Executive Summary Supplementary Environmental Report

Lei Lithium Project

Prepared for assessment under the *Environment Protection Act 2019*
NT EPA Assessment Number: EP2024/038

Lithium Plus Minerals Ltd
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This document provides a summary of the Lei Lithium Project Supplementary Environment Report (SER) (main document) prepared by Lithium Plus Minerals (LPM) in accordance with the *Direction to Include Additional Information in the Supplementary Environmental Report* (the Direction) issued by the Northern Territory Environment Protection Authority (NT EPA) following the referral of LPM's Lei Lithium Project (the Proposal) under the *Environment Protection Act 2019* (EP Act) (NT EPA reference EP2024/38).

The Direction sought further detail on the Proposal, consultation and key environmental factors including:

- Hydrological processes
- Inland water environmental quality
- Terrestrial ecosystems
- Community and economy
- Culture and heritage

Proposal overview

Section 2 of the Referral Report outlines the description of activities and key components of the Proposal. Since submission, a suite of targeted technical studies have been completed to refine the mine design, including the optimising mine layout, improving constructability, and incorporating updated technical inputs.

These updates have resulted in the following design changes including:

- Replacement of the proposed box cut and portal with a cut-and-cover tunnel, reducing the disturbance associated with mine access infrastructure and providing a preferred method for underground access.
- Refinement of the site layout and infrastructure configuration, including adjustments to the location, size and arrangement of key proposal infrastructure. This includes consolidation of waste rock storage areas, relocation of processing infrastructure and minor changes to access roads and supporting facilities.
- Revision of the water management system, including updated water storage locations, capacities and construction sequencing based on detailed water balance modelling. These refinements increase the total water storage capacity from approximately 300 ML to 775 ML and optimise management of mine-affected, sediment-laden and raw water.
- The overall site infrastructure footprint has increased from approximately 45.4 ha to 64.3 ha (an increase of 18.9 ha). The increase is primarily associated with the revised water management system and redistribution of infrastructure. The total proposed disturbance footprint remains within the clearing envelope assessed in the Referral Report (<100 ha).
- Identification and assessment of a preferred site access option to provide safe and efficient connectivity to the existing road network, which is being progressed in consultation with relevant NT Government departments (refer to main document for further details).

Summary of stakeholder engagement and studies undertaken

In response to the Direction and issues raised during public exhibition of the Referral, additional technical investigations, stakeholder engagement and impact assessment have been undertaken, over the past 19 months since the Direction was received. These activities have reduced uncertainty, refined impact predictions and informed the development of mitigation and management measures. The work undertaken is summarised in Table 1 and discussed further in the relevant environmental factor sections. Study reports prepared by technical specialists have been provided as appendices to the SER, with key findings summarised in the main document and used to inform the EIA process.

Table 1. Summary of additional studies undertaken since referral submission

Factor	Description of additional work	Relevant section of the main document
Hydrological processes	• Updated groundwater model and cumulative groundwater assessment. • Site-specific flood modelling. • Updated site water balance. • Baseline surface water and groundwater monitoring to January 2026.	Section 7
Inland water environmental quality	• Additional surface water and groundwater quality monitoring. • Refined site water balance and water management system design. • Assessment of discharge, seepage, saline intrusion and acid sulfate soil risks.	Section 8
Terrestrial ecosystems	• GDE field survey. • Development of the GDE Monitoring Plan. • Review of groundwater drawdown effects on ecological values.	Section 9
Community and Economy	• Traffic impact assessment	Section 10
	• Stakeholder engagement scoping and planning • Consultation with community members, government agencies and other stakeholders.	Section 4
Culture and heritage	• Cultural Heritage Assessment. • Site-specific archaeological survey. • Consultation with the AAPA, NLC, Larrakia and other Aboriginal stakeholders.	Section 11

Since the referral a Community Stakeholder Engagement Strategy (CSES) has been prepared by EMM Consulting Pty Ltd (EMM). The CSES established the framework for ongoing engagement throughout the environmental assessment process. Consultation undertaken during preparation of the main report included stakeholder meetings and briefings, community information sessions, correspondence, distribution of information materials, social media engagement, consultation with the Northern Land Council (NLC) and Aboriginal Area Protection Authority (AAPA), and cultural heritage engagement with Larrakia representatives.

The issues raised through consultation, together with submissions received during the referral process, have informed preparation of the main document and refinement of the Proposal. This includes additional assessment of traffic and transport, water management, cumulative impacts, biodiversity and cultural heritage values, together with the development of management and mitigation measures, ongoing consultation commitments, and project design refinements where appropriate.

Environmental impact assessment

Potential direct, indirect and cumulative impacts for each environmental factor were assessed using methodologies appropriate to the environmental values, receptors and impact pathways being considered. Impact significance was assessed taking into consideration the scale, magnitude and duration of impacts after implementation of relevant avoidance, mitigation and management measures.

LPM worked with its technical specialists, to identify practical measures to avoid, minimise and mitigate potential environmental impacts. Where the EIA identified uncertainty about the likelihood or scale of potential impacts, monitoring and adaptive management measures have been developed to minimise the potential for environmental impact. Following implementation of these measures, residual impacts were

assessed for each environmental factor. Table 2 provides a summary of the key residual impacts identified and the resulting residual impact ratings.

Table 2. Summary of residual impacts

Factor	Key potential impacts	Residual rating	Conclusion
Hydrological processes	• Groundwater drawdown. • Cumulative groundwater impacts associated with the concurrent operation of the Lei, Grants and BP33 Projects.	Moderate	Groundwater drawdown associated with mine dewatering and minor changes to surface water movement are predicted to be largely confined to the vicinity of the underground workings and are not expected to result in significant impacts to environmental values. A precautionary moderate residual rating has been assigned, based on the uncertainty associated with actual groundwater responses, this is supported by ongoing monitoring and adaptive management to protect groundwater and surface water regimes, implemented through a site-specific Water Management Plan (WMP). Although some overlap of drawdown associated with the Lei and BP33 projects is predicted, the cumulative drawdown remains localised to the vicinity of the mining operations and projects is not predicted to materially increase the impacts associated with the Proposal operating in isolation.
Inland water environmental quality	• Surface water contamination from mine-affected water discharges • Surface water and groundwater contamination from mine seepage and runoff from waste rock and ore stockpiles • Exposure of acid sulphate soils (ASS) through groundwater drawdown • Exposure of ASS through removal of overburden • Saline intrusion and aquifer salinisation • Cumulative impacts	Minor	Modelling indicated limited predicted change in groundwater and surface water quality. The predicted drawdown is generally limited in areas mapped as having a high probability of ASS occurrence, and no evidence of existing ASS-related acidification or metal mobilisation has been identified through the baseline sampling in groundwater or surface water. Sediments and shallow groundwater systems within areas of the Charlotte River are already subject to natural seasonal groundwater fluctuations and periodic drying. Modelling of saline intrusion demonstrates that the reduction in groundwater head is insufficient to reverse the hydraulic gradient and induce groundwater flow away from the river towards the mine causing aquifer salinisation. Impacts to freshwater reaches of the Charlotte River are considered unlikely, as these systems are predominantly rainfall-driven and exhibit limited evidence of sustained groundwater baseflow. Surface water and groundwater quality impacts are expected to be localised, short-term and manageable through implementation of the Proposal's water management, monitoring and contingency measures, through a site-specific WMP.

Factor	Key potential impacts	Residual rating	Conclusion
Terrestrial ecosystems	• Loss and degradation of GDEs from lowered groundwater levels • Cumulative impact of groundwater changes on GDEs	Minor	No groundwater-dependent ecosystems were identified within the Proposal area or predicted groundwater zone of influence. Potential impacts to vegetation associated with groundwater drawdown are therefore expected to be limited and manageable, with residual impacts considered minor. The cumulative impacts were assessed as minor due to the localised extent of cumulative drawdown, the limited overlap between the Proposal and BP33 drawdown cones and the absence of identified GDEs within the area of overlap.
Community and Economy	• Increased traffic volumes and potential for congestion • Localised delays at intersections and along haulage routes due to heavy vehicles • Impacts to community amenity (noise, dust and vibration) along haul routes (e.g. Cox Peninsula Road, Fog Bay Road) • Impacts to sensitive receptors (e.g. Berry Springs Primary School and surrounding community) • Road safety risks associated with increased light and heavy vehicle movements • Deterioration of road condition due to heavy vehicle use • Uncertainty in traffic predictions and changing conditions over time • Potential cumulative impacts on road users, tourism and surrounding communities	Minor	Potential impacts to the community and economy assessed are largely associated with traffic, road safety and amenity during construction and operations. These impacts are expected to be localised and manageable through implementation of traffic management and mitigation measures.
Culture and heritage	• Loss or damage to sacred sites • Direct loss or damage of Aboriginal archaeological sites • Direct loss or damage of non-aboriginal archaeological sites • Loss of or alteration of cultural landscape features, practices and amenity • Impacts on intangible cultural heritage values	Minor	Through avoidance of heritage values where practicable, implementation of heritage management measures, in the form of a Cultural Heritage Management Plan and ongoing engagement with Traditional Owners, the Proposal is not expected to result in significant impacts to cultural heritage values.

Conclusion

The assessment concluded that impacts to surface water and groundwater quality, terrestrial ecosystems, culture and heritage values, and community values are not expected to be significant and can be appropriately avoided, mitigated or managed through implementation of the proposed management framework. Monitoring, inspection, reporting and adaptive management commitments have been incorporated throughout the life of the Proposal to verify environmental outcomes and support continual improvement in environmental performance.

While groundwater drawdown has been assessed as a moderate residual impact due to its duration and associated uncertainties, the assessment indicates that environmental values can be appropriately protected and that the NT EPA's environmental objectives for the factors assessed in the main document likely to be achieved with mitigation measures in place.