZ Resources Limited (formerly Relentless Resources Limited) is a 100% Australian-owned mining company focused on mining and producing critical minerals and rare earth elements in the far southwestern corner of New South Wales.

Information on the Company is available from its website (https://rzresources.com/). In summary, RZ Resources has a portfolio of exploration licences, including the flagship Copi Project. As demand for high quality mineral sands — specifically rutile, zircon and titanium, and rare earth elements — continues to increase, RZ Resources is well positioned to deliver the Copi Project and generate jobs for the local communities of far south-western NSW.

The Applicant is committed to operating sustainably, minimising its environmental footprint, focusing on providing a safe and inclusive space for employees and host communities, and adhering to the principles of good governance.

The Applicant has experienced a rapid growth phase as follows.

- 2012 – Relentless Resources incorporated for the purposes of identifying high value mineral sands projects in tier one locations that support proven operations and existing infrastructure.
- 2015 – Relentless Resources entered into a joint venture which controlled three tenements in the Murray Basin.
- 2017 – Relentless Resources acquired 100% ownership of the joint venture tenements and a further five tenements in the area. Extensive exploration, including acquiring additional tenements, has been undertaken continuously since that date.

- 2020 – Relentless Resources secured the use of the Pinkenba Mineral Separation Plant (MSP) near the mouth of the Brisbane River in Queensland. The Pinkenba MSP adds strategic value by significantly reducing capital cost and permitting additional value adding processing capacity to produce internationally saleable products in Australia.

RZ Resources acknowledges that a number of hard lessons have been learnt along the way. In 2020, the Resources Regulator advised of a compliance audit of the Applicant's exploration activities. As a result of their investigation, the Company was notified of potential contraventions in sections of the *Mining Act 1992* (Mining Act) and exploration codes of practice. In March 2023 the Resources Regulator and the Applicant agreed to an enforceable undertaking under the Mining Act noting that there were potential issues with past exploration activities and where practices and processes will be improved going forward.

Prior to finalisation of the enforceable undertaking, RZ Resources had already taken an extensive range of actions to improve environmental and consultation practices on all its tenements, including additional workplace training, resources, systems, and software. Additional third-party auditing of the company's rehabilitation activities enabled the company to make improvements to its rehabilitation practices and align with industry best practice.

On 18 April 2023, the Resources Regulator commenced an investigation in relation to 50 alleged non-compliances with Section 378D and 140 of the Mining Act related to rehabilitation of exploration-related disturbance on a neighbouring property within the Mine Site. On 24 January 2024, the Applicant was notified by the Resources Regulator that none of the allegations were sustained and no further action was required.

Going forward, RZ Resources has solid foundations for long-term, sustainable growth, focused on delivering a low carbon footprint product for its customers and sustainable value for its shareholders and community.

RZ Resources Limited is controlled by a Board of Directors and management team with a comprehensive range of skills and experience in mineral exploration, mine development, finance, and administration. As the company has grown, the board of directors and management team has been expanded and now includes the following personnel.

- Raymond Shorrocks (BA (Hons), MBA, AGSM), Chairman
- David Fraser (BBus (Finance & Marketing)), Managing Director
- David Lyons (BA, BBus (international business), LLB(Hons)) Director
- Chris Cobb (Dip CMS, MAID), Non-Executive Director
- Campbell Jones (BEng (Metallurgical)), Non-Executive Director
- Elissa Hansen (BCom, GdipAppCorGov, GAICD), Company Secretary
- John Costigan, (BEng (Mech)), Chief Operating Officer
- Arno Kruger (BTech (Chem)), Metallurgical and Process Manager
- Paulo Cardosa (BEng (civil), MEng(mining), MBA, CPEng), Project Manager
- Alan Kucurs (BEng (Mining)), General Manager – Technical Services

- Mr Paul Smith (BSc(Appl) EnvSc(Hons), MMR(EnvMan)), General Manager – Environment, Sustainability and Governance
- Wesley Jones (BSc (Geology), MAIG, MSEG), Exploration Manager
- William Haseler (LLB (Hons)), General Counsel

The RZ Resources management team includes many industry professionals with a combined mining experience of over 200 years, mostly in the mineral sands, critical minerals industry space.

1.4 Project Objectives

The Applicant's objectives in constructing and operating the Copi Mineral Sands Project are as follows.

- To safely and economically mine the identified mineral sand reserves and provide essential critical minerals and rare earth elements.
- To operate the Project in a manner that would minimise environmental impacts and impacts on surrounding residents and the local environment.
- To implement a level of management control and mitigation measures that ensures compliance with all relevant statutory requirements, appropriate environmental criteria and reasonable community expectations.
- To create a final landform that is suitable for a post-mining land of nature conservation, low intensity grazing, or following receipt of additional approvals, an alternative industry.
- To continue to maintain an open and honest relationship with and to work cooperatively with the surrounding community to build socio-economic capacity within communities within and adjacent to the Project Site.
- To achieve the above objectives in a cost-effective manner to ensure security of employment of employees and contractors and the continued economic viability of the Applicant, its suppliers and partners.

1.5 Project Background

1.5.1 Site History

The original exploration licences covering the Mine Site were granted to Aberfoyle Resources in 1988. The Mine Site and surrounding areas have been explored by a number of companies. Broken Hill Minerals Pty Limited (BHM) acquired three of the current exploration licences in October 2014 and undertook a substantial data compilation resulting in the estimation of a maiden mineral resource of 11.6 million tonnes (Mt) at 6.9% total heavy mineral (THM). BHM drilled a further 93 air core holes in 2016 which resulted in a resource upgrade for the Copi North deposit with a combined Indicated and Inferred Resource of 14.2Mt at 6.6% THM.

The Applicant acquired 100% ownership of the tenement portfolio in March 2018 and began reviewing the drilling and geophysical data to delineate exploration targets with 214 air core holes drilled in 2019. That drilling defined a new strandline and resulted in an:

- Indicated Mineral Resource of 13.8Mt at 5.5% THM; and
- Inferred Mineral Resource of 25.3Mt at 4.5% THM.

The Applicant has subsequently undertaken additional exploration campaigns to identify a mineral sands deposit that is approximately 22km long, up to 4km wide and up to 60m thick. The most recent Mineral Resource estimate is described in Section 1.5.3.

1.5.2 Geological Setting

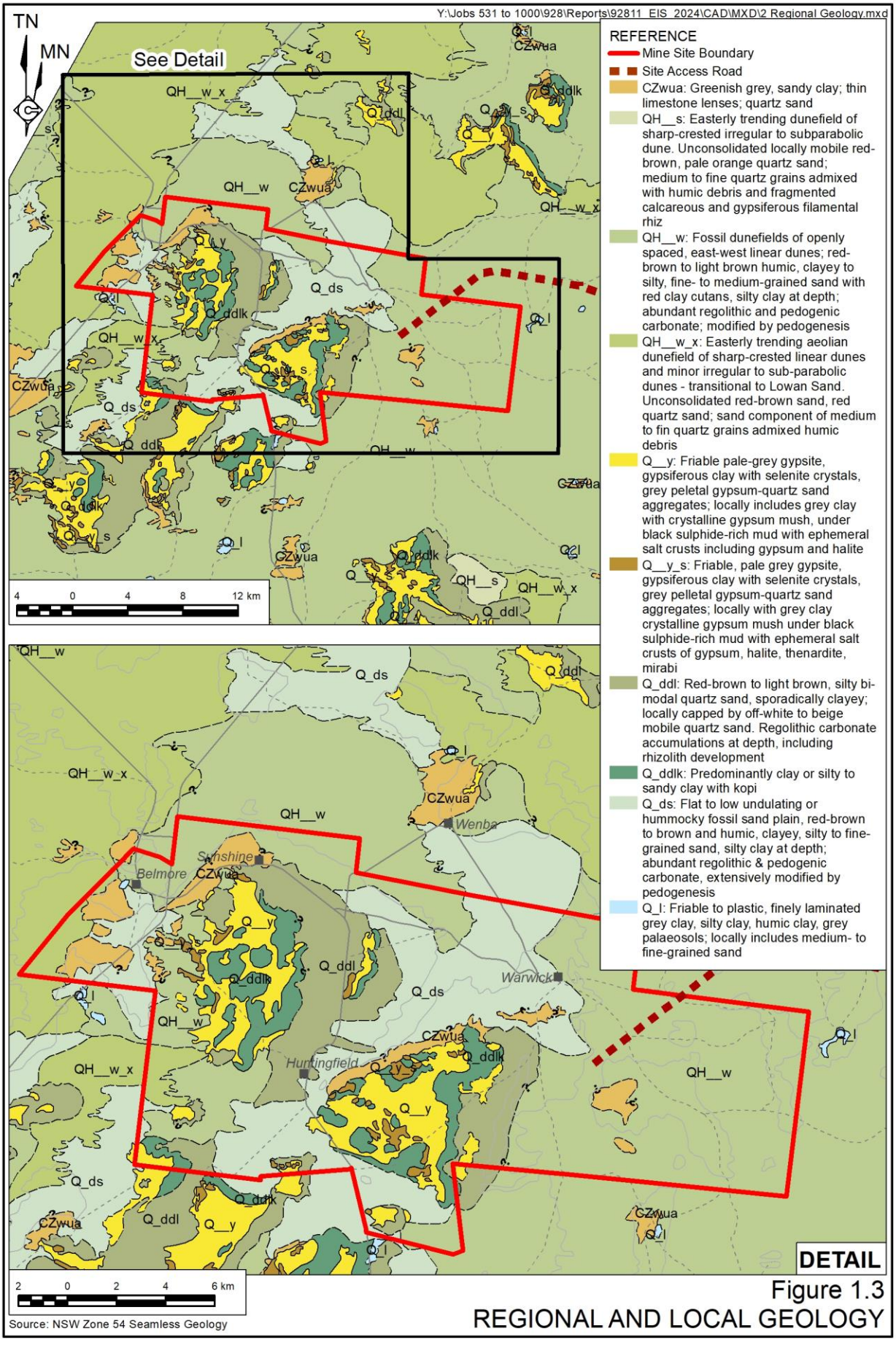
The Mine Site is situated within the central Murray Basin which is a Cainozoic intracratonic sedimentary (marine and terrestrial) basin that formed following the separation of Australia from Antarctica around 30 million years ago. The Basin has an aerial extent of approximately 300,000km^2 and is bounded to the southwest by basement rocks of the much older Mount Lofty and southern Flinders Ranges and to the north by the Broken Hill Block and Darling Basin. Sedimentation began in the Palaeocene with multiple flooding events recorded throughout the Cenozoic Era, with the last marine transgression recorded during the Pliocene, around 2.5 million years ago (TZMI, 2018).

The surface deposits are dominated by wind-blown dunefields which typically occupy elevated areas and clay and gypsum-dominated flats which typically occupy surface depressions (**Figure 1.3**). The surface depressions are interpreted to have formed as a result of wind erosion of surface deposits in areas of more sparse vegetation as a result of near surface saline groundwater. The resulting deflation and development of internally draining surface depressions resulted in permanent loss of vegetation and further deflation of the landform. Wind-blown sediment accumulated on the eastern or downwind side of the depressions, with the material forming dunes and lunettes.

Figure 1.4 presents an approximately southwest-northeast orientated cross section through the Murray Basin. The basal units of the Murray Basin are the Renmark Group. The earliest unit of the Renmark Group, the Warina Sands is overlain by the Lower Olney Formation and deep marine limestone and marls of the Murray Group in the western part of the basin. The shallow marine Geera Clay is observed in the central portion of the basin and shallow regressive sands of the Upper Renmark Group in the eastern portion of the basin.

After an upper Miocene hiatus, periods of shallow marine sedimentation formed the river and lake sands of the Calivil Formation in the east and the clays and marls of the Bookpurnong Formation in the centre and west of the basin. The economically significant unit of the Loxton-Parilla Sands (LPS) formed in the early Pliocene during a period of sea level rise and subsequent retreat. Reworking of this material allowed for the concentration of coarse-grained heavy minerals in beach strandlines and finer grained heavy minerals in deeper marine environments.

The LPS are disconformably overlain by the non-marine Blanchetown Clay. Where the Blanchetown Clay is absent, the LPS is disconformably overlain by the Holocene aeolian Woorinen Formation which forms the red sand dunes on the surface that is characteristic of the present-day Mallee landforms (TZMI, 2018).



Source: NSW Zone 54 Seamless Geology

Figure 1.3
REGIONAL AND LOCAL GEOLOGY

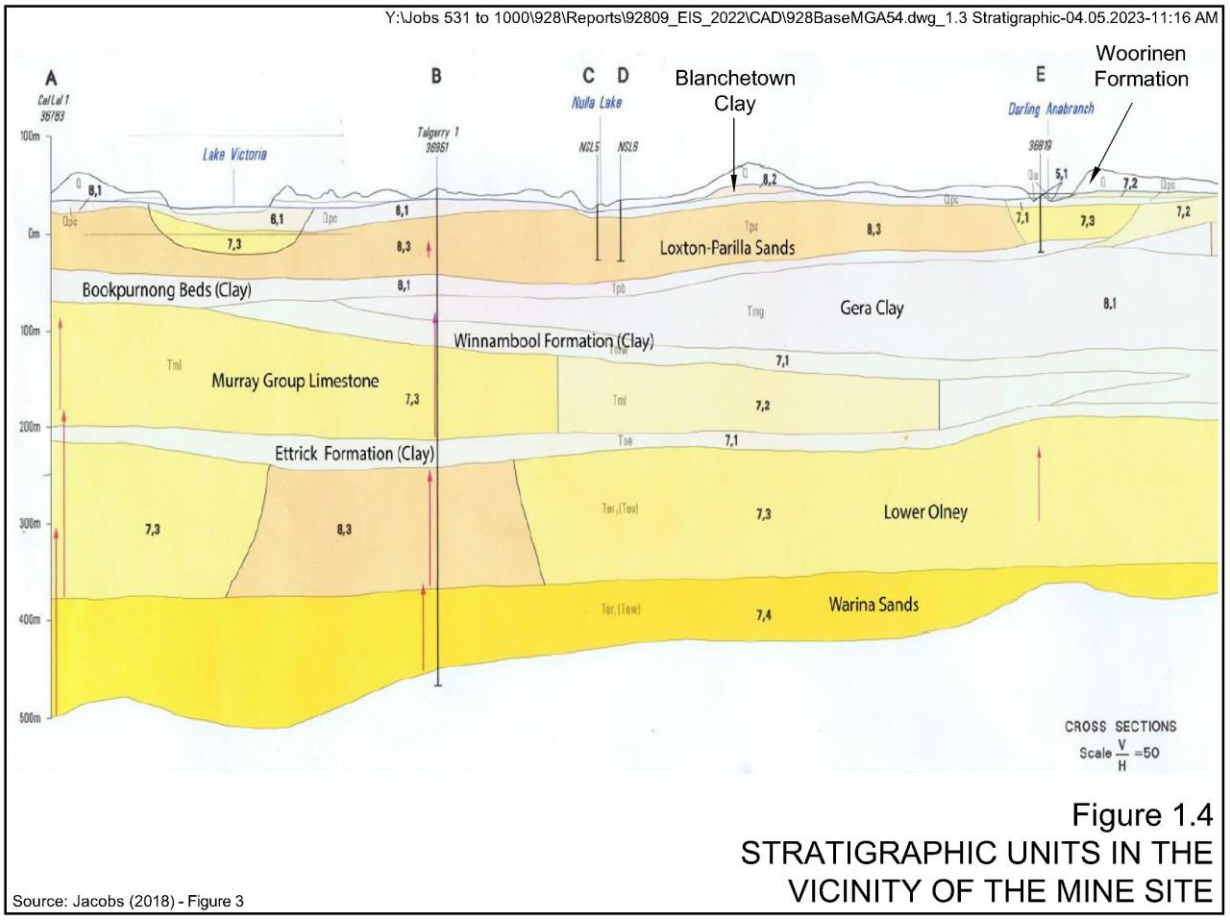


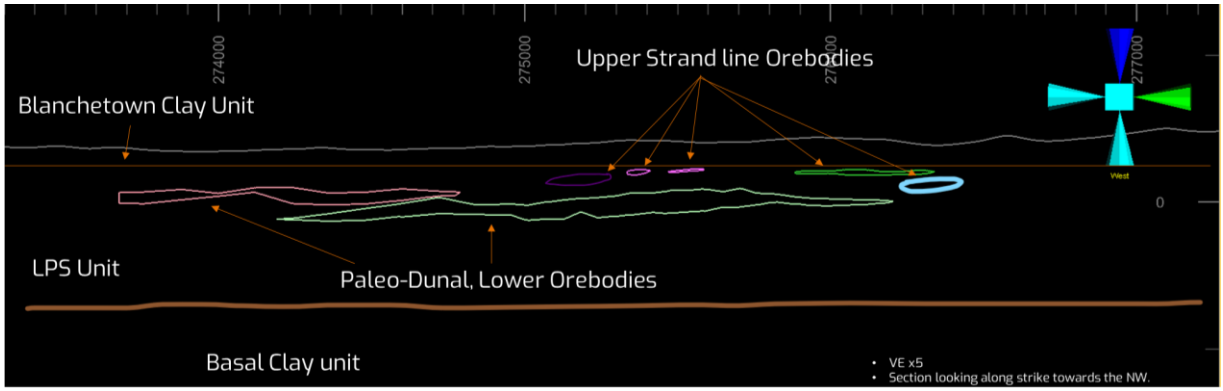
Figure 1.4
STRATIGRAPHIC UNITS IN THE VICINITY OF THE MINE SITE

Source: Jacobs (2018) - Figure 3

Surface geology within the Mine Site is dominated by the aeolian sediments of the Woorinen Formation, comprising a series of discontinuous, east-west orientated sand dunes separated by broad swales and sand plains.

Figure 1.5 presents the target ore bodies for the Project which are a group of high-grade strandlines and lower-grade, high-volume paleo dunes. Collectively, these ore bodies form an ilmenite-rutile-zircon-leucoxene (titanium, zirconium) deposit within the Loxton-Parilla Sands. The mineralised portion of the deposit strikes at approximately 303° true. Overall, the Copi deposit is 23km in length, up to 5km wide. The deposits of the Copi Project occur up to 80m deep. The average total thickness of the ore zone is up to 20m and the maximum thickness is 60m. The Copi South strandline is approximately 13.5km long and up to 250m wide, with an average thickness is 1.6m and the maximum thickness is of 5.6m (Snowden Optiro, 2023). The paleo dunes are up to 20m thick and 2km wide and approximately 25km long (Snowden Optiro, 2023).

Mineralisation generally occurs as stacked lenses of heavy minerals which are interpreted as having been concentrated during storm events and associated wave action from periodic marine regressions. Some additional mineralised horizons are present that may represent deposition within an offshore environment, but these are not completely defined and are the subject of ongoing drilling and interpretation.



Source: RZ Resources Limited

Figure 1.5
Long Section View of the Copi Deposit

1.5.3 Mineral Resources

The Mineral Resource estimate for the Copi Heavy Mineral Sands deposit is presented in **Table 1.1**. The Project would not fully extract all currently identified mineral resources within the proposed Extraction Area.

Table 1.1
Estimated Mineral Resource – September 2023

Resource Category	Million Tonnes	Total HM %	% of Total Heavy Mineral						Slimes %	Oversize %
			Ilmenite	Leucoxene	Rutile & HITI85	Zircon	Monazite	Xenotime		
Indicated	1,960	1.3	45	8.9	15	15	1.06	0.13	5.9	3.2
Inferred	580	0.9	43	9.4	15	12	0.87	0.11	6.8	2.9
Total	**2,540**	**1.2**	**45**	**9.0**	**15**	**15**	**1.03**	**0.12**	**6.1**	**3.1**
Resource Category	**Million Tonnes**	**Total HM %**	**In-Situ Grade (%)**						**Slimes %**	**Oversize %**
			Ilmenite	**Leucoxene**	**Rutile & HITI85**	**Zircon**	**Monazite**	**Xenotime**		
Indicated	1,960	1.3	0.60	0.12	0.20	0.20	0.014	0.0017	5.9	3.2
Inferred	580	0.9	0.37	0.08	0.13	0.11	0.008	0.0009	6.8	2.9
Total	**2,540**	**1.2**	**0.55**	**0.11**	**0.18**	**0.18**	**0.013**	**0.0015**	**6.1**	**3.1**
Resource Category	**In-Situ Tonnes (Kt)**									
	TOTAL HM		**Ilmenite**	**Leucoxene**	**Rutile & HITI85**	**Zircon**	**Monazite**	**Xenotime**	**Total VHM**	
Indicated	26,094		11,780	2,318	3,938	3,943	275	33	22,289	
Inferred	5,021		2,135	473	753	623	44	5	4,033	
Total	**31,116**		**13,916**	**2,791**	**4,691**	**4,566**	**319**	**39**	**26,322**	

Source: RZ Resources Limited (https://rzresources.com/operations/reserves-and-resources/)

The Applicant is yet to define the boundaries of the Mineral Resource. Future drilling programs aimed at extending the resource inventory will be undertaken. Notwithstanding this, the Project would not sterilise additional resources or prevent a future Applicant from extracting those resources.

1.5.4 Products and Project Need

The Project will produce a range of products, including the following:

- Primary and Secondary Ilmenite Products.
- Monazite Product.
- Non-Magnetic Concentrate.

Non-magnetic concentrate product would be further processed at the Applicant's Mineral Separation Plant in Pinkenba, Queensland (or elsewhere) to produce a range of value added products. The principal products would comprise Titanium (Ti) and Zirconium (Zr) rich minerals, as well as rare earth elements.

The Applicant's website (https://rzresources.com/) presents detailed information in relation to the materials to be produced and their uses, however, the following provides a brief overview.

- Titanium metal produced from Ilmenite is increasingly used in advanced engineering applications, medical devices including rods, pins and plates and dental titanium materials, electric vehicle motor components, spectacle frames, jewellery, bicycle frames and sporting goods. Titanium's general inertness means it is used in prosthetic surgery including hip replacements, spinal implants, dentistry and in pacemakers.
- Zirconium metal produced from Zircon, is commonly used in ceramic applications due to its high refractive index. The surface layer of most tiles, bathroom ware and crockery obtain their glazed finish, durability, and resistance to discolouration, from zircon products used in their manufacture. Zirconium is also used in glass production and for the manufacture of jet turbines, as well as in the core of nuclear reactors to increase their efficiency and improve safety.
- Rare earth elements produced from Monazite and Xenotime are necessary components for a wide range of applications, including high-tech consumer products, such as mobile phones, computer hard drives, electric and hybrid vehicles, and flatscreen monitors and televisions. Rare earth elements are also the key ingredients required to produce rare earth magnets used in wind turbines and the electric motors for the next generation of road vehicles. The global demand for rare earth elements has increased significantly in recent years, however, the supply of these elements is highly concentrated outside of Australia. As a result, the Project would substantially contribute to Australia's self-reliance in relation to these elements.

Each of the above materials are classified as critical minerals by the Commonwealth and NSW governments and the Project has been recognised as a Critical Minerals Project by both levels of government. Sections 2.1.2.3 and 2.1.3.8 describe the Critical Minerals Strategy for the NSW and Commonwealth governments respectively, with both strategies identifying the importance of:

- ensuring a stable supply and robust supply chains for critical minerals; and
- increase Australia's sovereign capacity for critical minerals.

The Project would materially support the critical minerals objectives of each level of government.

Finally, it is noted that rare earth elements such as those to be produced by the Project are important for technology that will be critical to achieving Australia and the world's climate change targets.

1.5.5 Related Developments

The Applicant only seeks development consent for the activities described in Sections 1.1 and 3 of this document. The following related developments are or would be subject to separate approvals (**Figure 1.2**).

Rail Transportation – Broken Hill to Pinkenba or Port

Containerised mineral products would be transported by rail from the Rail Facility in Broken Hill either direct to the Applicant's Pinkenba Mineral Separation Plant in Brisbane, Queensland or to port for direct export or transportation to the Pinkenba Mineral Separation Plant. The Applicant would engage a third party to transport that material. All approvals associated with rail transportation would be the responsibility of the rail transport contractor.

Road or Rail Transportation – Broken Hill to Port

Up to approximately 7,500tpa of containerised Monazite Product may be transported by road or rail from Broken Hill directly to a port for export. The port to be utilised and, as a result, the transportation route, has yet to be determined. However, the material would be transported via the classified heavy vehicle road network and all permits and related approvals for the transportation operations would be obtained prior to transportation.

Sea Transportation – Port to Brisbane or Elsewhere

Containerised mineral products may be transported to port and transferred to ships for transportation to the Port of Brisbane for onward transportational to the Pinkenba Mineral Separation Plant. Alternatively, the products may be exported directly to international or domestic customers.

Pinkenba Mineral Separation Plant

The Applicant leases and manages the Pinkenba Mineral Separation Plant. The Plant previously processed mine products from mineral sand mines on Stradbroke Island and is currently in care and maintenance. The Applicant proposes to recommission the Plant to process up to 510,000tpa of mine products to produce a range of premium value-added products for sale domestically within Australia as well as overseas.

The Applicant would ensure that an Environmental Authority for mineral processing issued by the Queensland Department of Environment and Science (or equivalent agency) would be obtained prior to the recommissioning of the Plant.

1.6 Key Strategies to Avoid/Minimise Impacts

Section 6 presents a range of measures to avoid, manage, mitigate and monitor Project-related impacts. Section 2.5 also presents the feasible alternatives considered by the Applicant and rejected, principally in order to avoid or minimise environmental or social impacts. In summary, the following key strategies have been adopted during the design process for the Project to avoid and minimise Project-related impacts.

- Engagement of recognised industry experts over an extended period (2017 to present) to complete selected aspects of the Project design to ensure that the Project would be constructed and operated in accordance with relevant regulatory standards and requirements, with the lowest environmental impacts practicable and in line with reasonable community expectations.
- Consideration of all reasonable and feasible development alternatives (see Section 2.5).
- Early and regular consultation with the community surrounding the Mine Site, as well as the residents and businesses of the Wentworth LGA and surrounding areas.
- Early and regular consultation with relevant government agencies to ensure that the Applicant and the Project team had a detailed understanding of the expectations and requirement of key agencies throughout the design phase for the Project.

In addition, the Applicant would implement the following key strategies throughout the life of the Project to avoid and minimise Project-related impacts.

- Ensure that the Project is developed strictly in accordance with the commitments included within this document and all regulatory conditional requirements.
- Prepare clear and detailed Management Plans that incorporate all regulatory requirements and commitments made by the Applicant.
- Continue to engage a highly qualified, experienced and appropriately resourced management team to manage the Project's day to day operations.
- Implement the identified monitoring program and review all results against the relevant compliance and assessment criteria to ensure that the Project is operating in compliance with all approvals and the predictions included within this document.
- Continue to engage closely with the community surrounding the Mine Site, as well as residents and businesses within the Wentworth and Broken Hill LGA's to maintain open and honest communication and facilitate feedback in relation to the Project's impacts.
- Continue to engage closely with relevant government agencies to ensure that the Project's impacts on the environment are within relevant conditional and assessment criteria.
- Continue to focus on continual improvement and refine Project-related processes and procedures to avoid and minimise impacts.

1.7 Restrictions and Covenants

The Applicant is not aware of any restrictions or covenants that apply to the Mine Site or the Rail Facility.

1.8 Management of Investigations

The preparation of this document has involved a study team managed by Mitchell Bland (BSc(Hons), MeconGeol, LLB), Principal and Managing Director of R.W. Corkery & Co. Pty Limited. Mr Bland is a Certified Environmental Practitioner in Impact Assessment and NSW Registered Environmental Assessment Practitioner (REAP). Mr Bland was assisted by the following RWC consultants.

- Paul Ryall (BSc (Hydrology and Water Resources), Senior Environmental Consultant.
- Jack Flanagan (BSc, MenvSci), Senior Environmental Consultant.
- Elizabeth Macarounas (BSc(hons)), Graduate Environmental Consultant.

Several of the Applicant's professional staff assisted with the preparation of this document including, but not limited to:

- Paul Smith (BSc(Appl) EnvSc(Hons), MMR(EnvMan)), General Manager – Environment, Sustainability and Governance.
- John Costigan, (BEng(Mech)), Chief Operating Officer.
- Alan Kucurs (BEng (Mining)), General Manager – Technical Services.
- Wesley Jones (BSc (Geology), MAIG, MSEG), General Manager – Exploration.
- Arno Kruger (BTech(ENG)Chem), Metallurgical and Process Manager.
- Tracy Smith (BN(RN)), Health, Safety, Environment and Community Advisor.
- Udesh Indewan (BEng(mining)), Mining Engineer.
- Dula Kothalawala (BEng(mining)), Mining Engineer.

Finally, strong emphasis has been placed upon a multi-disciplinary team approach to the design of the Project, the description of the existing environment, identification of key environmental issues, development of appropriate safeguards and assessment of impacts.

The following consultancy firms were commissioned by the Applicant to prepare nominated specialist consultant studies for the Project, with the resulting reports presented as Appendices.

Appendix 5: Groundwater Impact Assessment

GEO-ENG

– Mark Robertson (MASc (Geological Engineering – Hydrogeology))

Hydro Consulting Services

– James Williams (Bsc (Hons), Msc)

Appendix 6: Biodiversity Development Assessment Report
EnviroKey Pty Ltd

- Steve Sass (BAppSc (EnvSc) (Hons)) – Director / Principal Ecologist

Appendix 7: Land and Soil Capability Assessment
Sustainable Soils Management Pty Ltd

- Dr. Pat Hulme (BScAg (Hons), PhD) – Managing Director

Appendix 8: Aboriginal Cultural Heritage Assessment Report
OzArk Environment & Heritage

- Ms Stephanie Rusden (BA, BSc) – Senior Archaeologist
- Dr Alyce Cameron (PhD B Arts (hons)) – Senior Archaeologist
- Dr Yekun Zhang (B Arts Archaeology & Anthropology, MSc Archaeological Science, PhD Archaeology) – Archaeologist
- Mr Ben Churcher (BA, Dip Ed) – Principal Archaeologist

Appendix 9: Traffic Assessment
Tonkin Consulting Pty Ltd

- Mr Nicholas Firth BEng(Civil and Structural)(Hons) – Senior Engineer

Appendix 10: Surface Water Assessment
R.W. Corkery & Co. Pty Limited

- Mr Paul Ryall (Bsc (Hydrology and Water Resources)) – Senior Environmental Consultant

Appendix 11: Noise Impact Assessment
Muller Acoustic Consulting Pty Ltd

- Mr Oliver Muller (BSc(REM & HGeog)) – Principal Acoustic Scientist / Director
- Mr Dale Redwood (BSc) – Senior Acoustic Consultant

Appendix 12: Air Quality Impact Assessment
Northstar Air Quality Pty Ltd

- Dr Martin Doyle (BSc(hons), PhD, AAQual) – Director
- Mr Gary Graham (BSc(hons), MSc, CSci, Cenv, CAQP) – Director
- Ms Marie-Laure Nguyen (BSc, MSc) – Air Quality Engineer

Appendix 13: Historic Heritage Assessment Report
OzArk Environment & Heritage

- Ms Stephanie Rusden (BA, BSc) – Senior Archaeologist
- Mr Harrison Rochford (Masters Philosophy (Arts and Social Sciences) and Bachelor of Liberal Studies [Hons]) – Heritage Officer
- Mr Ben Churcher (BA, Dip Ed) – Principal Archaeologist

Appendix 14: Social Impact Assessment
Element Environmental

- Dr Jamie Seaton (Dr. of Philosophy (human geography) BSc(hons) human geography) Principal – Engagement and Social

Appendix 15: Economic Impact Assessment
Synergies Economic Consulting Pty Ltd

- Mr Daniel Culpitt (BEcon) – Director