# Notice

***Environmental Protection Act 1994***

## Information request

*This information request is issued by the administering authority under section 140 of the* Environmental Protection Act 1994 *to request further information needed to assess an application for a proposed PRC plan.*

To: Mount Rawdon Operations Pty Ltd
Level 24, 175 Liverpool Street
SYDNEY NSW 2000

ATTN: Paul Wright

Our reference: EPML00712113; 101/0008040

## Further information is required to assess an application for a PRCP schedule

### 1. Application details

The application for a proposed PRC plan was received by the administering authority on 14 November 2022.

Land description: Mining lease (ML) 1231, ML1259, ML50119, ML100059, ML1192, ML1203, ML1204, ML1206 and ML1210.

### 2. Information request

The administering authority has considered the abovementioned application and is writing to inform you that further information is required to assess the application (an information request).

The information requested is outlines in Attachment 1 to this notice. Attachment 1 requests an updated progressive rehabilitation and closure plan (PRC plan) be provided in response to this information request. It is recommended that a copy of Attachment 1, with an additional column to indicate where the PRC Plan has been updated is also submitted.

### 3. Actions

The abovementioned application will lapse unless you respond by giving the administering authority -

(a) all of the information requested; or
(b) part of the information requested together with a written notice asking the authority to proceed with the assessment of the application; or
(c) a written notice –
    i. stating that you do not intend to supply any of the information requested; and
    ii. asking the administering authority to proceed with the assessment of the application.

Should the information request require an EIS process or applicant to submit a progressive rehabilitation and closure (PRC) plan then it must be completed and submitted.

A response to the information requested must be provided by **28 July 2023** (the information response period). If you wish to extend the information response period, a request to extend the period must be made at least 10 business days before the last day of the information response period.

The response to this information request or a request to extend the information response period can be submitted to the administering authority by email to ESCairns@des.qld.gov.au.

If the information provided in response to this information request is still not adequate for the administering authority to make a decision, your application may be refused as a result of section 176 of the *Environmental Protection Act 1994,* where the administering authority must have regard to any response given for an information request.

**4. Human rights**

A human rights assessment was carried out in relation to this decision/action and it was determined that the decision is compatible with human rights.

If you require more information, please contact Donna Herrity, Senior Environmental Officer on the telephone number (07) 4222 5525.



Signature

9/12/2022

Date

Chris Wake
Department of Environment and Science
Delegate of the administering authority
*Environmental Protection Act 1994*

**Enquiries:**
Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5352
Email: ESCairns@des.qld.gov.au

**Attachments**

Attachment 1: Additional information requested for proposed PRC Plan.

**Appendix 1: Additional information required for proposed PRC plan**

| Item | Relevant section (proposed PRC plan and/or PRCP Guideline) | Matter | Information Request |
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| Rehabilitation Planning Part | | | |
| 1 | Section 3 Post Mining Land Use | The purpose of the Rehabilitation Planning Part of the PRC Plan is to support and justify the proposed PRCP Schedule. In accordance with step 2 of Section 4.1 of the PRCP Guideline, each Rehabilitation Area must only have one primary PMLU as the rehabilitation methodology and outcome will be different for each PMLU. The PRCP Schedule nominates multiple PMLUs (low intensity grazing/open woodland) for some rehabilitation areas. | Provide an updated PRC Plan that clearly defines a single PMLU for each rehabilitation areas/improvement areas that contain only one primary PMLU as required by the Guideline *Progressive rehabilitation and closure plans (PRC plans)* (PRCP Guideline) Section 4, Step 2. |
| 2 | Section 3.3 Post Mining Land Use: Assessment | Criteria for RM 1 includes the decommissioning and removal of infrastructure. The Rehabilitation Planning Part has provided limited details regarding infrastructure on site and information that:<br>• identifies infrastructure that will be decommissioned and the methods for decommissioning, and<br>• a description of infrastructure that will remain post rehabilitation and the identification of ongoing maintenance requirements.<br><br>Further, Section 3.3 advises selected infrastructure will remain onsite to provide economic benefits for community or future landholders. The Hydraulic Assessment advises dams that are to be retained for passive sediment and erosion control purposes. Permanent infrastructure may be considered as part of the PMLU where it is consistent with the land use. Infrastructure retainment has been presented in general terms in the landholder letter, throughout the PRC Plan and appendix. Figure 28 does not identify what infrastructure is proposed to be retained and what PMLU is assigned to the area. | Provide an updated Rehabilitation Planning Part that includes a full definitive list of infrastructure to be decommissioned including information required by section 3.6.5 of the PRCP Guideline and list infrastructure proposed to be retained. Any item proposed to be retained must be consistent with the PMLU and the location documented.<br><br>Provide a revised landholder agreement, or other written evidence of agreement from the underlying landholder, which:<br>• clearly itemises all assets to be retained,<br>• identifies all assets on a map, and<br>• provides the relevant quantities of each asset (e.g., km, ha, no. of bores, etc.). |
| 3 | Section 5.3 Soil and Capping Material Assessment | Erosion testing and modelling is in progress but not included in current application. It is noted that subsoils on site are sodic with increased soil erosion potential and poor plant emergence. Section 5.3 states that landform evolution modelling can be undertaken if needed. The site includes structures that will contain PAF material after closure and close to downstream watercourses that flow into | Provide an updated Rehabilitation Planning Part that includes results from Landform Evolution Modelling indicating likely stability over the long term. |

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| | | Paradise Dam. The geotechnical assessments for both the NWRD and the TSF indicate the structures may not remain stable in the long term and that long term effects of erosion be incorporated into the geotechnical assessment. | Provide an updated Rehabilitation Planning Part that includes a geotechnical assessment that incorporates the results of the LEM modelling for both the TSF and the NWRD. |
| 4 | Landform design requirements of the PRCP Guideline | The Rehabilitation Planning Part provides various figures showing features of the site at stages of closure and rehabilitation. However, there is limited information that addresses the requirements under the heading Landform Design in section 3.6.1 of the PRCP Guideline. For example Figure 59 indicates that steep sided land bridges will remain after rehabilitation activities while PDF page 147 indicates they are temporary features only. As identified below, the Rehabilitation Planning Part does not provide information regarding the flow of water across the site and demonstrate the land will maintain a stable condition in the long term including during extreme rainfall events. | Provide an updated Rehabilitation Planning Part that provides figures showing the final landform of the site including drainage lines, diversions and discharge points including water velocity and depth for a range of rainfall events.<br><br>Provide an updated Rehabilitation Planning Part that includes information stated under the heading Landform Design in section 3.6.1 of the PRCP Guideline (including LEM and flood modelling) that demonstrates the landforms will be stable in the long term. |
| 5 | Section 5.3 Soil and capping material assessment<br><br>Section 5.4 Waste Characterisation<br><br>Section 5.5 Rehabilitation Areas and Landform designs | Table 27 MRO Waste Characterisation suggests that surface runoff and seepage from waste rock and low-grade ore materials will remain slightly alkaline to pH neutral and contain a low concentration of salts and trace metals for a significant period of time (> 20 years). However, table 4-1 of Mt Rawdon Operations Waste Rock Test Pile Review Technical Report indicates seepage water quality is highly acidic indicating AMD generation. The discrepancy indicates the KLC test were not of insufficient length to ensure the oxidation of the samples was complete and the samples had achieved a steady state.<br><br>Information under the heading Field Scale Waste Characterisation Test Work does include issues with the design and data quality from the waste rock field trial pads. RGS Environmental's review outlined a range of possible areas of concern such as drainage and provided recommendations for either decommissioning or improving. It is unclear how the results of these trials inform the proposed cover design.<br><br>The rehabilitation strategy for the WWRD is based on the material being NAF. However, representative sampling has not been provided to demonstrate the material is confirmed NAF and is suitable for use in rehabilitation. | Provide an updated Rehabilitation Planning Part that provides information regarding the seepage quality currently present on site and predicted seepage expected from the NWRD and TSF that will be directed to the residual void.<br><br>Provide sampling information to demonstrate the WWRD material is confirmed to be NAF.<br><br>Provide an updated Rehabilitation Planning Part that provides information regarding the location, quantity and quality of material required to construct the proposed cover systems. |

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| | | Section 5.3 provides a soil and capping material assessment but is limited to topsoil and subsoil only. It does not provide information regarding the quality, quantity and location of all types of material required to construct the proposed cover design for the TSF (included in section 5.5 pdf page 153) and WRD (included in section 5.5 page 129) including:<br>• NAF competent rock<br>• Fine grained clay/silt/sand<br>• NAF oxide regolith<br>• NAF waste rock >75mm - <250mm PSD. | |
| 6 | Section 5.5 Rehabilitation Areas (RA) and Landform Designs and Section 5.7 Rehabilitation Trials | The section NWRD Cover system trial and performance monitoring identifies various soil cover options (Figure 48). Modelling (theoretical due to absence of measured field data on soil water dynamics) identified Option 1B as the preferred system for the top of the NWRD landform to minimise water entry. According to document page 128, the top cover is linked to the external NAF batters (Figure 45) which together aim to restrict water entry into the underlying PAF. The external NAF batters are built using material (nominal PSD P80 >250mm) with boulders up to 1 m in diameter.<br><br>The berms of the external batters per lift will be underlain by compacted clay to further impede infiltration through the coarse rock armour. The external berms will be vegetated (Figure 46).<br><br>It is unclear whether physical integrity of the compacted clay layer underlying the external berms will be maintained in the long term, particularly at the location of the drain where water flow velocities are likely to be high.<br><br>The presence of vegetation on the external berm may influence the clay layer integrity due to the known effects of plant roots and desiccation on clay structure. In the event of failure of the underlying clay will infiltration may contact the PAF material | Provide an updated Rehabilitation Planning Part that includes modified modelling for the NWRD which includes the external embankment design to reflect water dynamics in the proposed cover system. Modelling using data sourced from field testing and demonstrating the effect of failure of the embankment clay layer on seepage should be undertaken to show whether seepage volumes and water quality will be impacted. Should modelling indicate the landform will not achieve a stable condition with the proposed rehabilitation methodology, provide an updated Rehabilitation Planning Part that proposes revised methodologies to achieve a stable condition.<br><br>Provide an updated Rehabilitation Planning Part that provides consistent information regarding the proposed TSF cover system including:<br>• the basis for the design,<br>• specified compaction/permeability of each layer, and<br>• modelling that demonstrates the proposed cover system will achieve the stated objectives and a stable condition (including able to support the PMLU). |

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| | | It is noted the top cover and external embankments are hydraulically linked irrespective of low permeability layers within the cover. It is unclear how rainfall reaching the landform will contribute to the water balance (infiltration, runoff etc) and how the volume of seepage and water quality from the landform is expected to change over time in response to changes in the cover system (top and embankment).<br><br>The Rehabilitation Planning Part appears to provide conflicting information indicating a TSF cover system on PDF page 153 but also proposed trial options in section 5.7. The cover system proposed for the TSF consists of 1m of overburden, 1m of subsoil and 0.5m of topsoil. While the objectives of the cover system are provided, the basis for the design is not provided and modelling has not been undertaken to demonstrate it will achieve the proposed objectives and a stable condition. Further the proposed cover system does not reflect any of the options proposed to be trialled in section 5.7. | |
| 7 | Section 5.4 and section 5.5 | The Rehabilitation Planning Part does not include information regarding the management of water post closure as required by the PRCP Guideline. For example:<br>• pages 162 – 165 provide some information regarding proposed trials for water treatment for both contaminated surface water and seepage. However, maps and design drawings of how the results of the trials will be implemented have not been provided.<br>• Page 120 provides some information regarding the water balance for the final void. However, the water balance contemplates 3 different scenarios of water management and no final landform design is provided that shows how the water will flow through the site.<br>• Page 141 provides a description of drainage works and permanent diversion that must be implemented to prevent surface water flow from entering the TSF. However, the location, design standards and flood modelling of these features demonstrating they will remain stable in the long term is not provided. | Provide an updated Rehabilitation Planning Part that provides information regarding water management of the mine once all rehabilitation activities have been undertaken in accordance with requirements stated under the heading water management in section of 3.6.1 of the PRCP Guideline. |

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| | | • Pages 104-106 describes the installation of seepage interception wells, bores, drainage lines and dams that will continue to operate after 2027. The proposed schedule proposes rehabilitation will commence in 2026. It is unclear how rehabilitation will be undertaken when infrastructure is required to manage seepage and it is unclear where seepage will be directed once rehabilitation is completed.<br><br>Further the list of contaminants of concern does not appear to be based on site specific geochemical analysis that reflects the conditions under which mine waste will be permanently stored. | |
| 8 | Section 5.5 RA1 | **Void water balance**<br>A final void study report (SLR 2020) provided with the application states that water level equilibrium will be established at 110m AHD if the external catchment of the pit is excluded and diverted away from the void. A variety of water capture scenarios are described in the PRCP (e.g. page 120) that appear to include the contribution of water from external catchments. It is noted that one stated objective of modelling is to understand the demand for water to fill and maintain the pit lake based on several closure scenarios. It is unclear why it is considered necessary to fill and maintain the pit lake.<br><br>The modelling notes that the pit will not be a terminal sink that only receives groundwater and instead there will "be some groundwater flux from the pit lake". This appears to be potentially inconsistent with Condition E22 of the EA which states that contaminants are not authorised to be released directly or indirectly to any groundwater.<br><br>**Void water quality**<br>Section 11.4.1 states that kinetic testing was undertaken over a 2 year period and concludes that the potential for acid mine drainage is expected to be low. The report "*Geochemical Assessment of Waste Rock and Tailing Materials*" acknowledges that kinetic testing is long term and results only valuable once a geochemical steady state has been achieved. This report recommends that KLC testing be undertaken for a further 12-24 months. Table 4-1 of the "*Mt Rawdon Operations Waste Rock Test Pile Review*" provides results from water | Provide an updated Rehabilitation Planning Part that includes updated residual void water balance modelling based on the requirements and limitations of the EA.<br><br>Provide an updated Rehabilitation Planning Part that includes updated residual void water quality modelling based on monitoring of NWRD leachate.<br><br>Provide an updated Rehabilitation Planning Part that includes information regarding the methods used to determine the location of the safety infrastructure demonstrating that it complies with industry best practice (for example, Safety bund walls around abandoned open pit mines (DME 1997)). |

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| | | sampling taken from the toe of the NWRD. These results demonstrate that waste material is generating acid mine drainage currently on site which does not align with the conclusion of the KLC tests. Using in situ results from the NWRD rather than the KLC testing would provide further clarity regarding whether the water quality in the residual void will remain suitable for stock watering under conditions that comply with EA requirements.<br><br>**Void stability**<br>Information regarding void stability is provided under the heading Geotechnical Assessment in Section 5.5 Rehabilitation Areas and Landform Design. It is noted that RM4 criteria (b) states that a 2m high safety bund will be constructed 20m from the crest. It is unclear how this distance has been determined and whether it complies with industry best practice. | |
| 9 | Section 5.5 and the report titled *Mt Rawdon Mine Progressive Rehabilitation Closure Plan (PRCP) Geotechnical Assessments – Tailings Storage Facility* | The geotechnical analysis of the TSF does not incorporate potential effects from erosion. Both the recommendations and conclusions of the report "*Mt Rawdon Mine Progressive Rehabilitation Closure Plan (PRCP) Geotechnical Assessments – Tailings Storage Facility"* states that long term effects of erosion need to be integrated into the geotechnical stability assessment. | Provide an updated Rehabilitation Planning Part that demonstrates the proposed landform will achieve a stable condition taking into consideration water management, long term erosion and the potential for mass movement. |
| 10 | Section 5.5 and the report titled *Mt Rawdon Mine Progressive Rehabilitation Closure Plan (PRCP) Geotechnical Assessments – North Waste Rock Dump (NWRD)* | The geotechnical assessment of the NWRD indicates that it will not be stable in the current form and will not achieve an appropriate factor of safety with intra-bench/small scale slumps. Recommendations in the report were made regarding surface water management to minimise infiltration and increase runoff to improve stability.<br><br>It is unclear how the final design addresses the potential for slumping and the recommendations from the geotechnical report. | Provide an updated Rehabilitation Planning Part that demonstrates the proposed landform will achieve a stable condition taking into consideration water management, long term erosion and the potential for mass movement. |
| 11 | Maps | In accordance with Section 4 of the PRCP Guideline, a final site design is required showing the maximum disturbance footprint, | Provide an updated PRC Plan that meets the requirements of the PRCP Guideline including but not limited to: |

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| | | resource tenure boundaries, the flood plain extent, PMLU(s) including all proposed undisturbed areas.<br><br>Section 4 of the PRCP Schedule advises reference maps must be attached to the proposed PRCP Schedule identifying the boundary of each rehabilitation area. However a reference map has not been provided. The proposed PRCP schedule must include reference maps. | • Final site design, and<br>• Reference map identifying each RA.<br><br>Refer to examples in Appendix 2 of the PRCP Guideline. |
| PRCP Schedule | | | |
| 12 | Rehabilitation Planning Part and PRCP Schedule generally | Further information is requested to provide justification for the:<br>• proposed timing of rehabilitation milestones;<br>• proposed order of rehabilitation milestones, and<br>• proposed criteria provided in each of the milestones and how they will achieve, or reflect, a stable condition.<br><br>In addition, the following matters relating to the PRCP Schedule should be addressed:<br>• The PRCP Schedule has not been provided in the format and information requirements as per the template (ESR/2019/4957).<br>• Each RA must have one single PMLU in accordance to Step 2 of section 4.1 of the PRCP Guideline.<br>• The PMLU for the residual void requires further definition regarding the purpose of the water storage. The proposed criteria indicate the purpose is water storage for stock watering.<br>• It appears there are areas of disturbance that are not captured in the PRCP Schedule (such as topsoil stockpiles and borrow pits). The PRCP Schedule must include all areas of disturbance.<br>• It is noted that both the North Waste Rock Dump and West Waste Rock Dump & Run of Mine are listed as RA2. These areas will have different rehabilitation methodologies as the NWRD is proposed to have a cover system installed. In accordance with Step 2 of section 4.1 each RA must be | Provide an updated Rehabilitation Planning Part that provides justification for the proposed timing, order and criteria proposed for each Rehabilitation Milestone.<br><br>Consider the matters raised and provide an updated PRCP schedule accordingly. |

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| | | based on the specific rehabilitation methodology and land outcome.<br>• It is noted that most RAs provide a single timeframe for all but the final milestone to achieved. Consequently, the PRCP Schedule does not provide for progressive rehabilitation. The PRCP Schedule must demonstrate that RMs will be achieved within appropriate timeframes that are justified in the Rehabilitation Planning Part. | |
| 13 | Milestone Criteria Generally | Numbering the milestone criteria for ease of reference. | For ease of reference, use the following format for each criterion:<br>1. Criterion<br>a. Sub criterion<br>i. Further sub criterion. |
| 14 | Rehabilitation Milestones | RM's must have milestone criteria that follows the SMART principles, are appropriate for achieving the milestone and facilitating subsequent rehabilitation milestones. For example, criteria must be specific and not include ambiguous or subjective words and phrases such as, "if possible", "if applicable", "where possible", "where applicable" and "should".<br><br>The following are examples for specific RM's:<br>• RM6: The milestone criteria does not reflect the detail of the rehabilitation methodology stated in the Rehabilitation Planning Part. Page 96 states rehabilitation of dams includes the desilting and excavation of the floor of the dam up to 500 mm to remove any contaminants. The floor of each dam will then be assessed and analysed to determine if additional excavation is required to remove any further contaminated material or certified by an accredited Land Contamination assessor/auditor to confirm the absence of any land contamination. Whereas RM6 states floor desilting works completed (if applicable). Further, while the Rehabilitation Planning Part provides minimum water quality monitoring requirements, RM6 includes a criteria requiring the establishment of a sampling program for water quality monitoring. | Provide an updated PRCP Schedule that includes criteria that reflect the rehabilitation methodology proposed in the Rehabilitation Planning Part and are in accordance with SMART principles. |

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| | | • RM7, criterion does not follow the SMART principles; specific erosion rate requirements should be determined and included<br>• RM8: a number of criteria have not been included such as a rock layer and batter requirements/depths as detailed within the Mine Material Management Plan including Figure 2-3 and Figure 2 – 4.<br>• RM12: criteria from Table 19 and Table 20 of the Rehabilitation Planning Part have not been included.<br>• RM13: Criteria from Table 20 of the Rehabilitation Planning Part have not been included.<br>• RM14: more specific criteria that reflect the PMLU are required including criteria that reflect low intensity grazing (such as pasture species, carrying capacity of the land, etc). | |