Environment Protection Act (EP Act) Referral

Finniss Lithium Project – Proposed Variations

Cox Peninsula, Northern Territory

First submitted 14 April 2026

Document Control Record

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Acronyms & Abbreviations

Acronym	Definition
ABN	Australian business number
ACN	Australian company number
ANCOLD	Australian National Committee on Large Dams
ASX	Australian stock exchange
BAC	Bulk air cooler
bcm	Bank cubic metres
BJV	Bynoe Joint Venture
BoM	Bureau of Meteorology
BP33	Finniss Lithium Project BP33 Underground Mine
BSc	Bachelor of Science
CEMP	Construction Environment Management Plan
CER	Clean Energy Regulator (as established by the Clean Energy Regulator Act 2011).
C&M	Care and maintenance
CPEng	Certified Practising Engineer
CPESC	Certified Practitioner of Erosion Sediment Control
CXO	Core Lithium ASX listing
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DLI	Department of Logistics and Infrastructure (NT)
DLPE	Department of Lands, Planning and Environment (NT)
DML	Deemed Mining Licence
DMS	Dense media separation
DP	Discharge point
DSO	Direct shipped ore
EL	Exploration licence
EML	Environmental Mining Licence
EMP	Extractive Mineral Permit
EP Act	Northern Territory *Environmental Protection Act 2019*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
ERP	Emergency Response Plan
ESCP	Erosion and Sediment Control Plan
ESG	Environmental social governance
ESRA	Environmental and social risk assessment

Acronym	Definition
FSF	Fines storage facility
GDE	Groundwater dependent ecosystem
GHG	Greenhouse Gas
GOVT	Government
ha	Hectares
Hons	Honours
IAP	International association for participation
ICE	Independent Certifying Engineer
kL	Kilolitres
km	Kilometres
kW	Kilowatt
LDGNT	Lithium Developments (Grants NT) Pty Ltd (the Proponent)
Li	Lithium
LOM	Life of mine
L/s	Litres per second
Ltd	Limited
m	Metres
M	Metres
m^3	Cubic metres
MAW	Mine affected water
mbgl	Metres below ground level
MIEAust	Member of the Institution of Engineers Australia
MNES	Matters of national environmental significance
ML	Megalitres
ML	Mineral Lease
MLN	Mineral Lease (Northern)
mm	Millimetre
MMI	Modified Mercalli Intensity (scale)
MMP	Mine management plan
MSD	Mine storage dam
Mt	Million tonnes
Mtpa	Million tonnes per annum
MW	Mega Watt
MWD	Mine Water Dam

Acronym	Definition
MWh	Megawatt- hour
NER	National Engineering Register
NGER Act	*National Greenhouse and Energy Reporting Act 2007* (Commonwealth)
NT	Northern Territory
NT EPA	Northern Territory Environmental Protection Agency
OHD	Observation Hill Dam
OMS	Operation, Maintenance, Surveillance
OPM	Open pit mine
pa	Per annum
PAF	Potentially acid forming (material)
Project	Finniss Lithium Project
Pty Ltd	Proprietary limited
R	Rural zoning
RACI	Roles, accountabilities, consulted, and interested (parties)
RC	Reverse circulation (drilling)
Rd	Road
RL	Reduced level
RoM	Run of mine pad
ROW	Right of way
RPEQ	Registered Professional Engineer of Queensland
SIA	Social impact assessment
SILO	Scientific information for land owners
SoCS	Sites of Conservation Significance
SSTV	Site specific trigger values
SWEL	Surface water extraction licence
TARP	Trigger action response plan
TSF	Tailing storage facility
µm	Micrometres
V	Volt
VCL	Vacant Crown Land
WDL	Water Discharge Licence
WHIMS	Wet High-Intensity Magnetic Separators
WMPC Act	Waste Management and Pollution Control Act 1998 (NT)
WRD	Waste rock dump

Acronym	Definition
ZoI	Zone of Influence

Terminology

Term	Definition
Activity	A specific action, task, or operation performed by an organisation that can interact with the environment.
Aspect	An organisation's activities, products, or services that interacts or can interact with the environment.
Combined Impact	Outlines the combined effects which the implementation of the original proposal and the significant variation would potentially have on the environment (NT EPA, 2025a).
Cumulative Impact (assessment)	(an assessment that) considers the potential cumulative impacts of a proposed action or strategic proposal and takes into account the combined impact of the action or proposal and other actions (NT Govt, 2024).
Development Envelope	The development envelope is defined as the maximum area within which the proposed footprint will occur.
Disturbance Footprint	The disturbance footprint is defined as the direct disturbance area within the development envelope.
Impact	Impact, including direct, indirect and cumulative and significant impact - definitions as per sections of EP Act (NT EPA (2025b).
Net benefit	The measurable gain in environmental services, or ecological and/or social value achieved through remediation and reuse, minus any new environmental damage caused by those development actions.
Proposal components	The specific, physical and operational elements of a project that must be detailed for assessment in a referral. Proponents are required to provide a key components summary table, a detailed description, and uncertainty and variations.
Significant impact	An impact of major consequence, determined by considering context and intensity of the impact, sensitivity, value and quality of the environment being impacted, and the duration, magnitude and geographic extent of the impact.
Significant variation	Significant variation is described by the NT EPA (2025b) as "a significant variation of an action or strategic Proposal" is a variation that: (a) will alter the action, or the action or actions under the strategic Proposal, to the extent that a referral trigger that did not previously apply to the action or actions now applies; or (b) has the potential to have a significant impact on the environment; or (c) will result in new or additional areas being subject to a potential significant impact on the environment.

Executive Summary

Lithium Developments (Grants) Northern Territory Pty Ltd (LDGNT) ('the Proponent') proposes to increase the depth of BP33 underground mine, with commensurate changes to mining and processing activities. This referral is a variation to previously assessed EP2020/001–001 (BP33) and Assessment Report 89 (Grants).

Changes included in the variation (the Proposal) encompass an increased mining depth at the BP33 underground mine from 320 metres below ground level (mgbl) (previously approved) to 850 mbgl,; an increased life of mine (LOM) to a period of up to 12 years; an increased total mined ore of 10.1 Mt; and maintaining the Grants open cut and processing facility as a centralised ore processing, waste handling and water storage hub with the same extended LOM to service the BP33 operation.

Proposals that have the potential to have a significant impact on the environment require referral to the Northern Territory Environmental Protection Authority (NT EPA) in accordance with the Environment Protection Act 2019 (NT) (EP Act) and the Environment Protection Regulations 2020 (NT) (EP Regulations). LDGNT is seeking approval for the Proposal under the EP Act.

The Proposal is being referred to the NT EPA to determine whether formal assessment is required pursuant to the EP Act.

An evaluation of risks and impacts to matters of national environmental significance was undertaken in previous approvals for Grants and BP33 underground mine projects that remain directly relevant to this Proposal. As such, LDGNT is not submitting a referral under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).

Proposal Location

The Proposal is located on the Cox Peninsula, approximately 33 km west of the Berry Springs townsite in the Northern Territory. Mining activities and infrastructure are located approximately 25 km due south of Darwin (approximately 90 km by road) at two adjacent mine sites, Grants Lithium Project ('Grants') and the Finniss Lithium Project BP33 Underground Mine ('BP33').

The Proposal area is located on Parcel Section 1 Hundred of Parsons, and Section 2746 Hundred of Hughes. The area is surrounded by undeveloped Vacant Crown Land, covered by native vegetation. Much of the surrounding area including Grants, BP33, Observation Hill Dam and other pegmatite deposits were covered historically by granted Extractive Mineral Lease MLN16.

Grants mine site is associated with mineral leases ML31726 (mining and processing infrastructure), ML32074 (Observation Hill Dam pipeline route) and ML32278 (mine site dam), and has an allocated extracted mining permit EMP28651. BP33 mine site is also associated with ML32074 (OHD pipeline and site access) and has mining leases ML32346 (mine and mine infrastructure) and MLN16 (Cox Peninsula Road) allocated.

The surrounding land uses are categorised by the zoning developed under the NT Planning Scheme, in accordance with the Planning Act (NT). The land surrounding the Proposal area is zoned Rural (R). There are no nearby residences, farms or industries within the catchment areas upstream or downstream, and no commercial or domestic uses for which surface water or groundwater is currently being extracted anywhere near the project area. Cox Peninsula Road is the closest gazetted road, approximately 2 km to the closest infrastructure, and is owned by the NT Government.

There are no National parks or Sites of Conservation Significance within the catchment upstream or immediately downstream of the Proposal area. There are no Aboriginal Sacred Sites or restrictions identified in the areas covered by granted mineral leases for the Proposal.

The scope of the Proposal is to increase the depth of BP33 underground mine, and the life of mining and processing operations undertaken at BP33 and Grants mine sites. The Proposal is situated on existing disturbance footprints for previously approved Grants and BP33 mine sites.

Environmental Factors

The self-assessment using the NT EPA screening tool determined that the Proposal has potential to significantly impact two (2) of the 14 environmental factors:

- WATER – hydrological processes – surface water hydrology and groundwater hydrology
- AIR – Atmospheric emissions – scope 1 greenhouse gas emissions

Assessment of impacts to six other environmental factors have also been included in the report including:

- LAND – terrestrial environmental quality – soil quality and soil structure
- LAND – terrestrial ecosystems – threatened fauna and communities of ecological interest (riparian vegetation)
- WATER – aquatic ecosystems – riparian vegetation
- WATER – inland water environmental quality – surface water quality
- AIR – air quality – health and amenity, and
- PEOPLE – community and economy.

Environmental protection and management

Table 1 provides a summary of how the Proposal aligns with the purpose of the NT environmental impact assessment process and meets the general duty of proponents as per Sections 42 and 43 of the EP Act.

The Proposal has accounted for environmental protection principles through avoidance and proposed mitigation measures. The placement of the Proposal has sought to avoid or minimise the potential for impact as far as reasonably practical. Table 2 details management and mitigation measures committed to by LDGNT with a focus on groundwater hydrological regimes and the regional airshed.

Residual Impacts

The residual impacts on environmental values and sensitivities relevant to all environmental factors were assessed by considering the direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures. The assessment considered the severity (including scale, duration, and magnitude) of the predicted impacts, alongside the importance and sensitivity of the environmental value components. Based on this assessment, and with the implementation of the identified avoidance and mitigation measures, no significant residual impacts are expected for any of the environmental factors assessed.

Further the Proposal allows the handling and reuse of mining waste streams (water, waste rock and tailings), as well as leveraging existing disturbances and infrastructure to extend the life of operations

and associated benefits for local and regional communities.

Key Conclusions

The detailed impact assessments provided in this referral have determined that through the implementation of the proposed mitigation and management measures the Proposal is unlikely to have any significant residual impacts on the environment.

The assessment further determined that the NT EPA's environmental objectives of the identified factors can be met.

Table 1 Principles of ecological sustainable development as applied to the Proposal

EP Act	Comment
Section 42 – How does the Proposal align with the purpose of the NT environmental impact assessment process?	
Decision-making principle Section 18 of the EP Act states: *Decision-making processes should effectively integrate both long term and short term environmental and equitable considerations. Decision-making processes should provide for community involvement in relation to decisions and actions that affect the community. Decision-making processes should ensure that decisions or actions directed at minimising harm or a risk of harm or impact to the environment are proportionate to the harm or risk of harm or impact that is being addressed.*	The Proposal has considered both long-term and short-term environmental and equitable matters. The Proposal lifecycle includes both deeper mining at BP33 and the ongoing use of existing ore processing facilities and other associated infrastructure at Grants, with minor equipment upgrades or additions across both mine sites. The removal, avoidance, and/or minimisation of environmental impacts has been a part of the decision-making process by utilising infrastructure at one location rather than duplication (such as extending depth of BP33 mine, integrated water and waste handling infrastructure through modification of the processing plant to improve recovery and reduce wastes, plus re-use of wastes in production of paste backfill for BP33 mining methodology).
Precautionary principle Section 19 of the EP Act states: *If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Decision-making should be guided by:* • *careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and* • *an assessment of the risk-weighted consequences of various options.*	The precautionary principle has been applied in the development of the Proposal and this referral. Groundwater modelling and associated investigations have been undertaken to determine the potential impact caused by the drawdown of the water table to enable 850 mbgl mine depth at BP33. The knowledge gained has helped reduce uncertainty of the potential for environmental impacts by the Proposal as much as possible. Remaining within the previously approved disturbance footprints (as detailed in NT EPA, 2024a and NT EPA, 2024b) coupled with the use of existing infrastructure (with some relatively minor additions), will ensure the Proposal will avoid or mitigate environmental impacts to the greatest extent practicable.
Principle of evidence-based decision-making Section 20 EP Act states: *Decisions should be based on the best available evidence in the circumstances that is relevant and reliable.*	The Proposal is based on the most relevant and best available knowledge, including previous studies undertaken, as detailed in NT EPA, 2024a and NT EPA, 2024b and groundwater modelling and associated investigations, and other studies undertaken specifically for the Proposal (including greenhouse gas emissions forecasting, integrated water balance modelling, community engagement). Specifically, knowledge gaps have been fulfilled with the following studies/ assessments: • Pre-feasibility assessment for paste operations at BP33 • Greenhouse gas emissions assessment forecasting report • Updated groundwater modelling with current site-based data • Integrated water balance modelling for changes in water management and movement due to mine dewatering and modifications to infrastructure and

EP Act	Comment
	activities • Engagement with key stakeholders and community groups
Principle of intragenerational and intergenerational equity Section 21 of the EP Act states: *The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of present and future generations.*	The planning and predictions of the possible intergenerational equity impacts have been undertaken through the stakeholder engagement process, both for this Proposal and previous referrals (as detailed in NT EPA, 2024a and NT EPA, 2024b). The continuation of mining activities at existing locations ensures established infrastructure use is maximised. Ongoing monitoring will be conducted during the implementation of the Proposal to ensure ecological health, diversity and sustainability is maintained.
Principle of sustainable use Section 22 of the EP Act states: *Natural resources should be used in a manner that is sustainable, prudent, rational, wise and appropriate.*	The Proposal does ensure that natural uses are used in a manner that is sustainable, prudent, rational, wise and appropriate. The Proposal's continuation of mining activities at existing locations ensures established mine and infrastructure use is maximised within the existing approved disturbance footprints. No additional land clearing of native vegetation is required. Re-use of processing waste streams to produce paste backfill required for BP33 underground mining reducing waste handling and storage at surface.
Principle of conservation of biological diversity and ecological integrity Section 23 of the EP Act states: *Biological diversity and ecological integrity should be conserved and maintained.*	The Proposal will stay within the previously approved disturbance footprints (as detailed in NT EPA, 2024a and NT EPA, 2024b). This significantly minimises further loss of native vegetation. The Proposal and supporting groundwater modelling and associated investigations has detailed that there will be limited impact to environmental and social values, in particular surface vegetation and habitats, including riparian vegetation and potential groundwater dependent ecosystems (GDEs).
Principle of improved valuation, pricing and incentive mechanisms Section 26 of the EP Act states: *Environmental factors should be included in the valuation of assets and services. Persons who generate pollution and waste should bear the cost of containment, avoidance and abatement. Users of goods and services should pay prices based on the full life cycle costs of providing the goods and services, including costs relating to the use of natural resources and the ultimate disposal of wastes. Established environmental goals should be pursued in the most cost-effective ways by establishing incentive structure, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems*	The Proponent will ensure that material environmental risks and impacts are appropriately identified and accounted for using environment social governance frameworks that align with investor and stakeholder expectations. Greenhouse gas emissions generated during implementation of the Proposal have been estimated to inform atmospheric contributions over the LOM. Greenhouse gas emissions will be managed in accordance with the requirements of the NGER Act. This will include the formalisation of an emissions baseline and the application of mitigations to reduce emissions, when required.
Environmental decision-making hierarchy	In assessing each potential impact, the environmental decision-making hierarchy has been applied resulting in several key design decisions. These include the continued

EP Act	Comment
Section 26 of the EP Act states: *In making decisions in relation to actions that affect the environment, decisionmakers, proponents and approval holders must apply the following hierarchy of approaches in order of priority. In making decisions in relation to actions that affect the environment, decisionmakers, proponents and approval holders must ensure that the potential for actions to enhance or restore environmental quality is identified and provided for to the extent practicable.*	use of existing mines and associated infrastructure, the planning for efficient water use, the re-use of mine affected wastewater and processing wastes (previously a waste product) for use in the paste plant at as paste product in the BP33 and remaining in the previously approved disturbance footprint. Collectively, these design decisions have resulted in the reduction or avoidance of potential impacts, and ability to realise net environmental benefits, through the implementation of the Proposal.
Waste management hierarchy Section 26 of the EP Act states: *In designing, implementing and managing an action, all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment. For subsection (1), waste should be managed in accordance with the following hierarchy of approaches in order of priority.*	The Proposal will continue to manage waste in accordance with the waste management hierarchy, using the Proponents existing MMP until a future Environmental Mining Licence is held. The hierarchy includes water re-use, recycling in plant circuits, as well as water storage in mine water dams (MWDs) for dry season/ contingency use. This Proposal includes improved resource recovery in processing plant circuits, and re-use of processing waste streams in the production of paste backfill for underground mining at BP33. Raw water demand using existing OHD supply will continue only for processes and activities requiring raw water quality and will comply with the issued Surface Water Extraction Licence 8151018.
Impacts of a changing climate	The Proposal has considered a changing climate within the integrated water balance model (WRM, 2026), the groundwater modelling report (Artesium, 2026), and through assessment of the Proposal's impact on atmospheric processes in the NT and global warming potential related to greenhouse gas emissions (Greenbase, 2026).
Section 43 General duty of proponents: Considerations	
Duty 1: Provide communities with information and opportunities for consultation to assist understanding of the proposed action and its potential impacts and benefit.	Stakeholder consultation with the community and other local stakeholders began during the planning and approvals process for both Grants and BP33 (as detailed in NT EPA, 2024a and NT EPA, 2024b). A social impact assessment (SIA) (True North, 2021) was completed for the BP33 approvals process. Stakeholder consultation continued through the implementation of both projects. As detailed in Section 5, for this Proposal the Proponent engaged True North Strategic Communication (True North). True North have planned and implemented consultation with the community and other local stakeholders detailing the Proposal. Consultation with the community and other local stakeholders will continue during the Proposal implementation – refer Core Lithium's website: Contact.
Duty 2: Consult with affected communities, including Aboriginal communities, in a culturally appropriate manner.	Key stakeholders and local community groups were targeted for engagement on the Proposal. A summary of the consultation activities including stakeholders and community groups is provided in Section 5 and the complete community engagement

EP Act	Comment
	report is provided in Appendix G.
Duty 3: Seek and document community knowledge and understanding (including scientific and traditional knowledge and understanding) of the natural and cultural values of areas that may be impacted by the proposed action.	During the planning and approvals process for both Grants and BP33 project (as detailed in NT EPA, 2024a and NT EPA, 2024b), relevant government departments were engaged to provide advice regarding the local environment and how the projects may interact with known values. Section 4 and Appendix B detail the known cultural values of the Proposal area. Given the design of the Proposal, no known values will be impacted.
Duty 4: Address Aboriginal values and the rights and interests of Aboriginal communities in relation to areas that may be impacted by the proposed action.	Aboriginal communities were consulted as part of the Stakeholder consultation process for both Grants and BP33 project (as detailed in NT EPA, 2024a and NT EPA, 2024b). Aboriginal values, and the rights and interests of Aboriginal communities were identified through these processes. Authority Certificate RA2018/73 has been provided by the Aboriginal Areas Protection Authority to ensure the protection of sacred sites throughout the project. The closest sacred site is approximately 6 km north-west from BP33. The closest Aboriginal community to the Proposal is the Belyuen community. Engagement with representatives of this community group were positive in relation to employment opportunities and provision of services. The potential for creating generational wealth for the Belyuen community via industrial co-development was discussed bringing resources to the broader community group rather than just via a few members (refer Stakeholder briefings table in Appendix G).

Table 2 Impact avoidance and mitigation measures

Environmental factor	Impact avoidance	Impact mitigation
WATER – Hydrological processes	- Avoidance of environmental values and sensitive or culturally valued areas by increasing the development footprint within the deeper groundwater aquifer (greater than 150 mbgl) - Utilising an area that is already disturbed/ modified and impacted by historical and existing operations	- Controls will be adopted for the purposes of decreasing or mitigating the impact of mine dewatering - Controls will be implemented to manage mine dewatering rates in alignment with impact predictions - Controls will be implemented to manage post-closure state of the BP33 underground mine and re-establishment of groundwater hydrological regimes - To manage impacts due to mine dewatering, a deep groundwater monitoring bore will be established to validate the outcomes of groundwater modelling in conjunction with ongoing monitoring of local levels in local shallow and intermediate groundwater aquifers
AIR – Atmospheric emissions	- Avoidance of environmental values and sensitive areas by establishing the development footprint within an area remote from other users and contributors present in the airshed	- Controls will be implemented to manage and reduce greenhouse gas emissions including a Greenhouse Gas Abatement Plan - Controls will be implemented to manage emissions related to operational activities and infrastructure including a detailed operations energy study - To manage impacts due to greenhouse gas emissions, monitoring and reporting will be established to validate the outcomes of the emissions modelling and to support annual reporting

1 Introduction

Lithium Developments (Grants NT) Pty Ltd (LDGNT) (the Proponent) proposes the extension of mining at the Finniss Lithium project, namely at the existing BP33 mine site[1] for a period of approximately 12 years and a deeper underground mine, with ore processing continuing at the existing Grants mine site[2] for the same period (the Proposal).

Proposals that have the potential to have a significant impact on the environment require referral to the Northern Territory Environment Protection Authority (NT EPA) in accordance with the *Environment Protection Act 2019* (EP Act) and the Environment Protection Regulations 2020 (NT) (EP Regulations). LDGNT is seeking approval for the Proposal under the EP Act.

The Proposal is being referred to the NT EPA to determine whether formal assessment is required pursuant to the EP Act. This referral also considers whether the Proposal should be referred for assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report, and its accompanying appendices, is intended to be read in conjunction with the referral form.

1.1 Proposal overview

The Finniss Lithium Project is located on the Cox Peninsula, approximately 33 km west of the Berry Springs townsite in the Northern Territory. Mining activities and infrastructure are located approximately 25 km due south of Darwin (approximately 90 km by road) at two adjacent mine sites, Grants Lithium Project ('Grants') and the Finniss Lithium Project BP33 Underground Mine ('BP33').

Grants mine site is developed, with mining undertaken for approximately two years prior to the suspension of mining operations in 2024. The BP33 mine site development was suspended in 2023 prior to the commencement of operations. Both mine sites are connected by an existing track ('Haul route' approved under BP33 approval (NT Govt, 2022)). Grants and BP33 mine sites operate under Mining Management Plans, also referred to as the Deemed Mining Licences (DML1021-01 and DML1138-01, respectively).

With mining of the resource at Grants open pit mine soon to be exhausted, the focus of mining will shift to BP33 underground mine. While the BP33 mine has environmental approvals to mine to a depth of 320 metres below ground level (mbgl), LDGNT proposes to increase the mining depth to 850 mbgl, increasing the life of mine to a period of up to 12 years. Once mining of the Grants pit is completed, the mine site will continue as an ore processing hub for BP33 ore, thereby extending the ore processing activities at Grants for the full duration of the BP33 mine operation.

The Proposal components are in the final design stages. The infrastructure and activities included in the Proposal will utilise areas of existing disturbance as far as practicable. LDGNT has prepared a referral report (this document) under the NT EP Act and the EP Regulations.

The regional location and Proposal area are detailed in Figure 1-1 and Figure 1-2.

[1] Previously assessed and accepted under *Environment Protection Act 2019,* Assessment Reference Number: EP2020/001.
[2] The NT EPA previously assessed and accepted the Grants Lithium Project under the *Environmental Assessment Act 1982.*

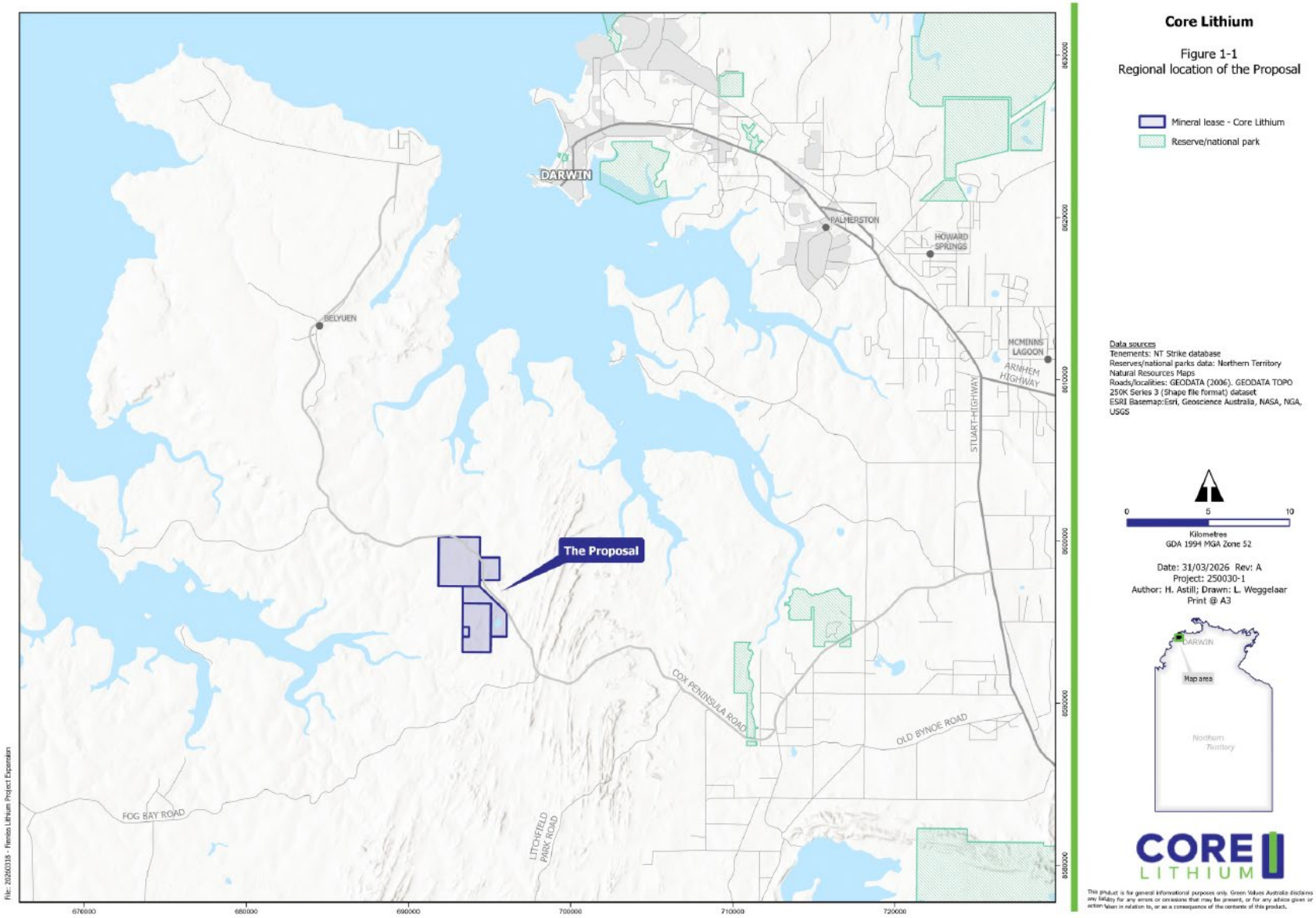


Figure 1-1 Regional location of Grants and BP33 within the Finniss Lithium Project

Grants Access Road
Processing plant (existing)
Grants Mine Site
Haul Route
COX PENINSULA ROAD
BP33 Access Road
Future pads and laydowns
Topsoil
Overflow stockpile
Sediment basin 3
Waste rock dump 2
BP33 Mine Site
Paste plant, stockpile, cooling
Ventilation and power
8560000
8558000
8556000
8554000
2008000
2010000
2012000
File: 20260318 - Finniss Lithium Project Expansion

Core Lithium

Figure 1-2
The Proposal location and components

- Development envelope
- Cox Peninsula Road
- Slime slurry pipeline (proposed)

Indicative activities

- Processing plant (existing)
- Access
- Batch plant
- Box cut
- Contractor yard
- Drainage
- Laydown
- Mine water dam
- Overflow stockpile
- Paste plant, stockpile, cooling
- ROM pad
- Sediment basin
- Topsoil stockpile
- Ventilation and power
- Waste rock dump

0 0.5 1
Kilometres
GDA 1994 MGA Zone 52

Date: 1/04/2026 Rev: A
Project: 250030-1
Author: H. Astill;
Drawn: L. Weggelaar
Print @ A3

Data sources
ESRI Basemap:© OpenStreetMap (and) contributors, CC-BY-SA

DARWIN
Map area
Northern Territory

1.2 Proponent details

LDGNT, the Proponent for this Proposal, is a 100% owned subsidiary of Core Lithium Ltd (ASX: CXO) (Core Lithium). Core is an Australian hard-rock lithium company that 100% owns the Finniss Lithium Project (Project). The Finniss Lithium Project comprises the Grants and BP33 Mine Sites and several pegmatite prospects that are being explored by Core.

General details for the Proponent are provided in Table 1-1.

Table 1-1 Proponent details

Proponent details	
Name	Lithium Developments (Grants NT) Pty Ltd
ACN	622 047 232
ABN	70 622 047 232
Registered office	Level 4, 186 St Georges Terrace, Perth WA 6000
Site address	2873 Cox Peninsula Rd, Cox Peninsula Section 00001 Hundred of Parsons
Primary contact	Anthony Kirke, Project Director
Telephone	+61 883 171 700
Email	info@corelithium.com.au

1.3 Scope of referral

This referral is for the extension of mining at the existing BP33 mine site for a period of up to 12 years for a deeper underground mine (up to 850 mbgl), with ore processing continuing at the existing Grants mine site for the same period. Included are additional and minor modifications to existing mining and processing infrastructure, entirely located within the previously approved development envelopes (refer Figure 1-2). These construction activities will be undertaken concurrently with ongoing operational activities.

Operations at BP33 recommenced in January 2026 under the approved MMP Revision 3 and existing EP Act approval (NT Govt, 2022), with dewatering of the box cut following a period of care and maintenance. Recommencement of operations at Grants mine site is planned for mid-2026 under the approved MMP Revision 7.

Once mining of Grants pit is completed, the mine site will continue as an ore processing hub for BP33 ore thereby extending the ore processing activities at Grants for the full duration of the BP33 mine operation. The concentrate spodumene product is planned to continue to be trucked approximately 90 kilometres via Cox Peninsula Road and the Stuart Highway to Darwin Port for export to overseas markets.

The activities included in this referral and their phasing are described in Table 3-3.

A self-assessment was undertaken by LDGNT in relation to the proposed activities to be referred for assessment and approval by the NT Government under the Environmental Protection Act. This process was undertaken to determine if a significant change would result from the changes described in this Referral report from the activities previously approved. The outcomes of the self-assessment is included in Appendix A and summarised in Section 7.

1.4 Publication statement

The personnel detailed in Table 1-2 were involved in preparation of the referral. This includes suitably qualified and experienced persons who have undertaken the environmental impact assessment, prepared the referral and referral report, undertaken stakeholder consultation, prepared supporting technical reports and, where appropriate, undertaken peer reviews of supporting technical reports.

Table 1-2 Publication Statement – Personnel Involved

Name	Relevant Qualifications	Company
Referral, Referral Report and Environmental Impact Assessment		
Helen Astill	Doctor of Philosophy (Environmental Management) Master of Business Administration Bachelor of Science (Hons.)	Core Lithium
Martin Heller	Bachelor of Science (Environmental Management) (Hons.) Certificate IV in Government (Statutory Compliance)	MCC Sustainable Futures
Hannah Fletcher	Bachelor of Science (Geography) (Hons.) Member of Environment Institute of Australia and New Zealand	
Jaime Marr	Bachelor of Environmental Science	Savannah Roots
Stakeholder Consultation		
Bethany Thornton	Bachelor of Strategic Communication Certificate in Public Participation, International Association for Participation (IAP2)	True North Strategic Communication
Sarah Coburn	Bachelor of Communication	
Elena Madden	Bachelor of Communication Master of Business Administration Certificate in Public Participation, International Association for Participation (IAP2) Certificate in ESG and Social Responsibility Certificate in Social Risk Management for Major Projects Certificate in Human Rights Impact Assessment	
Supporting Technical Reports		
Groundwater modelling		
Rudolf van Heerden	Bachelor of Science (Hons.)	Artesium Consulting Services
Koos Vivier	Bachelor of Science (Hons.) Masters of Geohydrology Doctor of Philosophy (Environmental Management) Registered Professional Scientist, South African Council for Natural Scientific Professions (No. 400177/05)	
Greenhouse Gas Assessment		
Alistair Marks	Bachelor of Science (CompSci) Bachelor of Business Administration	Greenbase
Joshua Wedd	Bachelor of Environmental Science Masters of Natural Resources Law	
Surface water modelling		
Julian Orth	Bachelor of Engineering (Hons.) Masters of Engineering (Eng. Sc.) MIEAust, CPEng, NER, RPEQ, CPESC	Water Resource Management

Name	Relevant Qualifications	Company
Kah Ong	Bachelor of Engineering (Hons.)	
Contextual Summary		
Lisa Chandler	Bachelor of Science (Physical Geography) Masters of Engineering (Civil Engineering)	Green Values
Peer Review of Supporting Technical Reports		
James Barrat	Bachelor of Environmental Science (Hons.) Masters in Hydrogeology	Australasian Groundwater and Environment Consultants
Keith Phillipson	Bachelor of Science (Hons.) Masters in Water Resource System Engineering	

Development of this referral included the preparation of information related to the status of environmental factors, followed by an assessment of threats and impacts to key factors that will or may arise from the Proposal. Community engagement was completed with stakeholders identified through development of an engagement strategy provided by independent and experienced consultants. Feedback gathered from early engagement has been collated and included in the referral (refer Section 5).

Following compilation of this information, internal reviews by the Project Director and Approvals Manager, who both have sufficient project knowledge, technical experience and authority, were completed.

The referral report has been reviewed by the LDGNT project team to ensure Proposal details are current and accurate. Third party peer reviews of key technical appendices have been completed (refer Table 1-2).

2 Proposal context

2.1 Summary of primary approvals to date

Sub-sections 2.1.1 to 2.1.3 provide a summary of approvals for Grants and BP33, as well as a status update. For further information related to historical approvals of activities at Finniss Lithium Project and the related legislative frameworks, refer to Appendix B.

2.1.1 Grants

The NT EPA completed the environmental impact assessment of Core Lithium's Grants Lithium Project and concluded it could proceed in an environmentally acceptable manner by implementing recommendations made in the Assessment Report 89 (NT EPA, 2019). A subsequent alteration to the Proposal was also accepted in 2020. As the Environmental Protection Act 2019 was not in place at the time, NT EPA acceptance was provided as advice to relevant Ministers for consideration in the development of conditions and approvals under the Mining Management Act 2001. The Grants mine site received approval to clear, construct and operate, commencing development in 2020 with open pit mining beginning in 2022.

Lithium ore was processed onsite at Grants. The concentrate spodumene product was then trucked approximately 90 kilometres via Cox Peninsula Road and the Stuart Highway to Darwin Port for export to overseas markets.

The Mining Management Plan (MMP) for Grants (Grants MMP) was first authorised under the Mining Management Act 2001 in June 2019 (Deemed Mining Licence 1021-01). A subsequent revision to the Grants MMP (Grants MMP Revision 6) was then submitted in May 2024. On 1 July 2024 Environment Protection Legislation Amendment Act 2023 (Amendment Act) was brought into effect. Concurrently the Mining Management Act 2001 was repealed. Transitional provisions under the Amendment Act applied to mining operators who had applied for mining authorisation under the Mining Management Act 2001 before 1 July 2024 with a decision pending (NT Govt, 2026). Grants MMP Revision 6 required amendment following a formal review by the Department of Lands, Planning and Environment (DLPE) that resulted in the request for additional information. Amendments to Grants MMP Revision 6 were made with acceptance of Grants MMP Revision 7 in February 2026.

2.1.2 BP33

BP33 underground mine, approximately 3.5 kilometres from Grants, was approved by the NT Government for development and operation under the Environmental Protection Act 2019 in April 2022 (environmental approval EP2020/001–001, NT Govt, 2022) with development of the BP33 mine site commencing in 2022. The approval included a life of mine duration of 55 months (approx. four years including six months construction, 44 months operation and five months rehabilitation (NT Govt, 2022). A mining depth of up to 320 mbgl was described in the assessment documentation.

The MMP for BP33 was first authorised under the Mining Management Act 2001 in May 2022 (DML 1138-01). A revision to the BP33 MMP (BP33 MMP Revision 2) was submitted for approval in May 2024. BP33 MMP Revision 2 required amendment following a formal review that resulted in a request for additional information. Amendments to BP33 MMP Revision 2 were made with approval of BP33 MMP Revision 3 in September 2025 under the transitional provisions of the Amendment Act.

2.1.3 Status

Due to a decline in global lithium prices, Core made the decision to pause mine development at BP33 in 2023 and mining at Grants in early 2024 to safeguard the company's future. Although Grants was placed in temporary care and maintenance the ore resource was not exhausted.

At the time of writing, both Grants and BP33 mines had exited care and maintenance and were preparing for recommencement of operations and development, respectively.

2.1.4 Approved disturbance areas

Table 2-2 summarises previously approved areas for clearing.

2.2 BP33 proposed activities

No increase to the disturbance areas for clearing of native vegetation as approved in NT Govt 2022 EP Act approval, with the current clearing reflected in the BP 33 MMP (Revision 3) (refer Table 2-2).

The BP33 underground mine will be extended to 850 mbgl from 320 mbgl, with an extended life of mine (LOM) of up to 12 years. This will result in an annual average mining rate of up to 2.09 Mt processing ore, or 10.1 Mt processing ore over the period. The depth extension from 320 mbgl to 850 mbgl is a progression through known and established geology.

The BP33 mine site proposed activities are summarised below:

- An increase in size at ground level of the second waste rock dump (WRD 2) to allow for encapsulation of any higher risk potentially acid forming (PAF) material encountered during mining, and addition of a related third sediment basin.
- Installation of an overflow stockpile allowing for handling of ore and/or materials for paste backfill production.
- Installation of a cooling plant to condition air in the underground mine supplied by re-used mine affected water together with raw water from Observation Hill Dam.
- Installation of a pipeline between Grants and BP33 within the previously approved haul route for the transfer of slimes slurry from the Grants processing plant to the BP33 paste plant.
- The addition of a paste plant and underground paste backfill system. Paste will be prepared with the piped slurry (approx. 6% v/v) mixed with dry tails trucked from Grants processing plant (two size classes constituting approximately 80% v/v) and a binding agent (cement; approximately 6 to 10%) at the paste plant. The previously approved raw water pipeline from Observation Hill Dam to BP33 will also supply water to the paste plant.
- The resulting paste product will be pumped into the BP33 underground mine. During the mining process the paste product will be used to fill mined-out voids to provide structural stability of the underground workings.
- Lithium ore mined at BP33 will be transferred to Grants for processing 24 hours a day (as per BP33 MMP Revision 3). Haulage will be via quad road trains on a 3.5 km section of Cox Peninsula Road between the two sites, including modification to the intersection at BP33 Access Road and Cox Peninsula Road to accommodate trucks returning to BP33 from Grants.

2.3 Grants proposed activities

The Grants mine site proposed future activities are summarised below:

- No increase to the approved disturbance areas for clearing of native vegetation as accepted by the NT EPA, 2019, with the current clearing reflected in Grants MMP (Revision 7) (refer Table 2-2).
- An extended LOM of up to 12 years for combined short-term mining and longer-term processing operations for continued support of BP33 mining.
- The addition of a Wet High-Intensity Magnetic Separator (WHIMS) to the ore processing facility (commence construction 2027), to maintain spodumene grade.
- An additional dense media separation (DMS) circuit may be added to the ore processing facility to enhance product recovery.
- Ore processing will generate differentiated tailings size classes:
    - The largest waste fractions (larger than 3 mm in diameter – referred to as DMS rejects) will be disposed at the Grants waste rock dump as coarse waste.
    - Two waste streams will be drained of moisture and trucked to BP33 ('dry stacked tails') using returning empty ore haulage trucks from Grants to BP33 to be used in paste production.
    - The final waste stream (<45 µm particle size fraction) commonly referred to as slimes (given the particle size and inability to remove the mine affected water) will be transported to BP33 via the slimes slurry pipeline and used in paste production.
- As a result of tailings waste reuse, the existing Grants fines storage facility will receive less tailings waste volumes.

2.4 Regional and local context

Prior to the clearing and development of the existing Grants and BP33 mine sites, the area comprised native vegetation. During the Grants and BP33 operation prior to the recent period of care and maintenance, no significant contamination of soil, surface water and/ or groundwater has occurred. Surface water erosion, and potential for surface water erosion, has been, and continues to be effectively managed on site through existing controls.

The Grants and BP33 sites are not serviced by mains power, water or sewage, and these services will continue to be provided directly on site. The closest police and fire emergency services are located at Humpty Doo (60 km by road). Medical general practitioner services are available in Berry Springs, with the closest hospital Palmerston Regional Hospital (70 km by road).

2.5 Land Tenure

Table 2-1 details the Proposal location, land tenure and ownership. The Proposal location in the context of the regional setting is provided in Figure 1-1.

Table 2-1 Summary information for land ownership, land tenure and land use

Land Details	BP33	Grants
Latitude	-12.71°	-12.67°
Longitude	130.79°	130.77°
Tenement details	Mineral Leases: ML32346 (mine and mine infrastructure) ML32074 (Observation Hill DAM (OHD) pipeline route, site access road[3]) MLN16[4] (Cox Peninsula Road)	Mineral Leases: ML31726 (mining and processing infrastructure) ML32074 (ancillary infrastructure - OHD pipeline route) ML32278 (mine site dam – west) Extracted Mining Permit: EMP28651 (borrow pit - OHD)
	ML32074 covers the haul route between BP33 and Grants, and the existing OHD pipeline route portions. The Haul Road between BP33 and Grants traverses BP33 and Grants Mineral Leases and Cox Peninsula Road (no tenure as an NT public road, access approvals will be in place).	
Street Address	2873 Cox Peninsula Road, Cox Peninsula	Cox Peninsula Road (~3.5 km from BP33)
Parcel description	Section 1 Hundred of Parsons & Section 2746 Hundred of Hughes	
Local Government Area	Unincorporated (Cox-Daly) area	
Zoning	Rural	
Tenure	Vacant Crown Land owned by the NT Government	
Nearest town(s)	Closest community: Belyuen Closest township: Berry Springs, 33 km west	

2.6 Alternatives to the Proposal

The Proposal objective is to extend the depth of mine at BP33, and life of operations at both sites, through leveraging existing presence, infrastructure and activities. The approach of increasing the depth of mine at BP33 and utilising existing ore processing and waste handling facilities at Grants has a low environmental impact profile relative to extended operations gained for the Finniss Lithium Project. Further, an alternative could be to construct ore processing and waste handling facilities at BP33 however it is not considered economically feasible to duplicate existing infrastructure.

Alternatives to the Proposal were discussed in both the Grants and BP33 underground mine referral documents (Core Exploration Ltd, 2018a and Core Lithium Ltd, 2020). Alternative processing methods and transport were considered in the submissions and minor changes to the processing plant and internal transport were considered.

There is no change to continued use of existing road trains to Darwin port facilities for ore haulage as there is currently no feasible alternative.

Alternative energy sources are not part of the Proposal; however, have been previously considered (GHD, 2023) and will continue to be explored based on economic and business factors. The extended

[3] The NT EPA (2022b) Assessment Report 84 states that permits to work within a road reserve may be required under other approvals under NT legislation

[4] Mineral Lease Northern 16

combined mine life may improve establishment costs versus return in operating expenditure. In addition, with the longer operating timeframes, seasonal reliability of renewable energy sources in the monsoonal Northern Territory (which to date has made such technology incompatible with project requirements), may become favourable. If feasible, renewable energy supply would complement onsite power generation through diesel combustion by generators.

2.7 Proposal rationale and benefits

An extension to the duration of the Finniss Lithium Project integrating the associated Grants and BP33 mine sites infrastructure provides a significant social, economic and environmental benefit at local, regional and Northern Territory scale.

The Finniss Lithium Project is expected to continue to provide benefits (as detailed in Core Exploration Ltd, 2018b and Core Lithium Ltd, 2020) in the form of:

- increased opportunities for waste repurposing within operations,
- capitalisations of existing disturbances and infrastructure,
- employment (direct employment of up to 250 people),
- economic boost to the region based on use of local and regional suppliers and contractors,
- export income, and
- royalties (to the NT Government under the *Mineral Royalties Act*).

As previously outlined in Core Exploration Ltd (2018b) and Core Lithium Ltd (2020), the Community Benefits Plan will continue to be implemented.

Continued utilisation of the existing Grants processing infrastructure to process ore mined from BP33 avoids the need for additional environmental disturbance at BP33 by eliminating construction of a new processing plant at this site.

2.8 Proposal boundary extent

The Grants and BP33 mine sites are surrounded by native vegetation including undisturbed areas within the existing mine site footprints. The Proposal disturbance footprints remain unchanged from the hectares of native vegetation clearing disturbance that has been previously approved.

Table 2-2 Previously approved development envelopes and related disturbances

BP33 EP2020/001-001	Clearing	Grants NT EPA Assessment Report 89	Clearing
Mine site areas	88 ha	Mine pit and infrastructure	217 ha
Water pipeline	0.4 ha	Water pipeline to Observation Hill Dam	6 ha
Haul route	12.5 ha	Inundation of land surrounding Observation Hill Dam	9 ha
		Inundation land for the proposed Mine Site Dam	19 ha
Total	**100.9 ha**	**Total**	**251 ha**

Groundwater drawdown to access deeper mining areas has been confirmed to be located within the same aquifer (the deep aquifer) as the shallower mining depth previously approved (320 mbgl), and assessment of potential for groundwater drawdown for the increased depth has been undertaken (refer Section 11).

The key features and components of the referral activities are detailed as an integrated Project across BP33 and Grants mines sites (Table 2-3) in Section 3.

2.9 Proposal description against EP Act requirements

NT EPA Guidance (2025b) requires that the Proponent discuss how the *Principles of environment protection and management* (Part 2 of the EP Act) and for the *General duty of proponents* under Section 43 of the EP Act have been applied to the design and subsequent phases of the Proposal. Table 2-3 details how each of the sections of the EP Act have been applied.

Table 2-3 Response to the EP Act (NT Govt 2019, 2026) s42 and s43 requirements

EP Act	Comment
Section 42 – How does the Proposal align with the purpose of the NT environmental impact assessment process?	
Decision-making principle Section 18 of the EP Act states: *Decision-making processes should effectively integrate both long term and short term environmental and equitable considerations. Decision-making processes should provide for community involvement in relation to decisions and actions that affect the community. Decision-making processes should ensure that decisions or actions directed at minimising harm or a risk of harm or impact to the environment are proportionate to the harm or risk of harm or impact that is being addressed.*	The Proposal has considered both long-term and short-term environmental and equitable matters. The Proposal lifecycle includes both deeper mining at BP33 and the ongoing use of existing ore processing facilities and other associated infrastructure at Grants, with minor equipment upgrades or additions across both mine sites. The removal, avoidance, and/or minimisation of environmental impacts has been a part of the decision-making process by utilising infrastructure at one location rather than duplication (such as extending depth of BP33 mine, integrated water and waste handling infrastructure through modification of the processing plant to improve recovery and reduce wastes, plus re-use of wastes in production of paste backfill for BP33 mining methodology).
Principle of proportionality *Section 18a of the EP Act dictates that any decision or action taken to minimize harm to the environment or human health must be proportionate to the risk or impact being addressed*	The principle of proportionality has been considered in the design and assessment of the components included in the Proposal. The intensity of the environmental investigations, the scale of proposed mitigation measures, and the rigor of the management frameworks are directly commensurate with the nature, scale, and potential severity of the environmental risks identified. By focusing resources on high-impact areas—such as BP33 mine dewatering practices, manufacture of paste, and the slimes slurry pipeline construction, installation and operation —while maintaining simplified management for low-risk activities, this proposal ensures that environmental protection measures are both effective and functionally balanced against the Proposal's footprint.
Precautionary principle Section 19 of the EP Act states: *If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Decision-making should be guided by:* • *careful evaluation to avoid serious or irreversible damage to the environment wherever practicable; and* • *an assessment of the risk-weighted consequences of various options.*	The precautionary principle has been applied in the development of the Proposal and this referral. Groundwater modelling and associated investigations have been undertaken to determine the potential impact caused by the drawdown of the water table to enable 850 mbgl mine depth at BP33. The knowledge gained has helped reduce uncertainty of the potential for environment impacts by the Proposal as much as possible. Remaining within the previously approved disturbance footprints (as detailed in NT EPA, 2024a and NT EPA, 2024b) coupled with the use of existing infrastructure (with some relatively minor additions), will ensure the Proposal will avoid or mitigate environmental impacts to the greatest extent practicable.
Principle of evidence-based decision-making Section 20 EP Act states: *Decisions should be based on the best available evidence*	The Proposal is based on the most relevant and best available knowledge, including previous studies undertaken, as detailed in NT EPA, 2024a and NT EPA, 2024b and

EP Act	Comment
in the circumstances that is relevant and reliable.	groundwater modelling and associated investigations, and other studies undertaken specifically for the Proposal (including greenhouse gas emissions forecasting, integrated water balance modelling, community engagement). Specifically, knowledge gaps have been fulfilled with the following studies/ assessments: • Pre-feasibility assessment for paste operations at BP33 • Greenhouse gas emissions assessment forecasting report • Updated groundwater modelling with current site-based data • Integrated water balance modelling for changes in water management and movement due to mine dewatering and modifications to infrastructure and activities • Engagement with key stakeholders and community groups
Principle of intragenerational and intergenerational equity Section 21 of the EP Act states: *The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of present and future generations.*	The planning and predictions of the possible intergenerational equity impacts have been undertaken through the stakeholder engagement process, both for this Proposal and previous referrals (as detailed in NT EPA, 2024a and NT EPA, 2024b). The continuation of mining activities at existing locations ensures established infrastructure use is maximised. Ongoing monitoring will be conducted during the implementation of the Proposal to ensure ecological health, diversity and sustainability is maintained.
Principle of sustainable use Section 22 of the EP Act states: *Natural resources should be used in a manner that is sustainable, prudent, rational, wise and appropriate.*	The Proposal does ensure that natural uses are used in a manner that is sustainable, prudent, rational, wise and appropriate. The Proposal's continuation of mining activities at existing locations ensures established mine and infrastructure use is maximised within the existing approved disturbance footprints. Re-use of processing waste streams to produce paste backfill required for BP33 underground mining reducing waste handling and storage at surface.
Principle of conservation of biological diversity and ecological integrity Section 23 of the EP Act states: *Biological diversity and ecological integrity should be conserved and maintained.*	The Proposal will stay within the previously approved disturbance footprints (as detailed in NT EPA, 2024a and NT EPA, 2024b). The Proposal and supporting groundwater modelling and associated investigations has detailed that there will be limited impact to environmental and social values, in particular surface vegetation and habitats, including riparian vegetation and potential groundwater dependent ecosystems (GDEs).
Principle of improved valuation, pricing and incentive mechanisms Section 26 of the EP Act states: *Environmental factors should be included in the*	The Proponent will ensure that material environmental risks and impacts are appropriately identified and accounted for using environment social governance

EP Act	Comment
valuation of assets and services. Persons who generate pollution and waste should bear the cost of containment, avoidance and abatement. Users of goods and services should pay prices based on the full life cycle costs of providing the goods and services, including costs relating to the use of natural resources and the ultimate disposal of wastes. Established environmental goals should be pursued in the most cost-effective ways by establishing incentive structure, including market mechanisms, which enable persons best placed to maximise benefits or minimise costs to develop solutions and responses to environmental problems	frameworks that align with investor and stakeholder expectations. Greenhouse gas emissions generated during implementation of the Proposal have been estimated to inform atmospheric contributions over the LOM. Greenhouse gas emissions will be managed in accordance with the requirements of the NGER Act. This will include the formalisation of an emissions baseline and the application of mitigations to reduce emissions, when required.
Environmental decision-making hierarchy Section 26 of the EP Act states: *In making decisions in relation to actions that affect the environment, decisionmakers, proponents and approval holders must apply the following hierarchy of approaches in order of priority. In making decisions in relation to actions that affect the environment, decisionmakers, proponents and approval holders must ensure that the potential for actions to enhance or restore environmental quality is identified and provided for to the extent practicable.*	In assessing each potential impact, the environmental decision-making hierarchy has been applied resulting in several key design decisions. These include the continued use of existing mines and associated infrastructure, the planning for efficient water use, the re-use of mine affected wastewater and processing wastes (previously a waste product) in the production of paste backfill for BP33 mining, all remaining in the previously approved development envelope and allocated ground disturbances. Collectively, these design decisions have resulted in the reduction or avoidance of potential impacts, and ability to realise net environmental benefits, through the implementation of the Proposal.
Waste management hierarchy Section 26 of the EP Act states: *In designing, implementing and managing an action, all reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment. For subsection (1), waste should be managed in accordance with the following hierarchy of approaches in order of priority.*	The Proposal will continue to manage waste in accordance with the waste management hierarchy, using the Proponents existing Mining Management Plan until a future Environmental Mining Licence is held. The hierarchy includes water re-use, recycling in plant circuits, as well as water storage in mine water dams (MWDs) for dry season/ contingency use. This Proposal includes improved resource recovery in processing plant circuits, and re-use of processing waste streams in the production of paste backfill for underground mining at BP33. Raw water demand using existing OHD supply will continue for processes and activities requiring raw water quality and will comply with the issued Surface Water Extraction Licence 8151018 that allocates up to 121 ML/a.
Impacts of a changing climate	The Proposal has considered a changing climate within the integrated water balance model (WRM, 2026), the groundwater modelling report (Artesium, 2026), and through assessment of the Proposal's impact on atmospheric processes in the NT and global warming potential related to greenhouse gas emissions (Greenbase, 2026).
Section 43 General duty of proponents: Considerations	
Duty 1: Provide communities with information and opportunities for consultation to assist understanding of the proposed action and its potential impacts and benefit.	Consultation with the community and key stakeholders began during the planning and approvals process for both Grants and BP33 (as detailed in NT EPA, 2024a and NT EPA, 2024b). A social impact assessment (SIA) (True North, 2021) was completed for the

EP Act	Comment
	previous BP33 approvals process. Stakeholder consultation continued through the implementation of both projects. As detailed in Section 5, for this Proposal the Proponent engaged True North Strategic Communication (True North). True North have planned and implemented consultation with the community and other local stakeholders detailing the Proposal. Consultation with the community and other local stakeholders will continue during the Proposal implementation – refer Core Lithium's website: Contact.
Duty 2: Consult with affected communities, including Aboriginal communities, in a culturally appropriate manner.	Several key stakeholders and local community groups were targeted for engagement on the Proposal. A summary of the consultation activities including stakeholders and community groups is provided in Section 5 and the complete community engagement report is provided in Appendix G.
Duty 3: Seek and document community knowledge and understanding (including scientific and traditional knowledge and understanding) of the natural and cultural values of areas that may be impacted by the proposed action.	During the planning and approvals process for both Grants and BP33 project (as detailed in NT EPA, 2024a and NT EPA, 2024b), relevant government departments were engaged to provide advice regarding the local environment and how the projects may interact with known values. Section 4 and Appendix B detail the known cultural values of the Proposal area. Given the design of the Proposal, no known values will be impacted.
Duty 4: Address Aboriginal values and the rights and interests of Aboriginal communities in relation to areas that may be impacted by the proposed action.	Aboriginal communities were consulted as part of the Stakeholder consultation process for both Grants and BP33 project (as detailed in NT EPA, 2024a and NT EPA, 2024b). Aboriginal values, and the rights and interests of Aboriginal communities were identified through these processes. Authority Certificate RA2018/73 has been provided by the Aboriginal Areas Protection Authority to ensure the protection of sacred sites throughout the project. The closest sacred site is approximately 6 km north-west from BP33. The closest Aboriginal community to the Proposal is the Belyuen community. Engagement with representatives of this community group were positive in relation to employment opportunities and provision of services. The potential for creating generational wealth for the Belyuen community via industrial co-development was discussed bringing resources to the broader community group rather than just via a few members (refer Stakeholder briefings table in Appendix G).

3 Proposal description

3.1 Overview

Sections 2.2 and 2.3 summarised the proposed activities at BP33 and Grants, respectively. This section details the change to existing and new components of the proposed activities that form this Proposal.

The Proposal seeks to increase the depth of BP33 underground mine from 320 mbgl to 850 mbgl, in turn extending the life of mine to up to 12 years. Included are construction and operation of a paste plant, supplied by a slimes slurry pipeline originating from the Grants processing plant installed within the previously approved haul route to BP33 mine. Paste will be made on location at BP33 mine site using slimes, dry stacked tails, cement and water. Associated with the proposed changes at BP33 mine is an extension in the LOM for Grants processing facilities (also up to 12 years).

Integrated operations across the mines and associated ancillary infrastructure will be 24 hours day, including haulage of ore and processing rejects between BP33 and Grants along a 3.5 km stretch of Cox Peninsula Road.

Details for the Proposal, including a detailed description of the key components across the LOM phases and existing Proposal's extents, is provided in Table 3-3. As per the NT EPA Guidance (2025b), the key components cover physical disturbance, construction, operations and closure for the new and modified infrastructure and include scope 1, 2 and 3 greenhouse gas emissions (separately provided in Table 3-2). A timeline of the Proposal phases is provided in Table 3-3.

Table 3-1 Key features and components of the Proposal

Proposal component details	Assessed Proposal extent, capacity or range	Proposed altered maximum extent, capacity or range	Location/ Figure
Key physical and construction components			
Increased depth of BP33 underground mine: ○ Increase of mine depth.	○ 320 mbgl depth	○ Up to 850 mbgl depth	Figure 3-5
Ancillary road construction modification components			
Internal haul route between BP33 and Grants: ○ Modification of intersection at BP33 access road and Cox Peninsula Road	○ Mine site disturbance area (includes access road): 88 ha	○ Mine site total disturbance area unchanged (incl. access road and intersection): 88ha ○ 0.5 ha disturbance to modify intersection to accommodate turning of returning quad road trains	Figure 3-1
Ancillary physical and construction modification components			
BP33 mine site infrastructure: ○ construction of paste plant ○ increased capacity of WRD2 ○ construction of third sediment basin ○ construction of an overflow stockpile ○ construction of laydown areas ○ construction of ventilation and power structures ○ modification of intersection at Cox Peninsula Rd	○ WRD2 capacity 170,000 m^3	No changes to approved area disturbances. ○ Additional ground disturbance: 23.9 ha ○ Paste plant: 0.4 ha ○ WRD2: 250,000 m^3/ 3.5 ha ○ Sediment basin 3: 0.7 ha ○ Overflow stockpile: 8 ha ○ Future laydown area: 10.4 ha ○ Ventilation and power structures: 0.4 ha ○ Modification of intersection: 0.5 ha	Figure 3-1
Grants mine site infrastructure – processing plant ○ Installation of WHIMS ○ installation of additional DMS circuit	○ 2 DMS units' capacity 1 Mtpa	No changes to approved disturbances. ○ Annual throughput: 1.2 Mtpa	Figure 3-1
Slimes slurry pipeline installation in haul route. ○ Pipeline to be placed on ground surface ○ Pipeline will pass under creek crossing via a sleeve under the creek bed	-	No changes to approved mine site area disturbances. ○ Surface ground disturbance: 0.088 ha ○ Pipe length: approximately 8.8 km ○ Pipe type: polyethylene piping	Section 3.3.3

Proposal component details	Assessed Proposal extent, capacity or range	Proposed altered maximum extent, capacity or range	Location/ Figure
		○ Pipe internal diameter: 100 mm	
Key operational components			
BP33 underground mining operations: ○ ore extracted with underground paste backfill system ○ dewatering of mine.	○ Total resource recovery: 2.1 Mt ○ Peak dewatering rate: approximately 7 ML/d	○ Total ore material mined over LOM: 10.1Mt ○ Total material mined over LOM (incl. waste rock): 11.6 Mt ○ Total paste backfill over LOM: 2.7 Mt ○ Dewatering rate: 1,000 ML/d	Figure 3-9
BP33 paste plant operations: ○ paste backfill produced from cement mixed with slimes, dry tails and water.	-	○ Plant capacity: 35,000 m^3pm ○ Total paste backfill over LOM: 2.7 Mt	Figure 3-9
Grants ore processing plant: ○ Addition of WHIMS and DMS circuit ○ additional tailings waste handling (reuse of fines, and two rejects size classes at BP33 paste plant).	○ Ore produced from processing plant capacity: 1 Mtpa ○ Resource recovery from BP33 mining: 2.1 Mt	○ Increased processing throughput over LOM: 1.2 Mtpa (maximum capacity) ○ Processing of BP33 ore based on total resource recovery: 10.1Mt ○ Reuse of slimes and dry stack tails	Figure 3-2
Haulage between BP33 and Grants: ○ 3.5 km section of Cox Peninsula Road used for trucking ore from BP33 to Grants ○ Rejects trucked to BP33 paste plant on return trip from Grants.	○ Trucking between BP33 and Grants via internal haul route 30 to 35 return road trains per day	○ Trucking reassigned to Cox Peninsula Road (30 to 35 road trains per day)	Figure 3-2
Operation of slimes slurry pipeline.	-	○ 1.38 ML	Section 3.4.3
Resource operational components			
Resource use between integrated BP33 and Grants sites: ○ Raw water from OHD supplying both operations ○ Power plant operational demand ○ Cooling plant	○ SWEL 8151018 121 ML/a ○ Power station BP33: 12 MW ○ Power station Grants: 12 MW	○ SWEL 8151018 121 ML/a ○ Power station BP33: 16.5 MW ○ Power station Grants: 6.5 MW	Sections 3.4.7 and 3.4.8
Waste rock handling at BP33: ○ expansion of WRD2	○ Waste material mined: 1.7 Mt at WRD1 and WRD2	○ Waste material mined: 1.5 Mt over LOM at WRD1 and WRD2	Section 3.3.1

Table 3-2 Assessed and combined estimates of LOM greenhouse gas emissions by source

GHG emissions from the Proposal			
Emission source	**Assessed Proposal extent, capacity or range**		**Combined maximum extent, capacity**
	Grants LOM (NT EPA, 2020)	**BP33 LOM (Core GHG assessment, 2021)**	**Integrated Proposal LOM (Greenbase, 2026; refer Appendix Q)**
Transport emissions (Scope 1)	55,664 tCO_2-e	1,427 tCO_2-e	Transport – road trains processing and ore haulage: 12,653 tCO_2-e
Stationary emissions (Scope 1)	4,489 tCO_2-e	152,946 tCO_2-e	Fuel consumption – electrical power generation: 991,315 tCO_2-e Fuel consumption – non-transport: 513,643 tCO_2-e
Other combustion emissions (Scope 1)	-	186,178 tCO_2-e	-
Land clearing (Scope 1)	18,323 tCO_2-e	132,987 tCO_2-e *(ha based on 3 other lithium deposits in addition to BP33)*	70,758 tCO_2-e
Total estimated Scope 1 LOM emissions	78,476 tCO_2-e	473,538 tCO_2-e	1,508,369 tCO_2-e
Total estimated Scope 1 LOM emissions - excluding land clearing	60,153 tCO_2-e	340,551 tCO_2-e	1,437,611 tCO_2-e
Portion of NT annual emissions (based on 2016 data; DOEE 2018)	~0.48% NT annual emissions over 3 years.	Not specified over ~4 years	0.6% of NT annual emissions over 12 years

3.2 Timeline of Proposal phases

A timeline for the Proposal is detailed in Table 3-3, covering the maximum Proposal life, across construction, operations, decommissioning, closure and rehabilitation phases.

The increased depth of the BP33 underground mine will extend the LOM duration for ore extraction and associated mine site activities to up to 12 years. Commensurate increased volumes of waste rock will be handled, and construction and operation of a paste plant to enable paste backfill mining methodology.

Grants mine site will have an extended LOM to enable ongoing processing of BP33 ore and supply of BP33 paste plant with necessary feed stock (slimes and dry stack tails). As such, mine site infrastructure at Grants will become part of integrated operations over the Proposal life.

Table 3-3 Timeline of Proposal phases the Proposal

Proposal - BP33 and Grants integrated operations			Existing Proposal timeframe	Proposed maximum timeframe	Approx. year
Proposal phases	Maximum Proposal life	Increased LOM for extended duration of mining and processing activities, and ancillary and resources infrastructure	4 to 5 years BP33 7 years Grants (approved in altered Proposal in 2020)	Up to 12 years at BP33 and Grants	~2027 - 2039
	Construction	For new infrastructure, modifications to existing infrastructure	6 months BP33 35 months Grants (including operations)	Construction of paste plant, WHIMS, DMS	~2027 - 2029
	Operations	Mining, processing, ore haulage and operation and maintenance of infrastructure	44 months BP33 35 months Grants (including construction)	Up to 12 years at BP33 and Grants	~2027 - 2039
	Decommissioning and Closure	Decommissioning and closure activities to meet the site closure objectives for rehabilitation	55 months BP33 (part of maximum Proposal life) 5 months Grants	Activities to occur at end of mine life. Same time expected for decommissioning and closure as previously approved	~2039
	Whole of Proposal workforce	Personnel required for the extended life of mine at Grants and BP33 will vary across peak periods	60 construction personnel and 125-150 operations personnel BP33 200-250 construction and 90 operations personnel Grants	Approximately 200–400 personnel across both mine sites, to service ramp ups and peak operational demand	~2027 - 2039

3.3 Construction

Construction of paste plant will occur after receipt of Proposal approval with other minor construction activities undertaken across the earlier years of this LOM extension.

Construction work will predominantly occur concurrently with operations for this Proposal, such as the WHIMS addition to the Grants ore processing plant proposed to commence construction in 2027, and development of the deeper BP33 underground mining sections to occur in parallel with mining activities.

There will be no distinct mine construction phase for BP33 as part of this Proposal, as development and commencement of mining have been previously approved. This Proposal will allow a progression of mining beyond the maximum depth of mine previously approved, and a change to mining methodology; that is, use of paste backfill, required for mining once the first stope is reached (refer to Section 3.4.1). Construction of the paste plant will transition to operations phase, with plant paste product characteristics refined during mining operations.

The Proposal includes construction and commissioning of the slimes slurry pipeline, detailed in Section 3.4.3.

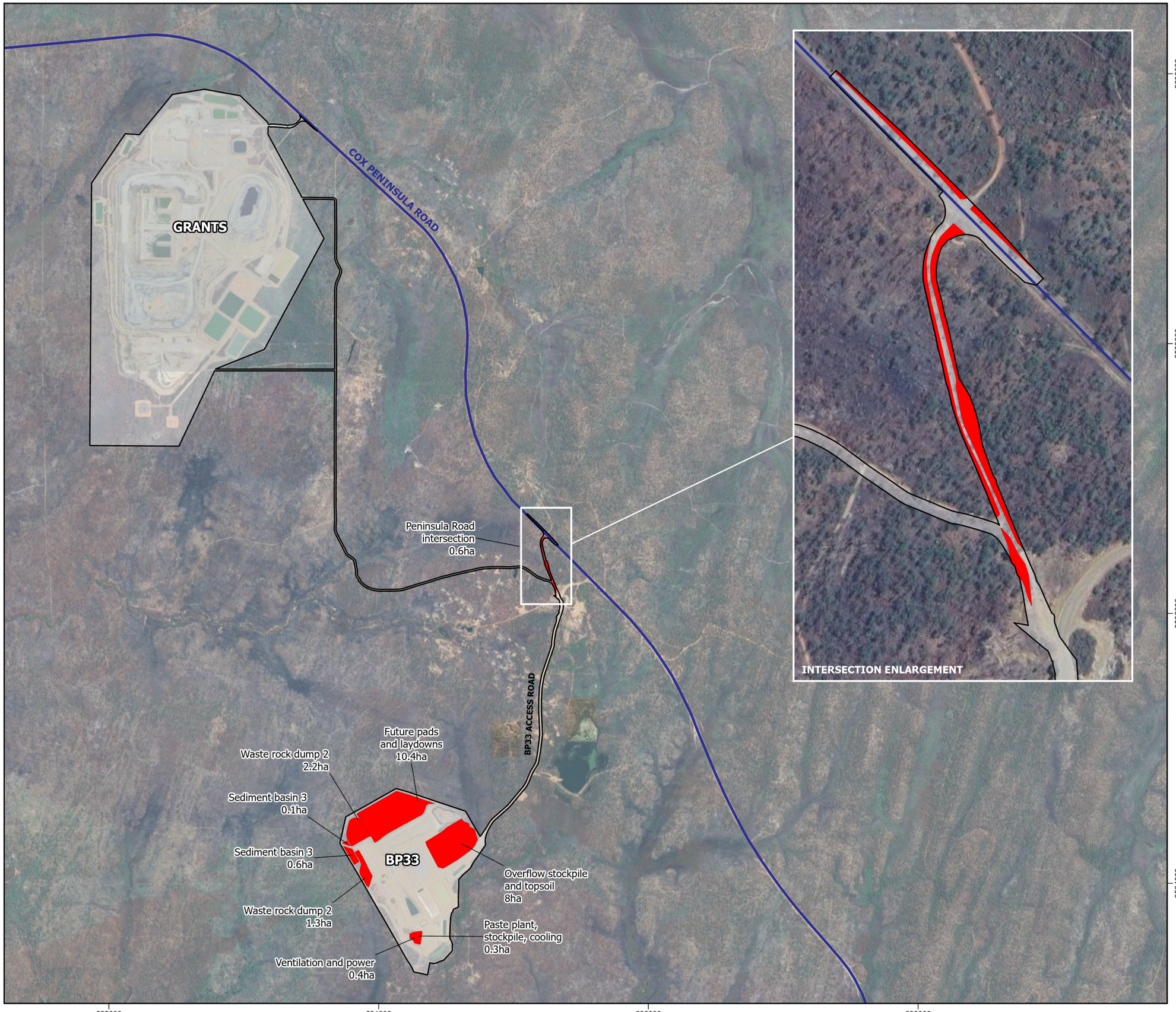
3.3.1 Ground disturbance

Ground disturbance within the BP33 mine site areas will be undertaken for:

- construction of paste plant
- additional capacity of WRD2
- construction of third sediment basin
- construction of overflow stockpile
- additional designation of power station location
- construction and tie in of the slimes slurry pipeline at the BP33 paste plant and Grants processing plant, and
- modification of the intersection at BP33 Access Road and Cox Peninsula Road to accommodate the access/ egress of quad road trains.

No additional ground disturbance will occur within the Grants mine site areas.

Details of disturbance areas associated with the Proposal are provided in Table 2-2 and illustrated in Figure 3-1.



File: 20260318 - Finniss Lithium Project Expansion

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Figure 3-1
Ground disturbance associated with the Proposal

- Cox Peninsula Road
- Project development envelope
- Proposal disturbance areas

Data sources
Base image: Google Earth. © OpenStreetMap (and) contributors, CC-BY-SA

0 0.5 1
Kilometres
GDA 1994 MGA Zone 52

Date: 1/04/2026 Rev: A
Project: 250030-1
Author: H. Astill; Drawn: L. Weggelaar
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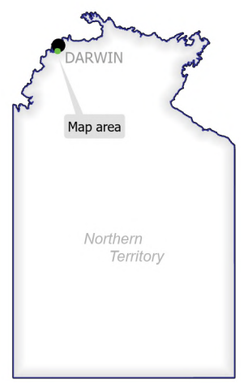

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3.3.2 Modifications to Grants processing plant

Processing plant modifications will be made to improve product recovery from ore processing, in turn reducing total solid waste volumes over the LOM and rates of production per volume of ore mined.

Ground disturbance will be required as the processing modules infrastructure will be installed on concrete foundations, positioned within the existing allocated disturbance footprint and existing compacted ground that will be progressively infilled to hardstand.

The plant modifications comprise (Figure 3-2):

- installation of a wet high intensity magnetic separation (WHIMS) plant and associated rejects stockpile,
- gravity circuit, rejects (dry stack tails) stockpile and concentration stockpile,
- slimes storage tank, pipeline and BP33 slimes storage tank, and
- additional dense media separation (DMS) module and associated stockpile.

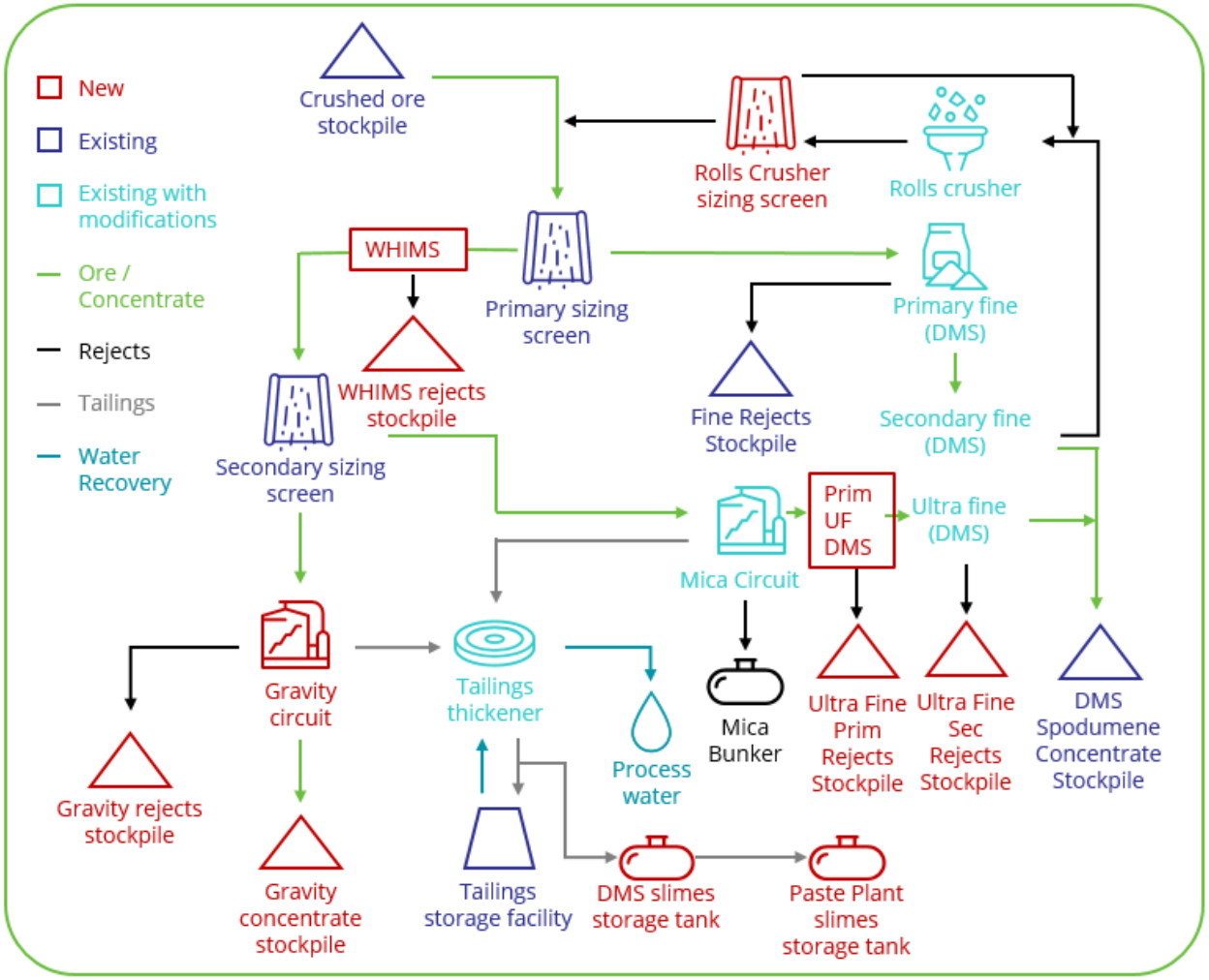

Figure 3-2 Proposed modifications to the Grants processing plant (addition of DMS and WHIMS)

No new chemicals are required to be introduced as part of the processing modifications. Waste streams that will be generated from the modified processing circuit are described in Section 3.4.6.

3.3.3 Installation of the slimes slurry pipeline

The new slimes slurry pipeline will be constructed and operated within the previously approved haul route. The slimes slurry pipeline will be constructed using approximately 100 mm in diameter (I.D.) polyethylene piping (refer Table 3-1). The piping will be supplied in 200 m lengths to be welded together in situ.

Table 3-4 Proposal component pipeline infrastructure

Feature	Slimes slurry pipeline
Total length	8.8 km
Internal diameter	100 mm
Joint length	200 m
Connectors	Welds
Flow rate	2.2 m/s

The rolls of piping will be transported to the haul route using a flatbed truck. The truck will allow piping to be laid in the pipeline corridor while moving slowly. The preferred installation of the pipeline in the corridor is at ground level, however the option for trenching and burial is retained. The time taken to lay the pipeline and weld joints is approximately one to two months, depending on weather and environment. The works will be completed during dry season.

At the creek crossing (refer Figure 3-3), this section of pipeline will pass under the creek bed through a sleeve. The sleeve will act as a horizontal culvert under the creek allowing water movement to pass freely within the creek. A 0.5 m level of cover will be maintained between top of sleeve and invert of creek bed. The sleeve will allow access to this section of pipeline for maintenance and repair. A continuous joint (i.e. 200 m length) of pipe will pass through the sleeve, and no welds will be within the sleeved section of the pipeline.

The pipeline will be placed to one side of the previously approved haul route with adjacent bunding to protect the pipeline from damage that may arise from vehicle movement. The pipeline will have either flanges and/or valves allowing for segments of the line to be sectioned off for maintenance and repair.

Commissioning of the pipeline will occur as follows:

- initial pressure testing using either air or water. If water is used, the pipeline test water will be discharged into either the BP33 or Grants mine water dam at the completion of testing.
- following successful pressure test (i.e. airtight), a flow test will then be conducted using water. Once the design velocity flow rate is achieved the pipeline can then receive slimes from the processing plant.
- when slimes are first introduced, system energisation and functional testing of the pump and pipeline will be undertaken.

Having completed these steps, commissioning will be considered completed and the pipeline will be handed over from construction to operations for use. Following completion of installation and commissioning, all wastes and materials will be removed from the corridor and disposed of appropriately offsite. A permit to *Interfere with a Waterway* will be required prior to the creek crossing construction activity commencing.

Data sources
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Figure 3-3
Location of ephemeral creek crossing within the Haul Route

Development envelope
Cox Peninsula Road
Slime slurry pipeline (proposed)

0 0.5 1
Kilometres
GDA 1994 MGA Zone 52

Date: 1/04/2026 Rev: A
Project: 250030-1
Author: H. Astill;
Drawn: L. Weggelaar
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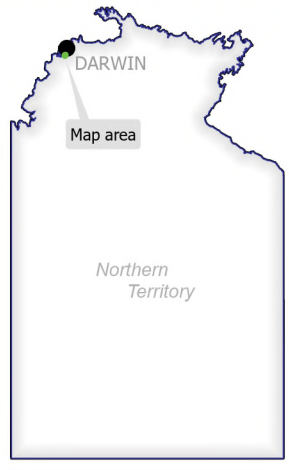

3.3.4 Paste plant construction

A key feature of the increased BP33 underground mining depth is the addition of an underground paste backfill system, required for mining at proposed depths to fill underground voids with paste. To service the pasting requirements, a dedicated paste plant will be constructed. The paste plant will include the following infrastructure:

- Plant and control room
- Connection from slimes slurry pipeline
- Connection to paste line underground (reticulation system), and
- Silo.

The paste plant will be installed on a concrete apron and has a nominal footprint of 65 m x 65 m. A control room will be housed in a prefabricated modular building.

The nominal pipeline velocity of the paste reticulation system is >2 m/s to reduce the risk of particles settling within the infrastructure and causing blockages. The reticulation system is designed with steel reinforced composite polyethylene (SRCP) pipe. The slurry SRCP is high-pressure poly pipe.

The proposed location of the paste plant at BP33 mine site is show in Figure 3-4.

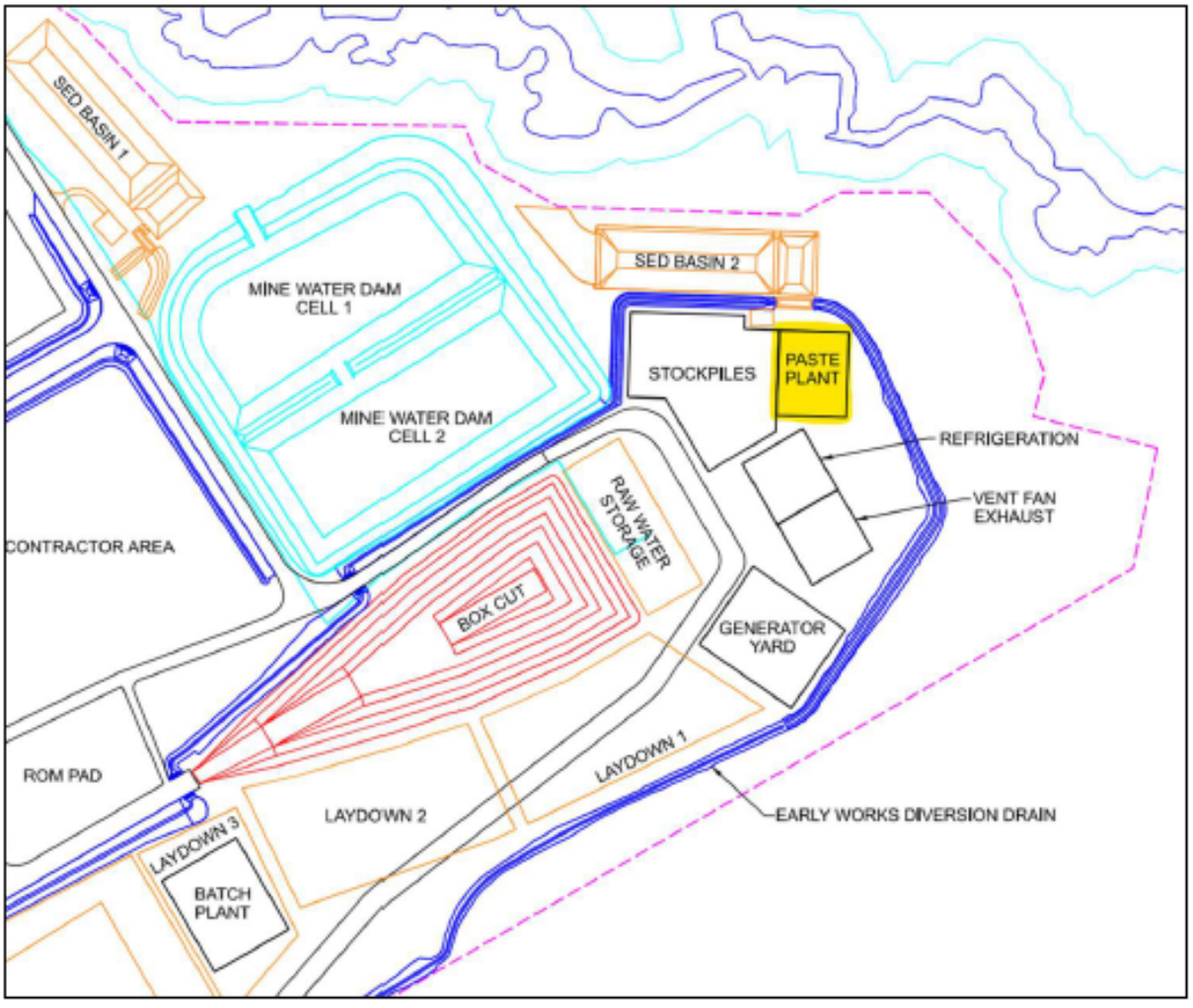

Figure 3-4 Proposed location of the paste plant at BP33 mine site

3.4 Operations

Operations will continue concurrently with construction activities for this Proposal across both sites as integrated operations. Upgrades to the Grants ore processing plant, including installation of the WHIMS process, is planned to be added in 2027.

3.4.1 BP33 deeper underground mining

Mining at BP33 will be undertaken entirely underground using a spiral decline to access stopes from which lithium ore will be extracted (Figure 3-5). An aspect of the Proposal is a changed mining methodology to include use of paste backfill to make structurally secure primary stopes.

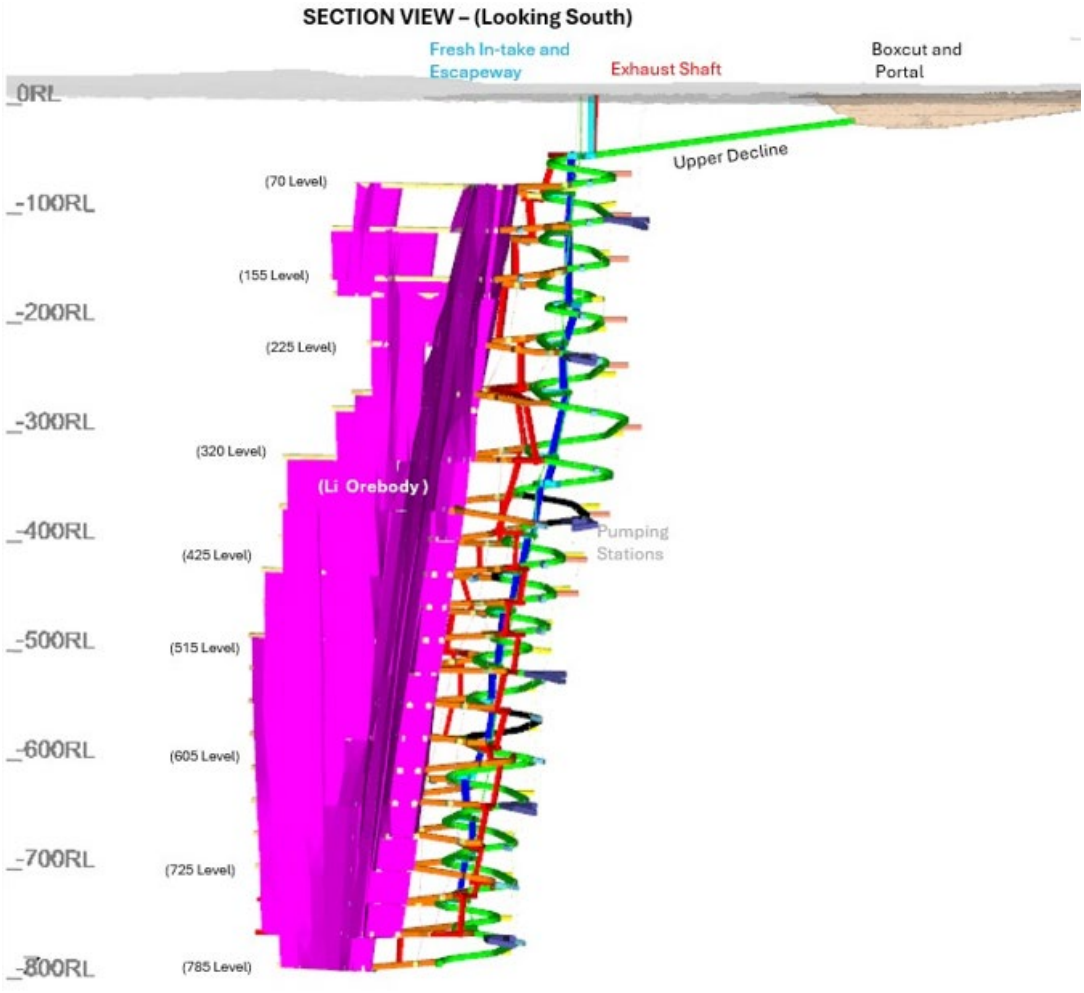

Figure 3-5 Schematic of proposed BP33 underground mining decline depth (up to 850mbgl)

Production of paste includes the use of fine waste material generated during processing (slimes) together with rejects of two size classes (dry stack tailings), mixed with a binding agent (cement) at the paste plant and pumped underground to fill mined-out voids (refer Section 3.4.1). The paste backfill will provide structural support to maintain stability of the underground workings and will reduce the amount of waste disposed at surface.

3.4.2 Cooling plant

The BP33 underground mine is located within the tropical season range for underground mining environments and will reach mine humidity operational limits. A cooling plant will be required for the life of the mine (LOM) and is planned to be staged, consisting of two 6 MWC units, of which the first is

required in the second year of mine development. The peak power requirements are estimated between 12 and13 MWC at a steady state of production.

The cooling plant consists of refrigeration plants, chilling a closed-circuit clean water supply piped to bulk air cooler units located over the primary mine air intake, which feeds cool air into a dedicated 5 m diameter downcast raise-bore.

The cooling plant consists of:

- Two surface refrigeration machines (R134a refrigeration plant with two single-stage centrifugal compressors)
- Two 6.5 MW surface BAC (Bulk Air Coolers) and consist of frames of chilling coils filled with 30,000 L (in a closed circuit) of potable water
- Condensing Cooling Towers or (Heat rejection facility)
- Water pumps, and
- Switch room.

An example of the cooling plant is provided in Figure 3-6.

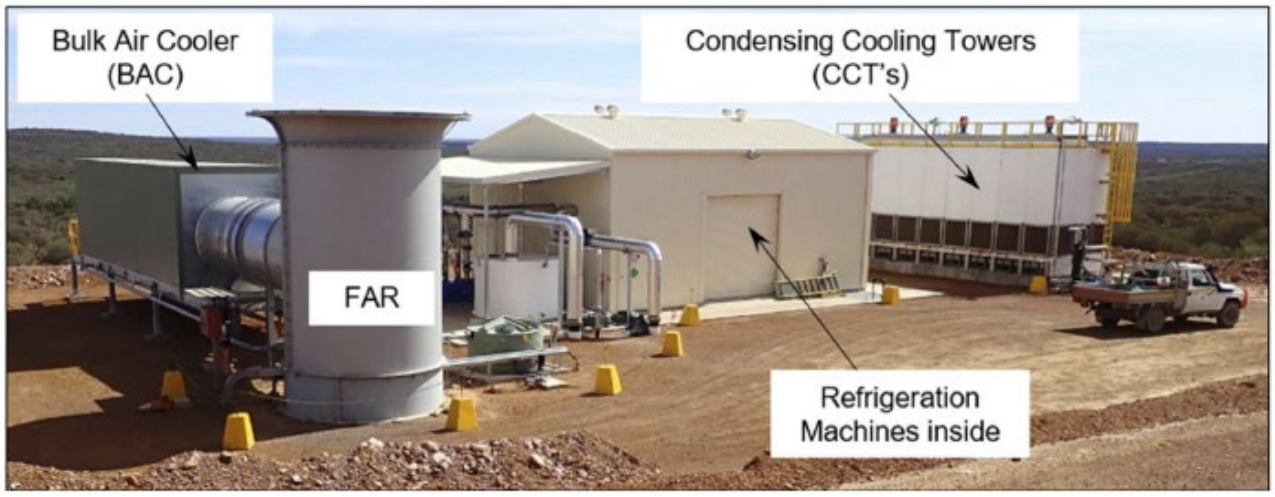

Figure 3-6 Example of cooling plant proposed for BP33 underground mine

The closed water circuit operates a water transfer of 12 L/s between the Refrigeration, BAC and Cooling towers with evaporation losses of up to 50%, requiring an additional 6 L/s water input supply.

The cooling plant will be installed on a concrete apron and has a nominal footprint of 55 m x 65 m; the recommended construction is a pad with a nominal bearing capacity of 250 kPa. A control room will be housed in a prefabricated modular building. The cooling plant is expected to be operational all year round with output variability due to seasonal temperature range.

The proposed location of the cooling plant is adjacent to the paste plant and Primary Ventilation Exhaust Fans, shown in Figure 3-7.

The potable chilling water is cooled by a separate system using refrigerant compressors that are managed by condensers or heat exchangers, located within cooling towers. The cooling towers cool the heat exchangers using water sprays and fans to evaporate a water supply over the condensers.

Due to the amount of evaporation, the recycled water builds up concentrations and so require a continual-replacement water stream to be supplied. This amount depends on the amount of heat exchanged and operating conditions. At periods of full operation this can be up to 6 L/s of re-supply. In addition, a bleed off volume from the cooling towers will be required to maintain quality of the circulating water. The origin of bleed off water will be re-used mine affected water and/or raw water, both having very low total dissolved solids content (up to approximately 300 µS/cm). The bleed off water when discharged will have slightly higher TDS concentrations than the MAW/ raw water feed (approximately 400 µS/cm) and will be discharged from the cooling towers to the BP33 mine affected water dam from where it will be handled for re-use or discharge as per the Water Management Plant. A bleed off rate of approximately 1.5 L/s will be discharged to the BP33 MWD, with variability expected due to diurnal and seasonal demands on the plant.

The modelled cooling requirements estimate demand of the cooling plant will vary diurnally and seasonally, due to fluctuations in ambient temperatures

It is envisaged the closed water -circuit (30,000 L) will be initially supplied by Observation Hill Dam within the confines of the related surface water extraction licence (refer Section 3.4.8).

Cooling tower water will be supplied by mine affected water sourced from the mine water dam and stored in water tanks.

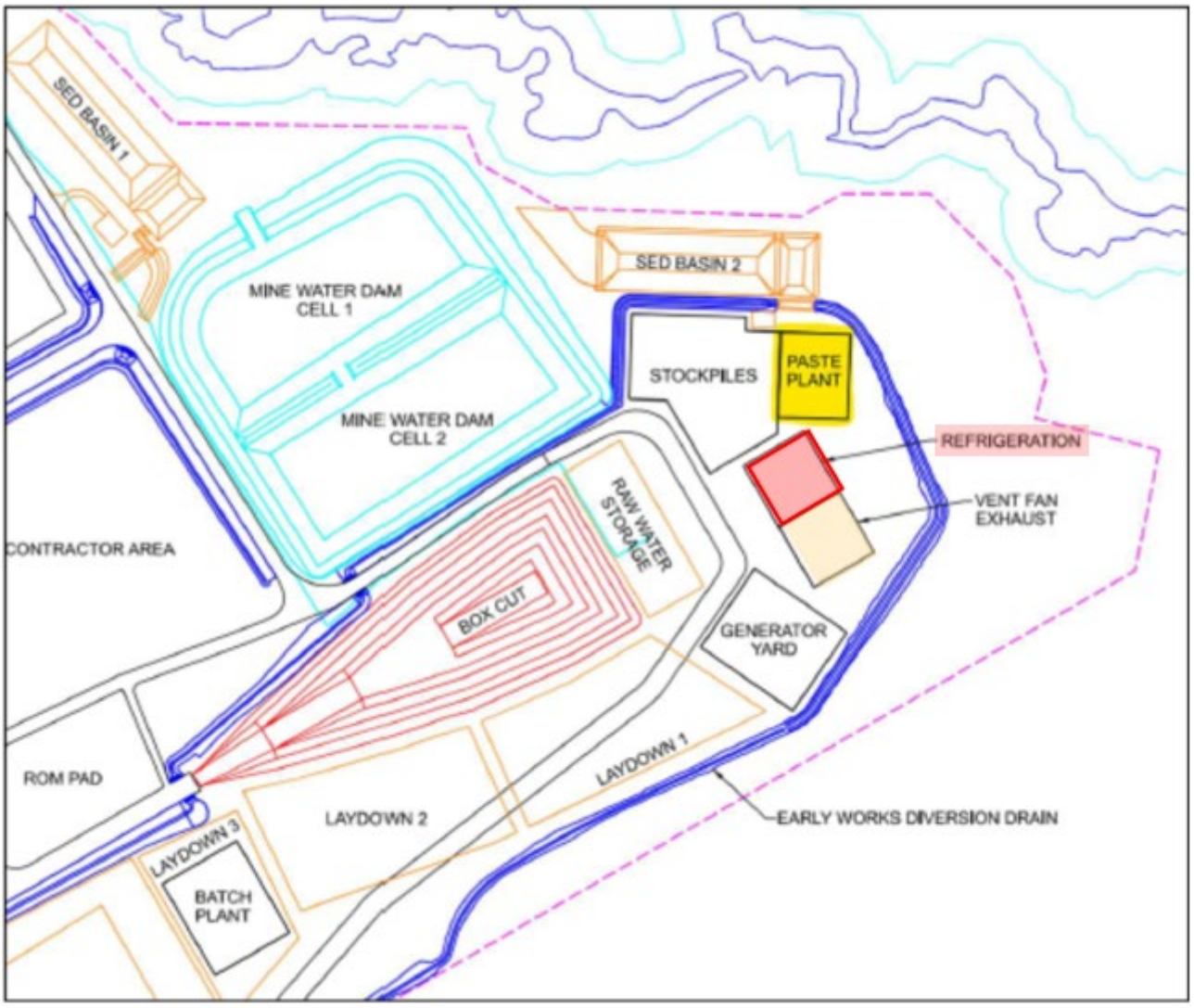

Figure 3-7 Proposed location of the cooling plant (show as refrigeration) at BP33 mine

An initial filtration circuit may need to be applied to stored water to minimise the potential of suspended solids remaining in the cooling plant feed water. This may be in the form of a simple sand filtration system or use of flocculants applied to the storage facilities.

Mine water of suitable quality will be preferred over other water quality streams to make up the requirement. A blending of water streams is envisaged to maintain a sustainable water balance. This make-up balance may change with available supply streams and seasonal differences.

3.4.3 Slimes slurry pipeline

The slimes slurry pipeline will convey slimes from Grants processing plant to BP33 paste plant.

Operation of this pipeline will be instructed by the Slurry Pipeline Operation, Maintenance and Surveillance (OMS) Manual. Included will be routine planned inspection and maintenance of the pipeline and related infrastructure, allowing for early identification of damage and/ or loss of containment.

3.4.4 Haulage between BP33 and Grants

Haulage of ore and dry stack tails between BP33 and Grants mine sites will use quad road trains transiting between the two sites 24 hours a day. Previous approvals were for haulage to occur on a private internal haul route; however, this Proposal includes these haulage activities to occur via a 3.5 km section of Cox Peninsula Road (refer Figure 3-8).

Trucking movements previously approved in the BP33 underground mine assessment (in BP33 Mine Management Plan (Core Lithium Ltd, 2025b)) are for 30 to 35 return road trains per day between mine sites.

3.4.5 Underground backfilling with paste

The underground paste backfill system for the increased BP33 underground mining depth will comprise paste walls constructed in the underground mine. The cemented paste backfill ('paste') will be pumped at pre-defined points in the underground mine; commonly entrances or draw points of open stopes, that enable the slurry paste to be contained while it cures and becomes solid. Once the paste solidifies, it provides ground support for adjacent pillars and hanging walls.

The fill requirement of the mine plan is up to 35,000m^3 of paste per month (approximately 75 m^3 per hour) supplied by a paste fill system operating 24 hours a day. Over the life of mine for BP33, approximately 2.7 Mm^3 of paste backfill will be required in the mine.

Paste fill made at the paste plant (Section 3.3.4) will use a combination of ultrafine (slimes) and undersize rejects recovered from the processing tails streams. Slimes are ultra fine solids that are produced during crushing and processing of ore. Slimes particles typically contain a high proportion of silts and ultra-fine particles of the parent ore being processed as well as water.

The slimes will be transferred from the processing thickener to a 1,000m^3 agitated storage tank at Grants, and then pumped approximately 8.8 km to a 2,000m^3 agitated storage tank at BP33 paste plant. The storage tanks assist with ensuring slimes are available on demand to supply the paste plant independent of concurrent processing operations. Nominal containment areas recommended for the storage tanks are 110% of the largest tank volume.

It is estimated that over 80% of the slimes tailings stream produced by the Grants processing plant

Data sources
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Figure 3-8
Ore and rejects haulage routes
between BP33 and Grants mine sites

- Development envelope
- Cox Peninsula Road
- Ore haulage route
- Product haulage route
- Rejects haulage route

0 0.5 1
Kilometres
GDA 1994 MGA Zone 52

Date: 1/04/2026 Rev: A
Project: 250030-1
Author: H. Astill;
Drawn: L. Weggelaar
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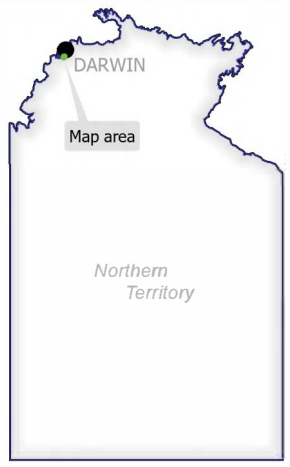


Figure 3-8 Ore and rejects haulage routes between BP33 and Grants mine sites

The dry stack tails will be backhauled using empty ore haulage trucks returning to BP33 from Grants. The two size classes of dry stack tails will be stockpiled and fed into individual hoppers at the paste plant where they will be metered using belt feeders. The added dry stack tails will be combined with slimes and cement to form a tightly controlled specific paste mix that is pumped into the mine via a reticulation system.

The nominal pipeline velocity of the paste reticulation system is >2 m/s to reduce the risk of particles settling within the infrastructure and causing blockages. The reticulation system is designed with steel reinforced composite polyethylene (SRCP) pipe. The slurry SRCP is high-pressure poly pipe.

In the event slimes are not available for a period, additives may be considered as a replacement (contingency circumstances only). A product MF362 was tested as a viable additive option (refer Appendix E). The third party who undertook the paste fill pre-feasibility study has recommended alternative additives be evaluated for paste production in the event slimes supply is temporarily interrupted.

The proportion of binder required for paste backfill at BP33 varies between 4% and 10% cement. Binder is added to the paste mix from the binder system that consists of a single 455 m^3 storage silo (capacity for three full days of operation at the predicted dosage rate).

Due to the reticulation system being susceptible to settlement and solids build up, operation of the reticulation system will be at high velocities (>2.0m/s) and will require regular flushing. A dedicated high-pressure wash pump will be used to clean out the mixer during plant shutdowns. The pump is manually controlled by the operator.

The paste plant concrete apron foundation will contain any spillage within the plant and allow ease of cleanup. All spillage will report to a drive-in clean-out pit and sump within the paste plant area. The clean-out pit is sized for a skid steer loader which is only required after major issues within the plant. Typically, general spillage is hosed up and returned to the tailings storage tank via a vertical shaft sump pump.

The control room contains a desktop computer system running the plant automation software, several control screens, and additional monitors with output from CCTV cameras located in the plant and underground, along with a live display of underground pipe pressure and flow monitoring instrument data. A two-way radio is used for communication with the underground paste crew.

Figure 3-9 provides a conceptual illustration of the BP33 paste plant.

3.4.6 Waste handling facilities and pipeline operations

As a result of slimes and dry stack tailings reuse in paste production, the existing Grants fines storage facility will receive less tailings waste volumes. Management of the TSF at Grants and modified WRDs at BP33 are appropriate to continue to manage mining and processing wastes as per existing approvals and management plans.

The slimes slurry pipeline operations will be managed from both sites in accordance with existing pipeline management controls with additional inspection and maintenance. In the event maintenance or repair of the pipeline is required, breaking containment of a pipeline section will incorporate an impervious surface (e.g. portable bund) that can be positioned under the pipeline joint(s) to be opened allowing inventory to be captured during planned maintenance.

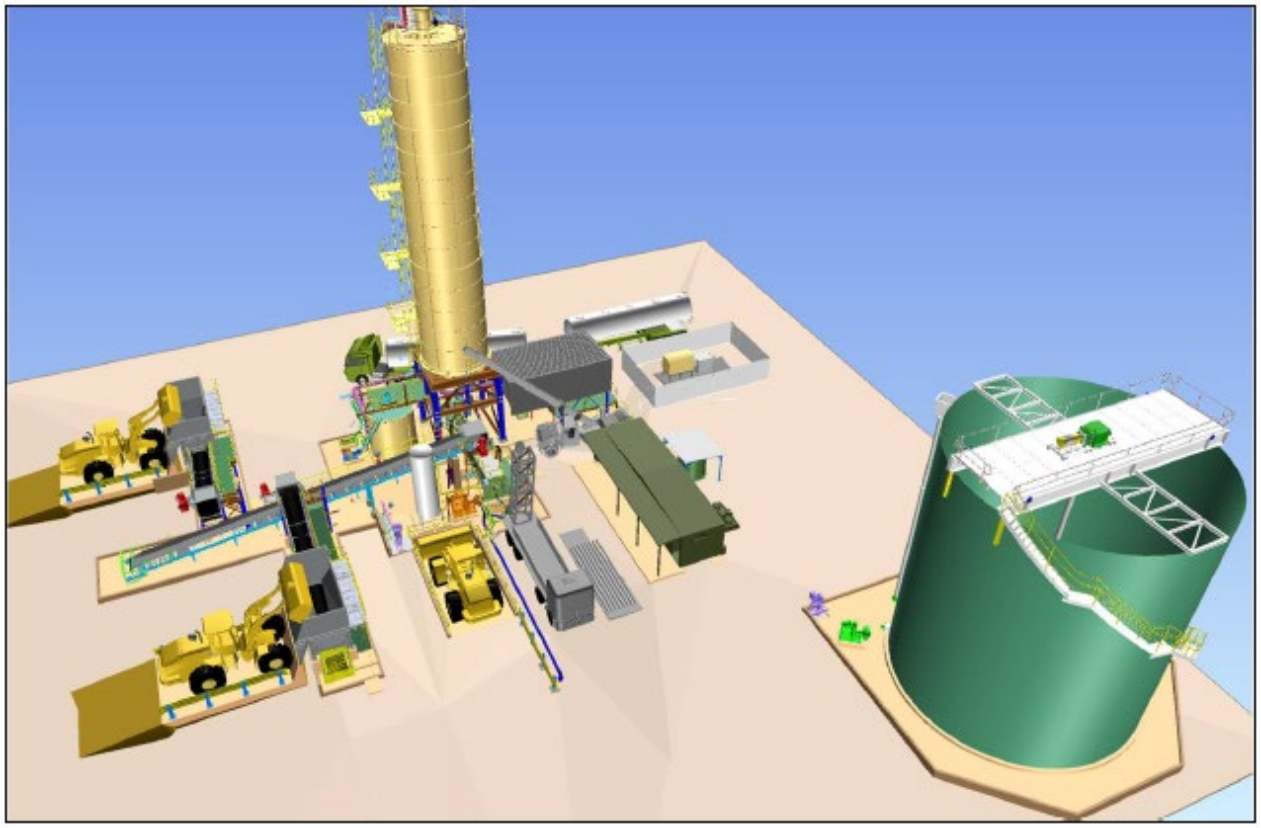


Figure 3-9 Conceptual illustration of the paste plant

3.4.7 Power supply

A diesel run power station for the generation of electricity will be constructed and operated at BP33 (refer Figure 1-2). The BP33 power station will have a capacity of 12 MW and will include eight generator sets (gensets), of which one will be a standby genset. The operating philosophy of the power station will expect a 70% capacity output of the seven gensets in operation. In addition to the standing output estimate of 70% from the power station, variability in power generation, and in turn diesel usage, will be attributable to:

- Diurnal fluctuations related to cooling plant demand (cooler at night and therefore less draw)
- Seasonal fluctuations related to cooling plant demand
- Interannual fluctuations due to the introduction of increased sizings of ventilation fans as the mine progresses deeper underground.

3.4.8 Raw water supply

Prior approvals have secured access to an annual raw water supply source from Observation Hill Dam (OHD). Surface water extraction from OHD is permitted under Surface Water Extraction Licence (SWEL) 8151018. The SWEL allows a total maximum water entitlement of 121 ML per year that may be used at either Grants or BP33 mine sites.

There are no changes to the annual maximum water entitlement allocated by the SWEL due to this Proposal.

3.5 Closure and decommissioning

3.5.1 BP33 underground mine

Following completion of mining activities at BP33, all waste rock remaining in WRD2, and some from WRD1, will be used to backfill the underground mine and decline. At the top of the decline, and just under the box cut, a paste plug will be installed. The plug will be placed at the top of the decline/ bottom of the box cut to ensure groundwater re-saturation of the closed underground mine will not result in saturation of the closed and rehabilitated box cut.

Once the paste plug has been installed at the bottom of the box cut, waste rock from WRD1 and topsoil will be used to rehabilitate the box cut, as described in the previous approval.

3.5.2 Plant and equipment

Decommissioning of infrastructure, including the paste plant and associated hardstand, the slimes slurry pipeline, and additions to the processing plant, will occur as part of the mine site closure and decommissioning activities. There will be an increase in the scale of decommissioning and closure activities and materials due to this Proposal. Detail will be added to the Mine Closure Plans appended to the Environmental Mining Licence to be assessed following environmental approval of this Proposal.

4 Existing environment

This section provides an overview of the existing environmental and social values within the Proposal area that are later considered in risk and impact assessments included in Sections 9 to 16. In addition, previously described environmental and social values information as included in historical assessment documentation for Grants and BP33 sites is provided in Appendix B.

4.1 Land use history

The BP33 deposit has been mined previously for several years in the 1980's and 1990's as an open pit mine. The ore was trucked to a central processing facility located nearby at Observation Hill. The Observation Hill processing facility operated for over a decade.

The Proposal area is surrounded by undeveloped Vacant Crown Land (VCL) – Section 1 Hundred of Parsons and Section 2746 Hundred of Hughes. Currently, the primary land-use is mining exploration. Several historic exploration tracks and mine sites are visible on aerial photography of the surrounding areas; the closest sites are located 2.5 km to the northeast. These sites have relatively small-scale visible ground disturbance and historic pit lakes. Tin (Sn) and tantalum (Ta) have been mined in the Bynoe Pegmatite area for over 100 years. The most recent mining activities in the area were in the 1980's to early 1990's, when tin and tantalum were mined at Observation Hill. The Observation Hill Dam (OHD) has old pipeline and pumping infrastructure present from when it was used as a water supply for historical mining activities.

Greenbushes Tin Ltd commenced exploration in the Bynoe pegmatite district in 1979, assessing the alluvial and soft rock tin-tantalum potential of the belt. This was the commencement of the first and only systematic exploration of the Bynoe pegmatite district prior to the current work by Core. During the following period (1980–1989), the tin-tantalum mining footprint became significantly larger, but mine life continued to be short and sporadic. This period of increased tin-tantalum production commenced in 1980, from pegmatites at Observation Hill and Tinpot in the Bynoe area. Production from Observation Hill (Vultan Minerals Ltd) was a result of Greenbushes' trial mining of alluvial and weathered pegmatite.

In 1982, exploration for tantalum and tin only increased as Greenbushes formed the Bynoe Joint Venture (BJV) with Barbara Mining Corporation. The BJV was active in the Observation Hill and Leviathan area during 1982–1999, mapping individual pegmatites, costeaning, auger drilling and trial mining.

During the period 1995–1999, Greenbushes commenced mining several new pegmatites in the Observation Hill area, including small open-cut mines (Booths South, Lees, Yan Yams, Hang Gong, Highland, BP33, Rubik's and Carlton) and processing them through their Observation Hill trial plant. Julia Corp undertook systematic reverse circulation drilling at various pegmatites in the Bynoe field, including Ah Hoys, Kelly's and BP33. Their objective was to refine resource models for tin-tantalum, but these proved uneconomic.

Work by Liontown Resources in 2016 and 2017 identified highly weathered and leached spodumene mineralisation from dump samples, and significant lithium mineralisation at depth in many prospects that have been drilled (McDonald, 2018). In early 2016, Core Exploration (CXO) commenced exploration on EL29698 for lithium mineralisation.

The site has not previously or currently been regulated as a contaminated site under the Waste Management and Pollution Control Act 1998. No evidence of significant erosion was observed from

review of aerial imagery.

4.2 Surrounding land uses

The Proposal area is in the Darwin Rural Water Control District. As per the NT Government Gazette No. G25 (DENR 2019b), the district has the following declared beneficial uses: agriculture, aquaculture, public water supply, environment, cultural, industry, rural stock and domestic, mining activity and petroleum activity.

Much of the surrounding area including Grants, BP33, Observation Hill and other pegmatite deposits were covered historically by granted Extractive Mineral Lease MLN16. The surrounding land uses are categorised by the zoning developed under the NT Planning Scheme, in accordance with the Planning Act (NT). The land surrounding the project area is zoned Rural (R). There are no nearby residences, farms or industries within the catchment areas upstream or downstream, and no commercial or domestic uses for which surface water or groundwater is currently being extracted anywhere near the project area. Cox Peninsula Road is the closest gazetted road, approximately 2 km from the Run of Mine (RoM) pad.

The area is heavily covered with granted Exploration Licences (EL) for exploration of mineral resources with potential for mining activities.

4.3 Natural environment

4.3.1 Climate

The region of the project area experiences a tropical climate with a distinct dry season (May to October) and wet season (November to April). Typically, for this region, humidity, maximum and minimum temperatures are highest in the wet season, and annual evaporation far exceeds annual rainfall.

Climate observations are made by the Bureau of Meteorology (BoM). The closest BoM weather monitoring station to the site is Southport (station number 04206) and captures rainfall data. As for the evaporation and temperature data this is captured at Darwin Airport (station number 014015). SILO[5] data from 1889 to 2025 were used for surface water modelling (refer Appendix J). The average monthly rainfall and evaporation based on SILO data are shown in Figure 4-1 and Figure 4-2, respectively.

Wind direction is predominantly from the north through west most of the year (August to March) and particularly during the wet season (September to March). During the dry months (April to August) winds come predominantly from the east.

4.3.2 Landform and soils

The Proposal area broadly comprises of well-drained low hills and rises, intersected by seasonally waterlogged drainage systems and alluvial plains. The land is generally flat, with a slope of 5%.

There are predominantly two soil groups in the Proposal disturbance area – Rudosols and Hydrosols. Rudosols are very shallow soils or those with minimal development. Hydrosols are seasonally inundated and generally occur on coastal floodplains, swamps and drainage lines.

[5] SILO data is a databased of scientific information for land owers maintained by the Queensland Government providing continuous data from 1889 to current for all of Australia SILO | LongPaddock | Queensland Government

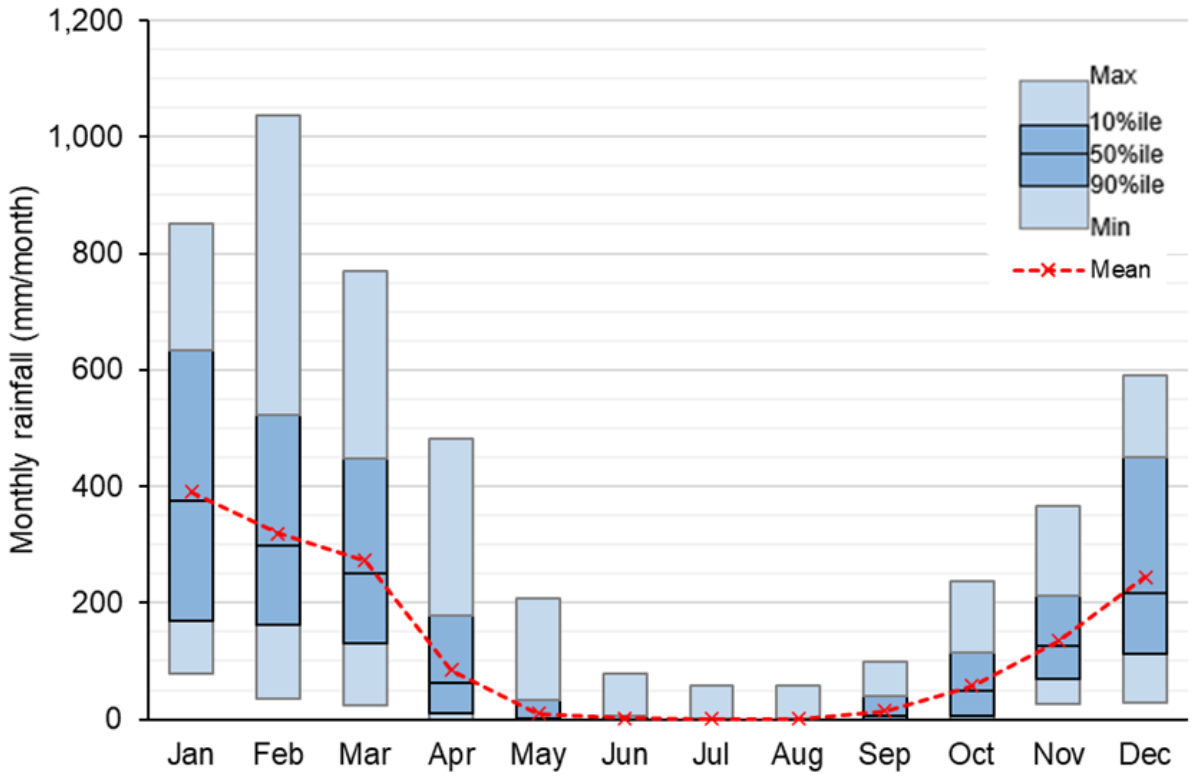


Figure 4-1 Long-term average monthly rainfall for SILO data from 1889 to 2025

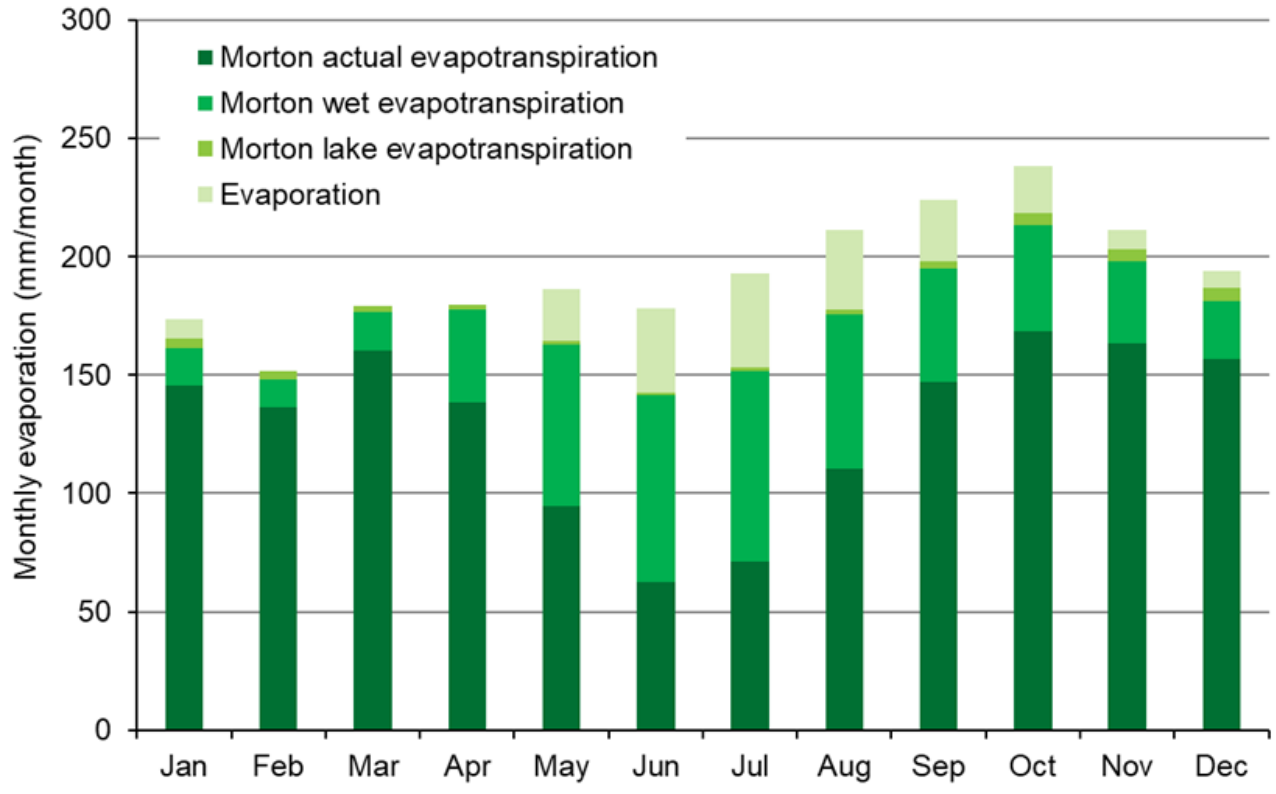


Figure 4-2 Long-term average monthly evaporation for SILO data from 1889 to 2025

4.3.3 Geology

The lithium mineralisation associated with the Finniss Project occurs within pegmatite bodies belonging to the Bynoe Pegmatite Field, located approximately 15 km south of Darwin. This field extends for roughly 70 km in length and 15 km in width and contains more than 100 mapped pegmatites of varying size. These pegmatites are classified as Lithium-Caesium-Tantalum (LCT) type and are interpreted to have been derived from the Two Sisters Granite, a Stype intrusive unit dated at approximately 1845 Ma.

The pegmatites are predominantly hosted within metasedimentary rocks of the early Proterozoic Burrell Creek Formation. This formation is consistent and extensive, both laterally and at depth, comprising turbiditic siliciclastic sediments and minor sandstones deposited within a rapidly subsiding basin during the later stages of the Pine Creek Orogeny. The host rocks exhibit isoclinal folding and a subvertical foliation trending north-north-east, with green schist facies metamorphic overprints and localised andalusite–biotite hornfels adjacent to intrusive bodies.

Mineralisation occurs in both steeply dipping, massive pegmatites (e.g., at Grants, BP33, Carlton, Sandras, Bilatos, Penfolds, Ah Hoy and Seadog) and within shallow dipping stacked pegmatite systems (e.g. at Hang Gong, Booths and Lees). Fresh pegmatite typically contains coarse spodumene, quartz, albite, microcline and muscovite, with spodumene representing the primary lithium-bearing mineral. Pegmatite zoning is generally weak, with thin quartz–mica–albite margins and occasional internal barren quartz veins.

4.3.4 Hydrogeological setting

The surface geological Quaternary deposits (Qcl) of sand, silt, and clay and associated floodplains, alluvial deposits (Qa) of sand, silt, and clay along drainage channels, form the shallow (1 to 8 mbgl) groundwater zones. These shallow groundwater zones are either disconnected to the intermediate (15 to 30 mbgl) and deeper (greater than 50 mbgl) zones or have limited and constrained vertical hydraulic connections.

The stratified rocks of the Burrell Creek Formation (BCF) are considered a minor aquifer in the region (Needham & Stuart-Smith, 1988), with typical borehole yields of ±0.5 L/s reported in stratified and igneous rocks of the formation. Airlift yields and pumping rates are generally low, commonly ranging from 0.5 to 5.0 L/s for water supply bores. Typical yields are less than 1 L/s, with many bores producing 0.5 L/s or less. A significant proportion of bores drilled into the BCF fail to intersect productive fractures, resulting in very low or “dry” yields. Approximately 10–15% of bores in the BCF report essentially zero yield (Tickell et al., 2023).

The BCF is classified as a fractured-rock aquifer. The limited number of productive water strikes suggests that significant high-yielding fractures are uncommon, reflecting the tightly cemented and metamorphosed nature of the formation. Primary porosity is extremely low, and hydraulic testing (Groundwater Enterprises, 2020) has confirmed that permeability is limited in the absence of fracturing. There are four main hydraulic zones:

- the shallow surface soils and alluvial surficial deposits,
- shallow saprolite zone,
- the weathered-fractured bedrock and the basal, and
- solid-fractured bedrock comprising fractures separated by matrix blocks.

Regional recharge to the BCF has been estimated using chloride mass balance and other methods. Annual diffuse recharge in the Darwin area is approximately 150–420 mm/a, equivalent to 9.8–27.3% of mean annual precipitation (Lee et al., 2024a; 2024b) in very shallow groundwater zones with much lower recharge rates of 1.5% at intermediate and deeper groundwater zones. Most of the recharge circulates in the shallow groundwater zones from where it discharges to the alluvial and surface drainage zones (i.e. riparian ecosystems).

A conceptual model depicting the hydrogeology of the Proposal area is provided in Figure 4-3 (Artesium, 2026).

Baseline surveys for the Grants Project identified riparian rainforest to the south and east of the mining lease along unnamed tributaries of the Charlotte River, and downstream of Observation Hill Dam. The riparian rainforest vegetation starts from a point around 2 km downstream of the dam wall (Figure 4-4).

Small pools of water have been observed to persist in the Charlotte River late into the dry season. While the riparian vegetation is not rare in the region and does not represent habitat of any specific threatened species, it may offer refuge habitat value to terrestrial and/or aquatic fauna.

Refer also Section 4.3.7 for further information on riparian vegetation.

4.3.5 Surface hydrology

The Proposal area is in the Finniss River drainage basin. The Charlotte River runs approximately 2.5 km to the south of the Proposal, located within the Bynoe Harbour catchment. There are no permanent watercourses in the immediate vicinity, of the Proposal area.

Multiple minor drainage lines flow from the Proposal area into the Charlotte River. Each of the drainage lines have evident dense riparian rainforest outlining the watercourse, located downstream of the Proposal area. On the western edge of the site is a small drainage line, downstream of Observation Hill Dam (OHD).

Surface flows in the area follow the topography gradient of the drainage lines to the southwest of the Proposal area, towards the Charlotte River, and into Bynoe Harbour. The harbour is captured under the Fog Bay area, which has a declared beneficial use under the Water Act of aquatic ecosystem protection and recreational water quality aesthetics.

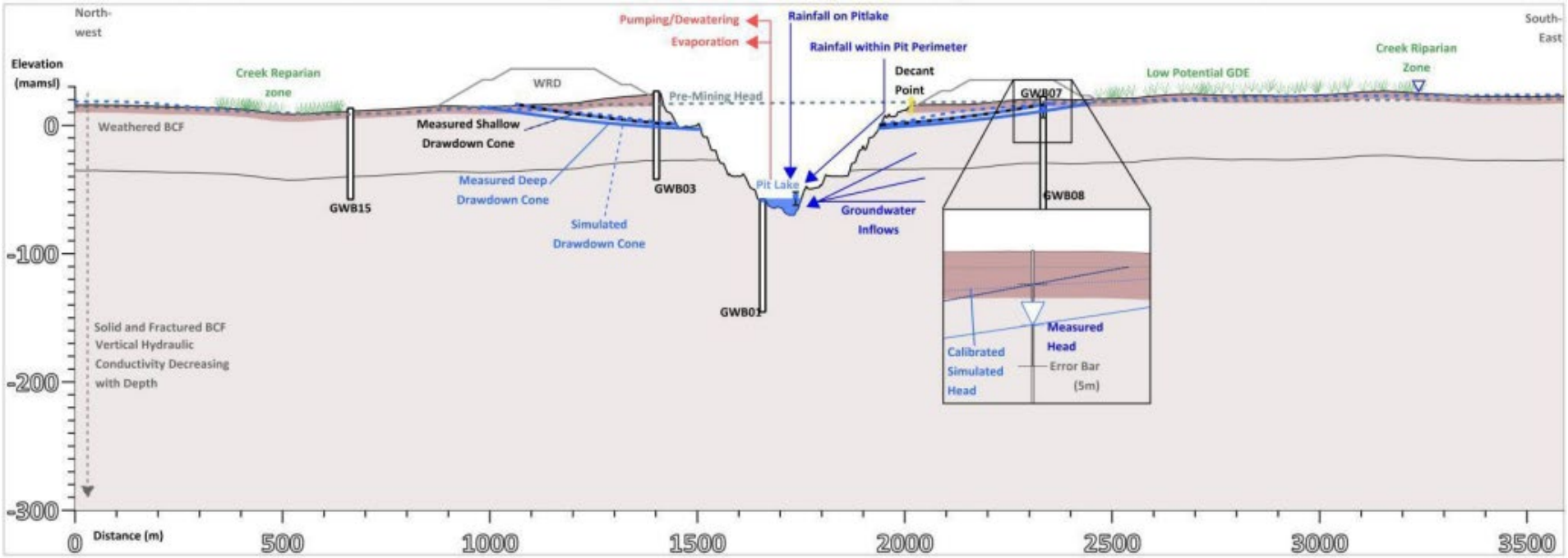


Figure 4-3 Conceptual hydrogeological cross section featuring Grants mine site (Source: Artesium, 2026)

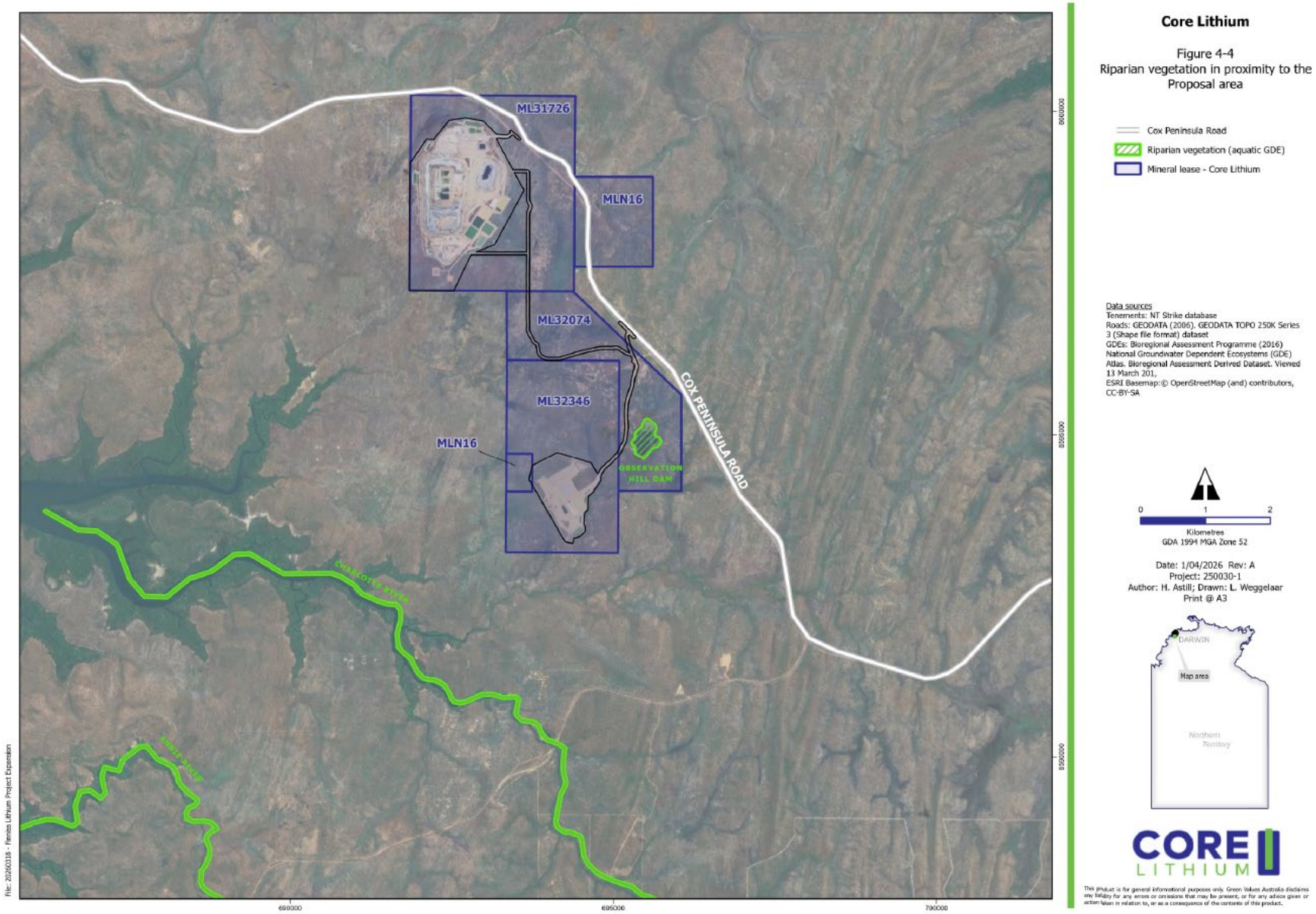


Figure 4-4 Riparian vegetation in proximity to the Proposal area

4.3.6 Groundwater hydrology

Groundwater in the Burrell Creek Formation (BCF) is generally fresh due to high regional rainfall and significant recharge in the shallow saprolitic zone. Total dissolved solids (TDS) are typically low, with electrical conductivity (EC) values ranging from 50 to 310 µS/cm, corresponding to TDS concentrations well below 200 mg/L. Groundwater salinity tends to increase in floodplain areas and low-lying zones (Groundwater Enterprises, 2020). This pattern reflects strong annual flushing during the wet season and limited residence time for salt accumulation.

Water chemistry ranges from slightly acidic, to more acidic (pH values of below 6.0). This is due to the presence of sulphide minerals such as pyrite and arsenopyrite in the anaerobic (deeper) groundwater zones. Oxidation of these minerals in the subsurface produces acid and mobilises metals. Regional studies around Darwin have reported naturally elevated concentrations of dissolved metals in BCF groundwater, including aluminium (Al), iron (Fe), manganese (Mn), zinc (Zn), lead (Pb), cadmium (Cd), and arsenic (As) (Greencap, 2018).

There is limited use locally of groundwater for domestic, stock or agricultural water supply. The only registered bores in proximity to the Proposal are those installed by LDGNT and previous mining operators; there are no other groundwater users within 9 km of the Proposal area.

Groundwater levels are dynamic with fluctuations between wet and dry seasons. In the shallow aquifer, an amplitude of 5.7 m and a range of 11.4 m has been determined from monitoring data collected in the Proposal area since monitoring commenced in 2019 (Artesium, 2026).

Prior to commencement of mining and development, average baseline water level depth in the shallow groundwater zone was 2.39 mbgl, with a maximum measured depth of 11.40 mbgl. In the Grants area of the Proposal, groundwater flow direction for the shallow groundwater zone was predominantly towards the south. For the intermediate and deep aquifers, the flow follows the same direction with vectors towards the south-east (Artesium, 2026).

At the BP33 area of the Proposal, directional flow in the shallow groundwater zone is primarily south with the deepest measured water level 2.7 mbgl. Flows in the intermediate and deep aquifers were in a north-westerly direction and the deepest level measured was 4.7 mbgl (Artesium, 2026).

Groundwater levels in the shallow aquifer are largely controlled by surface topography, consistent with an unconfined aquifer system where recharge occurs on elevated terrain and groundwater flow follows local hydraulic gradients toward lower elevation. Rapid responses observed in groundwater levels in the shallow aquifer of the Proposal area to received rainfall indicates that the shallow aquifer is directly influenced by rainfall recharge through infiltration (Artesium, 2026).

In the intermediate aquifer, the magnitude of change is smaller and some of the groundwater level changes measured indicate water level variations are independent of short-term rainfall, indicating recharge of the intermediate aquifer is through vertical leakage from the shallow aquifer and through fracture-controlled pathways. Together, this results in a dampened and delayed groundwater response in the intermediate groundwater zone relative to surface recharge events (Artesium, 2026).

In contrast, groundwater levels observed in the deep aquifer remained relatively stable with only minor fluctuations recorded. The deep system shows limited correlation with short-term rainfall variability, suggesting that it is largely buffered from seasonal climatic effects. This indicates that the deep aquifer is hosted in fractured bedrock and is characterised by larger storage capacity and slower recharge dynamics. As such, groundwater levels are influenced more by long-term regional

groundwater flow conditions than by direct rainfall infiltration (Artesium, 2026).

In summary, groundwater monitoring data suggests a decreasing hydraulic sensitivity to climatic recharge with increasing groundwater depth. Strong connectivity exists between rainfall recharge and the shallow aquifer, moderate connectivity between the shallow and intermediate zones, and relatively weak connectivity between the intermediate and deeper aquifer units. This pattern is consistent with groundwater systems developed in weathered and fractured bedrock environments, where recharge enters the shallow weathered zone and progressively propagates downward through fracture networks, becoming increasingly attenuated with depth (Artesium, 2026).

For further information on the groundwater environment local to the Proposal area, refer to Appendix M (Artesium, 2026).

4.3.7 Riparian vegetation

During the Grants Project Environmental Impact Statement (EIS) the presence of closed riparian vegetation was identified in an ephemeral drainage line downstream of OHD (drainage line BP1). The monitoring of the riparian vegetation has since been included as a condition of BP33's environmental approval (EP2020/001-001) and Grants water extraction Licence (SWEL 8151018).

The purpose of the Annual Riparian Vegetation Monitoring, undertaken in compliance with the approval and licence instruments, is to detect changes over time, specifically:

- Surface water flows associated with the extraction of water from the from the OHD, and
- Groundwater drawdown associated with dewatering of the BP33 underground operation.

Monitoring conducted in 2025 identified there has been no recorded immediate impacts from mining activities (surface water extraction or dewatering of box cut) noted within the BP33 downstream Riparian Vegetation (Savannah Roots, 2026; Appendix H).

4.3.8 Threatened fauna

In addition to the matters of national environmental significance identified previously that may occur within the Proposal area (refer Appendix B), there is another threatened species to be considered – the Pale field-rat (*Rattus tunneyi*).

The Pale Field-rat is a medium-sized rodent that occurs in areas of higher rainfall including the Northern Territory and northern Western Australia. The Pale Field-rat occurs in a wide range of habitats, including tall grasslands, rocky slopes, woodlands and monsoon forests with dense understoreys dominated by grasses and sedges, and along inland watercourses. The Pale field-rat is nocturnal, sheltering during the day in below ground burrows. The diet consists of roots, grass stems and seeds (DEPWR, 2021).

Presence of the species was recorded in recent surveys completed to the south of the Proposal area (D. Rhind[6], pers. comm. 2026).

[6] David Rhind, Development Assessment Coordinator, Flora and Fauna Division · Department of Environment, Parks and Water Security (DEPWS)

4.4 Social environment

4.4.1 Significant sites or features

There are no National parks or Sites of Conservation Significance (SoCS) within the catchment upstream or immediately downstream of the Proposal area.

Refer to Appendix B for further information on SoCS described in previous approvals documentation.

4.4.2 Heritage

An Authority Certificate (ref C2019/024) has been granted to Core over the areas covered by ML31726, MLN16, EL29698 and EL30015, for activities previously authorised under the Mining Management Act and approved under the EP Act. There are no Aboriginal Sacred Sites or restrictions identified within the Proposal area (see Appendix D).

4.5 Matters of National Environmental Significance

The Development Envelope for this Proposal does not vary from that included in previous approvals for Grants and BP33. As such, the protected matters search prepared for the previous approvals is directly relevant to this Proposal.

For information on the historical protected matters search refer Appendix B.

5 Consultation

Core has engaged with stakeholders about the Finniss Lithium Project, including BP33, extensively since 2017. Once initial approval was issued for Grants, and then BP33, Core continued to engage and communicate with stakeholders and community members throughout construction and operation. Engagement was largely paused in mid-2024 in response to the project entering care and maintenance.

Core recommenced engagement with stakeholders and the community in February 2026 ahead of submission of this referral. Engagement occurred through a variety of means including face to face meetings with local governments, a community meeting, community information stalls, distribution of fact sheets, posters, a frequently asked questions document and making information available on Core's website.

5.1 Stakeholder engagement strategy

Engagement was conducted between Wednesday 25 February to Saturday 14 March and focused on discussing the project's potential restart and the variations to mining and processing comprising this Proposal.

5.1.1 Goals and objectives

The goal of engagement was to provide key stakeholders and local community with information on the proposed restart of Finniss and to consult on Proposal.

The communication objectives of this stakeholder engagement plan were to:

- provide the community with information on the restart plans for Finniss and BP33
- notify stakeholders and community members of the NT EPA submission for this Proposal, about the increase in the life and depth of BP33 and Grants
- re-establish Core's commitment to a long-term presence in the region, and
- re-establish stakeholder and community communication channels.

The engagement objectives of this stakeholder engagement plan were to:

- provide an early opportunity to listen to and understand the priorities and perspectives of key stakeholder groups prior to the Proposal's referral to the NT EPA
- inform the community about the planned restart of Finniss
- demonstrate LDGNT's commitment to engaging throughout the approval process including understanding stakeholders' early views and concerns
- manage stakeholder and community expectations by engaging early and re-establishing ongoing relationships
- provide clarity and information about any issues of concern raised by stakeholders or community members
- encourage stakeholders and community members to provide feedback as part of the public feedback process.

Using the International Association for Public Participation (IAP2) principles that guide good community engagement, this engagement was conducted at the levels of **inform** and **consult.**

5.1.2 Approach

A range of communication tools and engagement tactics were used to implement the engagement approach which is captured in Table 5-1.

Table 5-1 Communication tools and engagement tactics applied for engagement

Tool or tactic	Detail	Approach
Fact sheet	A fact sheet with information about the proposed restart and referral for the Proposal was developed and provided to stakeholders and community members during the engagement. The four-page fact sheet was available digitally and in hard copy and included information on: • the restart study and Proposal submission • a project overview, including the pause of operations • an overview of Grants • BP33 including: o road use and transport o employment and community o environment and heritage o closure and rehabilitation o approvals and engagement • where to find more information and who to contact.	The fact sheet was available via: • emails sent to stakeholders • the Core website • handed out at community information stalls • handed out at stakeholder briefings.
Maps	Four maps were used to illustrate key project information. These included: • the location of the Finniss project in relation to the Greater Darwin region • an aerial view of the BP33 site layout • a concept of BP33's underground spiral mine design • the proposed site access including an intersection upgrade and new slip lane on Cox Peninsula Road.	The maps were used and available via: • the fact sheet • in the PowerPoint presentation • large print outs displayed at the community information stalls.
Posters	A poster was designed to promote community information stalls and raise general awareness about the potential restart. The posters were designed in A3 and contained: • a brief overview of the proposed restart and referral • a location map • information about the community information stalls • a QR code for more information • contact details.	The poster was distributed to the following locations: • Berry Springs Tavern • Caltex service station Berry Springs • Berry Springs IGA • Darwin River Tavern • Darwin River IGA • Cullen Bay Ferry Terminal • Wagait Beach Supermarket • Wagait Shire Council • Litchfield Council • Belyuen Community Government

Tool or tactic	Detail	Approach
		Council
FAQ	A detailed FAQ was developed to provide a deeper level of information about the Proposal and included information on: • proposal overview and restart • BP33 project • Grants project • environmental management • community, culture and heritage • employment and local opportunities • transport and roads • where to find more information.	The FAQ was made available on Core's website.
Web page	Core's existing web page about the Finniss Lithium Project was updated ahead of the engagement. It included updating existing information based on the project's status and adding information about the potential restart, referral and engagement.	A copy of the fact sheet and FAQ were available on the web page.
PowerPoint presentation	A PowerPoint presentation was developed to use at stakeholder briefings. The presentation included information on: • proposal overview and restart • BP33 project • Grants project • environmental management • community, culture and heritage • employment and local opportunities • transport and roads.	The presentation was used at stakeholder briefings and a community meeting.
Newsletter content	Newsletter copy was developed and provided to stakeholders in the instance they would like to include information on the engagement in an upcoming newsletter.	Newsletter copy was provided to: • Litchfield Council • Wagait Shire Council • Belyuen Community Government Council • Berry Springs Primary School.
Stakeholder emails and briefings	Stakeholder emails were sent to key stakeholders at the start of engagement on Wednesday 25 February. The email included key information, a copy of the fact sheet, information on the engagement and a request to provide a briefing. Further emails to an additional 33 stakeholders with key project information were sent on Tuesday 9 March.	Emails with project information were sent to: • Australian Government • Northern Territory Government • Local government • Aboriginal groups • Industry associations and peak bodies • Community and environment groups. Briefings were offered to: • Litchfield Council – meeting held • Belyuen Community Government Council – meeting held • Wagait Shire Council – meeting held • Environment Centre NT – meeting held • Berry Springs Primary School – meeting

Tool or tactic	Detail	Approach
		not held • Kenbi Rangers – meeting not held • Member for Daly – meeting not held.
Phone and email	Communication methods were made available during engagement as a way for community members and stakeholders to ask questions and provide feedback.	Dedicated phone and email
Community information stalls	Two community information stalls were held during the engagement period. The stalls provided communities near the proposal with an opportunity to engage, ask questions and provide feedback. The stall set up consisted of: • a table set up in high foot traffic areas • A1 corflutes displayed on easels showing: o project location o proposed intersection upgrade and slip lane • A3 laminated maps showing: o project location o BP33 site layout o proposed intersection upgrade and slip lane • fact sheets.	Stall 1: Freds Pass Rural Market • Saturday 28 February 2026 • 9:00am to 11:00am • 21 attendees Stall 2: Berry Springs Shopping Village • Sunday 1 March 2026 • 11:00am to 1:00pm • 16 attendees
Wagait community meeting	Core was invited to attend an upcoming community meeting during a stakeholder briefing with Wagait Shire Council. The community meeting was not part of the initial engagement approach; however, Core accepted the invitation. The community meeting was held on Saturday 14 March 2026 at the Wagait Sports Ground.	Around 42 community members attended the meeting along with four councillors and a small number of council staff (around 2-3 people). A representative from Core presented using the PowerPoint presentation. The session was designed for questions to take place at the end; however, community members took the opportunity to ask questions throughout. The session went for approximately 1 hour.

5.1.3 Results

The following outcomes were achieved throughout the engagement period:

- 39 stakeholder organisations contacted via email
- Four stakeholder briefings
- 37 community members engaged at 2 information stalls
- One community meeting, and
- Seven phone calls, emails or discussions with questions or feedback

5.2 Findings

Commentary and feedback during consultation was largely very positive with most stakeholders noting they are pleased to see the project is possibly going to restart. Almost every engagement included an interest and positive sentiment towards the opportunity for local jobs, with stakeholders responding well to the prospect of Core aiming to prioritise direct employment rather than contracting arrangements.

There was a moderate level of concern about the condition of Cox Peninsula Road which came from community members in Berry Springs and Wagait. Concerns were based on the communities' previous experience of road damage from the mine and the time it took for repairs and maintenance to be completed. Concerns about road damage also subsequently led to concerns about road safety.

Table 5-2 summarises key feedback themes.

Table 5-2 Summary of feedback themes from community engagement

Key theme	Feedback received
Jobs and suppliers	Opportunities for local jobs and contracts was the most common theme where people provided feedback or showed sentiment towards the project. People want to see Core prioritise local jobs and were happy to hear that Core intends to employ more workers directly if the project is restarted rather than relying as heavily on contractors. A lot of people asked how to find out more about jobs, with some expressing interest in working at a local mine rather than having to do fly in fly out work. One person relayed having a negative experience with Core's previous employment processes but was pleased to hear Core would be prioritising direct employment opportunities over contracting arrangements if the project was restarted.
Road usage and safety	Road usage and/or road safety was a focal point during engagement. Stakeholders and community members asked questions about the number of trucks and damage to Cox Peninsula Road. When Core explained there would be around 35 road train movements between BP33 and Grants per day, most people acknowledged this was a lot but did not necessarily raise concern, apart from people who attended the Wagait community meeting. The six round trips to the Darwin Port per day was not raised as an issue. Concerns centred much more around degradation of the road, particularly during the wet season. People noted that when the mine was operating initially it took a long time for potholes to be fixed. This was the key topic of discussion at the Wagait community meeting, with attendees expressing a high level of concern. Some meeting attendees felt strongly that Core should build a haul road within the project footprint between BP33 and Grants to redirect road trains off the main road. Attendees also did not think taxpayers should be funding road repairs delivered by the NT Government because of damage caused by a mining company. Whilst the road condition was a strong theme at the community meeting and Berry Springs Shops community stall, it was not as strong of a concern during other engagements.
Restart and mine design	Questions and comments about the restart came up frequently however was not a key feedback point. People asked if the project was starting back up again, with a number specifically saying they are pleased. The depth of BP33 underground mine was also raised, with a small number of people expressing positivity about the focus on underground mining. No one expressed a negative view about the new mine design.
General conversation about Core and the project	General comments and questions came up throughout the process about why the mine shut down previously, Core's current share price, the current lithium price and who Core's market is.

Key theme	Feedback received
Approvals and consultation	There were several questions about the approvals process, including some confusion about the process. Some people asked whether Core had finally gotten its EPA approvals, or whether approval had been granted from the Northern Land Council or Belyuen yet. Others were positive about the approval variation process, noting it seems like it will give the project a better chance of being approved. Several people were positive about the community stalls taking place, noting that they had heard about a potential restart, so Core re-establishing a presence in the community and speaking to people is worthwhile. One stakeholder called during the engagement period to query the level of engagement with Berry Springs community members, expressing a desire for greater opportunity and information sharing. Similar concerns were expressed on social media by Berry Springs community members.
Environment	Several questions or comments about the environment were raised, but the only recurring topic was water usage and management. Stakeholders asked where water would be coming from, and whether any groundwater usage would impact other water users in the area. People also wanted to know about discharge and whether water would pool in the underground mine and if so, how this would be managed. Some people asked about mine closure and rehabilitation. When Core explained the Grants open pit would be repurposed for water storage people seemed supportive of this answer. People seemed satisfied about the idea of leaving behind a pit lake at the time of mine closure. One person noted they did not support mining in general.
Community	A small number of people made comments about the restart being good for the community. Comments were general in nature and often referred to the Territory economy as a whole.

6 Regulatory and Legislative Context

The existing mine sites are subject to both Commonwealth and Northern Territory legislation and regulatory requirements. Core has existing approvals and reporting obligations and will obtain, or modify, the required approvals in addition to this referral assessment process.

A summary of legislation, policy and guideline frameworks relevant to the Proposal and their purpose and relevance to the Proposal is provided in Table 6-1. The applicable Acts are referenced by exception; that is, those relevant for assessing and managing the modified mining activities and potential risks against the identified Environmental Factors only.

Table 6-1 Commonwealth and NT legislation and relevance to the Proposal (by exception)

Legislation	Purpose	Relevance to the Proposal
Commonwealth		
Environment Protection and Biodiversity Conservation Act 1999 (EPBC) Department of Climate Change, Energy, the Environment and Water	The EPBC Act is Australia's principal piece of environmental legislation and provides a legal framework to protect and manage Matters of National Environmental Significance (MNES). A person who proposes to take an action that will have or is likely to have a significant impact on one ore more MNES must refer that action toe the Minister administering the EPBC Act for a decision on whether assessment and approval is required under the EPBC Act.	There is no disturbance to areas outside of the approved development envelope and disturbance footprint. The Proposal is considered unlikely to result in significant residual impacts (further described in this referral). See Sections 4.5and 7.6 for further discussion on MNES. Impacts on MNES was not identified in previous referred Proposal assessments. There are no new or additional impacts on listed threatened species and communities (section 18 & 18A of the EPBC Act) (refer Section 7.6).
Native Title Act 1993 Attorney-General's Department; Department of the Prime Minister and Cabinet	Provides for the recognition and protection of native title and to establish ways in which future dealings affecting native title may proceed.	A search of the Native Title Vision (NTV) and National Native Title Tribunal on 06/03/2026 identified no currently registered Native Title Applications or Native Title Determinations within the Proposal area.
National Greenhouse and Energy Reporting Act 2007 (NGER Act) and Regulations 2008 Department of Climate Change, Energy, the Environment and Water	An Act to provide for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy production and energy consumption, and for other purposes. The first object of this Act is to introduce a single national reporting framework for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy consumption and energy production of corporations to: • inform government policy formulation and the Australian public; and • meet Australia's international reporting obligations; and • assist Commonwealth, State and Territory government programs and activities; and • avoid the duplication of similar reporting	The Proposal already comprises activities that are required to comply under this Act. Core will continue to meet its obligations to report information about greenhouse gas emissions under this Act.

Legislation	Purpose	Relevance to the Proposal
	requirements in the States and Territories. The second object of this Act is to ensure that net covered emissions of greenhouse gases from the operation of a designated large facility do not exceed the baseline applicable to the facility.	
Northern Territory		
Northern Territory Aboriginal Sacred Sites Act 1989 Aboriginal Areas Protection Authority	The Northern Territory Aboriginal Sacred Sites Act 1989 (NT) (NTASS Act) is the primary legislation for the protection of Indigenous heritage in the Northern Territory.	Authority Certificate RA2018/73 has been provided by the Aboriginal Areas Protection Authority to ensure the protection of sacred sites throughout the project. The closest sacred site is approximately 6 km north-west from BP33.
Environmental Protection Act 2019 and Environment Protection Regulations 2020 Department of Lands, Planning and Environment	This Act provides for the protection of the environment, conservation of biodiversity and related purposes. Regulation and assessment of environmental activities undertaken under this Act for activities on Commonwealth lands, and for matters of national environmental significance (MNES).	This referral has been prepared and submitted under the EP Act, on the basis that the activities described may trigger the need for an Environmental Approval to be granted under the Act. This referral has been aligned with the purpose of the NT EPA to determine whether formal environmental impact assessment is required pursuant to the EP Act (Table 2-3). A mining operator must also obtain an Environmental Mining Licence (EML). An EML replaces the need for authorisation under the Mining Management Act 2001 (now repealed). An EML will subsequently be prepared for submission for assessment under this Act, replacing the previously in-force MMP authorisations. The EML submission will include updated Closure Plans and will incorporate requirements for waste discharges (previously managed via waste discharge licences).
Mineral Titles Act 2010 Department of Mining and Energy	An Act for exploration, extraction and processing of, minerals and extractive minerals in the Territory. Regulates administration of mineral titles, define land access rights for mining, and extractive mineral activities.	This Act establishes the requirements for granting and regulating mineral titles including processing of minerals and extractive minerals.
Water Act 1992 Department of Lands, Planning and Environment	Provides the legislative framework for managing and protecting water resources, including the investigation, allocation, use, control, protection,	The Project already comprises activities that are required to comply under this Act, and variations to waste discharges of water will be obtained. Waste discharge to natural waters is prohibited

Legislation	Purpose	Relevance to the Proposal
	management and administration of water resources.	unless licenced under the Act. The Act regulates the use of surface and groundwater and the purposes for which water can be used, and provides for the investigation, allocation, use, control, protection, management and administration of water resources, and for related purposes.
Waste Management and Pollution Control Act 1998 Department of Lands, Planning and Environment	The Act provides for the protection of the environment through encouragement of effective waste management and pollution prevention and control practices, including prevention, reduction, and management of pollution while promoting recycling and ecologically sustainable development.	This Act regulates the protection, restoration, and enhancement of quality of the NT environment through effective waste management and pollution control practices. The Proposal comprises activities that require approval under the Act and issue of waste discharge licences. Permission to discharge wastewater (mine affected water) will be included in the EML assessment and approval.
Bushfires Management Act 2016 Bushfire NT / NT Fire and Emergency Service	Aims to improve bushfire management in the Northern Territory to increase public safety, protect property, and conserve the environment	The Proposal comprises activities that are required to comply under this Act. The controls on fire activities provided in Part 4 of the Act will apply to the Proposal, including the requirement to establish fire breaks, controls on high-risk activities during fire danger periods, and compliance with fire bans.
Traffic Act 1987 Department of Logistics and Infrastructure	Regulate road safety, traffic management, and vehicle operation, ensuring safe usage of public streets	This Act regulates traffic and the use of roads open to the public. A permit is required where construction activities are proposed within an NT road reserve. Approval to modify Cox Peninsula Road with slip lanes for the turn in and out of haulage traffic will be applied for with Department of Logistics and Infrastructure (DLI)relc.
Control of Roads Act 1953 Department of Logistics and Infrastructure	Provides authority for the administration and control of road usage, create temporary roads, remove obstructions, prevent damage to road infrastructure, and regulate activities like tree cutting or quarrying on roadsides	Should any work be required within a road reserve for a road under the care and control of the NTG or a Local Council, a permit may be required under the Control of Roads Act 1953 (NT). If the work involves creating a new access, modification of an existing access, or installation of new infrastructure within the NTG road network, a Road Agency Approval may be required. Approval to modify intersections at access points with Grants and BP33 mine sites will be applied for with DLI.

7 Potential Impacts and Environmental Impact Assessment

7.1 Impact assessment approach

The following approach has been taken in the identification and assessment of potential impacts related to the Proposal against the NT EPA's environmental factors and objectives:

- Identification and characterisation of environmental values: a combination of desktop assessment, literature review, expert advice to identify and characterise existing environment that occurs within the Proposal footprint and surrounding areas. Environmental values were selected for further assessment on the basis that they hold value and are important and are either likely to be impacted by the Proposal or people are highly concerned that they could be impacted.
- Identification of potential impacts: a combination of technical studies and advice by recognised professionals (refer Table 1-2) were used to determine potential impacts of activities, direct and indirect, associated with the construction and operation of the Proposal (Sections 2 and 3).
- Avoidance and mitigation: for each impact, measures that will be implemented to avoid and mitigate those impacts have been identified.
- Residual impacts: the residual or remaining impact after treatment of the related activity with mitigation measures for each value was assessed considering context, intensity, scale, duration and magnitude of the impact.
- Cumulative impacts: cumulative impacts for each value were assessed considering the context and intensity of impacts from other developments occurring concurrently or proposed to occur in proximity to the Proposal footprint.

7.2 Self-assessment screening

A self-assessment of the Proposal has been undertaken using the pre-referral screening tool (Appendix A) provided in the NT EPA guideline '*Referring a proposed action to the NT EPA*' V3.0 (2025b).

The Proposal includes the extension of underground mining at BP33 mine, increasing mine depth from 320 mbgl to 850 mbgl, as well as mine life (from 4 to up to 12 years) with ore processing continuing at the Grants mine site for the same period. Associated changes to infrastructure supporting the Proposal include modifications to Grants processing plant, construction and operation of a paste backfill plant at BP33 mine site, and construction of a slimes slurry pipeline between the two sites allowing the transfer of slimes. Relocation of internal ore and dry stack tails haulage between BP33 and Grants to Cox Peninsula Road is a change to previous approvals.

Based on the Proposal activities intended to occur in established brownfields areas, primarily related to increased depth of mine and mine life, with commensurate changes to supporting infrastructure and activities, together with creation of meaningful net benefits, the Proposal was considered low threat to environmental values.

The outcome of the self-assessment determined there was no change in significant status for the previously assessed environmental factors, with hydrological factors (groundwater hydrology) having potential for a significant impact, when considered cumulatively with adjacent proposals and end of life. An additional environmental factor Atmospheric Emissions met the threshold trigger for a referral based on forecast scope 1 greenhouse gas emissions.

The Proposal is being submitted for proponent and regulatory certainty due to the potential for significant impacts that have not previously been assessed.

A self-assessment of the Proposal has also been undertaken in accordance with the EPBC Act self-assessment guidelines, '*Significant impact guidelines 1.1 – Matters of national environmental significance*' (Commonwealth of Australia, 2013) and the Proposal did not trigger the requirement for a referral based on the type, scale and nature of the activity (refer Section 7.6).

7.3 Risk assessment framework

An environmental risk assessment was completed to identify the potential environmental impacts and mitigation measures for activities associated with the Proposal on the 12th of March 2026. The risk assessment process applied was consistent with AS/NZS ISO 31000:2018 Risk Management – Principles and Guidelines (ISO, 2018).

7.3.1 Method

Likelihood and consequence definitions applied in this assessment of residual impacts are outlined in Table 7-1 and Table 7-2, respectively. The overall residual risk category was determined through application of the risk matrix (Table 7-3), which considers likelihood and consequence. It is noted that residual risk considers the successful application of all identified management measures included in this referral and accompanying technical reports.

Table 7-1 Likelihood of occurrence criteria

Likelihood Rating	Environmental Stakeholders Legal / Regulatory
5. Almost certain	The event is expected to occur in most circumstances. The event has occurred at least once in the past 12 months and/or is expected to occur at least once in the next 12 months. OR The risk is expected to occur at least once in the past 12 months and/or is expected to occur at least once in the next 12 months of the project (>80% chance).
4. Likely	The event will probably occur in most circumstances and is expected at some time. The event has occurred in between the past 1-3 years and/or will probably occur in the next 1-3 years.
3. Possible	The event might occur at some time but is not expected. The event has occurred in between the past 4 - 10 years and/or will probably occur in the next 4 - 10 years.
2. Unlikely	The event could occur at some time. The event has occurred in between the past 11 - 20 years and/or will probably occur in the next 11-20 years.
1 Rare	The event may occur in exceptional circumstances. The event has not occurred in the past 20 years and/or is unlikely to occur in the next 20 years.

Table 7-2 Consequence category definitions

Consequence Rating	Environmental	Stakeholders
5. Severe	Substantial permanent damage to widespread and sensitive areas.	Public enquiry; and/or Loss of social licence to operate with extreme impact on relations with stakeholder (including communities, customer, government, regulators and shareholders).
4. Major	Long-term detrimental effect on environment and once controlled results in local permanent damage.	Loss of public support or major negative socio-economic impact or disturbance to one or more key stakeholders.
3. Moderate	Widespread temporary damage with extended resources to remedy.	Heightened concern by the local community. Criticism by NGOs; and/or moderate socio-economic impact or disturbance to the one or more key stakeholders
2. Minor	Localised low-level damage controlled and remedied with minimal resources.	Local level, adverse public and/or media attention and complaints.
1. Insignificant	Localised low-level damage controlled but no remedial action required.	Public concern restricted to local complaints.

Table 7-3 Risk assessment matrix

Almost Certain (5)	Medium (5)	Medium (10)	High (15)	Extreme (20)	Extreme (25)
Likely (4)	Medium (4)	Medium (8)	High (12)	High (16)	Extreme (20)
Possible (3)	Low (3)	Medium (6)	Medium (9)	High (12)	High (15)
Unlikely (2)	Low (2)	Low (4)	Low (6)	Medium (8)	High (10)
Rare (1)	Low (1)	Low (2)	Low (3)	Medium (4)	High (5)
Risk rating	**Insignificant (1)**	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Severe (5)**

7.3.2 Results of environmental risk analysis

Appendix F presents the environmental risk analysis that was completed for the Proposal. It includes a description of the potential impacts associated with the proposed activities. The consequence and likelihood of each risk is provided in accordance with the rating system provided above, together with a residual risk outcome.

7.3.3 Significant impacts

The focus of the impact assessment in this referral report is on those impacts identified to be potentially significant. Significance is indicated by residual impact ratings, and scale, magnitude and duration criteria. A summary of the guidelines used to identify significant impacts are provided in Table 7-4 and Table 7-5.

Table 7-4 Significant residual impact ratings and criteria

Low	Medium	High	Extreme
A minor residual impact is unlikely to be significant and generally has two or more of the following characteristics: **Scale:** limited/ localised **Magnitude**: negligible/ minor **Duration**: short-term/ medium term/ reversible OR There are no sensitive receptors or land uses present, and the environment does not contain any aspects that are valuable or otherwise important or unique and there is moderate to high degree of certainty about the likelihood and intensity of the impact, and the effectiveness of proposed mitigation measures	A moderate residual impact has potential to be significant. The significance depends on the acceptability of the impacts and the effectiveness of mitigation measures. A moderate impact generally has two or more of the following characteristics: **Scale**: localised **Magnitude**: moderate **Duration**: medium-term AND/OR There are sensitive receptors and land uses present, or environmental aspects that are valuable or otherwise important or unique and there is a low degree of certainty about the impact, and the effectiveness of proposed mitigation measures.	A high residual impact is likely to be significant. The level of acceptability will depend on benefits compensating for the impact. A high impact generally has two or more of the following characteristics: **Scale**: regional **Magnitude**: major **Duration**: long-term AND There are sensitive receptors or land uses present, or environmental aspects that are valuable or otherwise important.	An extreme residual impact is very likely to be significant. The level of acceptability will depend on offsets for the impact. A high impact generally has two or more of the following characteristics: **Scale**: widespread **Magnitude**: major **Duration**: permanent AND There are sensitive receptors or land uses present, or environmental aspects that are valuable or unique.

Table 7-5 Scale, magnitude and duration criteria

Scale	Magnitude	Duration
Limited – immediate vicinity of activities	Negligible – no discernible impact on existing environmental condition	Short-term – impact occurs sporadically and/or lasts for a few days to weeks, after which values recover
Localised – within the boundary of the proposal area	Minor – impact is measurable but relevant thresholds for criteria for environmental protection are met	Medium term – impact occurs intermittently and/or only during the construction phase, after which values recover
Regional – extends outside the proposal area and affects the localities surrounding the proposal area	Moderate – relevant thresholds or criteria for environmental protection are reached or slightly exceeded but environmental values, ecological integrity and function, including sensitive receptors are not affected	Long-term – impact occurs over an extended period covering the construction and operational phases, and values eventually recover
Widespread – affects the broader Greater Darwin Region/ beyond	Major – relevant thresholds or criteria for environmental protection are exceeded to the point that environmental values are impaired and the ecological function and/or extent of sensitive receptors are affected	Permanent/ irreversible – impact is enduring, values are unlikely to recover

7.4 Net benefits

This Proposal includes several net benefits. Net benefits are defined as:

The measurable gain in environmental services, or ecological and/or social value achieved through remediation and reuse, minus any new environmental damage caused by those development actions.

Provided below are the identified net benefits associated with the relevant Proposal components.

7.4.1 Grants processing plant upgrades

Existing processing infrastructure at Grants will continue to be used to process BP33 ore for up to 12 years, reducing the need for new disturbance if a processing plant were to be established at BP33. Reuse of waste material generated by the Grants processing plant will be undertaken in accordance with the waste management hierarchy, specifically:

- improved resource recovery from Grants ore processing plant modifications will reduce waste volumes over the LOM, with re-use of slimes and dry stack tails in paste production.
- a reduction in the volume of tailings disposed at surface at Grants will be achieved with re-use of slimes and dry stack tails.
- the transfer of dry stack tails will not require additional trucking movements between sites, as will utilise quad trains that would otherwise be empty on their return journey from trucking BP33 ore to the Grants processing plant.
- Dry stack tails will be stacked on concrete hard stand with water drained from the tails recovered.

7.4.2 Grants mine water dam

Upon completion of ore extraction from Grants open pit mine, the pit void will be repurposed as a mine water dam. The Grants MWD will service local water handling demands and will also receive mine affected water from BP33 underground mine.

Establishment of the Grants MWD will achieve several net benefits:

- the storage capacity of Grants MWD (approximately 18,000 ML) will allow attenuation of extremes currently experienced in water handling operations at Grants and are expected at BP33 once operational
- Grants MWD will reduce the impact of variability due to seasonality (wet and dry seasons), resulting in improved water security for operations, and ability to handle excess water for disposal (e.g. improved holding times, and therefore treatment windows); and
- having consistently available large volumes of high-quality MAW that can be used to supply processing and mining operations, ancillary operations (e.g. dust suppression, BP33 cooling plant), and administrative demands (e.g. greywater systems, potable raw water feed), this source is predicted to reduce discharges to the environment (refer Appendix J).

7.5 Cumulative impacts

Cumulative impacts may arise through additive or interactive processes and actions, among multiple management measures (past, present and future), the combined effect of numerous minor impacts over time, or activities occurring over a broader area than the proposed action, such as the activities of multiple proposals operating within the same broader area.

One project has been identified by LDGNT as relevant to the cumulative impact assessment. That is the Lithium Plus Minerals' Lei Lithium Project[7], as is it is proposed to be undertaken close to the Proposal development envelope. The Lei Lithium Project proposes to develop an underground mine within mineral lease application ML(A) 33874, located south of ML 32346 on which BP33 underground mine is situated (refer Figure 7-1).

The Lei deposit contains an estimated 3.10 Mt high grade spodumene ore, proposed to be recovered using underground mining methods. Preliminary mine plans include a surface box-cut and portal providing access to a spiralling underground decline located east of the pegmatite orebody, with underground workings extending to approximately 700 mbgl. Crushing and screening will be undertaken on site to produce Direct Shipping Ore (DSO) at an estimated peak production rate of 600 ktpa.

The DSO will be trucked to the Darwin Port for export overseas. No on-site processing or tailings storage facilities are proposed. Waste rock, which is chemically benign, will be temporarily stored on the surface before being used for backfilling the box-cut and underground mine on closure.

The life of mine is approximately seven years, from construction to closure. The total proposed disturbance footprint is less than 100 ha.

[7] Referral Report

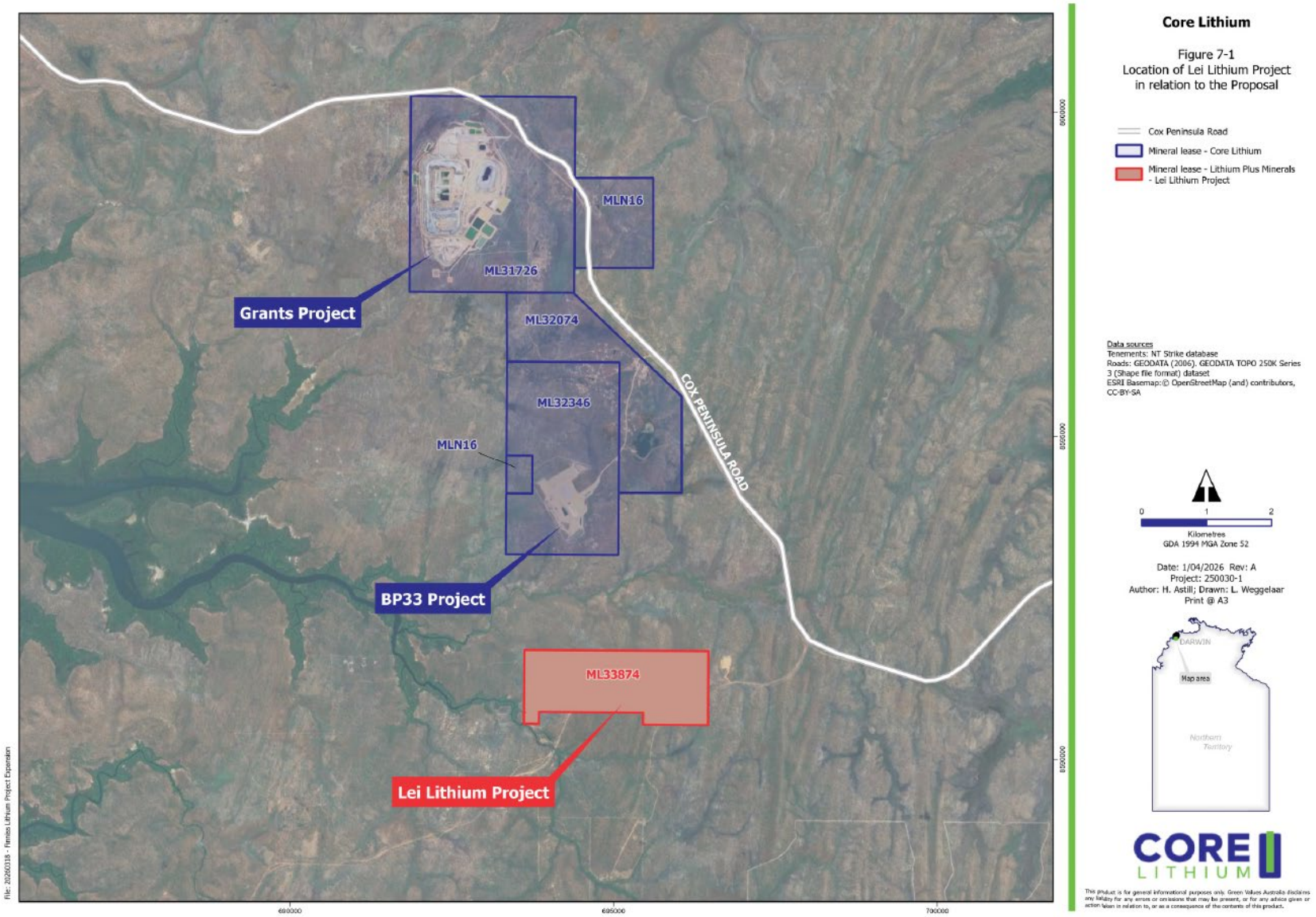


Figure 7-1 Location of Lei Lithium Project in relation to the Proposal

Cumulative impacts to environmental factors that could result from proximity between the proposed Lei Lithium Project and the Proposal are:

- increased habitat loss and fragmentation in the local area,
- interaction between altered groundwater levels associated with underground mine dewatering,
- deterioration of surface water quality in local receiving waterways,
- traffic pressures, and
- skilled workforce drain for Darwin commercial businesses.

7.5.1 Terrestrial ecosystem

The footprint of the Lei Lithium Project is a discrete area surrounded by a large area of continuous remnant vegetation and is approximately 2.5 km to the north-east of the BP33 underground mine site, with native vegetation occurring between the two sites (refer Figure 7-1). The availability of extensive, continuous vegetated corridors ensures that terrestrial ecosystem services remain coherent and available to resident flora and fauna reliant on unfragmented habitat.

Given that this Proposal includes no additional disturbances beyond those already approved, the cumulative impact on terrestrial ecosystem function due to this Proposal in conjunction with the Lei Lithium Project is considered negligible.

7.5.2 Hydrological processes

Groundwater modelling for BP33 Underground Mine predicts that, during operations and for up to approximately 3 years post-closure, there will be some impact to groundwater levels and availability within a localised zone of influence (ZOI) (refer Figure 10-2). While the ZOI in the deep groundwater aquifer is most extensive due to dewatering of the BP33 underground mine, the environmental and social values (i.e. riparian vegetation and local groundwater users) related to groundwater are supported by the shallow groundwater aquifer.

Predictions of the ZOI in the shallow groundwater aquifer associated with the Proposal at BP33, under base-case conditions (scenario 1.1), the shallow aquifer ZOI was predicted to extend approximately 2.25 km east–west and 2.1 km north–south (i.e. approximately 345 ha), with a maximum drawdown of approximately 10 m along the underground mine decline. In the intermediate aquifer, the ZOI was predicted to be slightly larger covering an area of approximately ±395 ha, while in the deep ZOI, where the bulk of the UG mining will occur, the ZOI was predicted to cover an area of ±685 ha (approximately 3.5 km east-west and ±2.5 km north-south). The simulated ZOI for BP33 is presented in Figure 10-2.

Currently, there are no known groundwater users located within the deep and intermediate simulated impact zones at BP33.

Impacts to groundwater drainage discharges supporting local riparian vegetation were predicted to be negligible with a less than 2% reduction in annual discharges predicted for low and moderate level risk GDEs (refer Section 10.3.4).

While the Lei Lithium Project does not provide ZOI modelling predictions (Lithium Plus Minerals, 2024), it is likely that if the BP33 and Lei Lithium Project underground mines were operational simultaneously, the ZOIs of the deep groundwater aquifer would interact and may contribute to cumulative, localised impacts to groundwater. However, given the low hydraulic interactivity between shallow, intermediate

and deep groundwater zones, and the fact that groundwater dependent ecosystems are primarily supported by the shallow groundwater aquifer, these environmental values are not expected to experience cumulative impacts as a result of concurrent mine dewatering at BP33 and Lei Lithium Project.

Further information relating to impact assessment of hydrological impacts due to this Proposal on riparian vegetation, is provided in Sections 10, 11 and 12.

7.5.3 Aquatic ecosystems

The riparian vegetation occurring along the minor ephemeral watercourse downstream of Observation Hill Dam (OHD) and BP33 mine site (Drainage Line BP1) could experience stress if reduced spillway overflows occur because of OHD being used as a raw water source. Based on the findings of the integrated water balance modelling (refer Appendix J), which assessed raw water demand and supply under the existing Surface Water Extraction Licence SWEL 8151018 for OHD, and groundwater modelling predicting no to low changes in water delivery to riparian vegetation, impacts to riparian vegetation within Drainage Line BP1 are not expected as a result of this due Proposal.

If the Lei Lithium Development required water supply from OHD, this could reduce the volume of seasonal overspill available to downstream riparian vegetation. Notwithstanding this, long-term vegetation health monitoring undertaken by LDGNT over several years has shown no deterioration in the condition of local riparian vegetation within the monitoring jurisdiction attributable to mining activities at the Finniss Lithium Project.

For further information on potential impact to riparian vegetation due to this Proposal, refer to Section 12.3.

7.5.4 Inland water environmental quality

Both the Lei Lithium Project and this Proposal are in proximity (approx. 300 m) to the Charlotte River, a small, ephemeral watercourse. Activities associated with either development that may affect water quality of this tributary include:

- stormwater runoff from cleared areas at both the Lei Lithium Project and Proposal sites that may lead to localised erosion and increased sediment loading to the waterway, and
- discharges of mine affected waters generated from mining operations.

There is potential for cumulative impacts to surface water quality in receiving waterways if diffuse and point-source discharges occur concurrently. These cumulative impacts can be avoided or effectively mitigated through the control of point source discharges (via appropriate treatment, timing and monitoring of waste waters) and through robust sediment control measures that reduce or prevent particulate loads entering receiving waterways.

Importantly, integrated water balance modelling for this Proposal demonstrates that, once mining at Grants is completed, the availability of the Grants pit void will enable increased reuse of mine-affected water, thereby reducing environmental discharges. This reduces the need for environmental discharges and provides a beneficial outcome for integrated operations across BP33 and Grants. As a result, the potential for cumulative impacts to the Charlotte River would be reduced even if BP33 and Lei Lithium Project operate concurrently.

Further information on the assessment of this environmental value, including avoidance and mitigation measures that may be applicable to other concurrent activities, is provided in Section 12.

7.5.5 Atmospheric emissions

Discharge of combustion emissions will occur in relation to mining, handling, processing and export activities included in this Proposal. Under the current Proposal, greenhouse gas emissions will occur for the LOM.

While the Lei Lithium Project Referral (Lithium Plus Minerals, 2024) did not detail estimated greenhouse gas emissions, the nature and location of the proposed project is expected to have a dependency on electricity derived from diesel-generated power production.

Although the two projects would be contributing to the regional air shed, and the NT and Australian cumulative greenhouse gas emissions, the total contribution of this Proposal is indicative of the net contributions likely from these projects (less than 0.05% of Australia's greenhouse gas emissions).

A detailed assessment of the greenhouse gas contributions related to this Proposal towards has been undertaken and is presented in Section 15.

7.5.6 Community and economy

There are potential cumulative social impacts that may arise from concurrent construction and operation of the Lei Lithium Project and this Proposal. These include:

- transport/ traffic pressures, and
- workforce pressures and/or competition for skilled workers with the Darwin community.

It is possible that multiple lithium operations in the area could occur concurrently. The area is heavily covered in exploration leases, and it is anticipated that exploration throughout the area will be active as well.

Further information relating to impact assessment of this environmental value due to this Proposal, including the avoidance and mitigation measures that may be applicable to other concurrent activities, is provided in Section 16.

7.6 Protected Matters under the EPBC Act

At the time of the BP33 referral submission (2020; refer Section 4.5 and Appendix B), there were three Commonwealth listed threatened species to consider due to presence of suitable habitat and recent proximate records: Bare-rumped Sheath-tail Bat, Black-footed Tree-rat, and Partridge Pigeon. Since the time of writing the prior BP33 referral submission in 2020, the Northern Brushtail Possum has been listed as vulnerable under the EPBC Act.

As considered in previous approvals and remaining relevant to this Proposal, key threats to these EPBC listed species were, and continue to be, habitat loss and fragmentation, severe fires, introduction of weeds, particularly Gamba grass, and mortality/ disturbance due to machinery and vehicles.

The potential impacts and mitigation measures for the Proposal are summarised below:

- Loss of habitat – no further clearing of native vegetation is required for the Proposal components. Disturbed areas for BP33 and Grants mine sites are established; further construction works will occur within disturbance allocations previously approved (refer Section 3.3.1). The modifications of these cleared areas are not expected to have a significant impact on these species.
- Mortality due to vehicle movements – direct mortality due to vehicle movements along a 3.5 km stretch of Cox Peninsula Road related to haulage of ore and dry stack tailings. This potential impact

will continue to be managed through standard operational controls included in Environmental Mining Licence (EML) and are not expected to be significant given the existing traffic experienced along this NT public road. In addition, injury or death to fauna may result through operation of machinery used for construction and/ or operations. Given the established disturbances and cleared areas, it is not expected that the Proposal activities during construction and operation that will occur within the established Development Envelope will cause direct mortality to the animals listed, nor supporting habitats.

Based on the above considerations and acknowledging previous assessment and approvals for the development envelopes (see Table 6-1), the proposed activities are not expected to significantly impact on MNES listed threatened species; therefore, Core Lithium is not proposing to submit an EPBC referral for the Proposal.

8 Environmental Factors and Objectives

8.1 Overview

The NT EPA (NT EPA, 2025a) has developed a framework for the assessment of environmental impact (NT EPA, 2025a). The framework uses 14 environmental factors to provide a systematic approach to organising environmental information and to establish environmental objectives against which proposals will be assessed.

In the previous assessments of Grants and BP33 referred Proposals (refer Appendix B), the NT EPA identified that the projects had the potential to significantly impact five of the environmental factors, within three themes (refer Table 8-1).

Table 8-1 Environmental factors in approved Grants and BP33 Proposals

Key environmental factors included in NT EPA assessment of Grants and BP33 Proposals		
Theme	**Environmental factor**	**Environmental values potentially impacted**
Land	Terrestrial environmental quality	Quality and integrity of land and soils, ensuring soil stability, preventing contamination and erosion
	Terrestrial ecosystems	Native plant and animal species, fauna and vegetation communities, and habitats
Water	Hydrological processes	Flow regimes, surface water run-off, flooding, interaction with riparian vegetation, aquifers, recharge rates, drawdown impacts, groundwater dependent ecosystems
	Inland water environmental quality	Water quality of aquatic ecosystems, biodiversity, ecosystem function, human consumption, livestock and agriculture
People	Community and economy	Impacts and benefits to community and economy from use of local workforce and procurement, trucking of ore via local communities

The five environmental factors listed in Table 8-1 have been re-assessed, along with the other nine, for the infrastructure and activities included in this Proposal. LDGNT has undertaken a self-assessment of the Proposal using the pre-Referral screening tool and outcomes of the environmental and social risk assessment workshop (ESRA) (refer Appendix F) to determine if there is a potential for significant impact on these factors. This assessment is summarised in Table 8-2.

The presence and/ or absence of environmental values for each of the environmental factors and objectives is outlined in Sections 8.2 and 8.3 and further discussed in Sections 9 to 16 under each environmental factor and objective considered applicable for this Proposal derived from the pre-Referral screening tool (refer Appendix A) and ESRA (Appendix F).

8.2 Included environmental factors

The NT EPA environmental factors that have been included for further assessment were based on outcomes of a risk assessment for the Proposal in which an expected or potential impact on environmental values was determined.

The environmental factors to be included in further assessment of impacts for this Proposal are:

- LAND – Terrestrial environmental quality (Section 9),
- LAND – Terrestrial ecosystems (Section 10),
- WATER – Hydrological processes (Section 11),
- WATER – Aquatic ecosystems (Section 12)
- WATER – Inland water environmental quality (Section 13),
- AIR – Air quality (Section 14),
- AIR – Atmospheric processes (Section 15), and
- PEOPLE – Community and economy (Section 16).

A summary of the assessment for the environmental factors is provided in Table 8-2 Summary of potential impacts on Environmental Factors due to the Proposal

Table 8-2 Summary of potential impacts on Environmental Factors due to the Proposal

ENVIRONMENTAL FACTORS AND POTENTIAL IMPACTS						
THEME/ Environmental Factor (NT EPA, 2025a)		**Section**	**Proposal activity**	**Related Information[8]**	**Management controls**	**Residual Impact**
LAND	Terrestrial environmental quality	9	Soil quality			
			New slimes slurry pipeline – placed at ground level within approved corridor extent.	SDS for admixture MF362 (Appendix E)	Pipeline designed with pump automatic shut-in within 5s of pressure loss detection Pipeline OMS Manual Emergency Response Plan – incl. response, removal and disposal of slimes losses	**Low**
			Slimes holding tanks	Paste pre-feasibility study (Appendix C).	Hardstand areas in which slimes tanks sit will be designed to contain 110% of maximum volume	**Low**
			Paste reticulation system – conveys paste backfill between plant and raisebore	Paste pre-feasibility study (Appendix C).	Automated shut in upon detection of loss of pressure Paste plant operated within hardstand area with bunding to contain losses Small section of reticulation system above ground before entering a fully contained delivery borehole to underground mine Losses recovered by machinery and controlled disposal Paste plant O&M manual	**Low**
			Soil structure			
			Use of paste backfill system in underground mining	Paste pre-feasibility study (Appendix C).	Paste plant O&M manual – incl. selection process for products used in paste Hardstand area in which paste plant will be constructed and operated will be bunded to allow recovery of lost paste during manufacture and transport via primary stage of reticulation system	**Low**
	Terrestrial ecosystems	10	Significant species – threatened fauna			
			Increased frequency of ore and rejects haulage between BP33 and Grants mine sites may result in death of threatened fauna	Meeting with David Rhind, Development Assessment Coordinator, Flora and Fauna Division, Department of Environment, Parks and Water Security (DEPWS)	None identified	**Low**
			Creek crossing by the slimes slurry line may encroach on habitat supporting threatened species		Slimes slurry pipeline creek crossing will use an under-creek sleeve design Interference with a waterway permit approved prior to works commencing Construction EMP for installation of the pipeline creek crossing	**Low**
			Communities of ecological interest – riparian vegetation			
			Surface water extraction from OHD threatens local stand of riparian vegetation	Integrated water balance model (Appendix J) Paste pre-feasibility study (Appendix C)	Surface water extraction licence 8151018 limits annual allowance to 121 ML Integrated water management plan incl. MAW re-use, and groundwater monitoring	**Low**
			Dewatering of BP33 mine	Groundwater modelling study (Appendix M)	Dewatering mine plan Integrated Water Management Plan Installation of deep groundwater monitoring bore at BP33	**Medium**
WATER	Hydrological processes	11	Surface water hydrology			
			Additional water demands for integrated operations over LOM	Integrated water balance model (Appendix J)	Surface Water Extraction Licence for OHD (SWEL 8151018) Integrated Water Management Plan	**Low**

[8] An Environmental Mining Licence will be prepared and submitted for the Proposal to align with current legislation

ENVIRONMENTAL FACTORS AND POTENTIAL IMPACTS						
THEME/ Environmental Factor (NT EPA, 2025a)		**Section**	**Proposal activity**	**Related Information[8]**	**Management controls**	**Residual Impact**
			Addition and modification of surface structures at BP33 lead to altered local drainage	BP33 flood modelling study (Appendix K)	BP33 Underground mine Erosion and Sediment Control Plan (ESCP) (Appendix L)	**Low**
			Modification of ephemeral creek for slimes slurry line crossing	None	Under creek bed crossing design Permit to interfere with a waterway Austroads Guide to Road Design Part 5B – Floodway Crossings AS/NZS 2041 series – Buried Corrugated Metal Structures Construction Environment Management Plan	**Low**
			Groundwater hydrology			
			Dewatering to access the deeper mining area - will continue in the deeper groundwater aquifer.	Groundwater modelling study (Appendix M) Independent peer review of groundwater modelling (Appendix N)	Dewatering mine plan reviewed routinely for BP33 underground mine Integrated Water Management Plan incl. groundwater monitoring Install deep groundwater monitoring bore Paste plug placed at top of decline/ bottom of box cut Update Mine Closure Plans to include decommissioning, removal and rehabilitation of additional above ground infrastructure	**Medium**
	Aquatic Ecosystems	12	Connectivity – Riparian vegetation			
			Raw water demand from OHD	Integrated water balance study (Appendix J)	Surface Water Extraction Licence for OHD (SWEL 8151018) Integrated Water Management Plan	**Low**
			Mine dewatering associated within increased depth of BP33 underground mine	Groundwater modelling study (Appendix M) Independent peer review of groundwater modelling (Appendix N)	Dewatering mine plan reviewed routinely for BP33 underground mine Integrated Water Management Plan incl. re-use of MAW and groundwater monitoring Install deep groundwater monitoring bore	**Medium**
	Inland Water Quality	13	Surface water quality			
			Increased ground disturbances at BP33 mine site	BP33 Flood Modelling Study (Appendix K)	BP33 Underground mine Erosion and Sediment Control Plan (Appendix L) incl. SB 3 Environmental Mining Licence – securities held for clearing and closure	**Low**
			Extended LOM for integrated operations and related discharges	Integrated water balance model (Appendix J)	Environmental Mining including waste discharge operations Integrated Water Management Plan	**Low**
			Unplanned loss of slimes to creek	None	Permit to interfere with a creek Austroads Guide to Road Design Part 5B – Floodway Crossings AS/NZS 2041 series – Buried Corrugated Metal Structures Construction EMP Pipeline OMS Manual incl. automated shut in upon detection of loss of pressure	**Low**
AIR	Air Quality	14	Health and Amenity			
			Stockpiling of rejects at Grants processing plant and BP33 mine site	DEM analyses (Appendix P)	Dust management / suppression practices implemented for stockpiled rejects Covered haulage of rejects between mine sites	**Low**

ENVIRONMENTAL FACTORS AND POTENTIAL IMPACTS						
THEME/ Environmental Factor (NT EPA, 2025a)		**Section**	**Proposal activity**	**Related Information[8]**	**Management controls**	**Residual Impact**
			Haulage of rejects between Grants and BP33 mine sites along 3.5 km of Cox Peninsula Road			
	Atmospheric processes	15	Scope 1 Emissions			
			Integration of emissions estimates across Grants and BP33 projects	GHG emissions study (Appendix Q)	Ongoing annual NGER reporting Detailed operations energy study Prepare a Greenhouse Gas Abatement Plan by end of 2027	**Medium**
PEOPLE	Community and economy	16	Social infrastructure			
			Shared use of NT public road Cox Peninsula Road for the haulage of ore and rejects between BP33 and Grants mine sites	Traffic impact assessment (Appendix I) Community engagement report (Appendix G)	Operational traffic management plan Maintenance program implemented by Department of Logistics and Infrastructure	**Low**
			Employment opportunities			
			Operations workforce for Grants and BP33 over LOM	None	Employment of local and regional community members where possible Continue to advertise job opportunities on the Core website and via commonly used recruitment platforms	**Low**

8.3 Excluded environmental factors

The NT EPA environmental factors that have been excluded from further assessment are detailed in Table 8-3, based on absence of impact or environmental values.

Table 8-3 NT EPA Factors which were excluded from further assessment

NT EPA Factors which were excluded from further assessment		
Theme	**Environmental factor**	**Justification for no further assessment required – absence of impact on environmental values**
Land	Landforms	Objective: *conserve the variety and integrity of distinctive physical landforms*
		The Proposal does not involve substantial ground disturbance or significant clearing on steep/ erosion-prone slopes or significant alteration to the integrity or function of existing landforms. There are no natural landforms sensitivities, such as floodplains, that will be disturbed by the Proposal.
Sea	Coastal processes	Objective: *protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained*
		Due to the distance of the Proposal from the coastline, the Proposal activities do not have any direct or indirect interaction with coastal processes.
	Marine environmental quality	Objective: *protect the quality and productivity of water, sediment and biota so that environmental values are maintained*
		The Proposal location does not include any direct or indirect interaction with marine environmental quality. The potential impacts to the receiving water quality of the Charlotte River are captured under the inland water quality environmental factor.
	Marine ecosystems	Objective: *protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning*
		The Proposal location does not include any direct or indirect interaction with marine habitats.
People	Culture and heritage	Objective: *protect culture and heritage*
		The Proposal location does not include any direct or indirect interaction with cultural heritage sites, Aboriginal rights or interests.
	Human Health	Objective: *protect the health of the NT population*
		The Proposal does not use or emit dangerous or hazardous materials or activities.

9 Land – Terrestrial environmental quality

This section outlines the current understanding of the terrestrial environmental quality within and around the Proposal. The section explores how the environmental values could be directly or indirectly affected by changes to terrestrial environmental quality during the Proposal's construction and operation.

9.1 Factor Objective

> *Protect the quality and integrity of land and soils so that environmental values are supported and maintained* (NT EPA, 2025b)

Key information that has been referenced within this section includes:

- the Paste Pre-Feasibility Report – Appendix C, and
- SDS for admixture MF362 – refer Appendix E.

Table 9-1 provides a summary of the environmental values and sensitivities, along with the potential ('possible') significant impacts, related to the key factor LAND – Terrestrial Environmental Quality.

Table 9-1 Environmental Factor – LAND – Terrestrial Environmental Quality

THEME - Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
LAND Terrestrial environmental quality	Soil structure Changed mining methodology for BP33 underground mine to apply paste backfill to sub-surface soils	**POSSIBLE** • Planned delivery of paste backfill to primary stopes in the underground mine will permanently remain upon closure of the mine. The construction of paste walls during backfilling will permanently alter local sub-soil structure. **Refer Section 9.3.1.**
	Soil quality No evidence of pre-existing soil contamination in the haul route or BP33 mine site.	**POSSIBLE** • Unplanned loss of containment from the paste reticulation line from the paste plant to the underground mine could result in localised impacts to soils **Refer Section 9.3.2**. • Unplanned loss of containment from slimes slurry pipeline (containing inert and non-adhesive material), flowing from Grants (processing plant) to BP33 paste plant via the haul route, could have localised impacts on soils. **Refer Section 9.3.2**.
	Soil quality Acid mine drainage may arise from waste rock handling and storage.	**POSSIBLE** • Potential impacts related to acid mine drainage that may arise from waste rock material generated during mining of the deeper sections of BP33 mine. The risk of AMD generation through waste rock extraction, handling and storage is specifically related to 'fresh material'. The fresh material is expected to be encountered at approximately 170 mbgl, and the presence of this material is consistent through to the deepest sections of the mine included in this Proposal (850 mbgl). As the management controls committed in the previously approved BP33 Referral will be directly adopted during handling and storage of waste rock that contains

THEME - Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
		potentially acid forming (PAF) material, no increased/ new impacts, risks or management measures were identified. **No further impact assessment is included in this referral report.**
	Land Use Practices The Proposal components will remain within the previously approved disturbances.	**NO** • No new or increased impacts or risks to land use practices were identified in relation to the Proposal components. **No further impact assessment is included in this referral report.**

9.2 Environmental values

Based on Table 9-1, the environmental values that may be at risk and/or impacted by this Proposal are:

- Soil quality, and
- Soil structure.

Provided in sub-sections 9.2.1 and 9.2.2 below are brief descriptions on the land soils and sub-surface soils that are the focus of the risk and impact assessment (refer Section 9.3).

9.2.1 Land soils

Land unit mapping of the Proposal area was previously surveyed and mapped at 1:10,000 scale (refer Appendix B of BP33 Underground Mine Referral). Brief descriptions and areas of each land unit are provided in Table 9-2 and illustrated in Appendix B.

The Proposal area broadly comprises well-drained low hills and rises, intersected by seasonally waterlogged drainage systems and alluvial plains. The land is generally flat, with a slope of 5%, except for a short section of steep ridges traversed by the haul route between BP33 and Grants mine sites (land unit 1b).

The BP33 mine site occurs predominantly on land characterised as low rises with gravelly well-drained soils (land unit 2a1). Most of the haul route traverses steep ridges (land unit 1b), with a small section of the corridor located on narrow alluvial plains and upland terrain (land unit 5a). Both land units 6b and 5a are classified as having 'severe level of seasonal water logging' drainage description.

Table 9-2 Ground-truthed land units within the survey area

No.	Landform	Drainage	Soil	Total (ha)
1b	Low hills	Very rapid	Rudosols	130.4
2a1	Rises	Rapid	Rudosols	386.3
2b2	Rises	Rapid	Kandosols	16.1
5a	Alluvial plains	Slow (subject to waterlogging and inundation)	Hydrosols	244.2
7a	Alluvial plains	Moderate (occasional inundation)	Kandosols	47.1
5b2	Drainage system	Poor (waterlogged in wet season)	Hydrosols	40.6
6a	Drainage system	Very poor (subject to wet season inundation)	Hydrosols	8.8
6b	Drainage system	Poor (waterlogged in wet season)	Hydrosols	229.3

9.2.2 Sub-surface soils

A comprehensive description of soils and sub-surface materials to a depth of 320 mbgl at the BP33 site is provided in the contextual summary (Appendix B). The information in the contextual summary remains current and directly relevant to this impact assessment.

In addition, a description of the geology for the extended depth of mine footprint has been provided in Section 4.3.3. Of relevance is the consistent nature of the sub-surface 'fresh' material that continues from 320 mbgl through to the full depth of mine included in the Proposal.

9.3 Potential impacts and risks

The potential impacts on terrestrial environmental quality associated with this Proposal are:

- planned delivery of paste backfill to primary stopes in the underground mine will permanently remain upon closure of the mine. The construction of paste walls during backfilling will permanently alter local sub-soil structure.
- unplanned loss of containment from the paste reticulation line from the paste plant to the underground mine could result in localised impacts to soils
- unplanned loss of containment from slimes slurry pipeline (containing inert and non-adhesive material), flowing from Grants (processing plant) to BP33 paste plant within the haul route, could have localised impacts on soils; and

The potential significance of these impacts is further discussed in the sections below.

9.3.1 Construction of paste walls

Based on the proposed mining strategy for BP33 underground mine (increased from 320 mbgl to 850 mbgl), 2.7 Mm^3 of paste backfill together with 0.57 Mm^3 of rockfill will be required according to the mine plan. For the first four years of mining approximately 35,000 m^3 of paste per month will be required, after which this monthly requirement will vary between 5,000 and 35,000 m^3 per month.

The paste backfill will be made from the following components:

- Slimes and dry stack tails – both of which are different tailings size classes.
- Binder – in this mining activity the proposed binder is cement.
- Additives – if slimes are not available for a brief period, an additive will be temporarily used. The proposed product is MF362 admixture, a non-toxic product added at a rate of 550 mL/ 100 kg (refer Appendix E for MF362 SDS).

As the underground mine progresses, and stopes or underground cavities are created from mined material having been removed, the stope will be backfilled with either paste (primary stopes) or with waste rock material (secondary stopes). Progressively, the mined voids (stopes) will be filled with a combination of waste rock and paste backfill.

Backfill of mining voids using stockpiled waste rock was assessed and approved previously for the BP33 underground mine to a depth of 320 mbgl. The approach assessed and approved included backfilling with stockpiled waste rock applied to the extended depth of mine – no changes are proposed with the waste rock handling and back fill method and will be directly adopted by this Proposal.

Application of paste backfilling is a change and has been proposed as part of the mining strategy enabling a deeper depth of mining to be achieved. The nature of the paste is inert; most of the paste will be fines tailings recovered from processing of ore at Grants, with the addition of binder (cement) added at the BP33 paste plant. While the paste backfill will form 'walls' underground, the solid walls will be interspersed with rockfill sections allowing the movement of groundwater once the area becomes re-saturated upon cessation of dewatering in this area of the mine.

Based on the proposed backfilling of BP33 underground mine using paste manufactured from inert materials (recovered processing waste streams, and waste rock originating from the locality), impacts to the integrity of soils at the BP33 mine site upon closure will be minor, related to the intermittent solid paste walls preventing groundwater pass-through. Given that paste walls are discontinuous and accompanied by rock backfill, re-saturation of the complete area by groundwater in the deep aquifer will occur once dewatering ceases.

Details of the waste rock handling and storage practices ensuring backfill materials are appropriate and will not cause impacts to the integrity of sub-surface soils are included in the approved BP33 Waste Rock Dump and Acid Mine Drainage Management Plan (Revision 5, February 2026).

Production of paste for backfilling from the BP33 paste plant will be detailed in the Paste Plant Operations and Maintenance Manual (refer Table 8-2), including the selection and application of products used in the production of paste to ensure this does not introduce toxic agents during back fill operations.

9.3.2 Unplanned losses – slimes, paste

Contamination of land and soils could occur due to leaks and spills from operation and maintenance of the slimes slurry pipeline and the paste reticulation system.

To support the impact assessment, information on the design, construction, operation and maintenance of pipeline and the paste reticulation system have been assumed (refer Sections 3.3.4 and 3.3.4), together with management controls that will be applied to these infrastructure. Collectively, this information allows an estimate of credible loss volumes from the pipeline and reticulation system (refer Table 9-3).

Table 9-3 Credible loss scenarios for slimes slurry pipelines and paste reticulation system

Feature	Slimes slurry pipeline	Paste reticulation system
Flow rate	17 m^3/h	75 m^3/h
Internal diameter	300 mm	200 mm
Credible hole size	Flange connector parts	Full rupture/ disconnect
Release duration	Pump shut within 5s of pressure loss detection; assume one full pipe segment (50m in length) drains to ground	Up to 10s
Management controls	- Automated shut in upon detection of loss of pressure	- Automated shut in upon detection of loss of pressure - Paste plant constructed and operated within hardstand area with bunding - Small section of reticulation system above ground before entering a fully contained delivery borehole to

Feature	Slimes slurry pipeline	Paste reticulation system
		underground mine (refer yellow section in Figure 9-1)
Loss volume estimate	23 m^3 of slurry (35% 0.45 µm particles in raw water) drains to compacted gravel road and/ or cleared easement	33.3 m^3 paste fully contained within bunded area

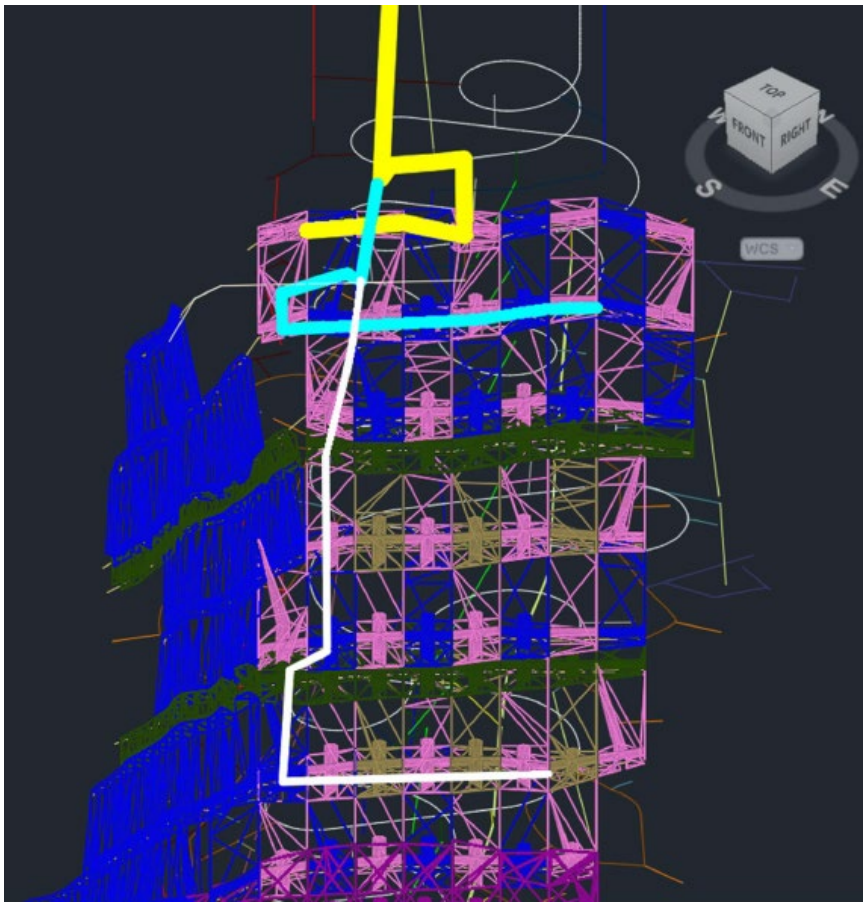


Figure 9-1 Paste reticulation design

9.3.2.1 Unplanned paste losses from the reticulation system

Unplanned losses from the paste reticulation system may occur in the above and/or below ground mine site sections of the reticulation system. Using the information in Table 9-3, a credible unplanned loss volume of up to 33 m^3 of paste could occur during operation of the reticulation system.

In the event an unplanned loss of paste from the reticulation system occurred in the above ground section of the system, the released paste will be captured within a hardstand bunded area. Subsequent removal of the released paste will be gathered in a sump located within the bunded area, allowing removal by machinery and controlled disposal to BP33 underground mine or at Grants TSF. Unplanned losses of paste to land soils from the above ground section of the reticulation system is not predicted.

Unplanned losses from the paste reticulation system below ground and within the mine itself will also be removed by machinery and disposed of at Grants TSF. Given the benign nature of the paste, and

the planned use of paste backfilling in the mining operations, no significant impacts to sub-surface soils due to unplanned losses from the paste reticulation system are predicted.

9.3.2.2 Unplanned slimes losses from the slurry system

Unplanned losses of slimes from the slurry pipeline may occur within the haul route. Using the information provided in Table 9-3, a credible unplanned loss of containment of up to 23 m^3 of slimes could occur during operation of the slimes slurry pipeline.

In the event an unplanned loss of containment from the slimes slurry pipeline occurs, a localised area of land soil may be affected. Given most of the slimes is raw water (approximately 65%), much of the lost volume (approximately 15 m^3 in this scenario) will simply soak into the ground with no environmental impact. The remaining solids component will deposit at ground surface allowing for careful removal of the surface layer of the affected area. The contaminated soil will then be disposed of to the Tailings Storage Facility at Grants mine site. Given the inert nature of slimes, no loss of physical or chemical integrity for land soils is expected in the event an unplanned loss of containment occurs during operation of the slimes slurry pipeline.

At either end of the slimes slurry pipeline, storage tanks ensuring continuity of operations at the paste plant remain uninterrupted. The storage tanks at either end of the pipeline are 1,000 m^3 at Grants processing plant, and 3,000 m^3 at BP33 paste plant. A loss of containment of part or the full volume (i.e. structural failure) could arise during operation of the slimes slurry system.

Given the slimes storage tanks will both be constructed within concrete containment bunds that will hold a volume of 110% the maximum volume of the tank (i.e. 1,100 m^3 and 3,300 m^3 containment capacity), no spills to land soils are expected due to a loss of containment for the slimes storage tanks.

Further discussion of potential inland water environmental quality impacts is provided in Section 12.

9.4 Combined impacts

Based on the discussion provided in Section 9.3, the potential impacts to terrestrial environmental quality from paste backfill operations, piping of slimes, and operation of the paste reticulation transfer systems is considered a low risk, when managed with appropriate measures.

Impacts to land and soil are expected to be localised within the Proposal footprint, primarily the project components of the haul route and the paste plant, and are unlikely to affect the quality of land and soils or associated environmental values based on the following assumptions:

- key infrastructure (paste reticulation system and slimes slurry tanks) will be constructed within hardstand areas including containment and/or bunding suitable for the volumes handled and/ or stored
- pipeline and reticulation system will be constructed with materials appropriate for the maximum operating pressures intended
- automated operating pressure monitoring will be implemented for paste reticulation and slurry systems that when a pressure loss is detected
- routine surveillance of the slimes slurry pipeline; and
- pipeline and reticulation systems will be operated in accordance with Operations and Maintenance Manuals, including response arrangements for loss of containment events that may arise.

9.5 Mitigation and management

The following management measures will be adopted:

- automated pressure loss monitors in the slimes slurry pipeline and paste reticulation system
- automated shut in of pumping operations upon detection of a pressure loss in the slimes slurry pipeline and paste reticulation system
- routine surveillance of the pipeline
- paste plant will be constructed and operated within a hardstand area with bunding
- initial section of the paste reticulation system will leave the paste plant and enter the mine via a borehole, all of which will be located over a hardstand area with bunding; and
- slimes slurry tanks at either end of the slimes slurry pipeline will be situated in hardstand containment areas that are designed to contain 110% of the total tank volume.

Manuals detailing the operation, maintenance and surveillance (OMS) activities for each of the pipeline and reticulation systems will be prepared. The OMS manuals will ensure the management controls listed above are implemented, including response arrangements for any losses due to unplanned events and controlled disposal of affected soils.

Development and implementation of a Construction Environment Management Plan (CEMP) and an Erosion Sediment Control Management Plan will occur to satisfy erosion protection commitments during construction and operations phases of the slimes slurry pipeline.

9.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the terrestrial environmental quality environmental factor due to the Proposal were assessed by considering both the direct and indirect effects and effectiveness of proposed mitigation and management measures (refer Section 9.5).

The assessment considered the severity (including scale, duration, and magnitude) of the potential impacts, alongside the importance and sensitivity of the environmental value components. Based on this assessment, with the implementation of the identified management measures, it was determined that there will be no significant residual impact on this environmental factor.

Refer Appendix F for the risk assessment and resultant LOW residual impact.

9.7 Conclusion

With effective implementation of management measures, including the OMS manuals, CEMP and ESCP, the Proposal is not likely to significantly affect the terrestrial environmental quality.

Overall, the impact and risk assessment (refer Appendix F) identified a low residual impact resulting from the Proposal on terrestrial environmental quality. It is therefore concluded that the NT EPA's objective for terrestrial environmental quality to '*Protect the quality and integrity of land and soils so that environmental values are supported and maintained*' will be met.

10 Land – Terrestrial ecosystems

This section outlines the current understanding of the terrestrial ecosystems within and around the Proposal. The section explores how the environmental values could be directly or indirectly affected by changes to terrestrial ecosystems during the Proposal's construction and operation.

10.1 Factor Objective

> *Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning* (NT EPA, 2025b)

Key information that has been applied in preparation of this section is:

- Traffic impact assessment – refer Appendix I,
- Integrated water balance model - refer Appendix J,
- Annual riparian monitoring report – refer Appendix H,
- Groundwater modelling study – refer Appendix M, and
- Independent peer review of groundwater modelling study – refer Appendix N.

Table 10-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to the Environmental Factor LAND – Terrestrial Ecosystems.

Table 10-1 Environmental Factor – LAND – Terrestrial Ecosystems

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
LAND Terrestrial ecosystems	Native vegetation & Habitat Quality Ground disturbances are required for modifications to the processing plant, extension of WRD2, installation of sediment basin 3, paste plant and an overflow stockpile, as well as modification of the BP33 intersection at Cox Peninsula Road	**NO** • Changes related to the modification and introduction of infrastructure associated with the Proposal will all occur within the previously approved development envelopes for Grants and BP33 (refer Table 2-2). **No further impact assessment is included in this referral.**
	Threatened fauna Relocation of haulage between BP33 and Grants to Cox Peninsula Road poses a risk to some listed species	**POSSIBLE** • Relocation of haulage route to Cox Peninsula Road presents a risk of vehicle strike to threatened fauna present along Cox Peninsula Road **Refer Section 10.3**
	Threatened fauna Creek crossing for the slimes slurry pipeline	**POSSIBLE** • The ephemeral creek, to be crossed by the slimes slurry pipeline, is potential habitat for the Pale field-rat. **Refer Section 10.3**

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
	Communities of ecological interest Riparian vegetation associated with drainage line BP1 may be affected by operating water demands and/or dewatering of BP33 underground mine	**POSSIBLE** • Demand for raw water associated with modifications to the processing plant and installation of the BP33 underground mine cooling plant could deplete riparian vegetation thought to derive water supply from spillover at Observation Hill Dam. **Refer to Section 10.3**
		POSSIBLE • The proposed cone of depression due to dewatering of the BP33 underground mine may impact water supply of nearby riparian vegetation communities thought to be facultative groundwater dependent ecosystems. **Refer to Sections 10.3, 11.3 and 12.3**

10.2 Environmental values

Based on Table 10-1, the environmental values that may be at risk and/or impacted by this Proposal are:

- Threatened fauna, and
- Communities of ecological interest – riparian vegetation.

Provided in sub-sections 10.2.1 to 10.2.3 below are brief descriptions of the threatened fauna of interest – the Pale field-rat and the Northern brushtail possum – as well as riparian vegetation (community of ecological interest) that are the focus of the risk and impact assessment in Section 10.3.

For noting, potential impacts to riparian vegetation due to surface water extraction from OHD and dewatering of BP33 underground mine, are also considered in Sections 11.3 and 12.3.

10.2.1 Threatened fauna

There are two species of threatened fauna that may be impacted by the Proposal:

- The Pale field-rat, and
- The Northern brushtail possum.

10.2.1.1 Pale field-rat

The Pale Field-rat is a medium-sized rodent that occurs in areas of higher rainfall including the Northern Territory and northern Western Australia. The Pale field-rat occurs in a wide range of habitats, including tall grasslands, rocky slopes, woodlands and monsoon forests with dense understoreys dominated by grasses and sedges, and along inland watercourses. The Pale field-rat is nocturnal, sheltering during the day in below-ground burrows. Their diet consists of roots, grass stems and seeds (DEPWR, 2021).

10.2.1.2 Northern brushtail possum

Northern Brushtail Possums are nocturnal, medium sized marsupials that mostly live in trees. They are generally found in open forests of tall eucalypts, with understorey species that bear fleshy fruits. Northern Brushtail Possums have declined in range following European settlement. Sightings in

Western Australia have been rare in recent decades, the species is now mostly found in the Northern Territory, including on islands. While this range remains broad, many regional subpopulations in semi-arid areas have been lost, so the distribution of Northern Brushtail Possums is patchy (DCCEEW, 2023).

10.2.2 Communities of ecological interest – Riparian vegetation

A narrow zone of riparian vegetation is present along the minor ephemeral watercourse downstream of Observation Hill Dam (OHD) from which raw water is extracted to support mining and processing operations. There is evidence to suggest that the vegetation is supported by overflows from the OHD spillway. The watercourse is a minor stream order one drainage line, but the closed structure of the riparian vegetation and observed persistence of surface pools of water in the dry season (EcOz, 2019) indicates the community may be a facultative GDE, with an infrequent or partial dependence on groundwater (CloudGMS, 2021).

The location of riparian vegetation relevant to the Proposal area is provided in Figure 4-4.

10.3 Potential impacts and risks

The potential impacts on terrestrial ecosystems associated with this Proposal are:

- Crossing of the creek in the haul route by the slimes slurry line could fragment habitat for the listed species Pale field-rat,
- Haulage of ore and rejects between BP33 and Grants along Cox Peninsula Road could result in death or injury of the listed species Northern brushtail possum, and
- Water demand for new and modified mining and processing activities could reduce overflows from OHD supporting downstream riparian vegetation.

The significance of these impacts is further discussed in the sub-sections below.

10.3.1 Creek crossing by the slimes slurry pipeline

There is potential for the Pale field-rat, listed as threatened by the Northern Territory Government and commonly found using inland watercourses, to be present in the creek crossing. Therefore, alteration either temporarily or permanently of this watercourse is an important consideration for this listed species.

As described in Section 3.3.3, the intent is for the slimes slurry pipeline to cross the ephemeral creek underneath the creek bed. Installation of the pipeline at the creek crossing will utilise a sleeve buried under the creek bed. Once installed, the pipeline will pass through the sleeve.

Once the sleeve has been installed under the creek bed, the area will be remediated such that waterflows can continue unimpeded within the watercourse. In addition, movement along and across the sides of the creek bed will be unimpeded and accessible to small, ground dwelling fauna in the area.

Based on the proposed installation approach for the pipeline crossing at the ephemeral creek, the crossing is not expected to significantly impact on the Pale field-rat.

10.3.2 Relocated haulage of ore and rejects to Cox Peninsula Road

In the previous environmental approval for BP33 underground mine, haulage of ore from BP33 to Grants processing plant was to occur via an internal haulage road, located west of Cox Peninsula Road running between the mine sites, and included the development of a haul road.

Subsequent review of hauling operations proposed a change such that this internal haulage activity occur on Cox Peninsula Road. Key drivers for the change included variable terrain within the haul route and associated flash flows and land soils prone to inundation (refer Section 9.2.1).

In response to these drivers, a traffic impact assessment was completed by ARCCOS (refer Appendix I) to understand what impacts would arise if the haulage activity was transferred to Cox Peninsula Road.

The impact assessment found that the road will comfortably accommodate the internal haulage activity, and the proposed change was submitted to the DLPE with a revised Mining Management Plan for BP33 which was subsequently approved.

A net environmental benefit arising from relocation of ore and rejects haulage from the internal haul route to Cox Peninsula Road is that fauna, including the Northern brushtail possum, at risk of vehicle strike will be habituated to vehicle traffic on Cox Peninsula Road, while this would not be the case along the previously approved and undeveloped internal haul route.

Based on the findings of the traffic impact assessment, relocation of ore and rejects haulage to Cox Peninsula Road will reduce the risk of vehicle strike for local fauna.

10.3.3 Increased raw water demand

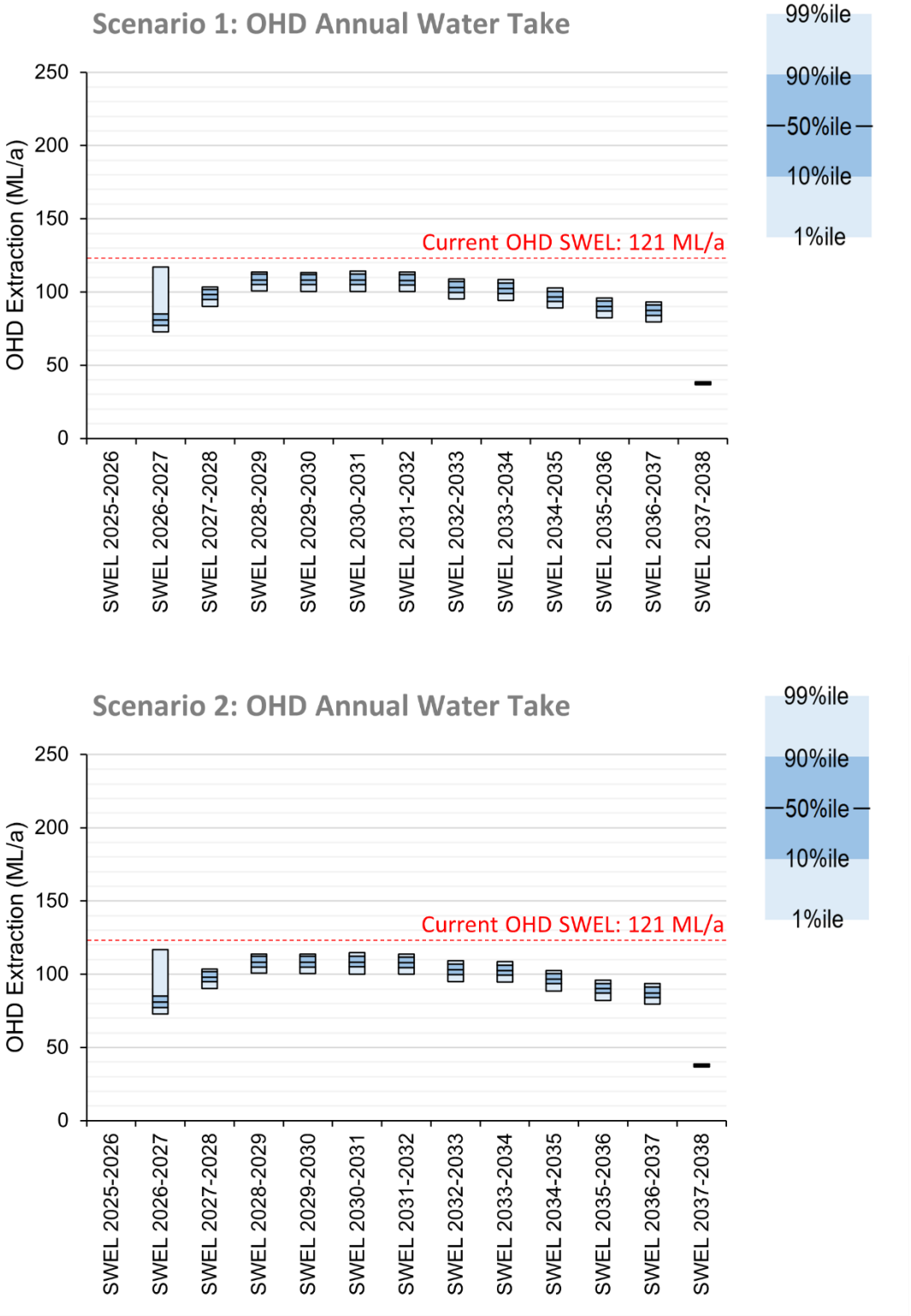
The riparian vegetation that occurs along the minor ephemeral watercourse downstream of Observation Hill Dam (OHD) and BP33 mine site – Drainage Line BP1 – could be stressed by reduced overflows from the OHD spillway due to the dam being used as a source of increased raw water supply.

The Proposal includes several new (e.g. BP33 paste plant, cooling plant) and modified (e.g. Grants processing plant) activities that could result in a shortfall in raw water demand for integrated operations. To ensure any shortfalls in water supply for mining and processing operations do not result in increased extraction rates from OHD, an integrated water balance model has been prepared for the Proposal (refer Appendix J). Included in the integrated water balance modelling is the switch from raw water to mine affected water being used for crushing of ore, and raw water being reserved for only gland water at Grants processing plant.

The outcomes of the integrated water balance study predict that there are no site deficits in water requirements for Proposed integrated operations for all modelled climatic conditions. In particular, the predicted total surface water extraction volumes from OHD for the duration of the LOM period are below the limits of the SWEL 8151018 (refer Figure 10-1).

The narrow strip of riparian vegetation present along Drainage Line BP1 has had twice annual monitoring completed in 2019 (baseline/ pre-commencement of operations at Grants mine site), 2022, 2023, 2024 and 2025. The objective of the monitoring program is to allow early detection of stress in the community due to surface water extraction from OHD prior to permanent and/ or long-term impacts arise by allowing mitigative management actions to be implemented. Several health metrics are contained in the monitoring program including species diversity, coverage, and structure. For the duration of the monitoring program, deterioration in the monitored health metrics attributed to LDGNT's mining operations has not been identified. For further information the most recent annual monitoring report is included in Appendix H.

Based on the findings of the integrated water balance modelling, additional raw water demand from OHD will not be required for the mining and processing activities included in the Proposal. As such, impacts to the riparian vegetation present in Drainage Line BP1 are not predicted.



Source: WRM (2026); Appendix J

Figure 10-1 Predicted annual water take from OHD for Scenario 1 base case (top) and Scenario 2 high case (bottom) for the Proposal LOM

10.3.4 Change to Zone of Influence related to dewatering of deeper underground mine

A key aspect of the Proposal is an increased depth of BP33 underground mine. The previously approved depth of mine was to 320 mbgl and this Proposal sees the mine extend to approximately 850 mbgl.

Artesium Consulting Services (Artesium) was engaged to update a numerical groundwater model previously established for the BP33 underground mine extending to 320 mbgl. Update to the model included key components of this Proposal including:

- Grants open pit void becoming a water handling facility once the ore had been fully mined from this facility,
- Increased depth of mine at BP33 including the use of paste backfilling in primary stopes,
- Extension of LOM for the integrated operations (i.e. 133 months of mining at BP33 and operation at Grants), and
- Inclusion of a closure activity to install a paste plug at the top of the BP33 mine decline/ base of the box cut upon completion of mining.

The model assumes three groundwater zones underpinning the Proposal area (refer Section 4.3.4):

- Shallow groundwater zone: 1 to 8 mbgl,
- Intermediate groundwater zone: 15 to 30 mbgl, and
- Deep groundwater zone: deeper than 50 mbgl

The model was updated for this Proposal, and incorporated depth-dependent decreasing hydraulic conductivity to reflect decreasing permeability with depth of the groundwater zones. The limited hydraulic connectivity observed in monitoring data captured at Grants (2017–2025) and BP33 (2020–2025) was represented in the model by decreasing the vertical hydraulic conductivity by an order of magnitude (Artesium, 2026; Appendix M).

Calibration was successfully undertaken against measured pit inflows at Grants and transient groundwater levels over the Proposal area (Artesium, 2026; Appendix M). Independent peer review completed by Australasian Groundwater and Environmental Consultants (AGE), confirmed successful calibration of the model, and that the model was classified as a Class 2 Model and could therefore produce reliable predications of environmental impacts due to the activities proposed (AGE, 2026; Appendix N).

Modelling of the components as listed above produced simulations of potential impacts to the groundwater zones (shallow, intermediate and deep) within the Proposal footprint. Simulations of dewatering, supported by long-term monitoring data, confirmed that groundwater responses in the shallow groundwater zone common across Grants and BP33 mining areas is predominantly controlled by natural seasonal variability (rainfall and evaporation), with mining-related impacts remaining comparatively limited.

Several scenarios were included in the modelling predictions:

- Scenario 1.1a Base Case: the model was calibrated to scale storage yield values with depth and be more representative of literature values as best possible while still achieving seasonal variability in water levels.

- Scenario 1.1b No Mining: all mining was removed from the calibrated base case transient model (Scenario 1.1a) and run up to LoM.
- Scenario 1.2 Medium K: hydraulic conductivity for the deeper aquifer was increased by 5 times from the calibrated model used in Scenario 1.1a.
- Scenario 1.3 High K: hydraulic conductivity for the deeper aquifer, where the bulk of the underground mining will occur was increased by 10 times from the calibrated model used in Scenario 1.1a.
- Scenario 1.4 High Sy: specific yield was scaled up by an order of magnitude (x10) from Scenario 1.1a for all model layers.
- Scenario 1.5 50% of recharge: 50% of the transient non-linear recharge applied in the calibrated model was used.
- Scenario 1.6 Double recharge: the transient non-linear recharge applied in the calibrated model was doubled.
- Scenario 1.7 Dry Cycle: scenario 1.1a parameters were used and a dry sub-climate cycle was used to simulate LoM impacts.

The estimated base-case groundwater flows for BP33 underground peaked at approximately 1,696 m^3/d 75 months after mining started. The dewatering rates steadily declined as aquifer storage was depleted and plateaued around month 95 at a rate of approximately 1,100 m^3/d. The average LoM dewatering rate for BP33 base case was 1,139 m^3/d. The BP33 underground high case dewatering rate peaked at 2,235 m^3/d and stabilised around 1,600 m^3/d, with the average dewatering rate calculated for the BP33 LoM high case at 1,359 m^3/d.

The estimated BP33 box cut dewatering rate for the base case scenario peaked at 260 m^3/d. The box cut dewatering was predicted to decrease as the decline is developed from the box cut and dewaters the immediate area. The average fissure dewatering rate applied to the Box Cut was 51 m^3/d up to LoM. The high-case scenario in which recharge was doubled yielded estimated peaks of up to 715 m^3/d, with an average dewatering rate that was double the base case (106 m^3/d).

The simulated zone of influence (ZOI) for the wet versus dry season observed in the shallow, intermediate and deep aquifers by LoM is shown in Figure 10-2. The ZOI was plotted with a 1 m boundary. At LoM for BP33 UG, the ZOI in the shallow aquifer extended ±2.25 km east–west and ±2.1 km north – south (approximately 345 ha). The ZOI in the shallow aquifer is predicted to intersect with low-potential GDE habitat to the south and north of the mine. The maximum simulated drawdown was ±10 m within the decline footprint of the mine.

The ZOI predicted in the intermediate aquifer had a slightly larger extent than the shallow ZOI covering an area of approximately 395 ha. In the deep aquifer, where the bulk of the UG mining will occur, the ZOI was predicted to cover an area of approximately 685 ha: 3.5 km east-west and 2.5 km north-south.

BP33 SIMULATED ZONE OF INFLUENCE (ZOI) MAP LoM

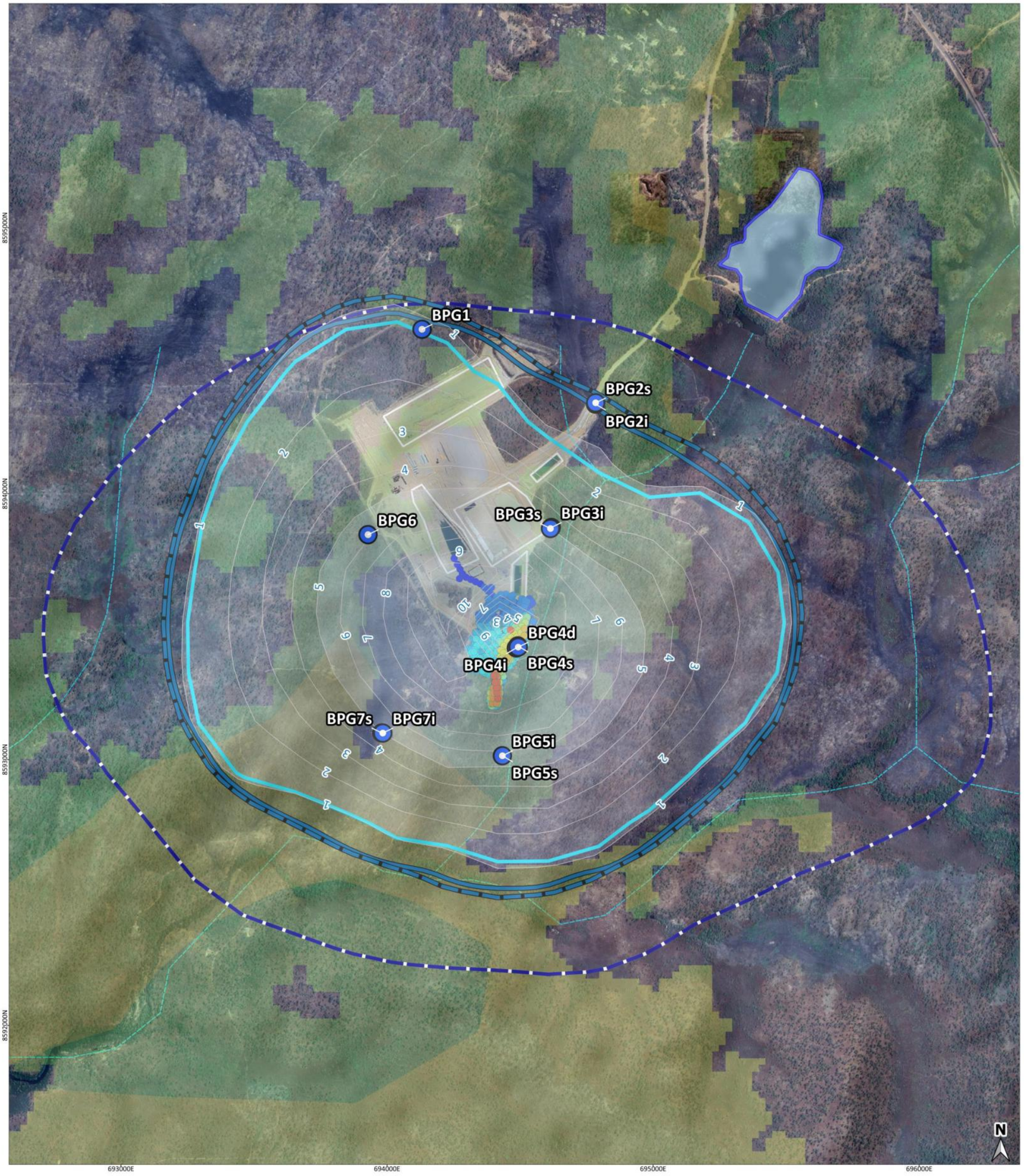


Figure 10-2: SimuLated ZOI Map for BP33 Mine LoM

In addition to understanding the ZOI at BP33, estimates of changed drainage discharges from the shallow groundwater zone to nearby riparian vegetation, thought to be a facultative groundwater dependent ecosystem, were also predicted by the groundwater model.

The mean groundwater rate discharged to drainages within the model domain in a 'no-mining' condition was predicted to be 27,181 m^3/d. With the activity of mining added, the predicted drainage discharge was 24,564 m^3/d, a 10% reduction. The estimated groundwater discharge predicted by the model accounts for all drainage that may occur in the modelled domain, and all the drainage network is not covered by riparian vegetation.

Table 10-2 summarises the areas where predicted groundwater discharge would report to GDEs (i.e. riparian vegetation; 'features').

The mean annual predicted impact when considering drainage servicing GDEs is negligible, less than 2%, for the moderate and low potential GDEs (refer Figure 10-2).

The groundwater modelling study (Artesium, 2026; Appendix M) concluded that:

The updated numerical modelling, supported by long-term monitoring data, demonstrates that groundwater systems at the Grants and BP33 mining areas are characterised by limited hydraulic connectivity and are predominantly governed by natural seasonal variability. As a result, mining-induced impacts included in the Proposal are localised, with zones of influence remaining spatially constrained and groundwater dependent ecosystems simulated to have negligible impact.

Table 10-2 Predicted impact on riparian vegetation from modelled water budgets

Breakdown of Predicted Groundwater Discharge to Drainages									
Groundwater Discharge to Drainages (GDE's) Breakdown	**Mean Annual**			**Wet Season**			**Dry Season**		
Feature	**Pre-Mining**	**Mining**	**Diff (%)**	**Pre-Mining**	**Mining**	**Diff (%)**	**Pre-Mining**	**Mining**	**Diff (%)**
Groundwater Discharge to Drainages High potential GDEs	0	0	**0%**	0	0	**0%**	0	0	**0%**
Groundwater Discharge to Drainages Moderate potential GDEs	-4,820	-4,733	**-2%**	-6,426	-6,267	**-2%**	-4,326	-4,249	**-2%**
Groundwater Discharge to Drainages Low potential GDEs	-8,937	-8,730	**-2%**	-12,300	-12,032	**-2%**	-7,652	-7,483	**-2%**

10.4 Combined impacts

Based on the discussion provided in Section 10.3, the potential impacts to terrestrial ecosystems due to installation of the slimes slurry pipeline at the creek crossing in the haul route, transfer of ore and rejects haulage to Cox Peninsula Road, and water demands related to integrated operations, are considered a low risk when managed with the appropriate measures.

Impacts to terrestrial ecosystems are expected to be localised if they occur, and are not expected to affect their continued quality and function based on the following assumptions:

- the ephemeral water course and access for potentially associated threatened fauna (the Pale field-rat) will be unimpeded following installation of the slimes slurry pipeline creek crossing using an under-creek sleeve design. The successful installation of the pipeline at this creek crossing will require prior approval with a permit to interfere with a waterway, and will be supported by a CEMP
- relocation of ore and rejects haulage to Cox Peninsula Road will now occur in an area with existing traffic and local fauna (including the listed Northern brushtail possum if present) will be habituated with this presence and usage, and
- water demand of activities included in proposed integrated operations will be met with the existing surface water extraction allocation from OHD through SWEL 8151018 and where possible, re-use of mine affected water will be used in conjunction with raw water supply, to be detailed in an integrated water management plan.
- Numerical modelling predicts that shallow, intermediate and deep groundwater aquifers underpinning the Grants and BP33 sites are characterised by limited hydraulic connectivity. The shallow groundwater aquifer was found to be predominantly governed by natural seasonal variability (rainfall and evaporation) and mining-related impacts were comparatively limited in this groundwater zone. Given that the key environmental value of riparian vegetation is supported by the shallow groundwater aquifer, mining-induced changes are predicted to be localised and groundwater dependent ecosystems (riparian vegetation) expected to be unimpacted.

10.5 Mitigation and management

The following management measures will be adopted:

- Installation of the slimes slurry pipeline at the creek crossing will be via an underbed sleeve through which the pipeline will pass, and over which the water course will continue to function, unimpeded,
- Ensuring a permit to interfere with a waterway is approved prior to commencement of installation of the slimes slurry pipeline at the creek crossing,
- Raw water sourced from OHD will not exceed the existing Surface Water Extraction Licence (SWEL 8151018) that allocates 121 ML/a, and
- Where a shortfall in water for mining and/or processing activities is required, this shortfall will be made up with mine affected water sourced from either BP33 mine water dam, or Grants mine water dam, to be detailed in an integrated water management plan.
- Monitoring of groundwater levels in the shallow groundwater aquifer to ensure the impacts of dewatering in this zone are as per modelling predictions will be undertaken as per the Integrated Water Management Plan.

- Ongoing monitoring of local riparian vegetation.

A Construction Environment Management Plan (CEMP) will be developed to include and detail the management controls (crossing design, interference with a waterway permit) listed for construction of the slimes slurry pipeline lying.

An Integrated Water Management Plan will be developed to include and detail the management controls including a mine dewatering plan, monitoring of groundwater levels and riparian vegetation, and management responses in the event changes to health are detected in riparian vegetation.

10.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the terrestrial ecosystems environmental factor were assessed by considering both the direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures outlined in Section 10.5.

The assessment evaluated the severity of the potential impacts (including scale, duration, and magnitude), together with the importance and sensitivity of the environmental value components. Based on this assessment, and with the implementation of the identified management measures, it was determined that there will be no significant residual impact on this environmental factor.

Refer Appendix F for the risk assessment and resultant LOW to MEDIUM residual impact.

10.7 Conclusion

With effective implementation of the identified management measures, including an under-creek bed crossing for the slimes slurry pipeline, meeting water demands for mining and processing using mine affected water rather than exceeding the SWEL 8151018 raw water allocation, and development of an Integrated Water Management Plan including groundwater and riparian vegetation monitoring and management response requirements in the event of changes to health, the Proposal is not likely to significantly affect the key factor terrestrial ecosystems.

Overall, the impact and risk assessment (refer Appendix F) identified a low to medium residual impact on terrestrial ecosystems resulting from the Proposal. It is therefore concluded that the NT EPA's objective for terrestrial ecosystems to '*Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning*' will be met.

11 Water – Hydrological processes

This section outlines the current understanding of the hydrological processes within and around the Proposal. The section explores how the environmental values could be directly or indirectly affected by changes to hydrological processes during the Proposal's construction and operation.

11.1 Factor Objective

Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained

Key information that has been referenced within this section includes:

- Integrated water balance model by WRM (WRM, 2026) – refer Appendix J)
- Flood model for additional ground disturbances at BP33 mine site – refer Appendix K
- BP33 underground mine erosion and sediment control plan (WRM, 2025) – refer Appendix L
- the Groundwater Model Update – Core Lithium Grants and BP33 Mine Groundwater Dewatering Model Update (Artesium, 2026) – refer Appendix M, and
- independent peer review of the Groundwater Model by AGE (AGE, 2026) – refer Appendix N.

Table 11-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to the key factor WATER – Hydrological processes.

Table 11-1 Environmental Factor WATER – Hydrological Processes

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
WATER Hydrological processes	Surface water hydrology Minor ephemeral watercourse flows. No known consumptive uses of surface water downstream of mine site.	**POSSIBLE** • Creek crossing by slimes slurry pipeline **Refer to Section 10.3**
	Surface water hydrology Local drainage regimes at BP33	**POSSIBLE** • Additional ground disturbances at BP33 will alter local drainage regime **Refer to Section 10.3**
	Surface water hydrology Riparian vegetation associated with drainage line BP1 receives spillover from OHD	**POSSIBLE** • Demand for raw water associated with modifications to the processing plant and installation of the BP33 underground mine cooling plant could deplete riparian vegetation thought to derive sub-surface water supply from Observation Hill Dam. **Refer to Section 10.3**
	Groundwater hydrology Deep groundwater aquifer (deeper than 150 mbgl)	**POSSIBLE** • Increased depth of mine from 320 mbgl to 850 mbgl increases the cone of depression creating due to mine dewatering operations. The increased cone of depression has the potential to alter the zone of influence

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
		Refer to Section 10.3

11.2 Environmental values

Based on Table 11-1, the environmental values that may be at risk and/or impacted by this Proposal are:

- Surface water hydrology, and
- Groundwater hydrology.

Provided in sub-sections 11.2.1 and 11.2.2 below are brief descriptions on surface water hydrology and groundwater hydrology that are the focus of the risk and impact assessment in Section 11.3.

For noting, potential impacts to riparian vegetation due to surface water extraction from OHD and dewatering of BP33 underground mine, are also assessed in Sections 10.3 and 12.3.

11.2.1 Surface water hydrology

The information provided in sub-sections below is extracted from the BP33 Underground Mine Erosion Sediment Control Plan (WRM, 2025) included in Appendix L.

11.2.1.1 Local drainage

BP33 mine site is located within the Finniss River sub-basin of the greater Timor Sea Basin. The Finniss River sub-basin consists of several major streams that discharge into the Timor Sea. The BP33 mine site is in a watercourse catchment that drains into the Bynoe Harbour via an unnamed tributary of the Charlotte River. Carrawara Creek is located approximately 17 km northwest of BP33 mine site, and Charlotte River is located approximately 3 km to the southwest of BP33. The catchments surrounding BP33 are predominantly undisturbed, with some rural residential areas and road infrastructure.

Topography of the BP33 mine site area generally falls to the south, towards a natural stream (Drainage Line BP1) that runs from Observation Hill Dam to a confluence with the Charlotte River to the west. The western portion of the site grades towards the northwest (Overland flow path).

A summary of the local drainage network for the BP33 mine site area is provided in Table 11-2.

Table 11-2 Local drainage network of the BP33 mine site area

Local Drainage Features	
Name	**Description**
Drainage Line BP1	Catchment area of approximately 365 ha of which approximately 94 ha is upstream of OHD. The catchment is mostly natural with some grassed areas that were cleared by preliminary exploration activities. The channel is poorly defined, particularly in the upper section of the reach. The channel banks are vegetated with grasses, shrubs and small trees.
Unnamed tributary of the Charlotte River	Discharges into a tributary of the Charlotte River, which has a catchment area of approximately 3,193 ha. The tributary discharges into the tidally affected section of the Charlotte River.
Drainage Line BP2	Catchment area of approximately 217 ha and discharges into the tidally affected section of the Charlotte River.

Local Drainage Features	
Overland flow path	The overland flow path to the southwest of the site has a catchment area of approximately 52 ha to the BPDS SW8 monitoring location. The overland flow path would discharge into the Unnamed Tributary of the Charlotte, slightly downstream of the BPDS SW6 monitoring location.

11.2.1.2 Local soils

Several soil types have been identified at the BP33 mine site:

- Topsoil,
- Subsoil,
- In-situ laterite (coffee rock),
- In-situ phyllite,
- Zone 1 construction material, and
- Zone 3 construction material.

The observed soil types are further detailed in Table 2.3 of Appendix L.

11.2.2 Groundwater hydrology

The current approved mine depth of 320 mbgl terminates within the deep groundwater aquifer considered to commence at approximately 150 to 200 mbgl and extending deeper. The proposed increased depth of mine included in this Proposal is therefore progressing within this deeper aquifer and is a key consideration of the impact assessment of the Proposal. In addition, the extended LOM and operations at BP33 and Grants, respectively, are also a consideration for what a zone of influence being present longer means to related environmental values.

The information provided in sub-sections below is extracted from the Groundwater Modelling Study (Artesium, 2026) included in Appendix M.

11.2.2.1 Geology assumed in the groundwater model

The Proposal area is underlain by Quaternary deposits of sand, silt, and clay. Along drainage channels and associated floodplains, alluvial deposits of sand, silt, and clay are also present, with widths varying between 100 and 450 m.

The Burrell Creek Formation, a unit of the Finniss River Group, underlies much of the model domain. It is composed predominantly of shale, siltstone, and phyllite, with local occurrences of banded lithologies, fine- to very coarse-grained sandstone (quartz arenite and sublitharenite), pebble conglomerate, and minor graphitic phyllite. Outcrops of the Burrell Creek Formation occur to the east and south-east of the model boundary. Regionally, the unit represents one of the major successions of the Finniss River Group within the Palaeoproterozoic Pine Creek Orogen, consisting of thick turbiditic sediments deposited between ±2.2 and 1.8 Ga (Ahmad & Hollis, 2013). The formation comprises interbedded slate, phyllite, fine- to medium-grained greywacke, siltstone, and minor conglomerate, displaying graded bedding and sedimentary structures typical of deep-water turbidite systems.

According to CloudGMS (2018), much of the near-surface geology across the study area is overlain by

laterite, averaging up to 5 m in thickness. The laterite formed under prolonged tropical weathering during the Palaeoproterozoic, where feldspathic and volcanic-derived sediments of the Finniss River Group supplied abundant aluminosilicate minerals. Intense chemical leaching stripped mobile cations such as sodium, calcium, potassium and magnesium, leaving behind residual concentrations of iron and aluminium oxides. This process resulted in ferruginous and aluminous lateritic horizons. The Burrell Creek Formation is interpreted to extend to depths of up to 2,000 m beneath the surface, based on the cross-sections provided in the SD 52-4 Darwin (1988) geological map sheet.

11.2.3 Interaction with ecosystems

A narrow zone of riparian vegetation is present along the minor ephemeral watercourse, Drainage Line BP1. The watercourse is a minor stream (order one drainage line), but the closed structure of the riparian vegetation and observed persistence of surface pools of water in the dry season (EcOz, 2019), indicates the community is likely to be a facultative groundwater dependent ecosystem (GDE), with an infrequent or partial dependence on groundwater (CloudGMS, 2021).

Monitoring data collected from groundwater monitoring bore BPG5i, close to the riparian area, indicates that depth to groundwater ranges from around one meter in the wet season, to six metres in the late dry season and on this basis it is assumed that the riparian vegetation accesses the groundwater for some or part of the dry season when there are no surface flows.

11.2.4 Impact on land uses

The zones of influence predicted for the Proposal (refer Figure 10-2) is not predicted to impact other nearby land and water users.

For further information on impacts on local land uses refer to Section 7.5.

11.3 Potential impacts and risks

The potential impacts on hydrological processes associated with this Proposal are:

- Crossing of the creek in the haul route by the slimes slurry line interrupts surface hydrology of the waterway,
- Modification and addition of operational facilities at BP33 including extension of WRD2, and construction of an overflow stockpile, paste plant and third sediment basin, and
- Extended depth of BP33 underground mine and associated dewatering.

The significance of these impacts is further discussed in the sub-sections below.

11.3.1 Creek crossing by the slimes slurry pipeline

There is potential for the Pale field-rat, listed as threatened by the Northern Territory Government and commonly found using inland watercourses, to be present in the creek crossing. Therefore, alteration either temporarily or permanently of this watercourse is an important consideration for this listed species.

As described in Section 3.3.3, the intent is for the slimes slurry pipeline to cross the ephemeral creek underneath the creek bed. Installation of the pipeline at this point in the Corridor will utilise a sleeve that will be buried under the creek bed. Once installed, the pipeline will pass through the sleeve.

Once the sleeve has been installed under the creek bed, the area will be remediated such that waterflows can continue unimpeded within the watercourse. In addition, movement along and across

the sides of the creek bed will be unfettered and accessible to fauna in the area.

Based on the proposed installation approach for the pipeline crossing at the ephemeral creek, the crossing is not expected to significantly impact on the listed threatened species or the continued hydrological function of the watercourse.

11.3.2 Alteration of local drainage at BP33 mine

The addition and modification of several ground disturbances are included in the Proposal for BP33 mine site:

- Extension of WRD2
- Construction of sediment basin 3 to support expected sediment load increases associated with increased size of WRD2
- Construction of an overflow stockpile for ore and paste rejects handling, and
- Inclusion of the paste plant.

To evaluate impacts to local drainage due to the cumulative ground disturbances for the site, WRM was engaged to complete a flood study (WRM, 2025; Appendix K). A summary of the flood modelling findings by WRM were as follows:

WRM undertook a Drainage Line BP1 and internal catchment flood assessment to assess the BP33 flood risk for infrastructure and mining areas for developed conditions. Outcomes of the flood study generally shows that the current internal drainage is satisfactory to prevent any internal catchment overflows to the Box Cut. The external flood path at Drainage Line BP1 does not impact the Box Cut.

An outcome of the study was the recommendation of several drainage control measure that have been incorporated into the BP33 Underground Mine Erosion and Sediment Control Plan (refer Appendix L) that has been adopted for the BP33 construction and operation activities included in this Proposal.

Based on the flooding modelling study completed by WRM (2025; Appendix K), and adoption of the BP33 Underground Mine ESCP (Appendix L), the ground disturbances at BP33 mine site are not expected to significantly impact on local drainage.

11.3.3 Longer term discharges of MAW

With an increased depth of mine proposed for BP33 (320 mbgl to 850 mbgl), the life of mine will increase from three to four years to approximately 12 years. With the extended LOM, discharges of mine affected water to ephemeral waterways will be ongoing for this duration.

To date, MAW discharges to receiving waterways has been managed via waste discharge licences (WDLs):

- WDL248 for MAW discharges from Grants mine site, and
- WDL253 for MAW discharges from BP33 mine site.

Included in the application process for WDL is consideration of the volume of excess mine affected water that can be successfully handled at the mine sites and then discharged to receiving waterways under the WDLs.

An Integrated Water Management Plan for integrated water handling operations will be developed

and implemented in conjunction with the Environmental Mining Licence (EML), ensuring that continued discharge operations associated with the extended LOM within the Proposal is managed in compliance with the EML.

11.3.4 Dewatering rates

Artesium Consulting Services (Artesium) was engaged to update a numerical groundwater model previously established for the BP33 underground mine extending to 320 mbgl. A summary of the modelling scope is provided in Section 10.3.4, and the full report is provided in Appendix M (Artesium, 2026).

Included in the modelling were several scenarios to understand water security and excess MAW handling considerations under the increased BP33 underground depth of mine. The groundwater modelling scenarios informing MAW handling considerations were the base case (1.1.a) and the high case (scenario 1.3) (refer Section 10.3.4).

A water balance model was built to represent water handling operations across the integrated operations included in the Proposal (refer Appendix J; WRM, 2026). Included in the water balance model were varying climatic conditions, water quality considerations, and predicted dewatering and production rates for BP33 LOM. The major components included in the model are listed in Table 11-3.

Table 11-3 Simulated inflows and outflows to the mine water management system (WRM, 2026)

Inflows	Outflows
Direct rainfall on water storage surfaces	Evaporation from water surface of storages
Catchment runoff	Dust suppression demands
Groundwater inflows	Ancillary water use
External water supply via OHB	Potable water demands
Entrained moisture in ore, rejects, tailings and slimes feed	Processing plant losses
Inter-site transfers	Losses associated with underground mine demands
	Paste plant losses
	Cooling plant losses
	Offsite spills from storages
	Controlled releases
	Irrigation releases
	Inter-site transfers

The simulated performance of the water management system inherent in the Proposal's integrated operations has been assessed through the integrated water balance model. The water volumes that need to be managed by the system were found to vary widely due to the large range of different weather conditions that can be experienced at the Proposal location.

The aspects of the water management system that will enable it to operate effectively during dry conditions are different to those that will accompany prolonged wet periods. The system will also need to manage short term as well as long term climatic patterns and trends. The ability of the system to meet its design objectives under a range of climatic conditions was assessed by simulating the system

for 138 months for 126 simulations using 137 years of rainfall data. An indicative water balance for representative very wet, wet, median, dry and very dry years was also included.

The modelling found that the previously approved mine affected water pipeline between the BP33 and Grants mine sites is a key piece of infrastructure that will allow for MAW at Grants to be used to support mining activities at BP33 rather than being discharged to the environment. Through having access to water handling and storage of MAW generated at BP33 at Grants, a number of benefits are achieved:

- MAW generated through dewatering at BP33 can be held in the integrated water management system offering improved reuse of MAW and thereby water security for mining and processing operations
- Reduced discharges of MAW to the environment, and for those discharges to the environment, greater holding times and flexibility in handling options improves the ability to discharge well treated water,
- Improved ability to manage at times extreme variability in climate experienced at the Proposal location, and
- For all climatic conditions considered, raw water taken from Observation Hill Dam does not exceed the Surface Water Extraction Licence limit of 121 ML/a.

Based on the integrated water balance modelling study completed by WRM (2026; Appendix J), the water management system included in the integrated operations for the Proposal found water handling, security, and environmental performance outcomes were likely to have a net benefit to the environment.

11.4 Combined impacts

Based on the discussion provided in Section 11.3, the potential impacts to hydrological processes associated with the installation of the slimes slurry pipeline at the creek crossing, increased ground disturbances at BP33 mine site area, and dewatering to access the increased BP33 mine depth, are considered low risk when managed through the appropriate measures.

Impacts to hydrological processes are expected to be localised, if they occur, and are not expected to affect their continued quality and/or function based on the following assumptions:

- the ephemeral water course will remain unimpeded following installation of the slimes slurry pipeline creek crossing using an under-creek sleeve design. Successful installation will require prior approval through a permit to interfere with a waterway, and will be supported by a CEMP
- additional ground disturbances proposed at BP33 mine will be constructed and operated in accordance with the Erosion and Sediment Control Plan provided in Appendix L,
- the zone of influence generated by dewatering of the deeper BP33 underground mine does not change significantly within the shallow and intermediate aquifers that support riparian vegetation present at Drainage Line BP1, or for groundwater users in the local area, and
- the integrated water management system inherent to the Proposal will result in improved handling and reuse of MAW, with likely reduced discharges of well-treated water to the environment when required.

11.5 Mitigation and management

The following management measures will be adopted:

- Installation of the slimes slurry pipeline at the creek crossing will be via an underbed sleeve through which the pipeline will pass, and over which the water course will continue to function, unimpeded
- Ensuring a permit to interfere with a waterway is approved prior to commencement of installation of the slimes slurry pipeline at the creek crossing
- Erosion and sediment control measures as defined in the BP33 Underground Mine ESCP (WRM, 2025; Appendix L) will be implemented
- Establishment of a deep groundwater monitoring bore will be completed in the 2026 dry season. The depth of bore is to be defined however it will have a minimum depth of 400 mbgl
- Monitoring of groundwater levels to ensure the impacts of dewatering are as per modelling predictions will be undertaken as per the Integrated Water Management Plan, and
- Development and implementation of an Integrated Water Management Plan.

11.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the hydrological processes environmental factor were assessed by considering both the direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures outlined in Section 11.5.

The assessment evaluated the severity of the potential impacts (including scale, duration, and magnitude), alongside the importance and sensitivity of the environmental value components. Based on this assessment, and with the implementation of the identified management measures, no significant residual impact on this environmental factor is expected.

11.7 Conclusion

With effective implementation of management measures, including an under-creek pipeline crossing, implementation of the BP33 Underground Mine ESCP for additional ground disturbances, installation of a deep groundwater monitoring bore at BP33, and development and implementation of an Integrated Water Management Plan, the Proposal is not likely to significantly affect hydrological processes.

Overall, the impact and risk assessment (refer Appendix F) identified a low likelihood of significant impact on hydrological processes resulting from the Proposal. It is therefore concluded that the NT EPA's objective for hydrological processes to '*Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained*' will be met.

12 Water – Aquatic ecosystems

This section outlines the current understanding of aquatic systems within and around the Proposal. The section explores how the environmental values could be directly or indirectly affected by changes to aquatic ecosystems during the Proposal's construction and operation.

The point of focus for potential impacts of the Proposal on aquatic ecosystems is riparian vegetation.

12.1 Factor Objective

> *Protect aquatic habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning* (NT EPA, 2025b)

Key information that has been referenced within this section includes:

- The Annual Riparian Monitoring Report – refer Appendix H,
- Integrated Water Balance Model Report – refer Appendix J, and
- Groundwater Modelling Report – refer Appendix M.

Table 12-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to the key factor Water – Aquatic Ecosystems.

Table 12-1 Environmental Factor – WATER – Aquatic Ecosystems

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
WATER Aquatic Ecosystems	Connectivity – Riparian Vegetation A strip of riparian vegetation along Drainage Line BP1 receives overspill from OHD and is thought to be a facultative groundwater dependent ecosystem.	**POSSIBLE** • Demand for raw water associated with modifications to the processing plant and installation of the BP33 underground mine cooling plant could deplete riparian vegetation thought to derive sub-surface water supply from Observation Hill Dam. **Refer to Section 12.3**
		POSSIBLE • Increased depth of mine from 320 mbgl to 850 mbgl increases the cone of depression creating due to mine dewatering operations. The increased cone of depression has the potential to alter the zone of influence. **Refer to Section 12.3**

12.2 Environmental values

The environmental values that may be at risk and/or impacted by this Proposal are riparian vegetation. Provided below is a brief description of riparian vegetation that is the focus of the risk and impact assessment in Section 12.3.

For noting, potential impacts to riparian vegetation due to surface water extraction from OHD and dewatering of BP33 underground mine, are also assessed in Sections 10.3 and 11.3.

12.2.1 Riparian vegetation

A narrow zone of riparian vegetation is present along the minor ephemeral watercourse downstream of Observation Hill Dam (OHD) from which raw water is extracted to support mining and processing operations. There is evidence to suggest that the vegetation is supported by overflows from the OHD spillway. The watercourse is a minor stream order one drainage line, but the closed structure of the riparian vegetation and observed persistence of surface pools of water in the dry season (EcOz, 2019), indicates the community may be a facultative GDE, with an infrequent or partial dependence on groundwater (CloudGMS, 2021).

12.3 Potential impacts and risks

The potential impacts on aquatic ecosystems associated with this Proposal are:

- Water demand for new and modified mining and processing activities reduces overflows from OHD supporting downstream riparian vegetation.
- Extended depth of BP33 underground mine and associated dewatering.

The significance of these impacts is further discussed in the sections below.

12.3.1 Increased raw water demand

The riparian vegetation that occurs along the minor ephemeral watercourse downstream of Observation Hill Dam (OHD) and BP33 mine site – Drainage Line BP1 – could be stressed by reduced overflows from the OHD spillway due to the dam being used as a source of raw water.

The Proposal includes several new (e.g. paste plant, cooling plant) and modified (e.g. processing plant) activities that could result in a shortfall in raw water demand for integrated operations. To ensure any shortfalls in water supply for mining and processing operations do not result in increased extraction rates from OHD, an integrated water balance model has been prepared for the Proposal (refer Appendix J).

The outcomes of the integrated water balance study predict that there are no site deficits in water requirements for integrated operations for all modelled climatic conditions. In particular, the predicted total surface water extraction volumes from OHD for the duration of the LOM period are below the limits of the SWEL 8151018 (refer Figure 10-1).

The narrow strip of riparian vegetation present along Drainage Line BP1 has had twice annual monitoring completed in 2019 (baseline/ pre-commencement of operations at Grants mine site), 2022, 2023, 2024 and 2025. The objective of the monitoring program is to allow early detection of stress in the community due to surface water extraction from OHD prior to permanent and/ or long-term impacts arise by allowing mitigative management actions to be implemented. Several health metrics are contained in the monitoring program including species diversity, coverage, and structure. For the duration of the monitoring program, deterioration in the monitored health metrics attributed to LDGNT's mining operations has not been identified. For further information the most recent monitoring report has been included in Appendix H.

Based on the findings of the integrated water balance modelling, additional raw water extracted from OHD will not be required for mining and processing activities included in the Proposal. As such, impacts to the riparian vegetation present in Drainage Line BP1 are not expected.

12.3.2 Dewatering of increased depth of BP33 underground mine

Artesium Consulting Services (Artesium) was engaged to update a numerical groundwater model to support the assessment of potential impacts to the environment due to dewatering of the BP33 underground mine (from 320 mbgl to 850 mbgl). A summary of the update to the model, Proposal components included in the groundwater modelling study, and the scenarios modelled is provided in Section 10.3.4. In addition, the related groundwater modelling study report prepared by Artesium (2026) is provided in Appendix M.

An output of the modelling study was the predicted zone of influence at BP33 (refer Figure 10-2). The ZOI was plotted with a 1 m boundary. At LoM for BP33 UG, the ZOI in the shallow aquifer extended ±2.25 km east–west and ±2.1 km north – south (approximately 345 ha). The ZOI in the shallow aquifer is predicted to intersect with low-potential GDE habitat to the south and north of the mine. The maximum simulated drawdown was ±10 m within the decline footprint of the mine.

In addition to understanding the ZOI at Grants and BP33 mine sites, estimates of changed drainage discharges from the shallow groundwater zone to nearby riparian vegetation, thought to be a facultative groundwater dependent ecosystem, were also predicted by the groundwater model. Table 10-2 summarises the areas where predicted groundwater discharge would report to GDEs (i.e. riparian vegetation; 'features'). The mean annual predicted impact when considering drainage servicing GDEs is negligible, less than 2%, for the moderate and low potential GDEs (refer Figure 10-2).

The groundwater modelling study (Artesium, 2026; Appendix M) concluded that:

The updated numerical modelling, supported by long-term monitoring data, demonstrates that groundwater systems at the Grants and BP33 mining areas are characterised by limited hydraulic connectivity and are predominantly governed by natural seasonal variability. As a result, mining-induced impacts included in the Proposal are localised, with zones of influence remaining spatially constrained and groundwater dependent ecosystems simulated to have negligible impact.

12.4 Combined impacts

Based on the discussion provided in Section 12.3, the potential impacts to aquatic ecosystems – riparian vegetation – due to increased raw water demand, and dewatering of increased depth of BP33 mine, are considered a low risk when managed with the appropriate measures.

Impacts to riparian vegetation are expected to be localised if they occur, and are not expected to affect the continued function of this aquatic ecosystem based on the following assumptions:

- water demand of activities included in proposed integrated operations will be met with the existing surface water extraction allocation from OHD through SWEL 8151018 and where possible, re-use of mine affected water will be used in conjunction with raw water supply, to be detailed in an integrated water management plan, and
- the zone of influence generated by dewatering of the deeper BP33 underground mine does not change significantly rates of drainage supporting nearby riparian vegetation.

12.5 Mitigation and management

The following management measures will be adopted:

- Raw water sourced from OHD will not exceed the existing Surface Water Extraction Licence (SWEL 8151018) that allocates 121 ML/a, and

- Where a shortfall in water for mining and/or processing activities is required, this shortfall will be made up with mine affected water sourced from either BP33 mine water dam, or Grants mine water dam, to be detailed in an integrated water management plan.
- Establishment of a deep groundwater monitoring bore will be completed in the 2026 dry season. The depth of bore is to be defined however it will have a minimum depth of 400 mbgl.
- Monitoring of groundwater levels to ensure the impacts of dewatering are as per modelling predictions will be undertaken as per the Integrated Water Management Plan.
- Ongoing monitoring of riparian vegetation as required by EP2020/001-001 and SWEL 8151018.

An Integrated Water Management Plan will be developed to include and detail the management controls including OHD surface water extraction allocation, development and implementation of a mine dewatering plan, monitoring of groundwater levels and riparian vegetation.

12.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the aquatic ecosystems factor were assessed by considering both the direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures outlined in Section 12.5.

The assessment considered the severity (including scale, duration, and magnitude) of the potential impacts, alongside the importance and sensitivity of the environmental value components. Based on this assessment, with the implementation of the identified management measures, it was determined that there will be no significant residual impact on this environmental factor.

12.7 Conclusion

With effective implementation of management measures, including an integrated water management plan, a mine dewatering plan, and re-use of mine affected water in mining operations wherever practicable, the Proposal is not expected to significantly affect riparian vegetation.

Overall, the impact and risk assessment (refer Appendix F) identified a low likelihood of significant impact resulting from the Proposal on aquatic ecosystems. It is therefore concluded that the NT EPA's objective for aquatic ecosystems to '*Protect aquatic habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning*' will be met.

13 Water – Inland water environmental quality

This section outlines the current understanding of the inland water environmental quality within and around the Proposal. The section explores how the environmental values could be directly or indirectly affected by changes to inland water environmental quality during the Proposal's construction and operation.

13.1 Factor Objective

> *Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained* (NT EPA, 2025b)

Key information that has been referenced within this section includes:

- Paste plant pre-feasibility study – refer Appendix C,
- Integrated water balance model – refer Appendix J,
- Flood modelling for BP33 mine site – refer Appendix K,
- Groundwater modelling study – refer Appendix M,
- Groundwater modelling study: independent peer review – refer Appendix N, and
- Mine affected water quality analysis report – refer Appendix O.

Table 13-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to the key factor WATER – Inland Water Environmental Quality.

Table 13-1 Environmental Factor - WATER – Inland Water Environmental Quality

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
WATER Inland water environmental quality	Surface water quality Waste rock excavated from deeper sections of BP33 underground mine	**NO** • Potential impacts related to AMD may arise from waste rock generated during mining of deeper sections of BP33 mine. The risk of AMD generation through waste rock handling and storage is specifically related to 'fresh material', which is expected from approximately 170 mbgl, and is consistent in presence through to 850 mbgl. As the management controls committed in the previously approved Referral and MMP will be directly adopted, no increased/ new impacts, risks or management measures were identified. **No further impact assessment is included in this referral report.**
	Surface water quality Increased ground disturbances at BP33 mine site	**POSSIBLE** • Water quality downstream of the mine site could be affected by increased sediment loads. **Refer Section 13.3**
	Surface water quality Extended LOM for integrated operations and related discharges	**POSSIBLE** • Longer-term discharges of mine affected water to receiving environments could have lasting effects on water quality. **Refer Section 13.3**

THEME Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
	Surface water quality Unplanned loss of containment of slimes	**POSSIBLE** • water quality of the ephemeral creek could be affected by unplanned loss of containment from the slimes slurry pipeline **Refer Section 13.3**

13.2 Environmental values

Based on Table 13-1, the environmental value that may be at risk and/or impacted by this Proposal is surface water quality. Provided below is a summary of the surface waters that may be impacted by the risks identified in Table 13-1. The summary is derived from the BP33 Supplementary Environmental Report (EcOz, 2021).

Monitoring of water quality in ephemeral waterways in the Finniss Lithium Project area commenced in 2017 and is ongoing. Monitoring data indicates that ephemeral waterways are characteristic of rainwater and surface runoff, with a small component of groundwater seepage, suggested by low electrical conductivity measurements. Data collected at monitoring sites is slightly acidic to neutral pH (generally between 5.2 and 7.3), and most toxicants (including metals and hydrocarbons) with national water quality management criteria were below limits of analytical reporting in samples that had been collected and analysed by certified laboratories. An exception was aluminium that was recorded at concentrations above management levels for most samples collected and analysed, suggesting aluminium is naturally 'high' relative to recommended national water quality criteria in the area. EcOz (2021) determined that water quality results that had been generated from monitoring of water quality at locations upstream and downstream of the project activities were similar and therefore surface waters were not impacted by previous or current land use.

13.3 Potential impacts and risks

The potential impacts on inland water environmental quality associated with this Proposal are:

- Increased sediment loading to ephemeral watercourse (Drainage Line BP1) due to modified and added surface structures at BP33 mine site (extension of WRD2, and construction of an overflow stockpile, paste plant and third sediment basin),
- Extended operational LOM and associated mine affected water discharges to receiving environments.
- Unplanned loss of containment from the slimes slurry line into the ephemeral creek.

The significance of these impacts is further discussed in the sub-sections below.

13.3.1 Increased sediment loads to Drainage Line BP1

The addition and modification of several ground disturbances are included in the Proposal for BP33 mine site:

- Extension of WRD2
- Construction of sediment basin 3 to support expected sediment load increases associated with increased size of WRD2
- Construction of an overflow stockpile for ore and paste rejects handling

- Inclusion of the paste plant.

To evaluate drainage and predicted sediment loads generated from the cumulative ground disturbances for the site, WRM was engaged to complete a flood study (WRM, 2025; Appendix K). A summary of the flood modelling findings by WRM were as follows:

WRM undertook a Drainage Line BP1 and internal catchment flood assessment to assess the BP33 flood risk for infrastructure and mining areas for developed conditions. Outcomes of the flood study generally shows that the current internal drainage is satisfactory to prevent any internal catchment overflows to the Box Cut. The external flood path at Drainage Line BP1 does not impact the Box Cut.

An outcome of the study was the recommendation of several erosion control measure that have been incorporated into the BP33 Underground Mine Erosion and Sediment Control Plan (refer Appendix L) that has been adopted for the BP33 construction and operation activities included in this Proposal.

13.3.2 Longer term discharges of MAW

With an increased depth of mine proposed for BP33 (320 mbgl to 850 mbgl), the life of mine will increase from three to four years to approximately 12 years. With the extended LOM, discharges of mine affected water to ephemeral waterways will be ongoing for this duration.

To date, MAW discharges to receiving waterways has been managed via waste discharge licences (WDLs):

- WDL248 for MAW discharges from Grants mine site, and
- WDL253 for MAW discharges from BP33 mine site.

Included in the application process for WDL is consideration of the contaminants within the wastewater to be discharged and whether any of the contaminants found in the wastewater could bioaccumulate in the environment. Bioaccumulation is the process by which a contaminant can increase over time in the receiving environment by accumulating in organisms resident in the area through either absorption or ingestion.

Contaminant groups that could be bio-accumulators include:

- Organochlorine pesticides
- Heavy metals and metalloids, and
- Persistent organic pollutants.

Table 13-2 provides a summary of sources from which bio-accumulators may be found.

Table 13-2 Contaminants that may bioaccumulate in aquatic environments

Group	Contaminants[1]	Source
Metals & Metalloids	Mercury (inorganic)	May be found naturally and/or in mine affected water
	Selenium – total	
	Selenium – IV	
Organochlorine pesticides	Hexachloroethane	Military smoke devices, aluminium industry, chemical manufacturing
	Anthracene	dye and chemical production, scientific and technical uses, synthetic materials

Group	Contaminants[1]	Source
	Phenanthrene	Chemical manufacturing, pharmaceuticals
	Fluoranthene	Chemical manufacturing
	Benzo(a)pyrene	Cigarette smoke, wood fires, automobile exhaust, coal tar, and charred or grilled foods
	Chlorobenzenes and Chloronaphthalenes	Industrial solvents, dielectrics, and chemical intermediates; dyestuff manufacturing; agriculture industry as a seed treatment fungicide for grains; used for pesticide manufacture and flame retardant
	PCBs & Dioxins	Stablilizer used in the manufacture of capacitors prior to the late 1970s, coolants, Agent Orange
	Phenols	Industrial production, the breakdown of other chlorinated pesticides, and as unintentional byproducts of chemical processes; wood preservation, pesticide intermediate, PCP impurity; heavy duty wood preservation, industrial cooling towers, leather and textile treatment, pulp and paper effluent; personal care & cosmetics, soft plastics & PVC, building materials, medical devices, food packaging
Organophosphorus Pesticides	Chlorpyrifos	Herbicides
	Profenofos	
	Temephos	

[1] Sourced from Table 3.4.1 of ANZECC (200) National Water Quality Management Strategy

Of the contaminants that may bioaccumulate as listed in Table 13-2, four were identified as requiring further investigation in mine affected water discharged from the Grants mine water dam:

- Inorganic mercury,
- Selenium – total,
- Selenium IV, and
- Organophosphorus pesticides.

Australian Laboratory Services were asked to perform ultra-trace analyses of the MAW samples collected in February 2026 at Grants MWD. Results were unable to detect these contaminants in the MAW samples analysed (refer Appendix O).

The results in these analyses, and planned water monitoring that has been underway since commencement of operations at Grants have not detected these contaminants as being present. As such, the risk of contaminants bioaccumulating in receiving aquatic environments downstream of mine affected water discharge points of the Proposal is considered negligible.

An Integrated Water Management Plan for integrated water handling operations will be developed and implemented in conjunction with the Environmental Mining Licence, ensuring that continued discharge operations associated with the extended LOM is managed and the permanent alteration of inland water quality due to the repeated discharging of bioaccumulating contaminants does not occur due to the activities included in the Proposal.

13.3.3 Unplanned loss of slimes to ephemeral creek

As described in Section 3.3.3, the intent is for the slimes slurry pipeline to cross the ephemeral creek

underneath the creek bed. Installation of the pipeline at this point in the Corridor will utilise a sleeve that will be buried under the creek bed. Once installed, the pipeline will pass through the sleeve.

Design of the under-creek sleeve will be aligned with the principles included in Austroads Guide to Road Design Part 5B – Floodway Crossings, and AS/NZS 2041 series – Buried Corrugated Metal Structures.

The sleeve to be installed at the creek crossing will serve as secondary containment for the pipeline in the event slimes is lost from pipework in this section of the 7.5 km of pipeline running between Grants processing plant and BP33 paste plant. The section of pipe that will pass through the sleeve under the creek will be a complete section of pipe and no welds will be present within the sleeve/ under the creek.

Inline pressure monitoring reporting to automated shut in of pumping equipment will reduce the volume of slimes lost from the pipeline if the unplanned event occurs. A Pipeline Operations, Maintenance and Surveillance (OMS) Manual will be developed and implemented to reduce the risk of the pipeline becoming blocked, damaged, eroded, and thereby able to contain slimes inventory.

Based on the proposed design, construction and operation approach for the pipeline crossing at the ephemeral creek, the crossing is not expected to experience a loss of slimes containment to the ephemeral creek.

13.4 Combined impacts

Based on the discussion provided in Section 13.3, the potential impacts to inland water environmental quality due to additional ground disturbances at BP33 mine site, long term MAW discharges to the environment, and unplanned losses of slimes to the ephemeral waterway, are considered a low risk when managed with the appropriate measures.

Impacts to inland water environmental quality are expected to be localised if they occur, and are not expected to affect the continued quality and function based on the following assumptions:

- Implementation of the BP33 underground ESCP, in particular construction of sediment basin 3 to support sediment loads that will be generated by the increased WRD2, will control erosion, manage sediment loads, and ensure ongoing function of the local drainage network
- Ultra trace analyses of mine affected water demonstrates that the risk of contaminants accumulating in the receiving stream environments will not be realised based on accumulating toxicants not detectable
- Engineering design, construction and operation of the slimes slurry pipeline will greatly reduce the likelihood of an unplanned loss of containment and if a loss occurs, controls to quickly detect, shut in and contain slimes will be in place. Importantly the nature of slimes is benign and quick response options available via the haul route make remediation highly effective if required.

13.5 Mitigation and management

The following management measures will be adopted:

- Implementation of the BP33 Underground Mine ESCP (refer Appendix L)
- Development and approval of the Environmental Mining Licence that includes operational details of mine affected water discharge management

- Development and implementation of the Integrated Water Management Plan
- Permit issued for interference with a waterway prior to commencement of construction of the slimes slurry pipeline creek crossing
- Design and construction of the slimes slurry pipeline creek crossing to adhere to the Austroads Guide to Road Design Part 5B – Floodway Crossings and the AS/NZS 2041 series – Buried Corrugated Metal Structures
- pressure loss monitors in the slimes slurry pipeline resulting in automated shut in of pumping operations in the slimes slurry pipeline
- construction environmental management plan for the slimes slurry pipeline creek crossing
- routine surveillance of the pipeline

An Operation, Maintenance and Surveillance (OMS) Manual detailing the operational activities of the slimes slurry pipeline will be prepared. The OMS manual will ensure the management controls listed above are implemented, including response arrangements for any losses (notifications, environmental monitoring, investigations, and reporting).

13.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the environmental factor of inland water environmental quality were assessed by considering both direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures outlined in Section 13.5.

The assessment considered the severity (including scale, duration, and magnitude) of the potential impacts, alongside the importance and sensitivity of the environmental value components. Based on this assessment, with the implementation of the identified management measures, it was determined that there will be no significant residual impact on this environmental factor.

13.7 Conclusion

With effective implementation of management measures, including BP33 underground mine ESCP, Environmental Mining Licence, Integrated Water Management Plan, permit to interfere with a waterway, design, construction and operation of the pipeline in alignment with Australian Standards, the Proposal is not likely to significantly affect the key factor inland water environmental quality.

Overall, the impact and risk assessment (refer Appendix F) identified a low likelihood of significant impact resulting from the Proposal on inland water environmental quality. It is therefore concluded that the NT EPA's objective for inland water environmental quality to '*Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained*' will be met.

14 Air – Air quality

This section considers dust and particulate emissions generated through activities within the Proposal. It explores how the environmental values could be directly or indirectly affected by changes to air quality during the Proposal's construction and operation.

This factor has been identified through the assessment process as not considered to be of material significance (either due to the low level of likelihood, or consequence) and has been included to demonstrate that Core Lithium will manage and mitigate through implementation of existing Project commitments.

14.1 Factor objective

Protect air quality and minimise emissions and their impact so that environmental values are maintained

Key information referenced within this section includes the Dust Extinction Analytical Reports prepared for the rejects that will be stockpiled at Grants processing plant and BP33 paste plant, as well as transported along Cox Peninsula Road – refer Appendix P for this report.

Table 14-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to the key factor AIR – Air Quality.

Table 14-1 Environmental Factor – AIR – Air Quality

THEME - Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
AIR Air quality	Health Air quality reduced at neighbouring sensitive receptors	**POSSIBLE** • Changes to air quality outside of the Proposal boundaries of the mine sites has the potential to occur along the public Cox Peninsula Road, with daily trucking movements between BP33 and Grants occurring throughout the LOM. **Refer Section 14.3.**
	Environmental values Environmentally sensitivities directly impacted by reductions in air quality	**NO** • No environmentally sensitive areas directly encompass the Proposal or adjacent Proposal boundary. **No further impact assessment is included in this referral**.
	Amenity Amenity reduced by generation of fugitive dust and particulate emissions	**POSSIBLE** • Users of the public Cox Peninsula Road may be temporarily impacted by dust generation from daily trucking movements between BP33 and Grants occurring throughout the LOM. • The Proposal area has existing mining use and a past mining history. **Refer Section 14.3.**

14.2 Environmental values

Based on Table 14-1, the environmental values that may be at risk and/or impacted by this Proposal are health and amenity.

14.2.1 Sensitive receptors

The closest sensitive receptors are:

- Users of the 3.5 km section of Cox Peninsula Road, a public NT Road (refer Section 2.5), along which rejects materials will be hauled one way from Grants processing plant to BP33 mine site,
- Closest residents are 10+ km away,
- Absence of surrounding land users adjacent to the BP33 and Grants mine sites.

14.2.2 Emission sources

Fugitive dust and particulate emissions sources include Proposal activities:

- ore product stockpiles
- processing waste and tailings stockpiles
- waste rock dumps, and
- trucking movements within and between mine sites.

14.3 Potential impacts and risks

The potential impacts on air quality associated with this Proposal are:

- Generation of dust and particulate emissions related to stockpiling of rejects at Grants processing plant and BP33 paste plant, and
- Generation of dust and particulate emissions related to haulage of rejects from Grants to BP33 along Cox Peninsula Road.

The significance of these impacts is further discussed in the sub-sections below.

During stockpiling and haulage of processing rejects at and between Grants mine site and BP33, dust and particulate emissions may lift off the material. The risk of dust and particulate generated from handling of rejects materials is increased during high wind/ dry conditions for stockpiles (i.e. in the dry season) and during transport by trucks along the 3.5 km section of Cox Peninsula Road.

In the event emissions are generated during stockpiling, dust and particulates will remain within the mine site areas. During transport between sites, impacts to air quality are again expected to be localised and occur within this 3.5 km section of road.

To reduce the likelihood of dust and particulate emissions being generated during transport, a dust extinction moisture (DEM) analysis was conducted on the rejects material that will be stockpiled and transported as part of the Proposal (refer Appendix P). Results of the DEM analysis will be used to inform dust management practises of this bulk material handled and stored at Grants and BP33 mine sites.

As a secondary measure, trucks will be covered so that in the event any emissions arise these particulates will be contained within the truck void holding the rejects materials.

With these management measures in place, dust from stockpiling and haulage of rejects is not expected to impact the amenity of residents along the route, given the remoteness of the residents from the site (the closest residence is 10+ km away) and absence of surrounding land users.

14.4 Combined impacts

Based on the discussion provided in Section 14.3, the potential impacts to air quality from the Proposal activities related to stockpiling and haulage of rejects is considered a low risk, when managed with appropriate measures.

Impacts to air quality are expected to be localised and are not expected to affect the related values of health and amenity based on the following assumptions:

- Implement dust management practices for rejects stockpiles, and
- Trucks hauling rejects from Grants processing plant to BP33 mine site will be covered.

14.5 Mitigation and management

The following management measures will be adopted for the management of emissions generated by handling of rejects:

- Implement dust management practices for rejects stockpiles, and
- Trucks hauling rejects from Grants processing plant to BP33 mine site will be covered.

It is noted that transport of ore via trucking utilises quad road trains which reduces the number of truck movements for internal and external haulage.

14.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the air quality environmental factor were assessed by considering both the direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures outlined in Section 14.5.

The assessment considered the severity (including scale, duration, and magnitude) of the potential impacts, alongside the importance and sensitivity of the environmental value components. Based on this assessment, with the implementation of the identified management measures, it was determined that there will be no significant residual impact on this environmental factor.

14.7 Conclusion

With effective implementation of management measures, including the dust suppression techniques and covered haulage activities, the Proposal is not expected to significantly affect the key factor air quality.

Overall, the impact and risk assessment (refer Appendix F) identified a low likelihood of significant impact resulting from the Proposal on air quality. It is therefore concluded that the NT EPA's objective for air quality to '*Protect air quality and minimise emissions and their impact so that environmental values are maintained*' will be met.

15 Air – Atmospheric processes

This section outlines the current understanding of the impacts by the Proposal on the environmental factor atmospheric processes (Atmospheric Processes) (NT EPA, 2025c), namely greenhouse gas emissions (GHG emissions). It explores how the environmental values could be directly or indirectly affected by changes to atmospheric processes during the Proposal's implementation.

In considering this environmental factor, it is important to acknowledge that the current Grants and BP33 operations, when assessed individually, and when operational, do exceed the threshold for annual GHG emissions reporting to the Clean Energy Regulator (CER) under the National Greenhouse and Energy Reporting (NGER) Act (i.e. the reporting threshold being >25,000 tCO_2e annually) (Core GHG assessment, 2021 and NT EPA, 2020). However, the separate operations do not trigger the requirement (i.e. the reporting threshold being >100,000 tCO_2e annually) for reporting against an established emissions baseline. If operations were to continue separately, this regulatory requirement would remain unchanged. This was reflected in the previous regulatory assessments (i.e. Grants (NT EPA, 2019) and BP33 (NT Govt, 2022)) which did not identify greenhouse gas emissions, or Atmospheric Processes, as one of the environmental factors that may be impacted by the respective Proposals.

Given that this Proposal reflects integrated operations, of Grants and BP33, a greenhouse gas assessment, the *Finniss Lithium Operation Greenhouse Gas Assessment Summary Report* (Greenbase, 2026; Appendix Q) referred to as GHG Assessment), has been undertaken on that basis.

Through the GHG Assessment, it has been determined that Atmospheric Processes is not of initial material significance. Specifically, projected emissions for Year 1 (2027) and Year 2 (2028) will require annual GHG emissions reporting to the CER under the NGER Act (i.e. the reporting threshold being >25,000 tCO_2e annually). Predicted GHG emissions for these years remain less than 100,000 tCO_2e annually (the threshold for annual reporting of covered emissions for the purpose of comparison against a CER-determined baseline).

By year 3 (2029), when GHG Scope 1 emissions are estimated to exceed 100,000 tCO_2e annually, LDGNT will be required to have applied to the CER for a Safeguard Mechanism baseline and commence annual reporting of covered emissions against the baseline. It is also at this stage that a Greenhouse Gas Abatement Management Plan becomes material, providing the framework for managing and reducing GHG emissions in accordance with the requirements of the NGER Act.

15.1 Factor objective

> *Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050*

The environmental objective recognises the fundamental link between the release of GHG emissions from a proposal, the impact on atmospheric processes and the subsequent changes to climate and incorporates the target of net zero GHG emissions by 2050 (NT EPA, 2025c).

Table 15-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to Atmospheric Processes.

Table 15-1 Environmental Factor – AIR – Atmospheric Processes

THEME - Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
AIR Atmospheric processes	GHG emissions – Scope 1 Combustion sources	**YES** • Scope 1 emissions sources from combustion fuel consumption. Most of the Scope 1 GHG emissions are associated with diesel power generation and contributes a moderate % of tCO^2-e annually to overall Proposal GHG emissions. • Not a substantial or material change from the existing approved separate BP33 and Grants Proposals contribution to Scope 1 GHG emissions, however when combined as integrated operations, by year 3, annual reporting of Scope 1 emissions against a Safeguard Mechanism baseline will be required. **Refer Section 15.3.**
	GHG emissions – Scope 1 Clearing of native vegetation	**NO** • Greenbase (2026) considers Scope 1 GHG emissions associated with vegetation clearing (i.e. the disturbance footprint) to the full extent approved under the combined existing Grants and BP33 approvals (i.e. 356 ha) only (i.e. reflecting that no extension to the existing disturbance footprint is considered in this Proposal). • Minimal regrowth clearing of native vegetation will likely need to occur on an ad hoc basis over the LOM such as for firebreak management. • A relatively low proportion of Scope 1 GHG emissions are attributed from the previously approved clearing of native vegetation. **Refer Section 15.3.**
	GHG emissions – Scope 2 Combustion sources	**NO** • There are no Scope 2 emissions sources. • The Proposal is remote from Darwin and will not be connected to the NT grid. Currently all electricity is planned to be generated on-site using diesel power generators. Alternative energy sources have been previously considered (GHD, 2023). Alternative renewable energy sources will be investigated in the future. **Refer Section 2.6 Alternatives.**
	GHG emissions – Scope 3 Combustion sources	**POSSIBLE** • Scope 3 emissions sources – combustion of diesel from purchased goods and services, upstream transportation, workforce commuting and processing of saleable ore - contributes annually to Proposal GHG emissions. • Not a substantial or material change from the existing approved Proposals contribution to Scope 3 GHG emissions when considered separately or combined. **Refer Section 15.3.**
	Net zero 2050 GHG emissions goal of the NT government	**POSSIBLE** • The Proposal is considered an industrial proposal (NT EPA, 2025c). The extended LOM of the integrated operations is considered to not significantly contribute to NT emissions of

THEME - Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
		GHG, contributing an estimated 0.78% to the NT annual emissions (Greenbase, 2026). • The standalone Grants Proposal previously contributed ~0.48%, with a standalone contribution from the previous BP33 Proposal not specified. • The Australian Government's Safeguard Mechanism (Section 6) applies to industrial facilities with combined Scope 1 emissions exceeding 100,000 t of CO_2-e per annum. The Proposal is likely to exceed the default baseline of 100,000 tCO_2-e by year 3 (2029) (Greenbase, 2026). **Refer Section 15.3.**

15.2 Environmental values

Based on Table 15-1, the environmental values and sensitivities that may be at risk and/or impacted by this Proposal are from:

- GHG emissions from Scope 1 combustion sources, and
- GHG emissions from Scope 3 combustion sources.

The GHG emissions associated with the Proposal are detailed in Table 15-2.

Provided in Sections 15.2.2 and 15.2.3 are brief descriptions on the Scope 1 and Scope 3 combustion sources that will result in GHG emissions, and that are the focus of the risk and impact assessment in Section 15.3.

15.2.1 Application of the Atmospheric Processes Environmental Factor

A proponent should consider the Atmospheric Processes Environmental Factor (EPA NT, 2025c) if its estimated GHG emissions exceed one of the following thresholds, (or are below but close to one of the thresholds (section 53(1) of the EP Act):

- For an industrial proposal: 100,000 tCO^2-e of scope 1 emissions in any financial year over the life cycle of a proposal, or
- For a land use proposal: 500,000 tCO^2-e (scope 1) generated from a single clearing action, or cumulatively from multiple land clearing actions on a property over time.

As the proposal will exceed the threshold for an industrial proposal the key factor of Atmospheric Processes is being considered.

The GHG Assessment details an inventory of the key infrastructure and principal activities to be undertaken by the Proposal have been identified. A summary is provided in Sections 15.2.2 and 15.2.3.

15.2.2 Scope 1 GHG emissions

Scope 1 GHG emissions are *direct* emissions from sources within the boundary of a Proposal, typically from fuel combusted on site (Greenbase, 2026). The primary sources of Scope 1 GHG emissions identified for the Proposal are from electricity production and mining activities, with the main source contributors resulting from the Proposal activities identified from:

- Electricity purposes:

- fuel consumption from diesel-powered power plants at BP33 and Grants (diesel generators).

- Non-transport and transport purposes:
  - diesel fuel consumption by the mining fleet, processing equipment, support equipment, and
  - ore product haulage and use of vehicles for other purposes.

The GHG Assessment considers Scope 1 GHG emissions associated with vegetation clearing (i.e. the disturbance footprint) to the full extent approved under the combined existing Grants and BP33 approvals (i.e. 356 ha), although the full extent approved has yet to be cleared. The Scope 1 emissions associated with land clearing are relatively low compared to other sources of Scope 1 emissions.

15.2.3 Scope 3 GHG emissions

Scope 3 GHG emissions are all other *indirect* emissions from Proposal activities not controlled by, or from sources owned by the Proponent. The emissions associated with the extraction, refinement, and delivery of diesel to site are Scope 3 GHG emissions (Greenbase, 2026).

As summarised from the GHG Assessment, Scope 3 GHG emissions are divided into several categories, broadly capturing:

- indirect GHG emissions related to purchased or acquired goods and services (upstream), and
- downstream indirect GHG emissions related to sold goods and services.

The GHG Assessment identified the following contributions to Scope 3:

- purchased goods and services
- fuel and energy related activities (predominantly diesel related)
- workforce commuting for travel to and from the Proposal site
- downstream transportation (transport of concentrate in ships); and
- processing of sold products (downstream product refining).

The full screening of the applicable/ not material Scope 3 GHG emissions categories are described in the GHG Assessment (Appendix Q).

15.3 Potential impacts and risks

Operations will emit Scope 1 GHG emissions from stationary and mobile combustion sources over the LOM, as the Proposal is currently planned to primarily require diesel fuel as an energy source.

Fuel use is associated with transport (for road-registered vehicles), non-transport (machinery not intended for road travel, e.g., mining activities) and power generation activities (electricity produced by diesel generators).

The GHG emissions expected to be generated during implementation of the Proposal over the LOM have also been estimated to inform the atmospheric contributions to the total NT industry emissions.

15.3.1 Fuel consumption (Scope 1 GHG emissions)

The majority of the Proposal Scope 1 GHG emissions are associated with diesel consumed by

stationary on-site diesel generators (power station generation) and diesel-fuelled mining fleet. This is estimated as 991,315 tCO_2-e (Table 15-2).

The Scope 1 GHG emissions will vary slightly over the LOM based on mining rate and plant operational demand. Emissions from stationary combustion sources will vary slightly across the LOM, and trucking movements have been assumed to remain relatively consistent over a 24-hour period.

15.3.2 Total Scope 1 GHG emissions

An overall estimate of Scope 1 GHG emissions was calculated (Greenbase, 2026) comprising all fuel use sources and inclusive of land clearing. The estimated Scope 1 GHG emissions over the LOM are 1,508,369 tCO_2-e.

A breakdown summary of Scope 1 GHG emissions by source for the Proposal over the LOM is outlined in Table 15-2 and Figure 15-1.

The average annual Scope 1 GHG emissions have been forecast as 125,697 tCO_2-e/y (Greenbase, 2026). Figure 15-1 shows Year 1 (2027) and Year 2 (2028) with Scope 1 GHG emissions below 100,000 tCO_2-e/y, with Scope 1 GHG emissions exceeding 100,000 tCO^2-e/y from year 3 (2029).

The GHG emission intensity for the Proposal (i.e. LOM) was estimated (Greenbase, 2026) as:

- 0.047 tCO_2-e / tonnes lithium ore, and
- 0.702 tCO_2-e / MWh electricity.

It is estimated that the Proposal will contribute 0.6% of NT annual emissions over the 12 year LOM (Greenbase, 2026).

15.3.3 Fuel related activities (Scope 3 GHG emissions)

Diesel use as part of Scope 3 GHG emissions fuel and energy related activities contributes a moderate proportion (354,274 tCO_2-e) to overall GHG emissions from Scope 3 sources, as shown in Table 15-2.

15.3.4 Downstream transportation (Scope 3 GHG emissions)

Diesel use as part of Scope 3 GHG emissions contributes a moderate proportion (90,903 tCO_2-e) to overall GHG emissions from Scope 3 sources, because of shipping ore concentrate to overseas market destinations (Table 15-2).

15.3.5 Processing of sold products (Scope 3 GHG emissions)

The majority of the Proposal Scope 3 GHG emissions are associated with the post-saleable processing of lithium ore, estimated at 2,541,000 tCO_2-e (Table 15-2).

The Scope 3 GHG emissions are related to the electrochemical processing of spodumene concentrate at refineries into lithium carbonate and lithium hydroxide monohydrate via electrodialysis (Greenbase, 2026).

15.3.6 Total Scope 3 GHG emissions

An overall estimate of Scope 3 GHG emissions was calculated in the GHG Assessment with the Scope 3 emissions sources assessed over the LOM estimated at 3,015,261 tCO_2-e, with average Scope 3 emissions during full production estimated at 251,272 tCO_2-e/y.

The processing of sold products was the highest contributor to total Scope 3 GHG emissions, making

up 84.27% of all Scope 3 GHG emissions combined.

A breakdown summary of Scope 3 GHG emissions by source for the Project over the LOM is outlined in Table 15-2.

15.3.7 Total combined GHG emissions from Scope 1 and Scope 3 sources

An estimated total of combined Scope 1 and Scope 3 GHG emissions is 4,452,872 tCO_2-e over the LOM (Table 15-2).

Scope 1 GHG emissions comprising all fuel uses sources contributes almost the majority to total Scope 1 GHG emissions estimated over the LOM. The processing of sold products contributes the majority to total Scope 3 GHG emissions, as well as most of the total Scope 1 and Scope 3 GHG emissions, accounting for approximately two thirds of all sources combined.

Table 15-2 summarises GHG emissions by source and Proposal phase over the LOM, denoting which GHG emissions are part of the Proposal components (refer Section 3.1).

Table 15-2 Proposal component greenhouse gas emissions by source and Proposal phase over LOM

GHG emissions and Proposal components	Emissions source	Estimated GHG emissions (Greenbase, 2026)	Contribution of Proposal components to LOM GHG emissions
Construction phase components			
Land clearance Minor site preparation activities	Scope 1 emissions: clearing biomass	*Included in operations phase as LOM emissions*	-
Workforce commuting Travel to and from mine sites (private vehicles/ buses)	Scope 3 emissions: transport sources	*Included in operations phase as LOM emissions*	-
Operation phase components			
Land clearance Minor regrowth clearing of vegetation (ad hoc basis)	Scope 1 emissions: clearing biomass	70,758 tCO_2-*e* (Table 15 Appendix Q)	Minor
Fuel consumption – electrical power generation BP33 and Grants power stations	Scope 1 emissions: stationary and combustion sources	991,315 tCO_2-e (Table 15 Appendix Q)	Moderate
Fuel consumption – non-transport BP33 and Grants mining fleet	Scope 1 emissions: stationary and combustion sources	513,643 tCO_2-e (Table 15 Appendix Q)	Moderate
Transport – road trains processing and ore haulage Trucking of ore from BP33 to Grants for processing and return Trucking ore concentrate from Grants to Darwin Port and return	Scope 1 emissions: transport sources	12,653 tCO_2-e (Table 15 Appendix Q)	Minor
Scope 1 emissions total:		**1,508,369 tCO_2-e**	

GHG emissions and Proposal components	Emissions source	Estimated GHG emissions (Greenbase, 2026)	Contribution of Proposal components to LOM GHG emissions
Purchased goods and services Miscellaneous	Scope 3 emissions: production of products	668 tCO_2-e (Table 16 Appendix Q)	Negligible
Capital goods	Scope 3 emissions: All upstream emissions	28,079 tCO_2-e (Table 16 Appendix Q)	Minor
Fuel and energy related activities Diesel purchases etc.	Scope 3 emissions: all related emissions to production	354,274 tCO_2-e (Table 16 Appendix Q)	Moderate
Workforce commuting Travel to and from mine sites (private vehicles/buses)	Scope 3 emissions: transport sources	337 tCO_2-e (Table 16 Appendix Q)	Negligible
Downstream transportation Shipping of ore concentrate to overseas market destination	Scope 3 emissions: transport sources	90,903 tCO_2-e (Table 16 Appendix Q)	Minor
Processing of sold products Refining of lithium concentrate	Scope 3 emissions: emissions from processing of product	2,541,000 tCO_2-e (Table 16 Appendix Q)	Majority
Scope 3 emissions total:		**3,015,261 tCO_2-e**	
Combined Scope 1 and Scope 3 emissions total:		**4,452,872 tCO_2-e**	
Combined Scope 1 and Scope 3 emissions total – excluding land clearing		**4,382,114 tCO_2-e**	

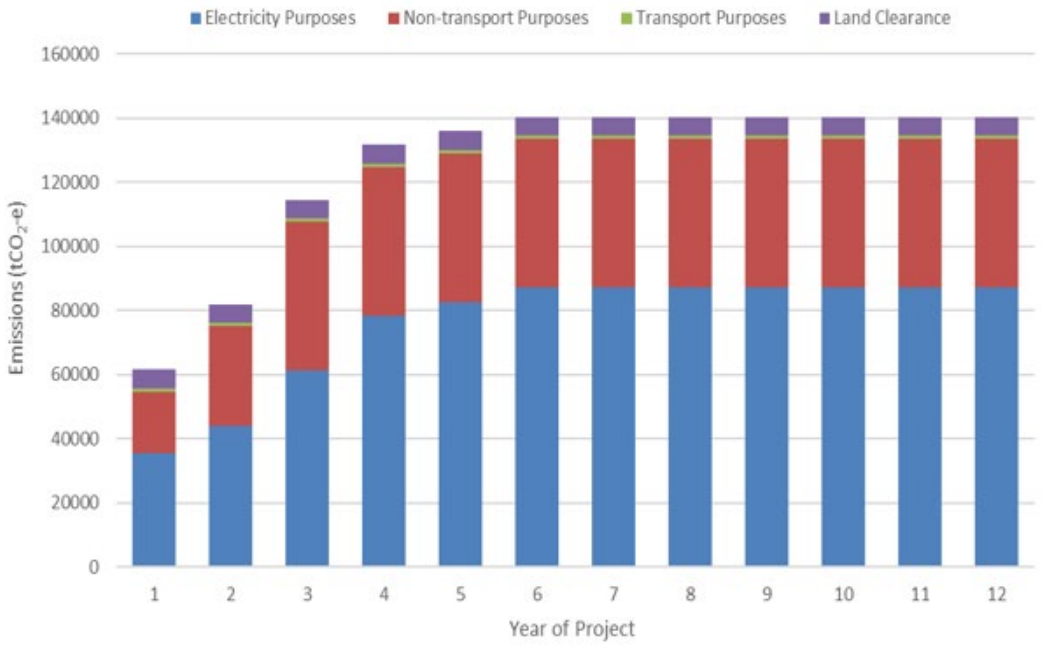


Figure 15-1 Scope 1 GHG emissions by source over the LOM (Greenbase, 2026)

15.4 Combined impacts

LDGNT acknowledges that an increase to GHG emissions has an impact on accelerated climate change that is leading to an increase in average temperatures and more extreme weather events which, combined, place increased pressures on terrestrial ecosystems and terrestrial environmental quality, human health, and the NT community and economy. However, LDGNT also recognises that its lithium ore product is being used to produce batteries that capture electricity, commonly generated from renewable energy sources. Therefore, the ore product is supporting the energy transition, that is the transition from GHG emitting fossil fuels to renewable energy sources.

Based on the discussion provided in Section 15.3, the potential impacts to atmospheric processes from the emission of GHG is considered a low risk, when managed with appropriate measures and the requirements of the NGER Act.

The Proposal has considered a climate variability within the integrated water balance model (WRM, 2026), the groundwater modelling report (Artesium, 2026), and through assessment of the Proposal's impact on global warming potential related to greenhouse gas emissions (Greenbase, 2026).

15.5 Mitigation and management

The BP33 and Grants operations are already required to monitor GHG emissions, and report accordingly when reporting thresholds are exceeded (i.e. as required by the NGER Act).

The following management measures are proposed:

- Continued monitoring and reporting of GHG emission in accordance with regulatory requirements (i.e. NGER Act regulatory requirements).
- Commitment to prepare a Greenhouse Gas Abatement Plan by the end of 2027 in line with the expectation that Scope 1 GHG emissions will exceed 100,000 tCO_2e annually and LDGNT will be required to have applied to the CER for a Safeguard Mechanism baseline and commence annual reporting of covered emissions against the baseline. The Greenhouse Gas Abatement Plan will provide the framework for managing and reducing GHG emissions in accordance with the requirements of the NGER Act.
- Prepare a detailed operations energy study, including renewable energy sources and consider adoption in line with the Greenhouse Gas Abatement Plan and the NGER Act Safeguard Mechanism baseline requirements.

15.6 Residual impacts

The residual impacts on the environmental values and sensitivities relevant to the Atmospheric Processes were assessed by considering both the direct and indirect effects of the Proposal, as well as the effectiveness of the proposed mitigation measures outlined in Section 15.5.

By integrating operations, LDGNT has effectively combined Scope 1 GHG Emissions to a level that will, by 2029, require a Safeguard Mechanism baseline and annual reduction of emissions in line with regulatory requirements. Effectively, this reduces the residual impact of the Proposal's GHG emissions when previously this was not required. That is, GHG emissions that may not have been reduced, if operations remained separate, will be required to be reduced.

The assessment of atmospheric processes considered the severity (including scale, duration, and magnitude) of the potential impacts, alongside the importance and sensitivity of the environmental

value components. Based on this assessment, with the implementation of the identified management measures, it was determined that there will be no significant residual impact on this environmental factor.

15.7 Conclusion

Of the four Scope 1 GHG emissions categories, two categories contribute a moderate proportion of Scope 1 GHG emissions, being electrical power generation and mining fleet fuel consumption (Table 15-2). The remote rural location of the Proposal and lack of near-future potential to connect to the NT grid, necessities the requirements for large volumes of diesel purchases to ensure reliable power generation over the LOM.

Five categories of Scope 3 GHG emissions were determined by Greenbase (2026) to potentially be material for the Proposal: purchased goods and services; fuel and energy related activities; employee commuting; downstream transport and distribution; and the processing of sold products. Only two of these categories contribute the majority and moderate proportions of Scope 3 GHG emissions (Table 15-2). The refining of lithium concentrate is made into products that are primarily used in battery-related products (Greenbase, 2026), technology in current global demand, and the oversight of emissions outputted are outside the direct control of Core Lithium.

The emission estimates show an estimated 1,508,369 tCO_2-e of Scope 1 GHG emissions (with an average of 119,801 tCO_2-e/year) are expected over the LOM from fuel use by the mining fleet and for electricity production (Greenbase, 2026). Combined total Scope 1 and Scope 3 GHG emissions estimated over the LOM is 3,570,774 tCO_2-e.

Overall, Scope 1 GHG emissions of the Finniss are estimated to contribute 0.6% to the Northern Territory's annual emissions over the 12-year LOM and 0.03% to Australia's annual emissions (Greenbase, 2026).

16 People – Community and economy

This section outlines the current understanding of the community and economy within and around the Proposal. The section explores how the values could be directly or indirectly affected by changes to community and economy during the life of the Proposal.

16.1 Factor Objective

> *Enhance communities and the economy for welfare, amenity and benefit of current and future generations of Territorians* (NT EPA, 2025b)

Key information that has been referenced within this section includes:

- the Community Engagement Report – refer Appendix G, and
- Traffic impact assessment – refer Appendix I.

Table 16-1 provides a summary of the environmental values and sensitivities, along with the potential significant impacts, related to the key factor PEOPLE – Community and Economy.

Table 16-1 Environmental Factor– PEOPLE – Community and Economy

THEME – Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
PEOPLE Community and Economy	Economic profile Employment opportunities for local and regional residents	**NO** Employment opportunities for members of local and regional community members will become available in the short and long term. Extended life of mine offers local and regional economic security.
	Social infrastructure Shared use of NT public road Cox Peninsula Road	**POSSIBLE** Transfer (trucking) of internal haulage of ore and rejects between BP33 and Grants (return) is proposed to occur along a 3.5 km section of Cox Peninsula Road.

16.2 Environmental values

The values applied to the key factor of community and economy when assessing potential social benefits and impacts due to the Proposal can be categorised using the dimensions of social impacts adapted for a North Australian context (Munday, 2020). These categories are adapted from the International Association for Impact Assessment (IAIA) Principles (Vanclay, 2003) and Guidelines (Vanclay et. al., 2015) and are illustrated in Figure 16-1.

16.3 Potential impacts and risks

A summary of potential benefits and opportunities arising from the Proposal is provided in Table 16-2 and a summary of potential impacts arising from the Proposal is provided in Table 16-2.

Figure 16-1 Dimensions of social impacts adapted for Northern Australian context (Munday, 2020)

Table 16-2 Potential social benefits associated with the Proposal

THEME – Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
PEOPLE Community and Economy	Strong voice – having a strong voice, governance structures None identified	**Not applicable**
	People and communities – health, wellbeing, safety, cohesion None identified	**Not applicable**
	Economies – jobs, economies, and community development Potential training and employment opportunities during construction and operation for local people. Boost to the local economy and regional economic through local	**POSSIBLE** • Core is committed to maximising opportunities for local jobs and contracts. • Core has purchased the processing and crushing facilities which will enable increased opportunity for direct employment of local people as part of the restart.

THEME – Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
	procurement. Enhanced opportunities for Aboriginal people for jobs and training. Local communities benefit through sponsorship and local support.	• Core's Community Benefits Plan will continue to be implemented.
	Infrastructure and services – housing, schools, roads, policing, power, water, health None identified	**Not applicable**
	Cultural identity – connections to kin and country None identified	**Not applicable**
	Living environment – amenity, issues, noise, dust, pollution, aesthetics of landscape None identified	**Not applicable**
	Cumulative None identified	**Not applicable**

Table 16-3 Potential social impacts associated with the Proposal

THEME – Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
PEOPLE Community and Economy	Strong voice – having a strong voice, governance structures None identified	**Not applicable**
	People and communities – health, wellbeing, safety, cohesion Higher level of road trauma because of mine traffic. Reduced sense of safety and wellbeing due to industrial traffic sharing roads with local traffic. Community concerns about road degradation due to industrial traffic. Deterioration of roads increases wear and tear on vehicles, increases travel times for other road users.	**NO** • The Social Impact Assessment and Management Plan prepared for the Grants Lithium Project adequately capture the risks associated with an extension to LOM. • The Proposal will extend the period of operation of haul trucks along Cox Peninsula Road but will not increase traffic volumes. The use of the haul route has been subject to detailed assessment as part of the Grants Lithium Project EIS (EcOz 2018a) and the potential impacts and risks associated with an extended period of use have been addressed in a separate variation to that Proposal. • Commitments made by Core in relation to road signage, emergency access, pavement maintenance and speed restrictions at the Berry Springs Primary School will be reinstated.
	Economies – jobs, economies, and community development Local economic benefits are not	**NO** • Core is committed to maximising opportunities for local jobs and contracts.

THEME – Factor	Environmental values and sensitivities	Does the proposed action have the potential to significantly impact values or sensitivities?
	realised.	• Core has purchased the processing and crushing facilities which will enable increased opportunity for direct employment of local people as part of the restart. • Core's Community Benefits Plan will continue to be implemented.
	Infrastructure and services – housing, schools, roads, policing, power, water, health None identified	**Not applicable**
	Cultural identity – connections to kin and country None identified	**Not applicable**
	Healthy country – sustainable use of natural resources or ecosystems Community concerns about impacts to surface and groundwater. Community concern about contamination of groundwater or discharge water. Concerns about rehabilitation and mine closure.	**NO** • The operation does not involve the use of hazardous materials or chemicals that could impact water quality for consumptive uses. • Groundwater extraction and dewatering will not impact other groundwater users as the distance to the nearest active production bore is over 10km. • Core is committed to ongoing communication and engagement, including its community hotline, to address and resolve any community concerns. • The Finniss Lithium Project BP33 Mine Closure Plan adequately demonstrates the operation can be closed in a manner that prevents or minimises the potential adverse long-term environmental and social impacts that may otherwise have resulted from the mining and/or processing. • Core is committed to ongoing communication and engagement, including its community hotline, to address and resolve any community concerns.
	Living environment – amenity, issues, noise, dust, pollution, aesthetics of landscape None identified	**Not applicable**
	Cumulative None identified	**Not applicable**

16.4 Combined impacts

Based on the discussion provided in Section 16.3, the potential benefits and impacts to community and economy from the Proposal activities are considered a low risk when undertaken with appropriate management measures.

Impacts to community and economy are expected to be localised if they occur, based on the following

assumptions:

- relocation of the BP33 mine access road will improve safety of mine traffic entering and exiting via this road
- LDGNT will engage with DLI regarding the maintenance of Cox Peninsula Road, particularly the 3.5 km section intended for haulage of ore and rejects between the Grants and BP33 mines sites
- transport will continue to avoid Berry Springs drop off and pick up times, and
- the closure strategy proposed for the BP33 mine will ensure the area's environmental values including hydrological processes will be reinstated (refer Section 11.5).

Benefits to community and economy are expected to be achieved for the local and regional communities based on the following assumptions:

- employment of local workers from Darwin, Palmerston and surrounding areas where possible (on-site accommodation is not proposed and workers will travel to and from site for each shift); and
- job opportunities will be advertised on Core's website and via commonly used recruitment platforms.

16.5 Mitigation and management

The mitigation and management measures identified for the key factor of community and economy related to three values:

- People and communities – road impacts,
- Economies – jobs and contracting opportunities, and
- Health country – water and mine closure.

Each are detailed in the following sub-sections.

16.5.1 People and communities – road impacts

An intersection upgrade, including a slip lane, is proposed at the BP33 site access to allow for safer entry and exit on and off Cox Peninsula Road. As part of this, the BP33 mine site access road will be relocated approximately 450 m north-northwest to shift further away from a crest for improved safety.

LDGNT is committed to engaging with Department of Logistics and Infrastructure about its road maintenance program of NT public road Cox Peninsula Road and in turn, communicating with the community about road concerns and plans for maintenance.

Transport would continue to avoid Berry Springs School drop off and pick up times, in line with prior ore haulage practices.

16.5.2 Economies – jobs and contracting opportunities

Core is committed to employing local workers from Darwin, Palmerston and surrounding areas where possible. On-site accommodation is not proposed and workers will travel to and from site for each shift.

Workforce personnel will comprise management and professional positions, contractors for mining, processing and haulage and trades.

Core will continue to advertise job opportunities on its website and via commonly used recruitment platforms.

16.5.3 Healthy country – water and mine closure

Following completion of mining activities at BP33, all remaining waste rock remaining in WRD2 will be used to backfill the underground mine and decline. At the top of the decline, and just under the box cut, a paste plug will be installed. The plug will be placed at the top of the decline/ bottom of the box cut to ensure groundwater re-saturation of the closed underground mine will not result in saturation of the closed and rehabilitated box cut.

Once the paste plug has been installed at the bottom of the box cut, waste rock from WRD1 and topsoil will be used to rehabilitate the box cut, as per previous approvals.

Decommissioning of infrastructure, including the paste plant and associated hardstand, the slimes slurry pipeline, and additions to the processing plant, will occur as part of the mine site closure and decommissioning activities. There will be a relatively minor increase in the scale of decommissioning and closure activities and materials due to this Proposal. Detail will be added to the Mine Closure Plans appended to the Environmental Mining Licence to be assessed following environmental approval of the Proposal.

16.5.4 Ongoing engagement and communication

Core is committed to ongoing engagement and communication with stakeholders and the community as part of the Finniss Lithium Project restart and BP33 approvals variation process. An updated communication and engagement strategy is being developed and will include:

- defined communication and engagement goals and objectives
- detailed stakeholder analysis
- an approach to engaging with stakeholders and the community ongoing
- communication tools including regular project updates
- engagement tools including meetings and briefings; and
- community hotline phone and email with established complaint resolution procedures.

The communication and engagement strategy will be guided by the International Association for Public Participation (IAP2) Core Values:

- Public participation is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process
- Public participation includes the promise that the public's contribution will influence the decision
- Public participation promotes sustainable decisions by recognising and communicating the needs and interests of all participants, including decision makers
- Public participation seeks out and facilitates the involvement of those potentially affected by or interested in a decision
- Public participation seeks input from participants in designing how they participate
- Public participation provides participants with the information they need to participate in a

meaningful way; and

- Public participation communicates to participants how their input affected the decision.

16.6 Conclusion

With effective implementation of management measures, including relocation of the BP33 mine access road, working with DLI on the maintenance of the 3.5 km section of Cox Peninsula Road between mine sites, and providing employment opportunities to regional and local community members, the Proposal is not expected to significantly affect the key factor community and economy.

Overall, the impact and risk assessment (refer Appendix F) identified a low likelihood of significant impact resulting from the Proposal on community and economy and it is concluded that the NT EPA's objective for this key factor to '*Enhance communities and the economy for welfare, amenity and benefit of current and future generations of Territorians*' will be met.

17 Conclusion

A self-assessment of the Proposal has been undertaken using the pre-referral screening tool provided in the guideline 'Referring a proposal to the NT EPA'. The Proposal triggered a referral based on the type, scale and nature of the action for one of the 14 environmental factors. The environmental factors evaluated in detail to confirm no significant impacts were:

- LAND – terrestrial environmental quality,
- LAND – terrestrial ecosystems,
- WATER – hydrological processes,
- WATER – inland water environmental quality,
- WATER – aquatic ecosystems,
- AIR – air quality,
- AIR – atmospheric emissions, and
- PEOPLE – community and economy.

Further assessment of these environmental factors was conducted in Sections 9 through to 16. Assessment included review of the environmental values, potential risks and impacts, mitigation measures, residual and combined impacts. The collective information was used to determine if a significant impact was likely to occur because of the Proposal.

The assessments undertaken determined that, with the implementation of the identified mitigation and management measures, a significant residual impact on the values associated with the environmental factors evaluated is unlikely.

As discussed in Section 7.6, evaluation of risks and impacts to matters of national environmental significance undertaken in previous approvals for Grants and BP33 underground mine projects remain directly relevant to this Proposal given no change to the development envelopes previously approved. As such, a referral under the EPBC Act will not be made.

18 References

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