NiWest Nickel Cobalt Project

Referral Supporting Document

Prepared for Alliance Nickel Ltd

21 May 2024

Project Number: TE22062

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1 Introduction

1.1 Purpose and scope

Alliance Nickel Pty Ltd (ABN 62 009 260 315, "the Proponent", "Alliance") is an emerging integrated battery chemicals producer focused on developing its high grade NiWest Nickel-Cobalt Project ("the Project"), located approximately 50km southeast of Leonora, WA (**Figure 1-1**).

The company's strategy is aligned with the Federal Government's critical minerals strategic objectives of building sovereign capability in critical minerals processing and extracting more value from our resources onshore.

The primary product, nickel sulphate, will be exported for use in the manufacture of batteries for electric vehicles in line with the global trend towards net zero of greenhouse gas emissions.

This Proposal is being referred under Section 38 of the *Environmental Protection Act 1986* (EP Act) as it has the potential to significantly affect key environmental factors, as defined by the WA Environmental Protection Authority (EPA). The purpose of this referral is to present sufficient information on the Proposal and the potential effects of the Proposal on the environment to allow the EPA to set a level of assessment for the Proposal under Part IV of the EP Act.

This document presents an outline of on each of the preliminary key environmental factors that the proposal's implementation could significantly impact. The document considers all phases of the Proposal's implementation, including construction, commissioning, operation and closure. It also provides a preliminary holistic assessment of how key environmental factors are likely to interact.

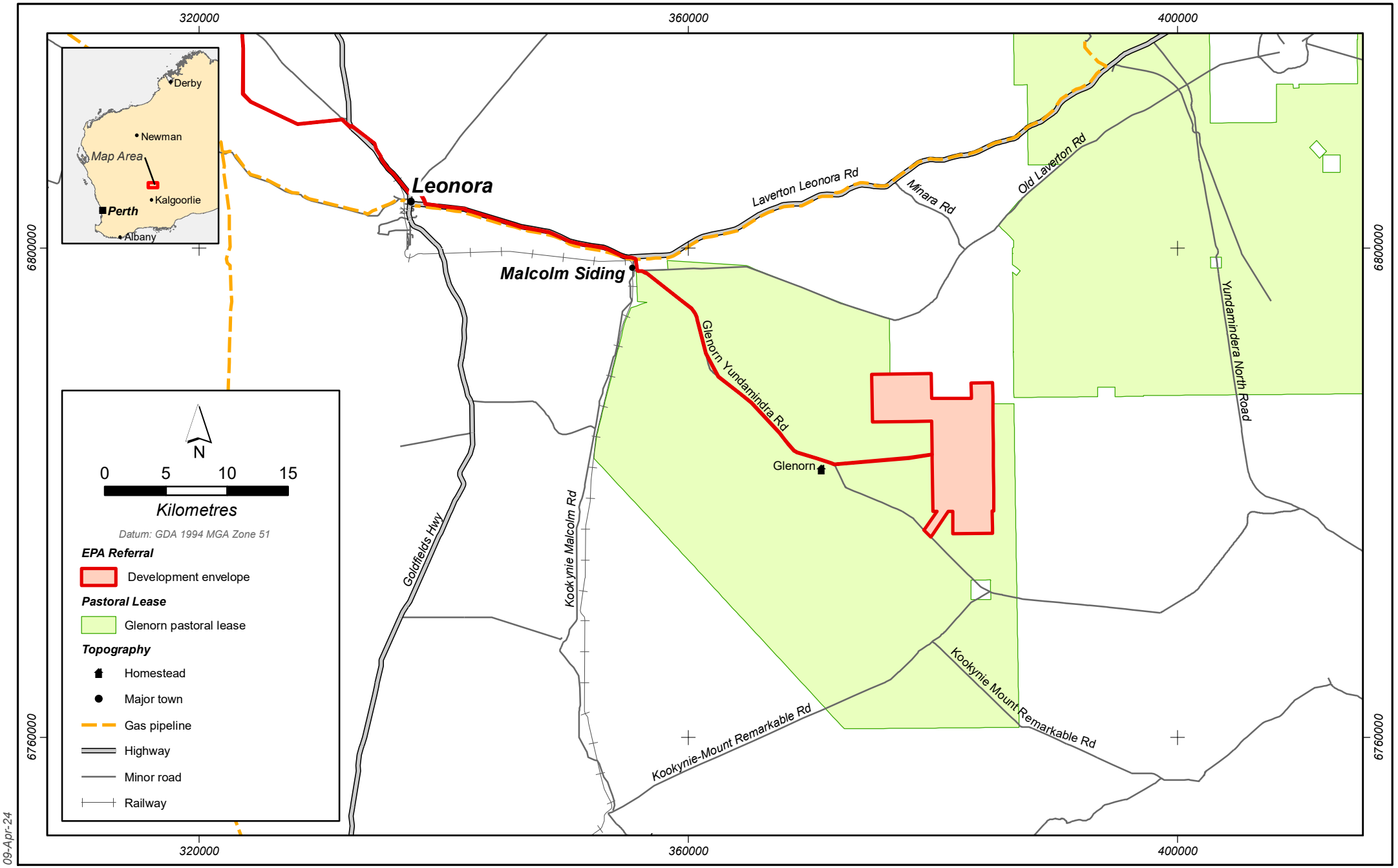
1.2 The proponent

The Proponent's details are provided in the following table:

Table 1-1: Proponent details

Item	Detail
Proponent	Alliance Nickel Limited
Address	Level 1, Suite 1.02, 45 Stirling Hwy, Nedlands WA 6009
Postal address	PO Box 574, Nedlands WA 6909
Corporate Contact	Lloyd Dolman, Manager – Operations and Development
Email	lloyd.dolman@alliancenickel.au
Contact	+61 8 6182 2718

NiWest Nickel Cobalt Project
Figure 1-1 Regional Location



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2 Proposal

2.1 General proposal description

The general proposal description is summarised in the following table:

Table 2-1: General Proposal description

Proposal title	**NiWest Nickel Cobalt Project**
Proponent name	Alliance Nickel Ltd
Short Description	Alliance Nickel plans to develop a greenfield nickel and cobalt mine, the NiWest Nickel Cobalt Project, in the central southern area of Western Australia, approximately 50km southeast of Leonora. The primary product, nickel sulphate, will be exported for use in the manufacture of batteries for electric vehicles, in line with the global trend towards net zero of greenhouse gas emissions. This Proposal includes the following key features: • The development of an open pit mine (below the water table) for the Mt Kilkenny deposit and mining of nickel laterite ore. • Treatment of ore via a heap leach facility with associated water management and irrigation systems. • Production of nickel and cobalt sulphates. • Water treatment and wastewater evaporation system. • Permanent in-pit storage of process wastes - leached ore ('ripios') and process plant residue. • Infrastructure to support the mining and processing facilities, including roads, transmission lines, pipelines and conveyors. • A calcrete quarry. • Two borefields (Depot Springs South and Sandstone South) and a pipeline corridor. • Non process infrastructure including the accommodation camp, offices, stores, maintenance facilities, domestic wastewater systems, fire systems and potable water systems. All activities will occur within a Development Envelope (DE) of 11,497 ha and will require land clearing of up to 4,253 ha.

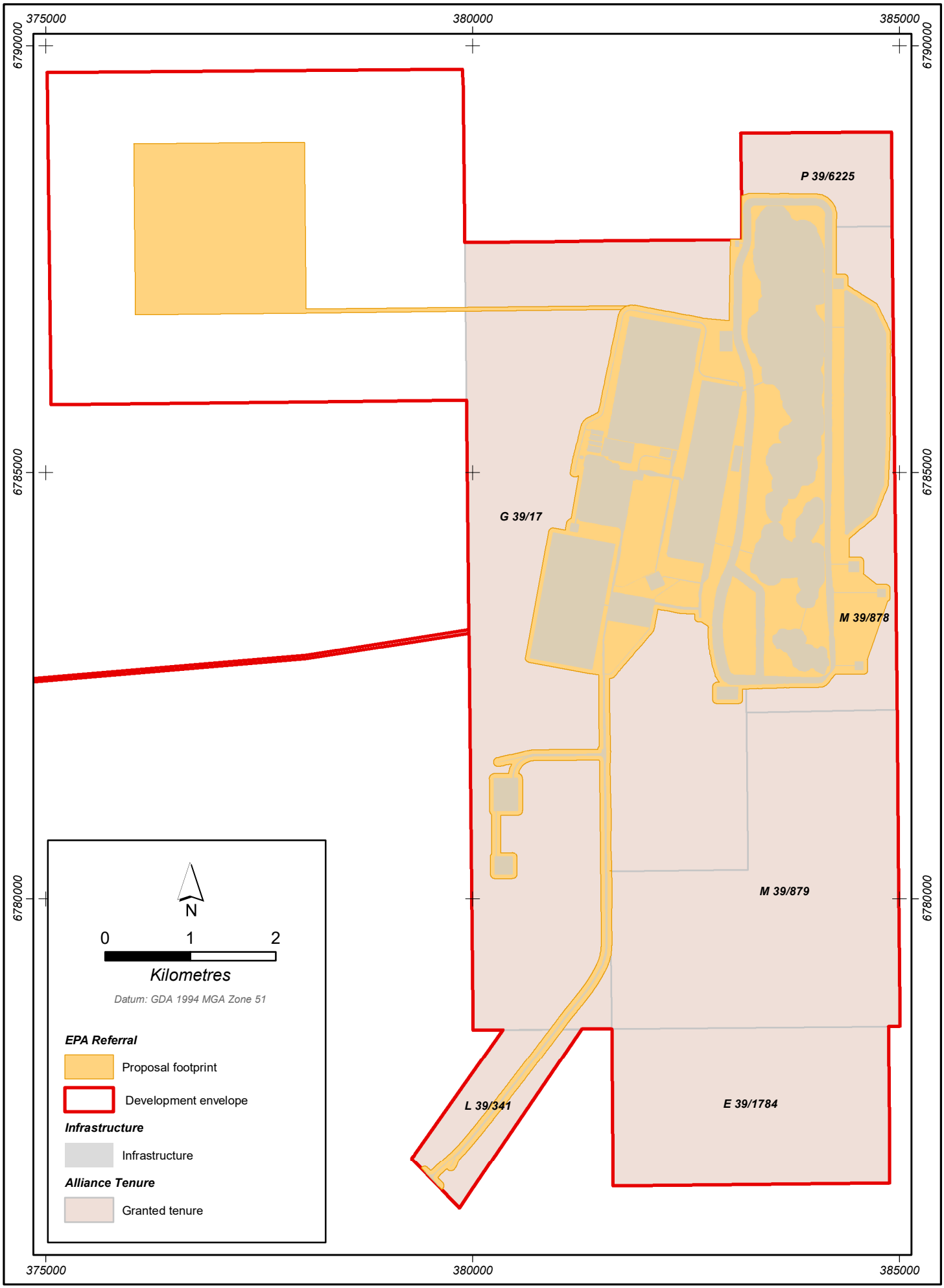
Key elements of the Proposal are summarised in the following table.

Table 2-2: Proposed extent of physical and operational elements

Element	Location	Proposed Extent
Physical Elements		
Mine elements including: • Open pits; • Haul and access roads; • Waste rock landforms; • ROM pad; • Residue and ripios storage; • Topsoil stockpiles, and • Dewatering infrastructure.	Figures 2-1, 2-4, 2-5 and 2-6, Referral Supporting Document (RSD).	Clearing of up to 2,257 ha of native vegetation within an overall DE of 11,497 ha.
Process plant including: • Ore stockpiles; • Crushing and screening; • Agglomeration and stacking; • Sulphuric acid manufacture; • Neutralisation of process solutions using calcrete, and • Water storage and evaporation ponds.		
Supporting infrastructure including: • Accommodation camp; • Domestic wastewater treatment system, and • Access roads.		
Calcrete quarry elements including: • Open pits; • Haul and access roads; • Waste rock landforms; • Topsoil stockpiles, and Dewatering infrastructure.		
Borefield elements including: • Groundwater abstraction bores, and • Pipeline and access corridors.	Figures 2-2 and 2-3, RSD	Clearing of up to 1,996 ha of native vegetation within an overall DE of 11,497 ha.

Operational Elements		
Pit dewatering	-	1.5 GL/a
Sulphuric acid production and usage	Figure 2-6, RSD	1.8 Mt/a
Calcrete mining and use in plant for neutralisation	Figures 2-1 and 2-4, RSD	1.7 Mt/a
Mineral processing	Figure 2-4, RSD	2.6 Mt/a
Backfill of ripios and residue	Figure 2-5, RSD	3.5 Mt/a
Borefield abstraction	Figures 2-2 and 2-3, RSD	6 GL/a

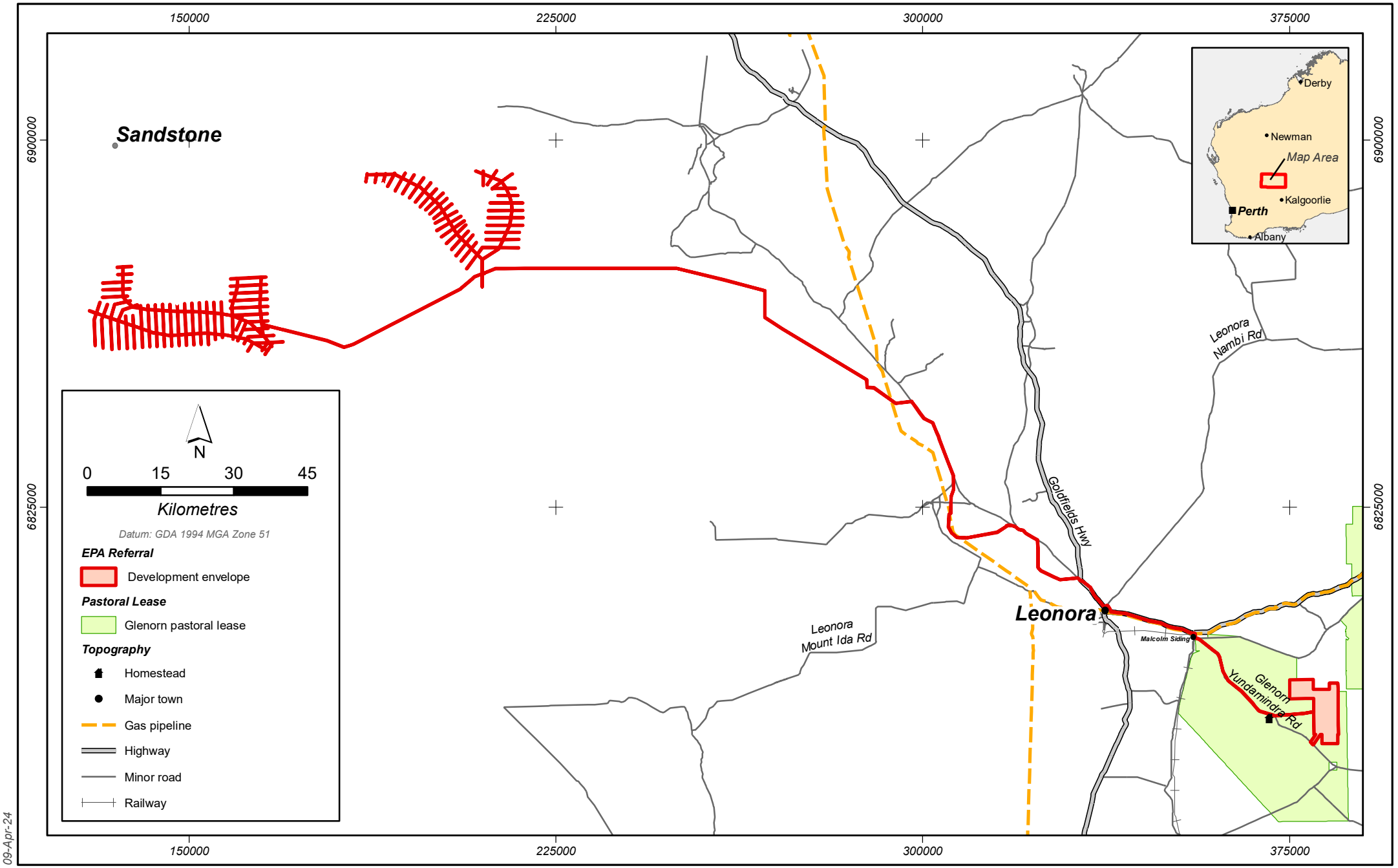
NiWest Nickel Cobalt Project
Figure 2-1 Mt Kilkenny - Development Envelope



Author: chris 09-Apr-24

MtK 010 - EPA - Figure 2-1 Immediate Surrounds

NiWest Nickel Cobalt Project
Figure 2-2 Borefields and pipeline corridor - Development Envelope



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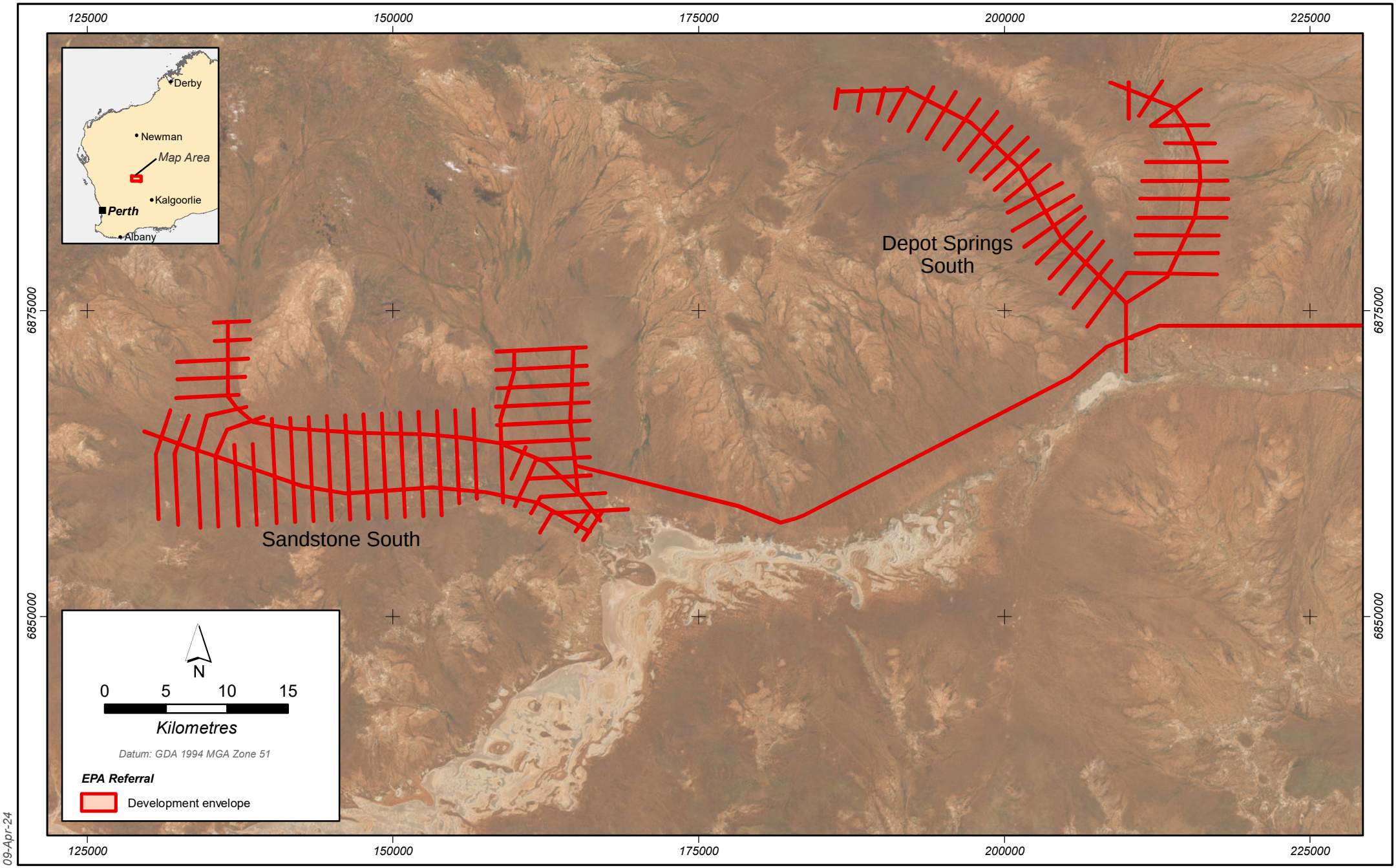
NiWest Nickel Cobalt Project
Figure 2-3 Borefield layout



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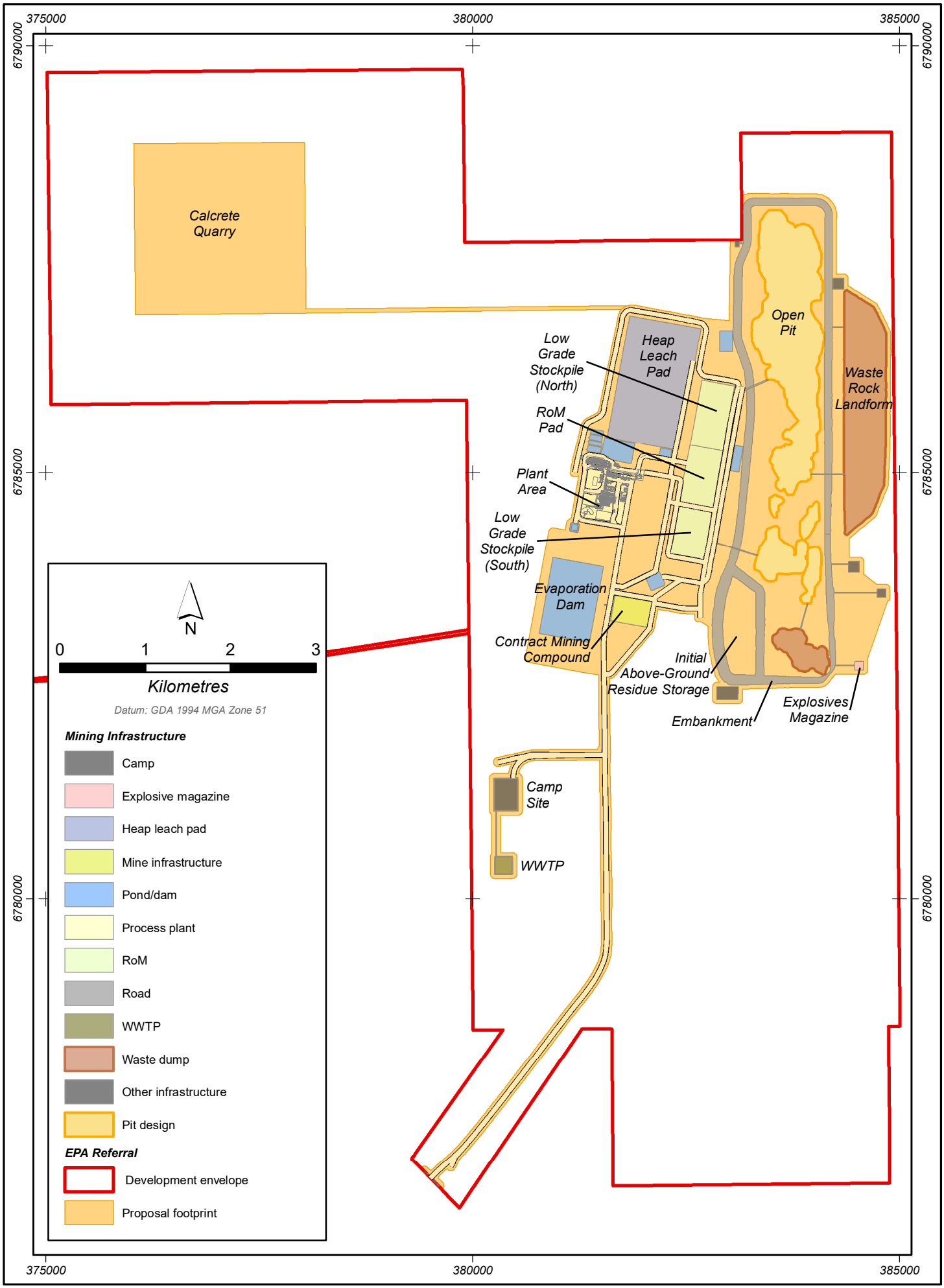
NiWest Nickel Cobalt Project
Figure 2-4 Mt Kilkenny - major infrastructure



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2.2 Description of proposal elements

2.2.1 Nickel mining

The Proposal includes mining of ore and waste rock at the Mt Kilkenny deposit (37 Mt of ore grading 0.97% nickel and 0.07% cobalt). The proposed mining will be undertaken using standard open pit methods with conventional excavators and rigid haul trucks and is expected to be mostly free digging. Some blasting may be necessary and the site layout includes provision for a magazine (**Figure 2-4**).

The resource is typical of nickel laterite deposits, which are generally shallow, flat lying zones of mineralised lateritic clays. Nickel/cobalt ore occurs from near surface to 80 m below current ground levels. As groundwater occurs at around 10 metres below ground level (mbgl), dewatering will be required.

Mining will proceed through the development of staged open pits, starting in the centre of the deposit and moving south and north in stages. Ore will be placed on a ROM pad or on one of two low grade stockpile areas (**Figure 2-4**).

Mined out pits will be backfilled to 1 m above the natural ground water level (i.e. the ground water level prior to commencement of mine dewatering). Backfilling will utilise waste rock. The void above the backfill will be used to deposit and store processing wastes (ripios and residue) which will eventually be stacked above the level of the exhausted pit voids. As production of process wastes will commence before any section of pit is mined out, an initial above ground area for residue storage will be required (**Figure 2-4**). The southernmost pit will be mined last and will not be backfilled with waste rock or used for process waste disposal – it will remain as a void.

Waste rock will be temporarily placed into two waste rock landforms on the east side of the open pit (see **Figure 2-4**). All waste rock will be used for backfilling and capping of process wastes at the end of operations, as shown in a schematic (**Figure 2-5**).

2.2.2 Calcrete mining

The processing of nickel ore requires the use of calcrete to neutralise acidic solutions generated in the process plant (see section **2.2.3**). Regionally, calcrete deposits occur at or close to the surface, with an average thickness of 3-8 m.

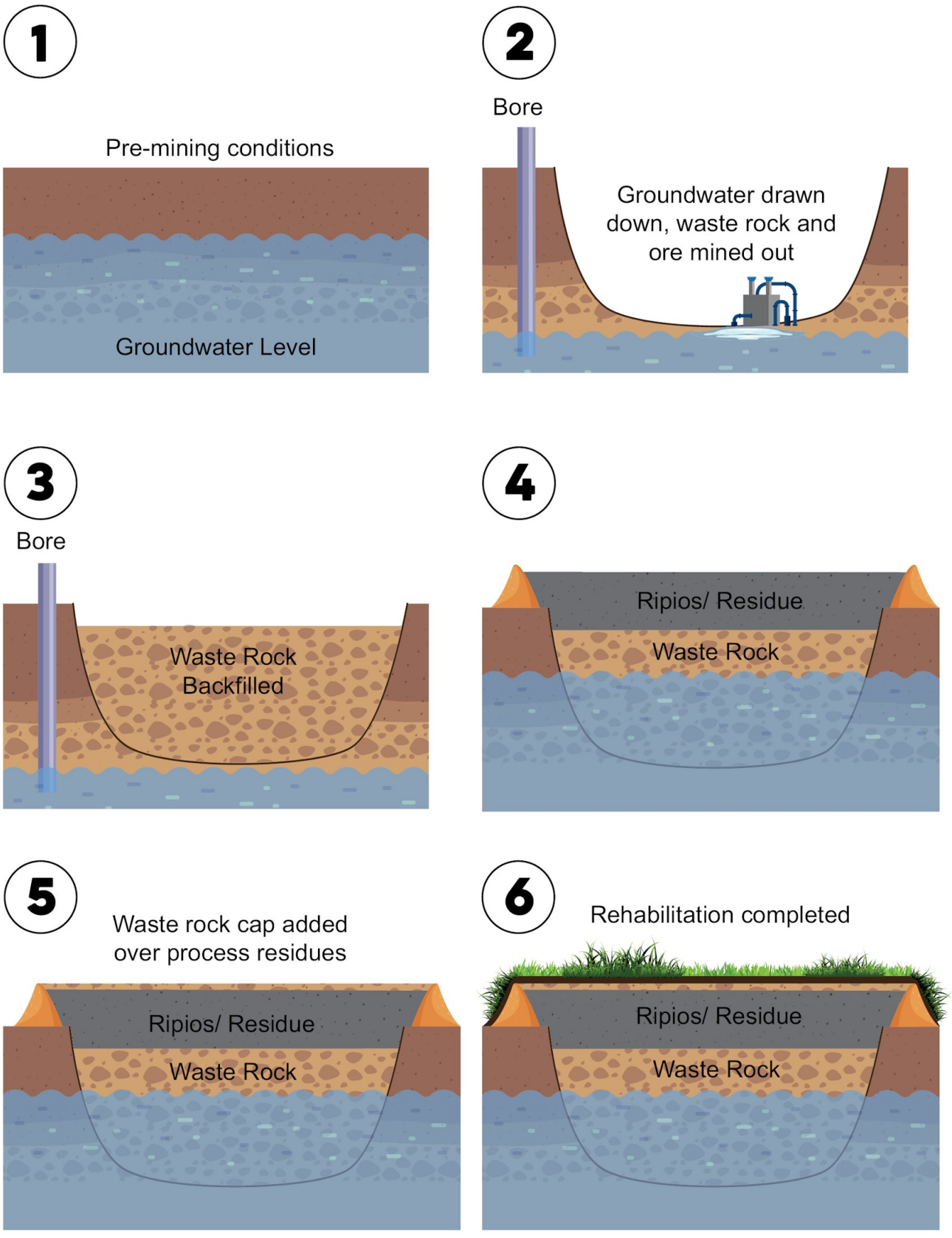
A target area for calcrete mining has been identified (**Figure 2-4**). Mining will involve topsoil recovery and stockpiling and surface storage of some overburden. Backfilling of pit voids with overburden will be optimised. Mining of calcrete is not expected to exceed 15 m below ground level. Calcrete will be hauled by road train to the process plant where crushing and screening of calcrete will be undertaken prior to use for neutralisation.

2.2.3 Processing

The process plant area is shown in **Figure 2-6** and a process flow diagram is presented in **Figure 2-7.**

The process plant will include a sulphuric acid plant. The acid required for processing will be generated from elemental sulphur.

NiWest Nickel Cobalt Project
Figure 2-5 Open Pit Schematic



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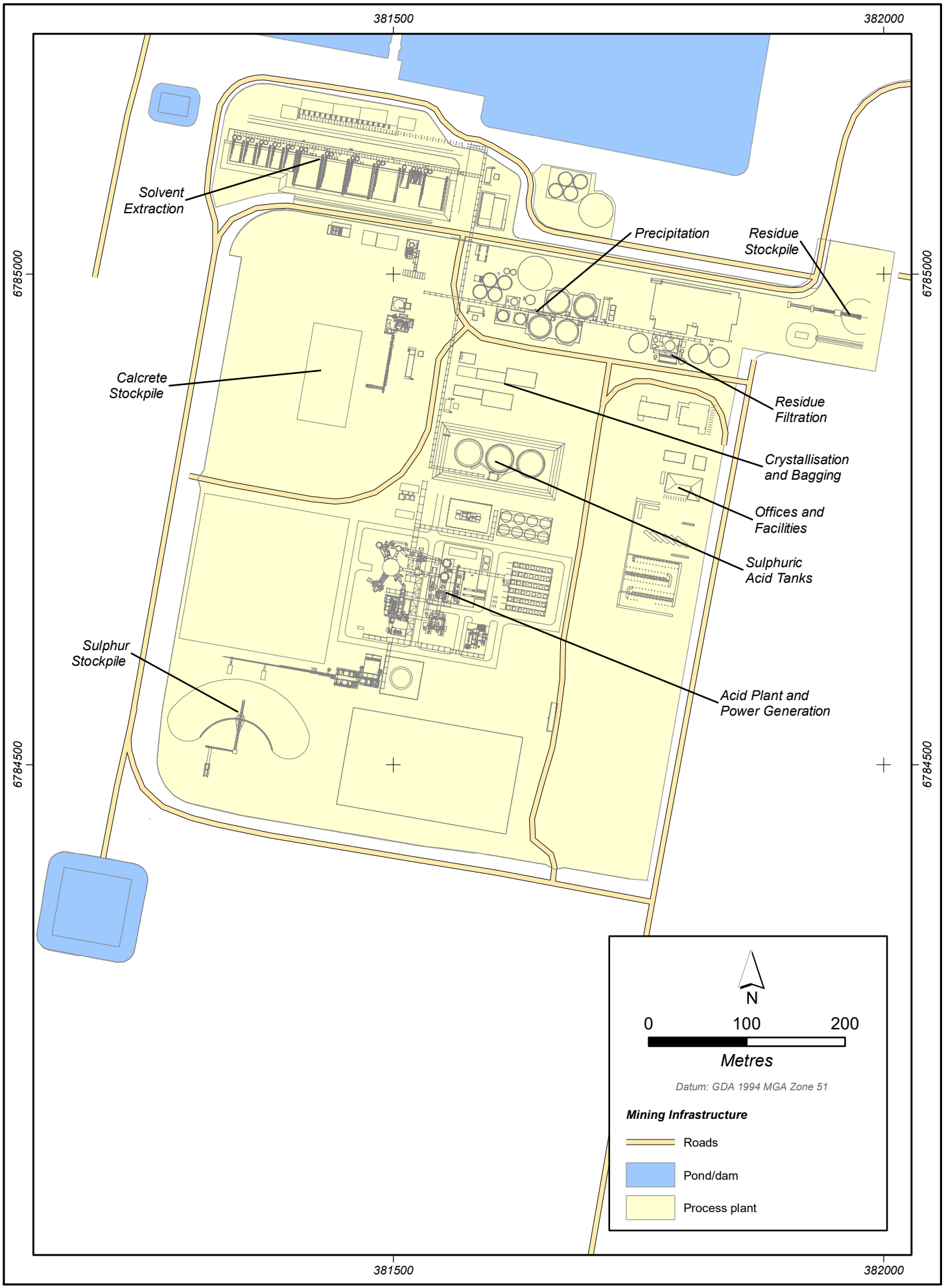
NiWest Nickel Cobalt Project
Figure 2-6 Process Plant



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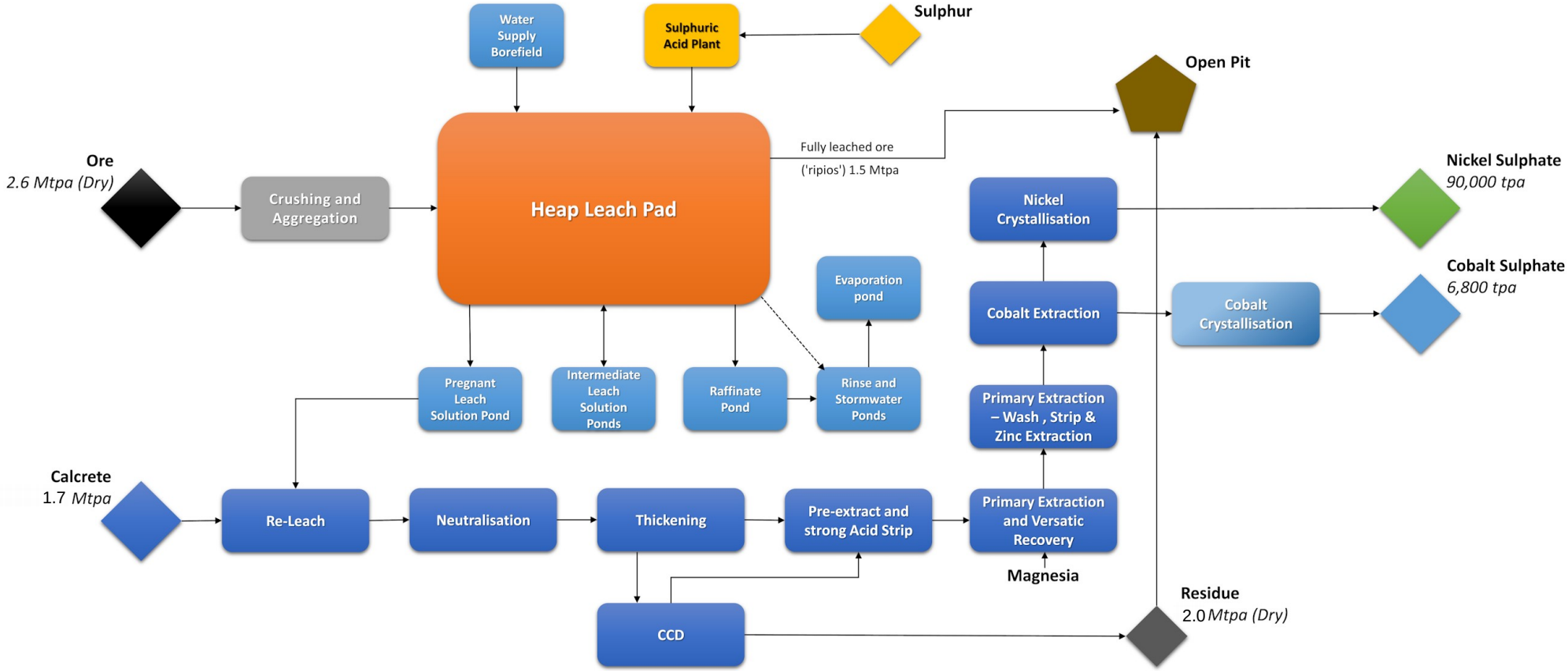

Water Supply Borefield
Sulphuric Acid Plant
Sulphur
Open Pit
Ore
2.6 Mtpa (Dry)
Crushing and Aggregation
Heap Leach Pad
Fully leached ore
('ripios') 1.5 Mtpa
Nickel Crystallisation
Nickel Sulphate
90,000 tpa
Evaporation pond
Cobalt Extraction
Cobalt Crystallisation
Cobalt Sulphate
6,800 tpa
Pregnant Leach Solution Pond
Intermediate Leach Solution Ponds
Raffinate Pond
Rinse and Stormwater Ponds
Primary Extraction – Wash , Strip & Zinc Extraction
Calcrete
1.7 Mtpa
Re-Leach
Neutralisation
Thickening
Pre-extract and strong Acid Strip
Primary Extraction and Versatic Recovery
Magnesia
CCD
Residue
2.0 Mtpa (Dry)

The processing of nickel ore will be carried out in two stages. Firstly, a heap leach facility will be constructed on a base lined with an impervious membrane. The membrane will prevent the acidic process liquors from leaving the heap leach circuit and entering the environment. The heaps will be irrigated with a pipe system consisting of headers and drippers to minimise solution loss resulting from evaporation and wind drift. Bunds will be provided around the heap leach facility with an associated stormwater pond, capable of holding excess water for anything up to a 1:100 rainfall event.

Pregnant Leach Solution (PLS) from the heap leach will be pumped to the process plant for neutralisation (using calcrete), solvent extraction and crystallisation of nickel and cobalt products. The residue (precipitates) from the neutralisation circuit will be thickened and filtered and then trucked to the mined out pits for disposal with the ripios (spent ore from the heap leach pad). Placement within the mine voids will be over a compacted clay layer at 1 m or more above the baseline groundwater level.

The process water builds up dissolved solids and must be removed from the circuit when levels reach 300,000 ppm Total Dissolved Solids (TDS). This water goes to an evaporation pond. Approximately 7.5 GL/a of groundwater will be required for processing. Bulk materials required for processing, including sulphur, caustic soda and magnesia (magnesium oxide), will be transported from Fremantle or Esperance Port by rail to Malcolm Siding near Leonora, and by truck from there to the site.

The final nickel and cobalt sulphate products will be transported to Malcolm Siding for conveyance to Fremantle or Esperance Port for export.

2.2.4 Supporting infrastructure

2.2.4.1 *Mt Kilkenny power supply*

Production of sulphuric acid is an exothermic reaction and will produce steam. The acid plant will capture the steam which will be used for power generation. This source will be sufficient to power the entire site although start-up power for the acid plant and backup power would be provided by diesel generators.

2.2.4.2 *Water supply*

Water supply for the plant will initially be provided by dewatering the Mt Kilkenny deposit. The dewatering borefield will have a yield of 1.5 GL/a. During operation at full capacity, the Project will require 7.5 GL/a and a make-up water supply of the remaining 6 GL/a will need to be drawn from remote sources.

Two prospective remote borefields – Depot Springs South and Sandstone South (**Figure 2-2** and **Figure 2-3**) – have been identified as the preferred water supply options.[1]

Both borefields lie in the regionally significant Raeside Paleochannel or its tributaries, and both have been explored previously, with a number of bores already constructed and tested under a previous approval. Selection of bores for use in water supply will be dependent on salinity, which is highly

[1] Note that these borefields were previously assessed by the EPA when they formed part of the Mt Margaret Nickel-Cobalt Project (Bulletin 1025).

variable across the paleochannel, and on production capacity. Although closer to the Project, the salinity of water in the Depot Springs South is higher than Sandstone South.

The two borefields will supply a combined total of 6 GL/a, with a TDS of less than 20,000 mg/L, to the project from an estimated total of 37 production bores.

The borefield operations will be powered by remote diesel-powered generation. The water will be transported to site via a 200 km long pipeline supported by two pumping stations, an access track and civil works as required.

2.2.4.3 *Access to Mt Kilkenny and haul roads*

Internal access and haul roads will be constructed at Mt Kilkenny as required. Access to the site from Leonora will be via the existing Glenorn-Yundamindra Road.

2.2.4.4 *Surface water management*

The Mt Kilkenny site drains from the northeast to the southwest, discharging to a drainage line that eventually feeds Lake Raeside to the southeast. Surface water flows will be diverted around the open pit and process plant by embankments. The nickel mine and process plant do not intercept any mapped drainage lines and diverted water will comprise sheetflow only.

A crossing over Kilkenny Creek will be required to connect the calcrete quarry with the Mt Kilkenny process plant. A ground level crossing is proposed which would allow any flows to pass over the top.

2.2.4.5 *Village*

A village will be constructed south of the process plant to accommodate employees and contractors. The village will require a domestic waste-water treatment plant and irrigation field.

3 Legislative context

3.1 Environmental impact assessment process

3.1.1 *Environmental Protection Act 1986* (Part IV)

The *Environmental Protection Act 1986* (EP Act) is Western Australia's primary environmental legislation governing environmental protection and impact assessment. Part IV of the EP Act provides for the consideration and assessment of proposals that may or will, have a significant impact on the environment. The impact assessment process is administered by the Environmental Protection Authority Services (EPA Services) within the Department of Water and Environment Regulation (DWER).

The Environmental Protection Authority (EPA) will decide whether to assess a referred proposal, and if so the level of assessment. Assessments are conducted as:

- Assessment on Referral Information ('ARI'), primarily based on the referral information, but the EPA may also require additional information for its assessment and may require some public review; or
- Public Environmental Review ('PER'), with the proponent to prepare an Environmental Scoping Document (ESD) and then Environmental Review Document (ERD) which is subject to public review.

After the public review period (if required), the EPA will assess the Proposal, considering the ERD, any submissions received, and the Proponent's responses to any submissions. The EPA also considers relevant policies and guidelines and may seek advice from relevant government agencies.

The EPA will prepare an assessment report recommending whether the Proposal should be approved and, if recommending approval, any implementation conditions that should apply. The EPA Report and Recommendations (EPA Report) will be made public and is subject to appeal. After the appeal period has concluded, the EPA Report and Recommendations will be provided to the Minister for Environment, who will consider any appeals and decide whether the Proposal may be implemented. If the Proposal can be implemented, the Minister will determine the implementation conditions and procedures which will apply.

3.1.2 *Environmental Protection and Biodiversity Conservation Act 1999*

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), there are a number of environmental considerations which are afforded protection by the Commonwealth and are referred to as Matters of National Environmental Significance (MNES).

Under the EPBC Act, actions that have, or are likely to have a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment (the Minister). Such projects warrant referral to the Department of Climate Change, Energy, the Environment and Water (DCCEEW). The DCCEEW will then consider the proposal and determine whether it is a 'controlled action' and where a formal conditional approval can be granted.

In the case of this Proposal, to date no impact on MNES has been identified. Consequently, referral of the Proposal under this legislation is not proposed and an accredited assessment under the EP Act will not be required. However, while the main area of disturbance (mine and process plant) has been

surveyed, surveys are yet to be undertaken for the calcrete quarry, borefields or pipeline corridor. In the event that potential MNES are recorded in future surveys, the requirement to refer will be reviewed.

3.2 Other approvals and regulation

3.2.1 Tenure

The tenements associated with this referral are listed in **Table 3-1.** The granting of tenements covering the borefields and the pipeline and access corridors is pending. Two other tenements held by NiWest Limited[2], E39/1784 and P39/6225, will require conversion to the appropriate tenure prior to any mining or processing activity. Similarly, exploration tenure held over the proposed calcrete quarry by a third party will also require conversion to the appropriate tenure and an agreement with the current holder under which calcrete mining could proceed, unless an acquisition occurs.

3.2.2 *Native Title Act 1993*

There was a Native Title claim (WCD2019/002, Nyalpa Pirniku) that exists over most of the Proposal area with the exception of the proposed borefield and pipeline corridor. This claim was recently Determined (31 October 2023). The registered Native Title Prescribed Body Corporate is the Wangkatja Tjungula Aboriginal Corporation (WTAC). Consultation with the Nyalpa Pirniku claimants in relation to heritage assessments and management have been ongoing – see section **4**.

A section of the proposed pipeline corridor occurs on another Native Title claim (WCD2022/002) where non-exclusive Native Title has been granted - Darlot. The registered Native Title Body Corporate is the Watarra Aboriginal Corporation. Consultation with the Darlot claimants has not yet commenced.

3.2.3 Decision making authorities and other approvals

Table 3-2 details all future approvals to be obtained in accordance with State legislation as part of WA's environmental approvals pathway. All approvals will be linked to tenure held under the *Mining Act 1978.* Preparation of some of these secondary approvals will be undertaken concurrently with the assessment process under the EP Act Part IV. However, all secondary approvals require prior approval of the Proposal under Part IV of the EP Act before they can be granted.

[2] NiWest Limited is a subsidiary of Alliance Nickel Ltd.

Table 3-1: Project tenure under the *Mining Act* 1978

Tenement	Holder	Area (ha)[3]	Status	Project component
M39/878	NiWest Limited	999.4	Live	Mine
M39/879	NiWest Limited	952.2	Live	Mine
G39/17	NiWest Limited	2,698.0	Live	Process plant and related infrastructure
E39/1784	NiWest Limited	598.1	Live	Contingency
L39/341	NiWest Limited	169.0	Live	Main access road
P39/6225	NiWest Limited	196.1	Live	Mine
E37/1138	McKnight, Russell Geoffrey[4]	1 BL	Live	Calcrete quarry
E39/2091	McKnight, Russell Geoffrey	20 BL	Live	Calcrete access corridor
E37/1158	McKnight, Russell Geoffrey	4 BL	Live	Calcrete quarry
L37/267	NiWest Limited	9,165	Live	Calcrete quarry
L57/0072	NiWest Limited	281.0	Pending	Pipeline and access corridor
L36/0290	NiWest Limited	120.0	Pending	Pipeline and access corridor
L36/0289	NiWest Limited	73.0	Pending	Pipeline and access corridor
L37/0280	NiWest Limited	146.0	Pending	Pipeline and access corridor
L37/0279	NiWest Limited	110.0	Pending	Pipeline and access corridor
L37/0278	NiWest Limited	174.0	Pending	Pipeline and access corridor
L37/0277	NiWest Limited	89.0	Pending	Pipeline and access corridor

[3] The area of exploration tenements is shown in graticular sections ("blocks").
[4] The tenements held by Russell Geoffrey McKnight are subject to a licence agreement with NiWest Ltd. The Licence permits Alliance to explore for calcrete with an option to proceed to a calcrete mining agreement.

Tenement	Holder	Area (ha)[3]	Status	Project component
L39/0377	NiWest Limited	110.0	Pending	Pipeline and access corridor
L36/286	NiWest Limited	1,097.0	Pending	Borefield (Depot Springs South)
L57/69	NiWest Limited	1,791.0	Pending	Borefield (Sandstone South)

Table 3-2: Other environment-related approvals required for the NiWest Nickel Cobalt Project

Decision making authority	Legislation or Agreement regulating the Activity	Approval required (and) which proposal element the approval is related to	Can the DMA mitigate impacts and how will the EPA's factor be met
Minister for Mines and Petroleum (may be delegated)	*Mining Act 1978*	Letters of consent for a Mining Proposal (MP) and a Mine Closure Plan (MCP), administered through the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) Mining Proposal assessments, covering all mining related activities, ground disturbance/development within new tenure.	Routinely considers mining-related environmental impacts. Can approve MPs and MCPs submitted for consideration and can add conditions to tenements. Both will be required for this Proposal.
Chief Executive Officer, Department of Water and Environmental Regulation (DWER)	*Environmental Protection Act 1986 – Part V*	Works approvals and licences for the construction and operation of premises with the potential to cause emissions and discharges to air, land or water. Submissions are assessed by DWER. Native Vegetation Clearing Permits are also assessed and issued under this part of the Act (if assessment under Part IV is not required).	Routinely considers works approval and licensing requirements for particular activities and locations ('prescribed premises'). Various prescribed premises typically apply for mining operations, including processing or beneficiation of metallic or non-metallic ore, electric power generation, sewage or wastewater treatment facilities, chemical storage, tailings facilities. A Works Approval and Licence will be required for this Proposal.
Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972*	Disturbances of Aboriginal Heritage sites are managed through Department of Planning, Lands and Heritage (DPLH) in accordance with: • S16 authorisation to enter, excavate, examine or remove anything on an Aboriginal site; and • S18 consent for impact on an Aboriginal Site.	A Proponent must seek approvals under this Act where significant Aboriginal heritage values have been identified. Heritage values will be determined in consultation with traditional owners.

Decision making authority	Legislation or Agreement regulating the Activity	Approval required (and) which proposal element the approval is related to	Can the DMA mitigate impacts and how will the EPA's factor be met
Minister for Water	*Rights in Water and Irrigation Act 1914*	Abstraction of groundwater for use during construction and operation is implemented through DWER licences/permits: • Section 5C licence to take water (a total of 7.5GL/year within the Goldfields and East Murchison Groundwater Management Areas); • Section 26D licence to construct or alter a well (multiple bores within the Goldfields and East Murchison Groundwater Management Areas); and • Permit to Interfere with the Bed or Banks of a Watercourse, where required by DWER.	A Section 5C licence is already held by the Proponent for the Mt Kilkenny location. This licence covers dewatering of the ore body. Additional licences will be required for the proposed borefield and potentially the calcrete mining operation (if dewatering is required and permitted).
Chief Dangerous Goods Officer, Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	*Dangerous Goods Safety Act 2004*	Implemented through DMIRS dangerous good licences for the storage and handling of hazardous materials during construction.	Ability to assess and licence management of hazardous materials.
State Mining Engineer, Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	*Mines Safety and Inspection Act 1994* *Mines Safety and Inspection Regulations 1995.*	Approves the Project Management Plan (PMP). Imposes general duty of care provision to maintain safe and healthy workplaces at mining operations and protect people at work from hazards.	Limited application to the environmental assessment.

Decision making authority	Legislation or Agreement regulating the Activity	Approval required (and) which proposal element the approval is related to	Can the DMA mitigate impacts and how will the EPA's factor be met
Department of Health	*Public Health Act 2016*	Approval of wastewater treatment plant at accommodation village (if not addressed under EP Act Part V).	Ability to assess and approve a wastewater treatment plant. Approvals usually issued through local government.
Local Shire	*Building Act 2001* *Planning and Development Act 2005* *Health Act 2011*	Building and health approvals.	Limited application to the environmental assessment.
Main Roads WA / local shire	-	Approvals to upgrade and widen roads and use heavy vehicles.	Addresses road design, including drainage, and traffic management.

4 Stakeholder engagement

4.1 Key stakeholders

The following table lists the key stakeholders for the Proposal. The list is based on interactions to date by the Proponent. Additional stakeholders may emerge through the environmental assessment process and as the Proposal becomes more widely known.

Table 4-1: Key stakeholders

Stakeholder Group	Specific Stakeholder
Leonora and Sandstone communities	Shire of Leonora Shire of Sandstone Local landholders – miners and pastoralists Local residents
Western Australian Parliament	MLA for Kalgoorlie (Alison (Ali) Elizabeth Kent) MLC for Mining and Pastoral Region (Peter Foster) Minister for Environment Minister for Mines and Petroleum Minister for Aboriginal Affairs Minister for Regional Development Minister for Transport Minister for Water
State government departments	Environmental Protection Authority (EPA) Department of Water, Environment and Regulation (DWER) Department of Energy, Mines, Industry and Regulation Services (DEMIRS) Department of Planning, Lands and Heritage (DPLH) Department of Primary Industries and Regional Development (DPIRD) Main Roads WA
Commonwealth government departments	Department of Climate Change, Energy, the Environment and Water (DCCEEW) Clean Energy Regulator
Tenement holders	Various (where access is required for various purposes)
Indigenous organisations	Wangkatja Tjungula Aboriginal Corporation (WTAC) Watarra Aboriginal Corporation (WAC)
Corporate entities	Arc Infrastructure Southern Ports
Non-government organisations	Conservation Council of Western Australia

4.2 Stakeholder engagement process

Alliance Nickel has a consultation strategy which identifies key external stakeholders, determines how they will be impacted by the Proposal and what steps are necessary to allow for a process of consultation that is satisfactory for all parties. The aim is to develop productive relationships that ensure the Proposal is underwritten by sustainable agreements and the necessary statutory approvals.

Stakeholder consultation will be ongoing throughout the Project life. Objectives of ongoing consultation include:

- Keeping community members, groups and nearby land users up to date on Project progress and any change;
- Addressing any complaints or grievances that are raised during mine operations;
- Ensuring Government departments are kept up to date with any Project changes or issues that may arise, including updating approval documents if required;
- Ensuring closure planning is informed by key stakeholders and that all relevant stakeholders have agreed to the proposed end land uses;
- Identifying whether any infrastructure will be retained for end land users (e.g. bores) and ensuring appropriate approvals and transfer agreements are in place; and
- Ensuring all completion criteria have been met to the satisfaction of government and other stakeholders with whom agreements have been made.

Stakeholder consultation to date has involved longer lead items that are likely to require substantial engagement over an extended period of time. Engagement and consultation to date is summarised in **Table 4-2**. Stakeholder consultation has primarily comprised consultation with the Native Title Service Goldfields (NTSG), acting on behalf of the Nyalpa Pirniku Native Title Claimants, and with local and state government regarding various aspects of the Proposal. The Nyalpa Pirniku claim was recently recognised by the Federal Court.

It is expected the range and scope of engagement will increase as the Proposal, subject to receipt of approvals and a final investment decision proceeds towards construction and operations. The engagement record shown in **Table 4-2** will be updated and maintained to reflect the ongoing consultation.

Table 4-2: Record of stakeholder consultation to date

Stakeholder	Date	Issues/topics raised	Proponent response/outcome
Native Title Service Goldfields (NTSG)	14/12/2022	Email asking to commence discussions regarding a heritage agreement and engagement with the Nyalpa Pirniku.	NTSG advised they act for Nyalpa Pirniku and that the next meeting is scheduled for February 2023.
NTSG	11/1/2023	Offer to provide project information and asks if Alliance Nickel can meet with NTSG in the interim to introduce ourselves.	Declined at this stage.
NTSG	12/1/2023	NTSG asks for information regarding M tenements for meeting agenda.	Information to be provided.
NTSG	24/1/2023	Follow up to 12 January phone call email.	Next meeting likely to be in March 2023.
NTSG	26/1/2023	Alliance Nickel provides Ni West Project information in 3 x PDFs. Advises that ethnographic heritage surveys have previously been undertaken through the Wongatha claim in 1998, 2002, 2005, 2007 and 2009. Alliance Nickel are looking to progress the Mt Kilkenny project area first with the three other project areas in the future.	NTSG responds asking if there is a proposed program of work. NTSG anticipate being able to obtain instructions in early March and will aim to respond to you as soon as possible after that time.
Nyalpa Pirniku	2/2/2023	Background on the proposed project and past heritage surveys conducted over the project area.	Information received.
Nyalpa Pirniku	31/3/2023	Introduction to the group and discuss how we could get some of the heritage surveys completed that were needed, specifically on our Search for Water licenses.	Information received.
NTSG	26/4/2023	Alliance Nickel was advised that a meeting with the Nyalpa Pirniku Applicants was held in March, but there was no quorum so no decisions could be made regarding the heritage protection agreement.	The next meeting has not been scheduled yet, but is anticipated to be in late May. Contribution to cost of meeting discussed.

Stakeholder	Date	Issues/topics raised	Proponent response/outcome
NTSG	3/5/2023	Enquiry about upcoming meeting date.	NTSG to provide Alliance Nickel with proposed meeting costs for consideration for a meeting with the Nyalpa Pirniku Applicants on 15 June 2023.
NTSG	8/5/2023	Advise from NTSG about rescheduling the Nyalpa Pirniku claim group meeting to 14 and 15 June, as that week will not be possible any more for meeting with Alliance Nickel. Further discussion about suitable meeting dates.	-
NTSG	9/5/2023	Enquiry about presentation at May 2023 meeting.	Meeting already fully scheduled.
NTSG	19/5/2023-25/7/2023	Multiple communications about future meeting arrangements.	Meeting arrangements being organised.
DEMIRS	19/6/2023	Presentation given to DEMIRS about the Proposal.	Received advice to ensure the correct tenure applies when submission is made and ensure documentation is consistent with guidance.
EPA Services	30/6/2023	Online meeting to introduce the project to EPA Services and to discuss likely environmental factors and submission content.	Assessment likely to be ARI. Apply advice given in developing referral documentation. Advice included using contextual information for assessment of impacts e.g. look at cumulative impacts as well.
Shire of Leonora	11/7/2023	Discussion around where to source Government funding support for upgrade of the Glenorn-Yundamindra road.	Further communications to follow.
Department of Primary Industries and Regional Development	11/7/2023	Discussion around support for upgrade of the Glenorn-Yundamindra road.	DPIRD to advise.

Stakeholder	Date	Issues/topics raised	Proponent response/outcome
NTSG	4/8/2023	Meeting to introduce Alliance Nickel and outline history of dealings with previous entity (GME Resources) with Wongatha group.	-
Nyalpa Pirniku	18/8/2023	Discussion about heritage reports for water source target areas.	Agreement to their use.
NTSG	29/8/2023	Advice received from NTSG regarding withdrawal of objections for G39/17. NTSG to discuss objection to L39/341. Alliance Nickel to honour 2004 Wongatha Land Access Agreement.	-
Nyalpa Pirniku	21/2/2024	Presentation to the Tjungula Aboriginal Corporation (WTAC) on the Alliance Nickel NiWest Project	Request to WTAC to sign onto a Deed of Mutual Assumption that takes the original Native Title Agreement that Alliance Nickel executed with the Wongatha Group into a current context.
NTSG	6/3/2024	Enquiry from Alliance regarding the minutes of the August 2023 meeting.	NTSG unable to provide yet as minutes are yet to endorsed by the Directors.
WTAC	9/4/2024	Meeting between Alliance Nickel and WTAC chairman.	Meeting for Alliance management to meet the WTAC Chairman and to understand the new heritage processes proposed by WTAC going forward.

5 Potential environmental impacts and management

This section summarises the existing information available on the potential environmental impacts of the Proposal. The studies completed to date and studies underway or proposed are summarised in the following table.

Table 5-1: Environmental investigations undertaken and proposed

Environmental factor	Nickel mine and process plant	Calcrete quarry	Borefield and pipeline corridor	Notes
Inland waters	Drainage design, baseline groundwater assessment complete.	Desktop assessment required.	Desktop assessment required.	-
Flora and vegetation	Detailed survey complete. Data submitted to the Index of Biodiversity Surveys for Assessments (IBSA).	Desktop survey complete, detailed survey required.	Detailed survey required.	Field surveys for calcrete quarry and borefield required. Surveys to be conducted in accordance with EPA (2016).
Terrestrial fauna	Detailed survey complete. Data submitted to IBSA.	Desktop survey complete, detailed survey required.	Detailed survey required.	Field surveys for calcrete quarry and borefield required. Surveys to be conducted in accordance with EPA (2009, 2020).
Subterranean fauna	Desktop survey complete.	Detailed survey required.	Detailed survey required.	Field investigations for calcrete quarry and borefield required. Surveys to be conducted in accordance with EPA (2021).
Air quality	Interim air quality modelling assessment complete, additional information required on emissions associated with crystallisers.	No requirement.	No requirement.	Draft report completed, requires minor revisions and finalisation.
Greenhouse gas emissions	Preliminary emissions estimation and benchmarking complete.			Preliminary emissions estimates report and benchmarking completed. The guideline value of 100,000 tonnes CO2-e in any year for Scope 1 emissions will be exceeded. A Greenhouse Gas Environmental Management Plan, as required by EPA (2023), is in preparation.
Social surroundings	Heritage surveys complete.	Heritage surveys required.	Heritage surveys required.	Heritage surveys and stakeholder consultation will be required for calcrete quarry and borefield.

5.1 Inland waters

Preliminary Environmental Factor - Inland Waters	
EPA objective	*To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected*
Policy and guidelines	• Statement of Environmental Principles, Factors and Objectives (EPA, 2021a); • Environmental Factor Guideline: Inland Waters (EPA, 2018); • DWER Operational Policy 5.12 Hydrogeological reporting associated with a groundwater well licence (DoW, 2009).
Receiving environment	The proposed mine and process plant sit between two palaeodrainage systems, Lakes Raeside and Carey. Permanent surface water is uncommon in the Project area. Ephemeral creeks flow in response to large rainfall events, often associated with post-cyclonic weather events. A well-developed drainage channel, Kilkenny Creek, is located between the proposed nickel mine and the calcrete quarry. Groundwater at the proposed nickel mine and process plant sits at 10-12 m below ground level in fractured rock aquifers. The salinity of groundwater at the same location is 1,100-3,300 mg/L Total Dissolved Solids. Similar groundwater levels and quality are anticipated at the calcrete quarry. The borefield investigations will target palaeochannel aquifers. Water quality < 20,000 mg/L TDS is being sought however water quality is variable. The broader area is commonly used for groundwater abstraction (Johnson et al 1999) but a hydrogeological assessment is required before conclusive statements can be made. While there are no major surface water crossings, final design of the pipeline corridor will address potential surface water impacts.
Likely environmental impacts	Potential direct impacts include: • Alteration to surface water flows as a result of mining and infrastructure construction and operations, including potentially altering natural erosion and deposition patterns; • Local drawdown of aquifers; and • Impacts on other users of groundwater abstraction. Potential indirect impacts include: • Accidental chemical, hydrocarbon or process solution spillages; and • Degradation of groundwater quality due to seepage from residue and ripios stored in open pits.

Preliminary Environmental Factor - Inland Waters	
Mitigation hierarchy	**Avoid:** • Mining infrastructure will be placed to avoid interaction with major surface water features; • All process solutions will be stored in lined facilities; • All residue and ripios stored in the open pits will be above the natural groundwater table on a compacted clay base; • Manage surface water in areas of active disturbance, retain in drainage structures; • No off site discharge of water; • Hazardous materials and waste will be subject to appropriate handling, storage and disposal procedures to avoid any impact on the environment. **Minimise:** • Undertake design and construction of linear infrastructure corridors (access corridor, water pipeline) with the aim of minimising changes to the hydrology; • Construct an engineered diversion structure at the northern end of the mining operations to divert sheetflow around the mine site; and • Monitoring of the surface water and groundwater will be undertaken throughout mine construction, operation and closure to assess for potential contamination and impact of abstraction on aquifers.
Residual Impacts, including assessment of significance	With avoidance and mitigation measures in place, and subject to further hydrogeological investigations, it is not expected that the Proposal will result in any significant direct, indirect, or cumulative impacts to inland waters.
Likely environmental outcomes	Based on current knowledge it is expected there will be: • No material impact to surface water flows. • No permanent material changes in groundwater levels or quality. Potential impacts are manageable under the Part V of the *Environmental Protection Act 1986*, *Mining Act 1978* and the *Rights in Water and Irrigation Act 1914*.

5.2 Flora and vegetation

Preliminary Environmental Factor - Flora and Vegetation	
EPA objective	*To protect flora and vegetation so that biological diversity and ecological integrity are maintained*
Policy and guidelines	• Statement of Environmental Principles, Factors and Objectives (EPA, 2021a). • Environmental Factor Guideline: Flora and Vegetation (EPA, 2016a); • Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016b).
Receiving environment	The vegetation of the eastern Murchison bioregion, which is the sub-region that Mt Kilkenny is located within, is dominated by mulga woodlands. Vegetation system associations mapped in the area have at least 97% of their pre-European extent remaining. Surveys to date have covered the Mt Kilkenny area. These surveys have not identified any threatened ecological communities or threatened flora. Four species of Priority flora have been recorded at the Mt Kilkenny location. A number of weed species were recorded, none of which was a Weed of National Significance (WoNS). Field surveys for the calcrete quarry and the borefields and pipeline corridor are yet to be conducted.
Likely impacts	Potential direct impacts include: • Loss of native vegetation cover; and • Decrease of populations of conservation significant flora. Potential indirect impacts include: • Spread of existing weed infestations or introduction of new weed species; • Increase level of dust deposition on vegetation arising from construction and mining activities, including vehicle movements and blasting; • Fragmentation of vegetation resulting in changes to microclimate; • Alteration of surface water flows; and • Altered fire regimes resulting in loss or reduced health and condition of native vegetation.
Mitigation hierarchy	**Avoid** • Prior to commencement of construction of the nickel mine and process plant, review the project footprint to reduce or eliminate direct impacts to Priority species; • Develop and implement an internal Ground Disturbance Permit System. **Minimise** • Land disturbance kept to minimum necessary for development of the Proposal within the design footprint; • Vehicles and mining equipment access limited to designated roads/access tracks and cleared areas;

Preliminary Environmental Factor - Flora and Vegetation	
	• Dust, including use of water carts on access roads, to be used during construction, operation and closure activities; • Significant weeds controlled by implementing biannual weed monitoring and a targeted spraying program following completion of land clearing activities, during operations and closure activities; • Continued biannual weed monitoring and a targeted spraying program along the pipeline route to minimise existing weed populations and reduce potential spread into adjacent land; • Minimise clearing and vegetation disturbance to conservation significant flora and communities; • Conduct clearing in accordance with the permit and clearing procedure; • Minimise the risk of bushfire by ensuring the Proposal site induction includes information on prevention and management of fires; • All machinery and vehicles undertaking clearing activities will be fitted with firefighting equipment; • A Hot Work Permit system will be implemented; • Firefighting equipment will be located on site and emergency personnel will be trained in fire response; • Conduct vegetation clearing in accordance with a permit issued; and • Disturbance to watercourses will be minimised to that required to achieve safe mine design and asset protection. **Rehabilitate:** • Recover topsoil and utilise the seed bank to conduct rehabilitation of disturbed areas as they become available; • Supplement plant recruitment from topsoil with locally collected seed; • Undertake progressive rehabilitation in areas where mining operations have been completed; and • Rehabilitate all disturbance to safe, stable and non-polluting landforms in accordance with agreed criteria.
Residual impacts, including assessment of significance	No loss of threatened flora or threatened ecological communities. There will be the permanent loss of native vegetation within the disturbance footprint, diminished to some extent by rehabilitation when use of the area is complete. Some loss of individual plants that are Priority species is likely to be unavoidable. Further survey work is required establish values associated with the calcrete quarry, borefields and pipeline corridor. Offsets may be required.
Likely environmental outcomes	Impacts are likely to be manageable to meet the EPA's requirements.

5.3 Terrestrial fauna

Preliminary Environmental Factor – Terrestrial Fauna	
EPA objective	*To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.*
Policy and guidelines	• Statement of Environmental Principles, Factors and Objectives (EPA, 2021a); • Environmental Factor Guideline: Terrestrial Fauna (EPA, 2016c). • EPA Technical Guidance – Terrestrial fauna surveys for environmental impact assessment (EPA, 2020a); • EPA Technical Guidance: Sampling of short-range endemic invertebrate fauna (EPA, 2009); and • Malleefowl National Recovery Plan (Benshemesh, Dr. J, 2007).
Receiving environment	At the Mt Kilkenny location, three broad fauna habitats were identified from field surveys. These comprised drainage lines, mulga shrubland on hardpan/sandy plains and stony hills, breakaways and ridgelines. The most dominant habitat type was mulga shrubland on hardpan/sandy plains. No threatened fauna was recorded at Mt Kilkenny. This includes the Malleefowl, for which some suitable habitat is available. No potential short range endemic species were recorded that were likely to be restricted to the nickel mine and process plant locations. Field surveys for the calcrete quarry and the borefield infrastructure are yet to be conducted.
Likely environmental impacts	Potential direct impacts include: • Reduction and/or fragmentation of fauna habitat through clearing; • Loss of biodiversity associated with construction impacts e.g. trenching; and • Vehicle strike causing injury of death to local fauna. Potential indirect impacts include: • Increase in the abundance of introduced fauna through increased predation or competition for resources; • Introduction and spread of feral animals; • Altered fire regime; • Mine site lighting altering natural behaviours; • Restrictions on natural movement i.e. above ground pipelines, mining operations; and • Noise and vibration causing general stress and masking acoustic signals between individuals.
Mitigation Hierarchy	**Avoid** • Disturbance footprint designed to reduce disturbance to fauna habitats; • Develop and implement an internal Ground Disturbance Permit System.

Preliminary Environmental Factor – Terrestrial Fauna	
	Minimise • Disturbance footprint designed to reduce disturbance to fauna habitats; • Develop and implement an internal Ground Disturbance Permit System. • Land disturbance kept to minimum necessary for development of the Proposal within the design footprint; • Vehicles and mining equipment access limited to designated roads/access tracks and cleared areas; • Minimise dust, including use of water carts on access roads, to be used during construction, operation and closure activities; • Implement biannual weed monitoring and a targeted spraying program at the Proposal following completion of land clearing activities and during operations and closure activities; • Continued biannual weed monitoring and a targeted spraying program along the pipeline route to minimise existing weed populations and reduce potential spread into adjacent land; • Conduct clearing in accordance with the permit and clearing procedure; • Minimise the risk of bushfire by ensuring the Proposal site induction includes information on prevention and management of fires; • All machinery and vehicles undertaking clearing activities will be fitted with firefighting equipment; • A Hot Work Permit system will be implemented; • Firefighting equipment will be located on site and emergency personnel will be trained in fire response; • Disturbance to watercourses will be minimised to that required to achieve safe mine design and asset protection. • Lighting designed to illuminate designated operations areas rather than the surrounding landscape; • No feeding of native or feral animals; • Removal of dead fauna away from edges of roads and tracks; • Implement appropriate mitigation measures such as speed limit restrictions, right of way for fauna and the prohibition of off-road driving; • Where possible, clearing should be undertaken on one front only, to provide an opportunity for fauna to move out of the proposed area; and • Putrescible wastes associated with site offices to be stored in bins with lids and transferred to a licenced waste facility for disposal. **Rehabilitate** • Rehabilitate all disturbance to safe, stable and non-polluting landforms in accordance with agreed criteria.

Preliminary Environmental Factor – Terrestrial Fauna	
Residual impacts, including assessment of significance	No loss of threatened fauna or threatened ecological communities. There will be the permanent loss of native vegetation within the disturbance footprint, diminished to some extent by rehabilitation when use of the area is complete. Further survey work is required establish values associated with the calcrete quarry, borefields and pipeline corridor. Offsets may be required.
Likely environmental outcomes	Impacts are likely to be manageable to meet the EPA's requirements.

5.4 Subterranean fauna

Preliminary Environmental Factor – Subterranean Fauna	
EPA Objective	*To protect subterranean fauna so that biological diversity and ecological integrity are maintained.*
Policy and guidelines	• Statement of Environmental Principles, Factors and Objectives (EPA, 2021b); • Environmental Factor Guideline: Subterranean Fauna (EPA, 2016d); and • Technical Guidance – Subterranean fauna surveys for EIA (EPA, 2021b).
Receiving environment	A desktop review of the nickel mine area (Mt Kilkenny) found that the potential habitat for both stygofauna and troglofauna was limited and not prospective. Field investigations are required for both the proposed calcrete quarry and the proposed borefield. Regionally, there are a number of conservation significant stygofauna populations that have been identified in calcrete habitats. Similarly, targeting of better quality water for the borefield increases the likelihood of the occurrence of subterranean fauna and some areas of conservation significance have been identified in past surveys. While new field surveys in these areas are yet to be conducted, it is reasonable to assume they will feature stygofauna populations of significance.
Likely environmental impacts	• No loss or degradation of habitat or species populations from construction and operations of the nickel mine and process plant; • Reduction of potential habitat at the calcrete quarry and borefield due to: o Abstraction of groundwater; o Changes to hydrological regimes and water quality; and o Loss of food/nutrient sources.
Mitigation hierarchy	**Minimise:** Consider the outcomes of future surveys and apply appropriate controls to manage the quality of habitat e.g. limit abstraction of groundwater in the proposed calcrete quarry, or limit drawdown in the borefield; monitor populations to detect any adverse trends and apply corrective actions.
Residual impacts, including assessment of significance	No impacts are anticipated for the nickel mine and process plant area. The potential for impacts on subterranean fauna in the calcrete quarry and borefield is not known but both locations are prospective for subterranean fauna. Subject to having the survey data to hand, controls are likely to be required to limit impacts. These controls, such as limits on groundwater drawdown, have been successfully applied at other operations.

Preliminary Environmental Factor – Subterranean Fauna	
Likely environmental outcomes	Impacts on subterranean fauna are not anticipated for the Mt Kilkenny mine and processing area. Detailed surveys will be required for the borefields and for the calcrete quarry. Surveys will inform management measures appropriate to those areas. Offsets may be required.

5.5 Air quality

Preliminary Environmental Factor – Air Quality	
EPA objective	*To maintain air quality and minimise emissions so that environmental values are protected.*
Policy and guidelines	Statement of Environmental Principles, Factors and Objectives (EPA, 2021b); Environmental Factor Guideline: Air Quality (EPA, 2020b); and National Environment Protection Measure (Australian Govt, 2021).
Receiving environment	There is limited data available for local air quality, but in the absence of any significant industrial or urban areas, air quality is expected to be high at most times. Factors influencing local air quality would be dust from unsealed roads, mining and other disturbance. Bushfires can also produce temporary high levels of particulate matter. Sensitive receptors considered in an air quality assessment include a local mine site and a pastoral station.
Likely environmental impacts	The following localised potential impacts may occur: • Dust generation (PM2.5 and PM10) from movement of overburden and topsoil material, blasting and loading waste rock and ore, processing activities and from vehicles on internal roads and access roads; • Emissions of SO2 and H2SO4 from acid plant operation; and • Aerosols and other emissions from plant operations.
Mitigation hierarchy	**Avoid** • Clearing of vegetation and recovery of topsoil prior to the requirement to utilise the area. **Minimise** • Awareness of and planning for risks associated with process plant operation e.g. at start up; • Operation of water carts during dry, windy conditions; • Use of sprinklers on stockpiles; and • Defined haul routes to be used wherever it is necessary for vehicles to traverse unsealed surfaces or unformed roads.
Residual impacts, including assessment of significance	Emissions from the process plant operations and fugitive dust from mining and transport activities will impact on local air quality. Monitoring and management of air quality under an Operating Licence issued under Part V of the EP Act is the likely pathway for ensuring emissions are acceptable.
Likely environmental outcomes	No material changes in local air quality. Emissions from the process plant can be managed under Part V of the *Environmental Protection Act 1986*.

5.6 Greenhouse gas emissions

Preliminary Environmental Factor – Greenhouse Gas Emissions	
EPA objective	*To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable.*
Policy and guidelines	• Statement of Environmental Principles, Factors and Objectives (EPA, 2021b); • Environmental Factor Guideline: Greenhouse Gases (EPA, 2023b); and • National Greenhouse and Energy Reporting (Measurement) Determination (2008) (Compilation Nos. 13 and 14) (Australian Govt, 2008).
Receiving environment	There is an established link between cumulative sources of greenhouse gas emissions (GHG) and the risk of climate change. There is also broad acknowledgement that the warming climate will have a significant impact on the Western Australian, Australian and global environment. The United Nations Framework Convention on Climate Change (UNFCCC) provides the framework for international cooperation to reduce global GHG emissions and limit climate change (EPA 2023). The most recent assessment report from the Intergovernmental Panel on Climate Change (IPCC) (AR6) emphasises that while 1.5°C and 2°C will be exceeded during the 21st century without deep reductions in emissions in the coming decades, immediate action would substantially reduce projected damages for human systems and ecosystems. The Australian Government has made the following commitments to address GHG emissions and climate change: • Reduction of greenhouse gas emissions by 43% below 2005 levels by 2030; and • Net zero emissions by 2050.
Likely environmental impacts	**Direct Impacts** • Generation of greenhouse gas emissions in excess of 100,000 tonnes CO_2-e when in operations (Scope 1). Annual emissions are estimated to average 440,000 tonnes CO_2-e. • No Scope 2 greenhouse gas emissions.
Mitigation hierarchy	**Avoid** • Use steam produced by acid plant operations to generate power in preference to the use of diesel-powered generation (note that this measure has been incorporated into project design). **Reduce** • Design and implement mineral carbonation technology to reduce emissions associated with the use of calcrete in the process plant's neutralisation process. • Investigate and adopt other practicable measures to reduce emissions.
Residual impacts, including assessment of significance	Scope 1 emissions will be reduced on an agreed scale using mineral carbonation technology. Where the scale of emissions exceeds the agreed scale of reductions, offsets will apply.

Preliminary Environmental Factor – Greenhouse Gas Emissions	
Likely environmental outcomes	Greenhouse gas emissions can be addressed can be addressed via a Greenhouse Gas Environmental Management Plan. The Commonwealth's Safeguard Mechanism will also apply to this project.

5.7 Social surroundings

Preliminary Environmental Factor – Social Surroundings	
EPA objective	*To protect social surroundings from significant harm*
Policy and guidelines	• Statement of Environmental Principles, Factors and Objectives (EPA, 2021b); and • Environmental Factor Guideline: Social Surroundings (EPA, 2023b).
Receiving environment	The main population centres of the area are the towns of Leonora and Laverton. While mining is the largest driver of the local economy, sheep and cattle grazing on pastoral stations are also widespread. A significant section of the Proposal (nickel mine, process plant and calcrete quarry) occurs on Glenorn Station. There are limited occurrences of European heritage throughout the Mt Kilkenny area but Aboriginal heritage values have been identified through surveys. There was a Native Title claim (WCD2019/002, Nyalpa Pirniku) that exists over most of the Proposal area with the exception of the proposed borefield and some of the pipeline corridor. This claim was recently determined (31 October 2023). A section of the proposed pipeline corridor occurs on another Native Title claim (WCD2022/002) where non-exclusive Native Title has been granted - Darlot.
Likely environmental impacts	• Potential for disturbance to Aboriginal heritage; • Loss of amenity due to dust and other emissions to air; • Loss of area and access for cultural practices; and • Impacts to other water users.
Mitigation hierarchy	**Avoid** • Conduct surveys in conjunction with Native Title holders and Traditional Owners to assess Aboriginal heritage values, avoiding disturbance to sites of significance to Aboriginal people. **Minimise** • Manage emissions to the airshed (see Air Quality section); and • Consult with Native Title holders and Traditional Owners about management of heritage and access for cultural practices. **Rehabilitation** • Disturbance to be rehabilitated in accordance with a Mine Closure Plan.
Residual impacts, including assessment of significance	No impacts to areas of significant Aboriginal heritage, as determined in consultation with the Native Title holders and Traditional Owners. Temporary increase in emissions to air from mining, process and transport operations. Disturbance to land partially restored through rehabilitation.
Likely environmental outcomes	Social surrounds can be addressed in accordance with the EPA's requirements.

6 Holistic impact assessment

This referral provides an assessment of the potential environmental impacts associated with the Proposal, where known, and the management strategies for each environmental factor. This section provides information regarding the key themes Land, Water, People and Air and how these connect and interact between the environmental factors identified for the Development Envelope.

The preliminary environmental factors relevant to the Proposal are:

- Inland Waters;
- Flora and Vegetation;
- Terrestrial Fauna;
- Subterranean Fauna;
- Air Quality;
- Greenhouse Gas Emissions; and
- Social Surroundings.

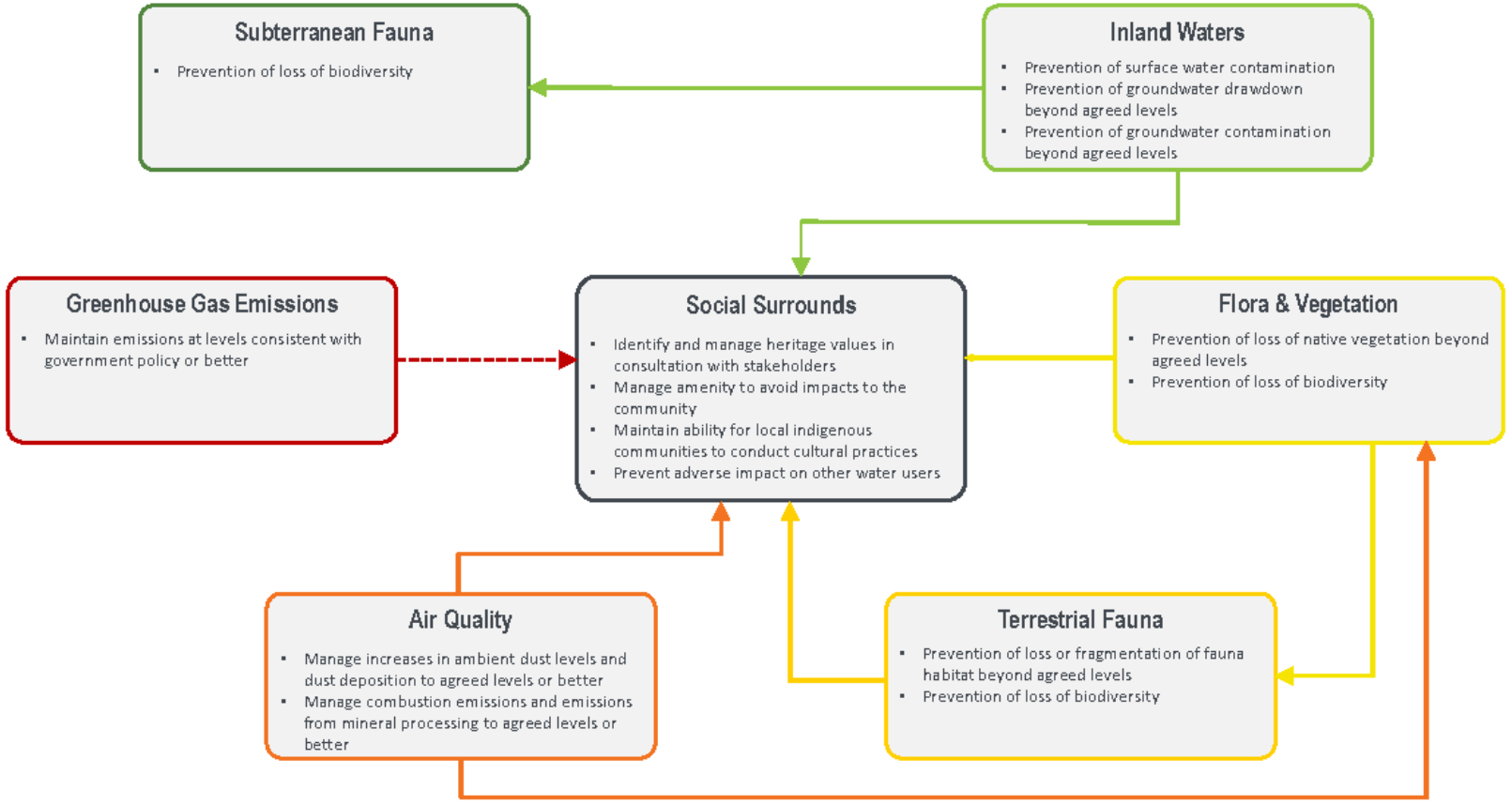
The Proponent acknowledges the relationship between environmental factors and that those interrelationships may require consideration and management to achieve good environmental outcomes. The table below and the figure overleaf indicate how, for this Proposal, relevant environmental factors may interact with multiple themes.

Table 6-1: Interaction of relevant environmental factors within environment themes

Environment theme	Inland waters	Flora and vegetation	Terrestrial fauna	Subterranean fauna	Air quality	Greenhouse gas emissions	Social surrounds
Land		✓	✓	✓	✓		✓
Water	✓			✓			✓
Air					✓		✓
People	✓	✓	✓		✓	✓	✓

The Proponent will expand on this analysis in subsequent documentation to be provided for the assessment and when further detail on the proposed calcrete quarry and borefield is available.

Figure 6-1: Holistic impact assessment – diagrammatic representation



7 Cumulative environmental impact assessment

Cumulative environmental impacts are the successive, incremental, and interactive impacts on the environment of a proposal with one or more past, present and reasonably foreseeable future activities (EPA, 2021). The EPA defines reasonably foreseeable future activities as:

> *Third party (or proponent) activities which are already approved, are in a government approvals process, or are otherwise reasonably likely to proceed:*
>
> - *For proposals assessed at the level of environmental review – at the time an Environmental Review Document (ERD) for a proposal is accepted;*
> - *Or proposals assessed at the level of assessment on referral information – at the time the final referral or required information is accepted; and*
> - *Existing activities that are reasonably expected to be ongoing.*

For this Proposal, an assessment of cumulative impacts will be provided at a later date. However, the Proponent notes that the location of the Proposal limits the potential for cumulative impacts to become a key consideration.

8 Conclusions

Alliance plans to develop a greenfield nickel / cobalt mine, the NiWest Nickel Cobalt Project, in the central southern area of Western Australia, approximately 50km southeast of Leonora.

The primary product, nickel sulphide, will be exported for use in the manufacture of batteries for electric vehicles in line with the global trend towards net zero of greenhouse gas emissions.

This Proposal has the potential to significantly affect key environmental factors. Based on the available information, the following preliminary environmental factors will require assessment by the EPA:

- Subterranean fauna; and
- Greenhouse gas emissions.

The following preliminary environmental factors may require assessment by the EPA:

- Flora and vegetation;
- Terrestrial fauna; and
- Social surrounds.

The following preliminary environmental factors are relevant to the proposal but can be managed under other legislation:

- Inland waters; and
- Air quality.

Alliance acknowledges that further information is required to enable an assessment to proceed. At this stage, the company is seeking to obtain the EPA's decision as to level of assessment.

9 References

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10 Abbreviations, Terms and Acronyms

Abbreviation	Meaning
ACH	Aboriginal Cultural Heritage
AHD	Australian Height Datum
Alliance	Alliance Nickel Limited (the Proponent)
ARI	Assessment on Referral Information
BoM	Bureau of Meteorology
Concentrate	Precious metals concentrate
CO_2-e	Carbon Dioxide Equivalent
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
Development Envelope	Development Envelope (DE): Envelope within which all ground disturbance and clearing for the Project will occur. The area is greater than the required disturbance in order to allow for a degree of flexibility and to ensure that the area captures indirect impacts in addition to direct impacts
Disturbance Footprint	Defined area of ground disturbance for the Project within the Development Envelope. Includes new clearing and existing disturbed areas associated with the Project footprint
DMA	Decision Making Authority
DEMIRS	Department of Energy, Mines, Industry, Regulation and Safety
DoW	Department of Water
DPaW	Department of Parks and Wildlife
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1986*
EPA	Environmental Protection Authority
EPBC Act	*Environmental Protection Biodiversity Conservation Act 1999*
ERD	Environmental Review Document
ESA	Environmentally Sensitive Area
ESD	Environmental Scoping Document
FIFO	Fly-in-fly-out
GHG	Greenhouse Gas
GL	Gigalitre
GL/a	Gigalitres per annum (year)

Abbreviation	Meaning
GPS	Global Positioning System
ha	hectare
HPAL	High Pressure Acid Leach
ha	Hectares
IBRA	The Interim Biogeographic Regionalisation for Australia
IBSA	Index of Biodiversity Surveys for Assessment
IPCC	The United Nations Framework Convention on Climate Change
kg	Kilogram
km	kilometre
km/h	Kilometres per hour
LOM	Life of Mine
m	Metre
m^3	Cubic metre
MCP	Mine Closure Plan
mg/kg	Milligrams per kilogram
mg/L	Milligrams per litre
mm	Millimetre
MS	Ministerial Statement
Mt	Million tonnes
Mt/a	Million tonnes per annum
MW	Megawatt
NAF	Non-acid forming
NO_x	Oxides of nitrogen, usually nitric oxide (NO) or nitrogen dioxide (NO_2)
PAF	Potentially-acid forming
PAF_{LC}	Potentially-acid forming (low capacity)
PEC	Priority Ecological Community
PLS	Pregnant Leach Solution
Project	The NiWest Nickel Cobalt Project
Project Area	A group of tenements in which the Development Envelope occurs. Most surveys assessed the whole Project Area and not just the Development Envelope
Proponent	The entity carrying out the Project. In this case, the Proponent is Alliance Nickel Limited
Regolith	The layer of unconsolidated solid material covering the bedrock
Ripios	Leached ore (spent ore from the heap leach pad)

Abbreviation	Meaning
ROM	Run-of-mine
SRE	Short-Range Endemics
t	Tonne
t/m^3	Tonne per cubic metre
t/y	Tonnes per year
tCO_2-e	Tonnes of Carbon Dioxide per year
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
VSA	Vegetation System Associations
VT/VT's	Vegetation Type/s
WA	Western Australia
WAM	Western Australian Museum
WRL	Waste Rock Landform
w/w	'Weight for weight', the proportion of particular substances within a mixture, e.g., mine tailings and process water