

Middlemount Coal Mine Progressive Rehabilitation and Closure Plan (PRCP Plan and PRCP Schedule) (Reference number: C-EATPRCP-100281751)

Information Request from the Department of Environment and Science (DES) on the PRCP Plan and PRCP Schedule.

Table 1. Response to Information Request received from DES 27 February 2023

Item	PRCP Plan and/or PRCP Guideline	Issue	Required Information	MCPL Response
Rehabilitation Planning Part				
1	<p>Post-mine land uses</p> <p>Section 3.3 Post mining Land Use</p> <p>Section 3.2 of the PRCP guideline states that, 'Where PMLUs have not been preapproved, the applicant must include all of the requirements stated in this section' (Refer to #Option 2, in the third column of this table).</p>	<p>Section 3.3 of the PRCP planning part states that, 'Mixed use open woodland is the proposed PMLU for the majority of the Middlemount Coal Mine. Mixed-use open woodland comprises of a combination of mixed-use native ecosystem and low-density grazing. Flora comprising species characteristic of particular REs present within the premining landscape would be incorporated into the final landform, where practicable. Endemic flora would contain species characteristics of REs which were present in the pre-mining landscape (i.e. these areas would not necessarily aim to recreate particular REs, rather contain species which are commonly present within the listed REs)'.</p> <p>The above suggests that the proposed PMLU in the PRCP planning part differs to the PMLU stated in the EA (Native Ecosystem).</p> <p>Section 3.1.2.8 of the PRCP planning part states that prior to mining approximately 1,876 ha and 1,626 ha of the Middlemount Coal Mine was previously comprised of remnant vegetation and regrowth vegetation (nonremnant) respectively. Of the 18 REs identified, three have a conservation status of 'Endangered' and six have a conservation status of 'Of Concern' under the Vegetation Management Act 1999 (VM Act) (Table 6, Figure 7). The current EA Table G2: Final land use and rehabilitation approval schedule requires recreation of RE types as the PMLU for most of the mine domains except 'residual voids.'</p> <p>The EA rehabilitation criteria aims to achieve some rehabilitation parity with the previously cleared native vegetation, which requires appropriate mix of native trees, shrubs, forbs, and perennial grasses, that reflect the BioCondition of the cleared and adjacent regional ecosystems.</p> <p>Table 9 of Appendix H states candidate species suitable for inclusion in the revegetation seed mix for each landform. It appears from the above Table 8 and 9, the selected seed mix and its proportion is not representative of –</p> <ul style="list-style-type: none"> • the native species that are present at identified reference sites (refer Table 33 of the PRCP plan), • the BioCondition benchmarks; 	<p>A. #Option 1 – Revise the proposed PMLU of mixed used woodland to Native Ecosystem development which better aligns with the EA. This includes revising the PRCP schedule and plan to reflect following –</p> <ol style="list-style-type: none"> I. For existing established and ongoing rehabilitated areas add a criteria and milestone to reseed/plant tube stocks of the area with native shrub, tree and grass species (refer 'Middlemount Rehabilitation Monitoring Event 2022 – Summary Report') II. For future rehabilitation areas adjust the seed mix to ensure species characteristic of RE 11.5.3 and native grass species are dominant. Avoid exotic grass species like Buffle grass. III. Table 8 and 9 from the Appendix H Revegetation Management Plan should clearly list the native species by the life form it represents (i.e., T, S, G, F, in BioCondition) with proportions that reflect the dominant species in accordance with – <ul style="list-style-type: none"> • the analogue Regional Ecosystems site, • BioCondition descriptions for those Regional Ecosystems; and • the technical descriptions for those Regional Ecosystems. <p>B. #Option 2 - provide more information as per section 126C(1)(j) of the EP Act –</p> <ol style="list-style-type: none"> I. Consideration of PMLU options having regard to: <ul style="list-style-type: none"> • Regulatory constraints • Physical constraints • Chemical characteristics • Available rehabilitation method • Potential economic benefits for community or land holder • Potential environmental and social benefits for each option (proposed PMLU Vs EA PMLU) II. The rehabilitation planning part of the PRC plan must include a detailed description of the nominated PMLU(s) for the site. The description must include (where relevant), but is not limited to: 	<p>MCPL has revised the PRCP consistent with DES's Option 1 approach. The PRCP has been revised to propose the PMLU of native ecosystem with grazing, consistent with the EA.</p> <ol style="list-style-type: none"> I. Reseed/plant tube stock has been included as criterion n) in RM6. II. Seed mix as per Table 9 of the Revegetation Management Plan includes species characteristic of RE 11.5.3 (<i>Eucalyptus populnea</i> +/- <i>E. melanophloia</i> +/- <i>Corymbia clarksoniana</i> on Cainozoic Sand plains/remnant surfaces), whereby <i>E. melanophloia</i> is listed as a priority species. III. MCPL seeks DES's endorsement of the revised PMLU to allow for update and finalisation of the Revegetation Management Plan.

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		<ul style="list-style-type: none"> the regional ecosystem technical descriptions. <p>The candidate species of cover crops, non-native grass and pasture legumes (Stylosanthes, Cenchrus and Bothriochloa) stated in Table 9 of the appendix H may have a substantial negative impact on native plant and animals. Section 3.7.1.7 of the PRCP plan identifies pasture grass cover, non-native grass cover (that are not pasture species) and non-native forb cover.</p>	<ul style="list-style-type: none"> a description of the use of the land if applicable, the specific vegetation types (e.g. RE 13.2.9) or land suitability classification (e.g. Class 4) identification of any permanent or essential management infrastructure to be included as part of the PMLU completion criteria for measuring whether the PMLU has been successfully achieved <p>III. Evidence based comparison and justification for proposed PMLU against EA listed PMLU</p> <p>IV. Identification of statutory constraints (For detail requirement refer sub-section PMLU criteria of section 3.2 of the PRCP guideline)</p> <p>Please note also that public notification will likely be required for option 2 above as the proposed land outcome differs to the land outcome document.</p>	
2	<p>Built Infrastructure 3.5.7.4 Retained Infrastructure, Attachment 3 – Retention of Water Structures</p>	<p>Table 9 identifies landholders within the Middlemount Coal Mine. The table shows Anglo Coal Pty Ltd as landholder for the Lot/plan 11/TT443. It is not clear if the infrastructure proposed to be retained is solely on land held by Middlemount.</p>	<p>A. Clarify if any proposed infrastructure to be retained is on land held by Anglo Coal Pty Ltd and if yes provide the landholder agreement for retaining the infrastructure.</p>	<p>Section 3.5.7.4 Retained Infrastructure in the PRC Plan has been revised to include the following statement:</p> <p><i>MCPL desires that water holding structures are retained for the purpose of supporting future land uses. All infrastructure proposed to be retained for water management purpose are on land solely held by MCPL.</i></p>
3	<p>Risk Assessment Section 3.6.1 General rehabilitation practices - Hydrogeology Section 3.6.1 of the PRCP guideline states that hydrogeological assessment should include groundwater flow direction and velocity, including field tests to determine hydraulic conductivity. Section 3.6.3 of the PRCP guideline states that rehabilitation planning part must include a void</p>	<p>Predicted water levels in final voids compared to predicted groundwater heads</p> <p>Section 8.4.1 of the Groundwater Assessment states that, 'Post closure conditions were simulated over a period of 500 years by WRM to predict the extent of void lake level recovery following cessation of mining. WRM modelling indicates that the residual voids would gradually fill over time from direct rainfall occurring across each void and groundwater seepage. Utilising the WRM modelling results, representative pit lake levels of approximately 10 mAHD in the North Void, and 35 mAHD in the South Void have been used for the purposes of post closure groundwater recovery modelling.</p> <p>The representative pit lake levels were used to determine the long-term residual drawdown in the surrounding aquifers and establish a new equilibrium groundwater level around the residual voids. This was achieved by applying the representative pit lake levels, consistent with the WRM modelling results, in each void and running the model forward from the end of mining for 500 years.</p> <p>Based on these predictions, the voids would act as sinks in perpetuity with no escape of contained void water into the Rangal Coal Measures or Fort Cooper Coal Measures.'</p>	<p>A. Provide pre and postmining groundwater level contours for the relevant layers (exp-Tertiary and Weathered Permian – Layer 3) as mentioned in section 8.4.1 of the Appendix B – Groundwater Impact Assessment</p> <p>B. Confirm if the WRM modelling predictions takes into consideration the pre and post mining groundwater level contours for the North and South voids</p> <p>C. Clarify if the potential changes in regional groundwater level over the years have been considered in the modelling</p> <p>D. If required, clarify its interaction with the residual voids in terms of level of water within</p>	<p>Inferred groundwater levels in the Tertiary aquifer are shown on Figure 6.10 of the Appendix B – Groundwater Impact Assessment. The predicted groundwater drawdown within the Tertiary (and weathered Permian) layers is shown on Figure 8.2.</p> <p>The equilibrated final void water body is predicted to reach 10 mAHD in the North Void and 35 mAHD in the South Void. In the vicinity of the voids, the inferred groundwater level in the Tertiary aquifer is in the order of 130 mAHD, well above the predicted final void water body level. Accordingly, the final voids are predicted to remain as strong groundwater sinks into perpetuity, with no predicted connection between the final void water body and the surrounding Tertiary (or Weathered Permian) aquifers.</p> <p>The modelling to predict the final void water body recovery includes contribution from groundwater aquifers using predicted pit inflows from the groundwater model (as described in Section 8.4 of the Appendix B – Groundwater Impact Assessment).</p> <p>Section 8.2.3 of the Appendix B – Groundwater Impact Assessment describes that the groundwater model was calibrated using and verified to existing groundwater levels</p>

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	<p><i>closure plan that includes but not limited to a water balance study including an assessment of void surface and groundwater interactions.</i></p>	<p>However, the above prediction does not seem to be inclusive of pre and post mining groundwater level contours for relevant layers adjacent to the North and South voids which may allow comparison with the predicted void water level.</p> <p>The pre and postmining groundwater level contours for the relevant layers would greatly assist in demonstrating the groundwater level gradients that exist adjacent the voids and if they are therefore likely to become sinks and minimise the impact of the release of contaminants.</p> <p>Section 7.6.2 of the Appendix A: Surface water assessment states that, 'The predicted long-term void water levels do not exceed the current regional groundwater level. Therefore there is no mechanism to lose salt within the closed void system, the voids continually accumulate salt over time and become hypersaline (around 33,000mg/L) within the first 200-300 years of simulation'.</p> <p>It appears the water balance modelling may not have considered the potential changes in regional groundwater level over the time while predicting the long-term void water levels and the effect of fluctuating groundwater influx on void water quality.</p>		<p>from reliable measurements from representative bores within the model domain. The Groundwater Impact Assessment <i>Appendix F Numerical Model Report</i> provides further detail on the calibration process (refer to Section F5.1), which relied on groundwater data collected since 2011. Section F4.5 describes that the model was run in three stages: the pre-mining starts from January 1974 to December 2010, followed by a transient lead-in period from January 2011 to December 2017, and then the prediction simulation of the proposed extension from January 2018 up to December 2044. Accordingly, it is considered that the model considers regional fluctuations in groundwater levels over the years.</p>
4	<p>General Rehabilitation Practices Section 3.5.3 <i>General Rehabilitation Practices, Appendix B Groundwater Impact Assessment PRCP Guideline, Section 3.6.1</i> General rehabilitation practices - Hydrogeology</p>	<p>Inclusion of Backfill (spoil) material parameters in the groundwater modelling</p> <p>Section 8.5.1 of Appendix B -Groundwater Impact Assessment report states that, 'Overburden will continue to be placed within the open cut pits and progressively rehabilitated during mining. Over the life of the Project, surface water runoff and accumulated rainfall seepage will drain towards the voids.'</p> <p>It appears the following considerations have not been included in the groundwater impact modelling –</p> <ul style="list-style-type: none"> • allowance in the modelling for the additional recharge likely to occur when the spoil replaces the natural material that has been mined from the pits; • allowance for the likely increased specific yield and hydraulic conductivity (vertical and horizontal) of the spoil material <p>The above issues are likely to impact the 'post mining' conditions and in particular the water level and water quality in the final voids.</p> <p>Section 3.6.1 of the PRCP Guideline states that hydrogeological assessment should include groundwater modelling to determine contaminant transport and potential changes to groundwater level from dewatering or waste storage. Provision of the above information will be helpful to</p>	<p>A. Confirm if the groundwater modelling has considered following issues –</p> <ol style="list-style-type: none"> allowance in the modelling for the additional recharge likely to occur when the spoil replaces the natural material that has been mined from the pits; allowance for the likely increased specific yield and hydraulic conductivity (vertical and horizontal) of the spoil material allowance of future monitoring of groundwater levels targeting the backfill areas to increase understanding of the above raised issues. <p>B. If issues raised above have not been considered in the groundwater modelling, then –</p> <ol style="list-style-type: none"> provide the revised groundwater modelling outcomes, including water level and quality of the void water or justify their exclusion. 	<p>Section 8.4 of the Groundwater Impact Assessment describes that surface water runoff to the final voids is the principal filling mechanism that contributes to development of the void lakes. The volume of groundwater into the void lakes is a minor contributor to the equilibrium void recovery levels.</p> <p>The groundwater model does not include additional recharge rates for the backfilled spoil, however given the final void water body recovery is predicted to be dominated by surface water runoff, and the very large freeboard between the predicted void water body recovery level and the final void crest (greater than 100 m) it is considered unlikely that increasing the recharge rate and other parameters of the spoil will change the prediction that the voids will act as strong groundwater sinks with no risk of spilling.</p>

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		establish potential of the impact of the release of contaminants.		
PRCP schedule				
5	Improvement Area Milestone	<p>Floodplain modification</p> <p>Sub-section 9.2.3.2 of the Appendix A – Surface water assessment states that, ‘Ground levels between the TSF and Diversion 2 will be modified to increase the conveyance of the floodplain at this location. There is currently a topographical ridge that is about 5 m above the adjacent floodplain, which will be lowered to match the surrounding ground levels of 158.2 m AHD on the upstream side and 155.25 m AHD on the downstream side. At the completion of mining, the northern floodplain of Roper Creek will be rehabilitated back to an active floodplain. The operational phase levee will be relocated some 150 m to 300 m further to the north and the floodplain shaped to drain local catchment runoff from the floodplain back to the Roper Creek channel’</p>	A. Include floodplain modification in the PRCP schedule.	As described in Section 3.5.3.2 of the PRCP, southern portion of the realigned flood protection levee would be decommissioned to widen the post-mining Roper Creek floodplain at the cessation of mining, with the rehabilitated final landform providing flood immunity to the southern void up to the PMF level from Roper Creek.
6	Improvement Area Milestone	<p>High-wall and Low-wall treatment</p> <p>Section 3.5.5.3 of the PRCP planning part states that, ‘final void highwalls will be treated (e.g. benched or blasted) so that they are geotechnically stable to an appropriate factor of safety’.</p> <p>The improvement area milestones stated in the PRCP schedule does not specify the factor of safety.</p>	<p>A. In the PRCP schedule specify the factor of safety to determine geotechnical stability of high walls.</p> <p>B. In the PRCP schedule specify steps taken for low wall treatment relevant to the land outcome.</p>	<p>A. MM1 milestone criteria in the PRCP Schedule revised to include further clarification, as follows:</p> <p><i>b) Factor of safety to determine geotechnical stability as highwall competent rock slopes are no greater than 59°, and incompetent slopes no greater than 36°.</i></p> <p>B. The PRCP Schedule has been revised to include Low Wall treatment in MM1.</p>
7	Rehabilitation Milestone	<p>RM4 – Landform establishment</p> <p>Criteria relate to several types of landforms including waste rock dumps, TFC, levees, voids, flat surface areas etc. however not all criteria are relevant to each landform type. Additional criteria could also be considered, e.g. specific steps being provided to ensure capping of the TFC area or placement of NAF over the potential PAF material while rehabilitating the WRD areas and backfilling of the central pit.</p>	<p>A. Based on material characterisation provide a separate rehabilitation milestone for mining domain –</p> <ol style="list-style-type: none"> I. TFC II. Out of pit waste rock dumps III. In pit waste rock dumps/co-disposal IV. The central pit backfill area <p>B. Ensure following recommendations are being translated regarding the overburden and interburden waste rock placement in the relevant rehabilitation milestone from Subsection 3.5.3.4 of the PRCP planning part –</p> <ol style="list-style-type: none"> I. Overburden is classified as NAF and is placed in any in-pit or ex-pit spoil dump. 	<p>A. Each criterion within RM4 include specific requirements related to each mining domain, and is specified within each requirement. For example, criterion f) details the geotechnical stability of out-of-pit emplacement areas alone, whilst criterion g) includes specific reference to infrastructure slope angles, and therefore would not be relevant for emplacement slopes and other mining domains.</p> <p>Therefore, criterions within RM4 specify relevant mining domains, and contributes to the development of the total landform establishment, independent of the mining domains. As such it is suggested that RM4 remains as is.</p>

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			<p>II. Interburden is preferentially placed in-pit to provide the acid neutralisation capacity for spot-dumping of Potentially Acid Forming (PAF) materials and creation of Permian caps and bunds on coal reject cells.</p> <p>III. PAF floor materials from the Middlemount seam should remain in the open pit and be covered with NAF spoil.</p> <p>IV. Burial of PAF be lime dosed (at a rate of 10 t/ha or as confirmed by field trials) and kept at least 10 m away from the outer surfaces of final landforms by covering with Permian spoil.</p> <p>V. Consideration of leaching potential via leaching tests for PAF materials</p> <p>VI. the maximum ratio of PAF coarse reject/tailings to Permian spoil at the out-of-pit spoil emplacement area be 1 to 10.</p>	<p>B. Recommendations from Sub-section 3.5.3.4 have been included as milestone criteria m) to r) in RM4.</p>
8	<p>Rehabilitation Milestone Criteria</p>	<p>Several criteria can be improved to better reflect SMART principles. For example:</p> <p>RM1 – criteria (b) For contaminated land and water treatment, relevant upstream water quality parameters and monitoring locations are not provided.</p> <p>RM2 – criteria (c) For hydrocarbon, heavy metal, or other contaminants it is not clear what allowable departmental limits is referring to.</p> <p>RM3 – (d) It is unclear what evidence would be used to determine no acid rock drainage is occurring or has the potential to occur.</p> <p>RM4 –</p> <ul style="list-style-type: none"> The steps involved in capping of the tailings are not specified No criteria are included for determination of geotechnical stability of backfilled pit area The continuous slope length limit stated in Appendix F of the EA has not been included <p>RM6 –</p> <ul style="list-style-type: none"> Bare surface area - EA states limit of 20 m² and RM6 states 100 m² Minimum vegetation cover as per EA 70%, PRCP schedule states 65% 	<p>1. Revise the rehabilitation milestones criteria to reflect the SMART principle.</p>	<p>RM1 – Infrastructure Decommissioning and Removal RM1 (b) has been revised to include the following statement to provide further clarity and detail for upstream characteristics and sites.</p> <p><i>b) Contaminated land and water (e.g. affected by hydrocarbons, metals, brine, etc) is treated to ensure consistency with upstream water quality characteristics, or removed off site. Upstream water quality parameters and monitoring sites would be consistent with those listed in Table 3.2 of Appendix A.</i></p> <p>RM2 – Remediation of Contaminated Land (Characterisation) RM2 (c) has been revised to include description on allowable departmental limits as per below:</p> <p><i>b) Hydrocarbon, heavy metal, or other contaminants are within allowable departmental limits (established in accordance with DES' Queensland Auditor Handbook for Contaminated Land) and has been certified by an appropriately qualified person.</i></p> <p>RM3 – Remediation of Contaminated Land (Waste Rock Material Treatment) RM3 (d) includes a description for the evidence used to determine acid rock drainage occurrence, as follows:</p> <p><i>d) No acid rock drainage is occurring or has the potential to occur. Acid rock drainage would be measured against the thresholds detailed in the Global Acid Rock Drainage Guide (INAP, 2009).</i></p>

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		<ul style="list-style-type: none"> Specify the seed mix to be used representative of RE species, native grass and native shrubs. <p>RM7 –</p> <ul style="list-style-type: none"> No target species composition provided Non-native cover crop grass species ratio limit not provided <p>RM9 –</p> <ul style="list-style-type: none"> Period of monitoring stated as ‘ongoing period of time’ no specific quantitative period given. <p>RM10 –</p> <p>Consider providing rehabilitation milestone criteria based on BioCondition Framework*.</p> <p>RM11 –</p> <p>For retained infrastructure, clarify the steps to be taken to ensure the structures are safe for intended post mine use.</p>		<p>RM4 – Landform Establishment (Capping, Development and Reshaping /Re-profiling)</p> <p>RM4 (c) states the following in relation to capping materials:</p> <p><i>c) NAF waste rock or other identified capping materials such as clay will be compacted with suitable oxygen diffusion control properties to reduce the minimum encapsulation thickness.</i></p> <p>An additional criterion has been included to provide further certainty on capability of capping system, as per below.</p> <p><i>l) Engineering report on completed cover finalised, certifying that the capping system has been built/installed as per engineering design plan.</i></p> <p>RM4 (f) has been revised to include further clarification regarding the geotechnical stability of backfilled emplacement areas, as per below.</p> <p><i>f) Out-of-pit coal emplacement slopes no greater than 10%, or up to 18.5% where rock mulch or other stabilisation controls are used. Backfilled emplacement areas would follow the same landform design criteria to be considered geotechnically stable.</i></p> <p>The continuous slope length has been included in RM4 (g) as follows:</p> <p><i>g) Infrastructure area slope angles do not exceed 5%. For slopes over 2%, continuous slope length does not exceed 70 m.</i></p> <p>RM6 – Revegetation (native ecosystem with selected grazing)</p> <p>The bare areas greater than 100 m² was recommended by Verterra (2022), as a benchmark for remedial revegetation. Verterra (2022) expertly recommended that remedial revegetation is undertaken if there are any areas greater than 100 m², and/or if there is a contiguous area of 200 m² with less than 65% groundcover. As the PMLU includes areas of grazing for land management purposes, these conditions, as recommended by Verterra (2022), provides appropriate guidance for vegetation management between areas of native ecosystem and pasture in all Treatment Zones. Therefore, it is suggested that this criterion remains as is.</p>

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				<p>Additional detail regarding seed mix has been incorporated in RM6 (a), as per below:</p> <p><i>a) Direct seeding of cover crop, pasture species and native vegetation completed (seed mix proportions relevant to grazing and native ecosystem representative of relevant RE's, native shrubs and grasses are specified in Revegetation Management Plan [Table 9]).</i></p>
				<p>Further detail on target species composition included in RM6 as per below:</p> <p><i>m) Target species number by stratum for each native and non-native species composition is consistent with Table 9 of the Revegetation Management Plan.</i></p>
				<p>RM6 (i) describes the maximum non-native cover grass limit as follows:</p> <p><i>i) Non-native vegetation cover (stones, rock cover, litter, logs, grass etc) does not cover greater than 30% of the total area.</i></p> <p>As this criterion specifies the maximum extent of non-native cover crop species, it is suggested text remains as is.</p>
				<p>RM8 – Achievement of PMLU to Stable Condition (native ecosystem with selected grazing)</p> <p>Whilst the BioCondition Framework is the recommended approach for vegetation condition assessments, this PRCP does not aim to provide an assessment of vegetation condition as well as management. As implementation of the BioCondition Framework for rehabilitation milestone criteria is not part of the PRCP guideline, and as this PRCP does not assess vegetation condition, it is suggested that this framework is excluded, and primarily used as a framework for rehabilitation assessment officers at the Middlemount Coal Mine.</p>
				<p>RM9 – Retained Water Structures</p> <p>Further clarification regarding safety of retained infrastructure included as per below:</p> <p><i>d) All retained structures and landforms to be assessed and approved at safe and stable for post-mining use by an appropriate qualified person.</i></p>

*BioCondition Matrix – https://www.qld.gov.au/data/assets/pdf_file/0029/68726/biocondition-assessment-manual.pdf

Following could be considered while developing the rehabilitation milestone criteria based on BioCondition Framework –

- A. Identification of four condition classes for the reference sites, and the rehabilitated areas, based on BioCondition scores. For example, condition classes could be 1 = >90, 2 = >60-90, 3= >30-60, 4 = 0-30, based on BioCondition scores.
- B. A clear description of how the BioCondition score will be used to monitor the progression of the rehabilitation - for example for the combined monitoring sites over time, will the average score, average of condition class or frequency of condition classes be the metric of success? One approach could be 0-1 years post rehabilitation, average BioCondition score target for all monitoring sites is class 4, for >1-5 years post rehabilitation class 3, for >5-10 years post rehabilitation class 2 and for 15 + years post rehabilitation class 1.
- C. There is no information on the stratification of the sampling, the number of sites or a clear time frame for monitoring.
- D. Further to the monitoring, Tree and Shrub diversity monitoring in 1 x 1 m² quadrats is not appropriate, hence the recommendation to use BioCondition. For example, RM10 Milestone Criteria, “tree and shrub species show evidence of flowering, viable seed setting, germination and emergence” is largely qualitative, and not something measured in a 1 x 1 m² quadrat. A BioCondition attribute recruitment score, part of a more comprehensive BioCondition assessment, is more transparent.