Blackwater North Extension Project – Response to Information Request:

- EA Amendment Application

- PRCP Schedule Amendment Application

Reference	Date	Prepared	Checked
BNEP - Response to Information Request	19/10/2026	Resource Strategies Pty Ltd, Environmental Resources Management Australia Pty Limited	B. Dillon, N. Carey

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1. Introduction

Whitehaven Blackwater Pty Ltd (Whitehaven Blackwater) proposes to develop the Blackwater North Extension Project (the Project), which would extend the current open cut mining development at the Blackwater Mine (BWM) to within Surface Area (SA) 7 on Mining Lease (ML) 1762 and SA 10 on ML 1759. The Project is expected to optimise mining operations at BWM, allowing ongoing employment and economic benefits from the BWM to the local area, region and State of Queensland.

Whitehaven Blackwater submitted Environmental Authority (EA) Amendment application for EA EPML00717813 on 21 April 2026. The application reference number is A-EA-AMD-101083251. The Department of the Environment, Tourism, Science and Innovation (DETSI) issued an Information Request in relation to application A-EA-AMD-101083251 on 10 June 2026.

Whitehaven Blackwater submitted a change request for the EA Amendment application on 24 June 2026, relating to the addition of a Progressive Rehabilitation and Closure Plan (PRCP) Schedule amendment to the application. The application reference number for the change application is A-PRCP-AMD-101134173. DETSI issued an Information Request (IR) in relation to application A-PRCP-AMD-101134173 on 7 August 2026.

This report provides Whitehaven Blackwater's responses to the IR for EA Amendment Application (reference A-EA-AMD-101083251) and PRCP Schedule change application (reference A-PRCP-AMD-101134173). Minor amendments to the EA Amendment application and PRCP Schedule change application (including supporting technical studies) have been undertaken to address the IR.

2. Response to Information Request

2.1 EA Amendment Application

Whitehaven Blackwater responses to the IR for EA Amendment Application are presented in **Table 1**. A cross reference has been provided for the relevant section of the EA Amendment application (including supporting technical studies).

Table 1 Response to the DETSI Information Request on EA Amendment Application

Item	Matter	Information Requested	Response	EA Amendment Application Reference
	General			
1	**Spatial data** While the mapping included in the application provides useful contextual information, the department requires the associated spatial data files to enable a more detailed assessment of the proposed disturbance areas and associated environmental values. In particular, the provision of spatial datasets will allow the department to accurately interrogate and zoom into areas that are not clearly discernible within the PDF maps and to undertake spatial analysis relevant to the assessment of the application.	The spatial information should be submitted in the prescribed format outlined in the guideline, including appropriate projection information and metadata where applicable. Refer to the department's Spatial Information Submission Guideline available (ESR/2018/4337) Provide spatial files related to Figure 1-7, 2-5, 2-19, 4-8, 4-9 of the supporting document and Figure 8.28 of Appendix B.	All requested spatial data has been provided to the DETSI in consideration of the *Guideline – Spatial information submission* (ESR/2018/4337). The following spatial data has been provided: • Proposed Open Cut Extension. • Proposed Infrastructure Area. • Study Area. • Potential Semi-permanent Tailings Cells. • Proposed Temporary Flood Levees. • Clean Water Drain. • Financial Year 2055 landform. • Final landform. • Post-mining Land Uses (PMLUs). • Operational Peak Flood Depths, Levels and Extents for the 0.1 percent (%) Event. • Operational Peak Flood Depths, Levels and Extents for the probable maximum flood (PMF) Event. • 0.1% annual exceedance probability (AEP) (Shared Socioeconomic Pathway 5-8.5 year 2030) Peak Flood Velocities.	N/A

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2	**Sediment basins** Supporting document Section 4.2.2 and Table ES-1 mentions that new sediment basins would be constructed to capture sediment laden runoff and allow sediment to settle before water is released to the environment. Appendix B Section 5.1 states: '*Erosion and Sediment Control: The SWMS includes sediment basins to capture sediment laden runoff from the disturbed areas and provide an area where settlement of suspended sediment in runoff can occur (Whitehaven, 2024). There are no additional sediment basins proposed as part of the Project.*' The two statements appear to conflict regarding whether new sediment basins are proposed as part of the Project.	To ensure clear and accurate understanding of the proposed erosion and sediment control measures, provide clarification on the following: a) Clarify if new sediment basins are proposed to be constructed as part of the Project. b) If no new sediment basins are proposed, provide details on how the Project intends to manage sediment-laden runoff effectively in areas with a high potential for sediment generation.	**a)** No specific requirements for additional sediment basins have been identified in the *Blackwater North Extension Project – Water Balance Assessment Report* (HydroBalance, 2026) submitted in the EA Amendment application (Appendix B). However, additional sediment basins may potentially be required for the Project associated with disturbance in advance (to the east) of mining operations including infrastructure corridors, pre-stripping and topsoil stockpiles. The requirement for, and location and sizing of, any new sediment basins would be confirmed during detailed design, having regard to the final disturbance footprint, catchment configuration, drainage design and anticipated sediment-generation risk. Where required, new sediment basins would be designed, constructed, operated and maintained in accordance with *BWM Plan – Erosion and Sediment Control Management Plan* (Whitehaven Coal Limited [Whitehaven], 2026a) (**Appendix A** of this Response to Information Request) and relevant contemporary guidance, including the *Best Practice Erosion and Sediment Control guideline* published by the International Erosion Control Association (Australasia). The erosion and sediment control system would apply a treatment-train approach, incorporating measures such as clean-water diversion, runoff conveyance, erosion controls, sediment controls and appropriately sized sediment basins. **b)** Sediment-laden runoff would be managed in accordance with Water Management Strategy at BWM. Sediment-laden runoff from areas disturbed by stripping or overburden placement, would be managed with controls in place as per the *BWM Plan – Erosion and Sediment Control Management Plan* (Whitehaven, 2026a). In areas with a high potential for sediment generation, sediment-laden runoff would be captured and directed to suitable sediment control infrastructure prior to discharge or reuse. Controls would be selected and implemented based on the nature, extent and duration of disturbance and may include measures such as progressive stabilisation, diversion drains, contour banks, check dams, sediment fences, sediment traps and sediment basins. These measures would be subject to routine inspection, maintenance and adaptive management to confirm their ongoing effectiveness. The Project's Water Balance Assessment report (HydroBalance, 2026) has been updated to reflect that new sediment basins may be required for the Project and that the final requirements would be confirmed during detailed design.	Sections 4.2.2 and 4.2.3. Appendix B (Appendix B Section 6.7).

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	Air			
3	Section 4.7.3 of the supporting document mentions that BWM would continue to implement air quality management controls as per the current *BWM Plan: Air Emissions Management Plan*. A review of the air quality management controls is necessary to assess the specific measures and controls and its effectiveness in managing air quality for receptors.	Provide a copy of the latest version of *BWM Plan: Air Emissions Management Plan*.	*BWM Plan – Air Quality Management Plan* (Whitehaven, 2026b) is provided in **Appendix A** of this Response to Information Request.	N/A
	Noise			
4	Predictive noise modelling in Appendix H Section 5.3 has indicated that residual exceedances were identified at 8 privately-owned receptors which is proposed to be managed via commercial noise agreements (i.e. 'Alternative Arrangements' under EA EPML00717813) with Whitehaven Blackwater. While it is acknowledged that these agreements may be commercial and confidential in nature, further information is required regarding any mitigation or control measures that will be implemented at the identified sensitive receptors location. This information is necessary to ensure that appropriate measures are in place to minimise potential impacts on human health and wellbeing resulting from the predicted noise exceedances.	Provide details of any mitigation/control measures proposed to be implemented to minimise the impact of noise and blast exceedances at the identified sensitive receptor locations.	As stated in Section 4.7.2 of the *Blackwater North Extension Project - Environmental Authority Amendment Supporting Document* (Whitehaven, 2026c), Whitehaven Blackwater would enter commercial noise agreements (i.e. "Alternative Arrangements" under EA EPML00717813) with the eight identified landowners that may be subject to potential noise and blasting impacts from the Project (R03, R04, R05, R06, R07, R13, R17 and R19). Indicative alternative arrangement measures may include: • providing acoustic mitigation to the dwelling such as double glazing, cladding and air conditioning; • negotiating a specific maximum noise level at the property, in order to cover any minor changes to the mobile equipment that may potentially cause higher noise levels; • providing specific review process when the property owner believes the agreed noise threshold is exceeded; or • providing commercial compensation package for the potentially affected noise-sensitive landowners. Where alternative arrangements measures could not be reached, Whitehaven Blackwater would apply proactive noise management system to these privately-owned sensitive receivers. A proactive noise management system that would integrate predictive meteorological forecasting with real-time noise monitoring to support day-to-day operational planning would be implemented.	Sections 4.7.2 and 4.7.3.

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			The proactive noise management system would incorporate a Trigger Action Response Plan (TARP), enabling the operator to anticipate and adjust activities before potential exceedances occur. When the TARP is activated, the plan would guide the modification of mining activities to reduce intrusive noise and prevent noise exceedances (e.g. shutdown of haul trucks associated with the pits and/or overburden areas that are the closest to the sensitive receivers). Notwithstanding, Whitehaven Blackwater would continue implementing the following noise and vibration management controls detailed in Section 4.7.3 of the *Blackwater North Extension Project - Environmental Authority Amendment Supporting Document* (Whitehaven, 2026c): • construction of noise bunds in operational areas closely situated to sensitive receivers; • upgrading silencing of mobile equipment; • limiting speed of heavy vehicle traffic on haul roads; • implement maintenance and operation procedures to minimise nuisance noise emissions from equipment, including servicing and maintenance of exhaust systems on mine equipment; • investigation of complaints to identify sources; • only carry out blasting during daylight hours, 8:00am to 5:00pm; • restricting blasts to favourable weather conditions; and • alteration of number of blast holes; stemming depth, spacing, etc. of blasts.	
	Waste Management			

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5	Appendix I, Table 4-4 shows the geochemical classification based on sample number. The alkaline to highly alkaline nature of the spoil (fresh and weathered (Figure 4-18)) will need to be considered if this material is to be used in rehabilitation as rock armour, growth media/and or cover system design.	Provide actual volumes of material corresponding to the classification in Appendix I table 4-4.	Appendix I Table 4-4 presents geochemical classifications based on the number of samples tested rather than mine planning volumes. The purpose of the table is to describe the geochemical characteristics and associated acid and metalliferous drainage (AMD) hazard of the waste materials likely to be generated by the Project. The results demonstrate that spoil materials are overwhelmingly classified as Non-Acid Forming (NAF). Of the 2,260 spoil samples assessed, fewer than 1% were conservatively classified as potentially acid forming (PAF) or uncertain PAF material. Fifteen of these samples were located immediately adjacent to coal seams, which were intentionally oversampled by Terrenus (2026) to target materials considered most likely to present an AMD hazard. Consequently, the dataset is biased towards identifying higher-risk materials and does not represent the volumetric distribution of spoil across the mined geological sequence. During mining operations, any limited quantities of material with elevated AMD potential (as identified by ongoing geochemical test-work) would be mixed with the substantial bulk of low-risk spoil. As such, the assessment by Terrenus (2026) concluded that disposed spoil, as a bulk material, would have a negligible AMD hazard. The availability and suitability of materials for rehabilitation, including use as rock armouring, growth media and cover system materials, is addressed through the PRCP framework and associated performance criteria rather than through the geochemical classification table.	Appendix I (Section 1.2 and Table 4-4).
6	Appendix I Section 2.7.4 of the supporting document mentions that upon decommissioning, the semi-permanent tailings cells would be excavated and assessed for contamination and remediated if required. However, in Appendix I Section 5.4.7, the supporting document states '*the semi-permanent tailings cells used for the Project may require a cover system, details of which would be provided in PRCP Rev 3*.' It is unclear if the semi-permanent tailings cells would be removed or retained with a cover system on closure. Appendix I Section 4.10 states the risk rating of the tailings to be moderate to moderate-high for fresh tailings, and high potential for generating acid drainage (AD) for the aged tailings. Therefore, the semi-permanent tailings cells should be classed as a high risk landform and the appropriate corresponding cover system designed to minimise oxidation and transport of the tailings materials.	a) Clarify if the semi-permanent tailings cells would be removed or be retained with a cover system on closure. b) If a cover system is planned, then provide a conceptual cover system design. c) Address the suitability of materials for use in a cover design.	**a)** Whitehaven Blackwater's intention is that semi-permanent tailings cells would be integrated into the final landform and that the final landform would be safe, stable, non, polluting. The planned cover system is described in more detail in response (b) below. **b)** The cover system for the semi-permanent tailings cells would be designed by an Appropriately Qualified Person (AQP) in accordance with the relevant milestone criteria in the approved PRCP Schedule (P-PRCP-100758455), specifically milestone criteria 3.9, 3.10 and 3.11: *3.9 All tailings and rejects are to be encapsulated by at least 1m of consolidated non-acid forming (NAF) material, unless an alternative is recommended by an AQP.* *3.10 Any detailed cover system designs for TSFs and reject dumps prepared by an AQP must consider the physicochemical properties of the waste material being stored, the availability of suitable cover materials and the specific location, hydrogeology and geometry of each structure. In the absence of an AQP designed cover system, the following concept design criteria apply:*	Sections 2.7.4 and 4.3.2. Appendix I (Table 4-4).

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	Appendix 4.9 (BWM PRCP-Concept Cover Design) of the proposed PRCP Rev 3 submission has not identified the semi-permanent tailings cells as a waste emplacement requiring a cover. Therefore, an assessment of the long-term stability of the semi-permanent tailings cells cannot be made.		*(a) NCPP TSF: 1m minimum thickness layer of weathered Permian and/or Tertiary spoil followed by 2m minimum thickness of more permeable material.* *(b) Ramp 72 TSF: 1.5m thickness of gravelly spoil or coarse rejects over exposed tailings. Spoil, 3.5m thick at the top of the ramp, 5m thick over coarse rejects over the remainder of the TSF, dumped and spread in such a way that dispersive spoil with high fines content is not placed in the outer 1m of the landform.* *(c) Laleham TSF, Bottom TSFs and R36 Rejects Dump: 5m thickness of spoil dumped and spread in such a way that dispersive spoil with high fines content is not placed in the outer 1m of the landform.* *3.11 The final cover surface of TSFs and reject dumps are water shedding and free from surface ponding, unless an AQP certified alternative design is adopted as described in RM3.10.* **c)** Appendix I Table 4-4 presents geochemical classifications based on the number of samples tested rather than mine planning volumes. The results demonstrate that spoil materials are overwhelmingly classified as NAF and would therefore be generally suitable for use in a cover design. Of the 2,260 spoil samples assessed, fewer than 1% were conservatively classified as PAF or uncertain PAF material. During mining operations, any limited quantities of material with elevated AMD potential (as identified by ongoing geochemical test-work) would be mixed with the substantial bulk of low-risk spoil. As such, the assessment by Terrenus (2026) concluded that disposed spoil, as a bulk material, would have a negligible AMD hazard. The availability and suitability of materials for rehabilitation, including use as a cover system material, is addressed through the PRCP framework and associated performance criteria rather than through the geochemical classification table.	
7	Section 4.9 of Appendix I presents the results of kinetic column leaching studies undertaken to assess the geochemical and weathering behaviour of tailings over a 52 week period. Leachate generated during kinetic testing was analysed for 15 metals and metalloids, with results presented in Figure 4-24. However, Section 4.9 does not include an assessment or comparison of resultant leachate concentrations (representative of potential seepage and drainage from TSF) against the applicable water quality limits and trigger values contained within the EA.	a) Expand Section 4.9 to address the most likely contaminants of concern (CoC) to be present in drainage/seepage from the TSFs. b) Discuss whether the predicted seepage and drainage quality from the TSF is likely to exceed EA water quality limits during operations.	**a)** Appendix I is a geochemical source hazard assessment. The assessment identified the principal contaminants of concern associated with tailings as: • salinity (predominantly sodium, chloride and sulphate); • acidity associated with oxidation of PAF tailings; • sulphate generated through sulphide oxidation; and • mobilisation of dissolved metals and metalloids where acidic conditions develop.	Appendix C (Section 5.3 and 6.0). Appendix I (Section 4.9).

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	Similarly, Appendix I Section 4.6 mentions that tailings liquor will be near neutral to alkaline pH and low soluble metal and metalloid concentrations. However, the liquor is highly saline, with EC values ranging from 2210 to 5410 µS/cm (median 4220 µS/cm) with the dominant cation and anions being Na and Cl and SO_4 with moderate alkalinity of 290-425 mg/L as $CaCO_3$, and essentially all present as bicarbonate alkalinity. Notwithstanding, there is limited discussion regarding contaminants of concern that may remain mobile or become readily available under the anticipated pH and geochemical conditions associated with the TSF liquor and seepage. In particular, the assessment does not adequately address the potential for salinity-related impacts, mobilisation pathways, or the behaviour of dissolved constituents under varying operational and post-closure conditions.	c) Expand section 4.6 on the most likely CoCs to be readily available under the potential pH/geochemical conditions of all water sources during operation and closure.	The assessment by Terrenus (2026) concluded that fresh tailings generally produce near-neutral to alkaline drainage with low soluble metal and metalloid concentrations, whereas some aged and PAF tailings have the potential to generate acidic drainage and elevated dissolved constituents as neutralising capacity is depleted. **b)** Appendix I does not assess discharge water quality compliance against EA limits and is not intended to predict seepage concentrations at receptor locations. The laboratory leaching tests and kinetic testing undertaken as part of the geochemical assessment are source characterisation tools used to identify potential contaminants of concern and geochemical processes. These results are not directly convertible to receiving water concentrations or compliance point water quality outcomes. Assessment of seepage migration, attenuation, dilution has been assessed by SLR Consulting Australia Pty Ltd (SLR) (2026) (Appendix C). This included flow path estimates of potential contaminants in the final voids, including the Bonnie Doon tailings storage facility (TSF). No particles are predicted to permanently remain outside of the mine lease in the post mining simulation (SLR, 2026). In addition, tailings management at BWM, including disposal of tailings to the Bonnie Doon in-pit TSF and management of tailings liquor, forms part of the existing approved operation and associated EA framework. **c)** The geochemical assessment (Terrenus, 2026) identified salinity as the primary constituent likely to remain mobile under the near-neutral to alkaline conditions expected for tailings liquor, which is recycled back through the plant Where oxidation of PAF tailings occurs over extended periods, geochemical testing indicates that acidity, sulphate and associated dissolved metals and metalloids may also become mobilised. The potential behaviour of these constituents under operational and closure conditions has been assessed through static, kinetic and OxCon testing programs. As mentioned in response (b) above, contaminant modelling shows that no particles are predicted to permanently remain outside of the mine lease in the post mining simulation (SLR, 2026).	

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8	Section 2.7.4 of the supporting document states '*cells would be constructed of homogeneous clay floor and drains*'. However, it does not provide any specific details regarding the target permeability or the construction methodology of the cell floor. The absence of this information is a significant concern, as the integrity of the cell floor's permeability is critical to minimising the risk of groundwater contamination during the operation of the mine. Without clear specifications or performance criteria for the cell floor, it is not possible to adequately assess whether the proposed design will meet the necessary environmental protection standards.	Provide the following information in relation to semi-permanent tailings cells: a) target permeability of the clay floor in terms of hydraulic conductivity; b) construction methodology to achieve and verify the specified permeability, including compaction requirements, quality control measures and testing protocols. c) proposed measures to ensure long-term integrity of the cell floor under operational conditions.	Appendix I is a geochemical assessment and does not prescribe detailed engineering design criteria for semi-permanent tailings cells. The purpose of the assessment is to characterise the geochemical hazard associated with tailings materials and identify material management considerations. The assessment identified that some tailings possess moderate to high AMD potential and that management measures are required to minimise oxidation and mobilisation of contaminants. The assessment therefore supports the inclusion of engineered containment and seepage management measures as part of the tailings cell design. Specific design details influencing seepage potential would include: • target hydraulic conductivity; • floor and liner construction specifications; • compaction requirements; • quality assurance and verification testing; and • long-term performance monitoring. These are engineering considerations that would be addressed through detailed design of the semi-permanent tailings cells by appropriately qualified geotechnical and civil engineers. In addition, the semi-permanent tailings cells would be located within the extent of the original pit development and particle tracking analysis completed by SLR for the Project indicated that any seepage from the tailings cells would be captured and retained onsite in nearby voids.	Sections 2.7.4 and 4.3.2.
	Groundwater			
9	Appendix C Section 5.3.2 states that bore MB21 is a Tertiary Sediments bore and uses the bore to demonstrate long-term groundwater level trends in the Tertiary Sediments. The Blackwater Mine PRCP schedule (P-PRCP-100758455) identifies bore MB21 as a Rangal Coal Measures bore and it has previously been demonstrated that this is not Tertiary Sediment bore.	a) Provide advice as to whether incorrectly identifying bore MB21 as a Tertiary Sediment bore and using it as such within the groundwater modelling has impacted the predictions associated with the Project. b) To allow continuity of data, MB21 is to be retained in Table I1 of the environmental authority EPML00717813, with an amended hydrogeological unit (e.g. Rangal Coal Measures).	Bore MB21 has been reviewed, and confirmed as a Tertiary Sediments monitoring bore, consistent with the current EA EPML00717813, last reviewed 20 April 2026. No bore construction log was available to verify the geological unit intersected by the screened interval. This bore was not incorporated into the calibration dataset and consequently does not impact the modelling or predictions associated with the Project. The BWM PRCP Schedule (P-PRCP-100758455) incorrectly identifies the monitored aquifer for MB21 as the Rangal Coal Measures. Whitehaven Blackwater propose to amend the PRCP Schedule to correct the monitored aquifer to Tertiary sediments.	Appendix C (Section 5.3).

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10	Appendix C Section 6.7.2, Figure 6-13 Long term water levels in voids – The predicted water levels in Figure 6-13 do not match those presented in Section 7.3 of Appendix B (Surface Water Assessment) for residual voids R30 and Stewarton South. In Appendix C Figure 6-13 the predicted void water level in R30 after about 200 years is constant at about 142 m AHD. However, in Appendix B-Figure 7.5, the predicted water level oscillated from 140 to 160 m AHD for 1,000 years. Similarly, in Appendix C Figure 6-13, the predicted void water level in Stewarton South after 200 years is fairly constant at about 103 m AHD. In comparison, Appendix B Figure 7.8, the predicted water level oscillated between about 92 and 118 m AHD for 1,000 years.	a) Provide an explanation for the variations in predicted long term void water levels between Appendix C Figure 6-13 and Appendix B Figure 7.5 and Figure 7.8. b) Explain what impact this is having on predicted impacts associated with the Project.	The predicted long-term void water levels presented in Appendix B of the EA Amendment (Figures 7.5 and 7.8) were simulated using the GoldSim software platform. Water levels in the final voids are predicted to vary over time in response to prevailing climatic conditions and the balance between evaporation losses and inflows from rainfall, surface runoff and groundwater using a daily timestep (HydroBalance, 2026). The cyclic pattern evident in the predicted water levels reflects the longer-term wet and dry climatic periods contained within the adopted climate dataset. Specifically, the SILO CCS Year 2070 RCP4.5 climate dataset for the period 1960 to 2024 was repeated 16 times over the long-term simulation period to create a climate dataset exceeding 1,000 years. As part of its groundwater assessment (Appendix C), SLR developed a Python-based water balance model that could directly exchange inputs and outputs with the groundwater model. Initial outputs from the HydroBalance GoldSim final void water balance model were incorporated into SLR's groundwater–surface water modelling framework. The Python-based water balance model and groundwater model were then run iteratively until a predefined convergence criterion was met. The outputs from the final converged groundwater model, including the predicted groundwater inflows to the final voids, were subsequently provided to HydroBalance and incorporated into the final GoldSim water balance simulations. The final void water levels presented in Appendix B (Figures 7.5 and 7.8) therefore incorporate groundwater inflows derived from SLR's final converged groundwater modelling. The predicted long-term void water levels presented in Appendix C (Figure 6-13) were derived from the groundwater model, which uses an annual time step and long-term average climatic conditions. In comparison, the GoldSim water balance model operates on a daily time step and incorporates daily rainfall and evaporation inputs. Consequently, the groundwater model produces a smoother long-term water-level response, whereas the GoldSim model captures the response of the final voids to the sequence of wetter and drier periods represented within the adopted daily climate record. These differences in temporal resolution and representation of climatic conditions are not expected to have a material influence on the predicted impacts associated with the Project. The predicted void water levels presented in the Groundwater Assessment Report (Appendix C) are consistent with, and fall within the range of, those presented in the Surface Water Assessment Report (Appendix B). Importantly, the overall assessment conclusions are unchanged under either modelling approach, with groundwater from both the Stewarton South and R30 voids predicted to flow to neighbouring voids, with the overall landform behaving as a sink over the long-term assessment period.	Appendix B (Section 7.6, Figures 7.5 and 7.8). Appendix C (Section 6.7 and Figure 6-13).

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11	Appendix C Section 6.7.2, Table 6-4 Final Voids – Equilibrium Water levels and Groundwater Levels (from North to South) - this table provides model predicted groundwater levels approximately 250 m east of each void. It is understood that these are equilibrium, recovered groundwater levels. However, there is no indication as to which layer in the model these groundwater levels relate to and therefore which Hydrostrategraphic unit they relate to. Additionally, in the case of Stewarton South, the groundwater level is 38.45 m above the void water level indicating a strong groundwater gradient back towards the void. However, Figure 6-14 indicates that there are constant outflows from the voids to groundwater. While it is useful to provide a comparison of groundwater levels with void levels, the limitations of selecting a predicted groundwater level at one location adjacent to a void and comparing that groundwater level with the void level should also be explained as a qualification to the information presented in Table 6-4.	a) Provide advice as to which model layer the groundwater level in Table 6-4 is taken from. b) Provide qualifications as to the process in Table 6-4 where a groundwater level at one location (and presumably in one model layer) is compared to the final void level.	**a)** The equilibrium groundwater levels reported in Table 6-4 of the Groundwater Impact Assessment (GIA) represent the simulated water table surface and are not derived from, or representative of, a specific model layer. Within the model, the water table is defined as the uppermost saturated model cell, where the simulated groundwater head exceeds the cell bottom elevation. Consequently, the groundwater elevations presented in Table 6-4 reflect the modelled water table position irrespective of the hydrostratigraphic unit in which the uppermost saturated cell occurs. **b)** The information presented in Table 6-4 is a snapshot of the broader equilibrium groundwater flow regime illustrated in Figure 6-11 of the GIA. The intent of Table 6-4 is to provide an indication of the relationship between the local water table and the final void equilibrium water levels. The information that is more indicative of water flow pathways is the post-mining water table equilibrium mapping, and the particle tracking (see Figure 6-11 of the GIA). In the Stewarton North and Stewarton South area, 6-11 demonstrates a pronounced hydraulic gradient, with groundwater flow directed from upgradient of Stewarton South, through Stewarton South and towards Stewarton North. Therefore, more regionally, the Stewarton North void acts as a sink.	Appendix C (Section 6.7 and Table 6-4).
12	Appendix C Section 6.7.3 Figure 6-19, provides the post-mining water table elevation contours. These are useful but a zoomed in map around the 5 voids of interest to the Project should also be provided (or provided in spatial data format). It is noted from Figure 5-36 that the Tertiary Sediments, Rewan Formation, Rangal Coal Measures and the Burngrove Formation are adjacent to the residual voids. To provide confidence that there are no potential outflows from the residual voids to the surrounding groundwater, it is necessary to present equilibrium post mining groundwater elevation contours for each of the formations / Hydrostrategraphic units mentioned above. Similarly, these should be shown for the full lease area and also shown at a scale which zooms in around the Project area, so it is clearly visible as to the predicted groundwater elevations adjacent to each of the 5 voids of interest. This information will provide confidence in sink/source predictions.	a) Provide a zoomed in version of the post mining groundwater table contours in the area of the 5 voids of interest in the Project area, clearly showing the location of the 5 voids. b) Provide predicted groundwater elevation contours for the Tertiary Sediments, Rewan Formation, a representative coal seam of the Rangal Coal Measures and the Burngrove Formation. For each of these items show a zoomed in version of the 5 voids of interest in the Project area, clearly showing the location of the 5 voids.	An additional 13 figures have been generated, in addition to the original post-mining water table elevation map. The additional figures are incorporated into the Groundwater Modelling Technical Report as Figures 5-8 and 5-9 for the water table, with the remaining eleven figures as Appendix D. Figures are as follows: Figure 5-8 and D-1 (Groundwater Modelling Technical Report): Groundwater Table Recovery (Post-Mining) Figure 5-9 and D-2 (Groundwater Modelling Technical Report): Groundwater Table Recovery (Post-Mining) – Northern Voids Figure D-3 (Groundwater Modelling Technical Report): Predicted Water Level Within Tertiary Sediments (Layer 1) at Post-Mining Equilibrated Figure D-4 (Groundwater Modelling Technical Report): Predicted Water Level Within Tertiary Sediments (Layer 1) at Post-Mining Equilibrated – Northern Voids Figure D-5 (Groundwater Modelling Technical Report): Predicted Water Level Within Rewan Formation – Upper (Layer 4) at Post Mining Equilibrated	Appendix C (Appendix B Figures 5-8 and 5-9 and Figures D-1 to D-14).

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			Figure D-6 (Groundwater Modelling Technical Report): Predicted Water Level Within Rewan Formation – Upper (Layer 4) at Post Mining Equilibrated – Northern Voids Figure D-7 (Groundwater Modelling Technical Report): Predicted Water Level Within Rewan Formation – Middle (Layer 5) at Post Mining Equilibrated Figure D-8 (Groundwater Modelling Technical Report): Predicted Water Level Within Rewan Formation – Middle (Layer 5) at Post Mining Equilibrated – Northern Voids Figure D-9 (Groundwater Modelling Technical Report): Predicted Water Level Within Rewan Formation – Lower (Layer 6) at Post Mining Equilibrated Figure D-10 (Groundwater Modelling Technical Report): Predicted Water Level Within Rewan Formation – Lower (Layer 6) at Post Mining Equilibrated – Northern Voids Figure D-11 (Groundwater Modelling Technical Report): Predicted Water Level Within Rangal Coal Measures Representative Coal Seam (Layer 12) at Post-Mining Equilibrated Figure D-12 (Groundwater Modelling Technical Report): Predicted Water Level Within Rangal Coal Measures Representative Coal Seam (Layer 12) at Post-Mining Equilibrated – Northern Voids Figure D-13 (Groundwater Modelling Technical Report): Predicted Water Level Within Burngrove Formation (Layer 16) at Post-Mining Equilibrated Figure D-14 (Groundwater Modelling Technical Report): Predicted Water Level Within Burngrove Formation (Layer 16) at Post-Mining Equilibrated – Northern Voids	
13	Appendix C Section 5.5.1 and Section 7.7.2 indicated that there are potential Terrestrial Groundwater Dependent Ecosystems (TGDEs) along Taurus Creek and a small section of Sagittarius Creek to the north of the Project. Figure 7-1 provides a useful map at an adequate scale to observe the identified potential TGDEs on Taurus Creek and the predicted drawdown from the Project in Layer 2 of the model which considered potentially to be providing water to the GDEs. Section 7.2.2 dismissed concern about impact to GDEs by stating:	a) Provide a map of the area similar to Figure 7-1 showing the location of the TGDEs and the predicted cumulative drawdown in Layer 2. b) Provide additional information on Layer 2 in the area of the TGDEs including the saturated depth or likely saturated depth of the aquifer represented by Layer 2.	It is critical to be clear around the relationship of the potential terrestrial groundwater dependent ecosystems (TGDEs) to the local and regional groundwater system, when considering the potential impact resultant from mining activities. The available evidence suggests the riparian vegetation along Taurus Creek behaves as a facultative phreatophyte (opportunistic groundwater-dependent ecosystem [GDE]), rather than an obligate GDE (DPM Envirosciences Pty Ltd [DPM], 2026).	Appendix C (Section 5.5, 7.2, 8.2, Figures 7-1, 7-2 and 8-1).

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There is some expected drawdown to occur in Layer 2, beneath a small area of the mapped GDEs. The maximum predicted drawdown is 2 meters, and given its limited extent, the overall impact to the potential GDE is expected to be minimal (and within likely natural fluctuations the vegetative species could adapt to).

It is noted that the report suggests there are likely natural fluctuations of groundwater levels in Layer 2 in this area.

Figure 7-1 indicates that there is predicted drawdown of up to 2 m in Layer 2 in this area from the Project in addition to any existing natural variation.

There is not another figure in this section showing the predicted cumulative impacts of the mining on Layer 2 in this area but other figures in the report at a less useable scale indicate that the cumulative impact of mining including the Project could be as much as 5 m in Layer 2 in this area.

A map similar to Figure 7-1 should be provided for cumulative impacts so these predicted impacts in Layer 2 in the area of the GDEs are clear.

Furthermore, there is no information on the nature of Layer 2 in this area. There appears to have been no existing drilling and therefore no understanding of strata and saturated depth of the aquifer in this area. It is understood that the average thickness of Layer 2 across the model area is 13.1 m.

Section 8.2, Table 8-2 includes two proposed additional monitoring bores in the area of the TGDEs to be drilled to monitor first water struck during drilling. There is no confirmation as to when the proposed bores would be drilled or the locations (map/coordinates) for these bores.

c) Discuss the cumulative impacts of natural climatic variation, approved mining and the Project on this saturated aquifer and its likely ability to continue to support the existing TGDEs.

d) Provide more specific information on the timing of installation and location of the two proposed bores to monitor the first water struck in this area.

Groundwater access by riparian trees shows clear seasonal pattern, with field investigations (as leaf water potential measurements) indicating groundwater access by riparian trees was detected in June 2025 (post-wet season) and not detected in October 2025 (pre-wet season). This indicates that groundwater use is episodic, and TGDEs draw on shallow perched aquifers associated with the creek system which are dependent on recharge from intermittent creek flows and rainfall events. The ecological assessment specifically notes that vegetation is not accessing deeper tertiary aquifers.

These shallow perched aquifers, when episodically saturated, are not reliant on the deeper regional groundwater systems, which may be affected by mining activities. Surface water driven recharge processes are expected to continue without impact from mining.

a) Figure 7-1 and Figure 7-2 in the GIA show the potential TGDEs and the predicted incremental and cumulative drawdown in Layer 2, respectively.

b) Layer 2 represents the weathered zone/regolith and is saturated across the model domain. The model layers are described in the table below.

Model layers

Model Layer	Formation	Unit	Depth to Groundwater (m)	Likely Saturated Thickness (m)
1	Alluvium/ Tertiary	Surface cover and Tertiary	-	0
2	Alluvium/ Weathered Zone	Weathered zone/ Regolith	Approximately 8	Approximately 10 to 12

Note: m = metres

In this area of Taurus Creek, Layer 1 is present, overlying Layer 2, and represented in the model as unsaturated. Figure B-1 and Figure B-2 in **Appendix B** of this Response to IR show west-east and north-south cross section respectively, through the model layers. These figures are provided in this response document to support the discussion, but will not be incorporated in the updated GIA. This shows the modelled groundwater level is approximately 10 m below the surface in the vicinity of the potential Taurus Creek GDEs.

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			c) The TGDEs of the Study Area would likely exist without groundwater input but are known to utilise groundwater on occasion (episodic or opportunistic GDEs, not obligate GDEs) (DPM, 2026). This access is limited to shallow alluvium in drier times (DPM, 2026). Conceptually, it is important to remember that these shallow perched water bearing areas are discontinuous and independent of the regional water tables. Groundwater drawdown in the tertiary and deeper aquifers of the Study Area is unlikely to be of consequence to the terrestrial GDEs of the Study Area, as field surveys have demonstrated that these trees are unlikely to be accessing these regional groundwater aquifers (Section 4.8.3, DPM [2026]). Consequently, TGDEs of the Study Area are unlikely to be impacted by groundwater drawdown resulting from approved mining and the Project. Climatic conditions would impact the recharge processes and water availability for TGDEs, as expected under natural conditions. However, the component of the hydrological system affected by mining-related drawdown (the tertiary and deeper regional aquifers) is not part of the water source utilised by the TGDEs, which are primarily sustained by rainfall-derived soil moisture and shallow recharge processes and are likely separated from the deeper aquifers by clayey material forming aquitards (DPM, 2026). As field surveys indicate that these communities are unlikely to access the aquifers subject to drawdown (DPM, 2026), there is no hydraulic or ecological dependency linking TGDE condition to mining-affected groundwater. Accordingly, there is no plausible pathway for mining to increase climate driven water stress of the TGDEs, and no compounding impact resultant from mining is expected. **d)** The GIA identified two locations to install groundwater monitoring bores in areas mapped as 'alluvium', to be installed at first water strike. Drilling Location 7 is specifically targeting mapped alluvium identified as potentially hosting TGDEs, whilst Drilling Location 8 is within an area of mapped alluvium to further understand the extent of saturation of the alluvium. The locations of the proposed drilling locations and existing monitoring network are presented in Figure 8-1 of the GIA. Whitehaven Blackwater anticipate the proposed bores could be installed within 18 months of agreement to the proposed monitoring locations with DETSI.	

<table>
<tr><th>Item</th><th>Matter</th><th>Information Requested</th><th>Response</th><th>EA Amendment Application Reference</th></tr>
<tr><td>14</td><td>Appendix C Section 8.2, Table 8-2 Monitoring program – proposed bores, shows 5 proposed bores. There are no indicative coordinates shown for these bores or figures provided to demonstrate where they are proposed to be located. In particular, drilling location 4 is said to be east of future mining, which is supported but it is not clear where it is proposed.

While maps are provided in Appendix C of non-EA bores currently monitored, there appears to be no proposal to include some of these bores (around the Project area) in the EA, to increase coverage in the EA around the Project area. Existing mine monitoring bores not currently in the EA may assist in understanding the impacts of the Project.</td><td>a) Provide additional detail in regard to the proposed locations of the monitoring bores identified in Appendix C – Table 8-2.

b) Provide advice as to which existing monitoring bores, not currently in the EA, would provide useful information in ongoing monitoring and understanding of the impacts of the Project.</td><td>a) The indicative locations of the proposed monitoring bores are presented in Figure 8-1 and Table 8-2 of the GIA. Whitehaven Blackwater proposes the five additional groundwater monitoring bores are included in the Table I1 of the EA. The EA Amendment Supporting Document has been updated to reflect the inclusion of these bores within the EA.

b) The following existing monitoring bores, not currently included in the EA, are considered to provide valuable information for ongoing assessment of groundwater impacts of the Project:
• MB19BWM07A (target formation alluvium, located in area identified as potential TGDE); and
• MB19BWM06P (target formation Aries seam, located east of planned mining operations).

Whitehaven Blackwater proposes these two groundwater monitoring bores are included in Table I1 of the EA (presented in Table 8-3 of the GIA).

The GIA and EA Amendment Supporting Document have been updated to reflect the inclusion of these bores within the EA.</td><td>Section 4.3.3.

Appendix C (Section 8.2, Tables 8-2 and 8-3 and Figure 8-1).</td></tr>
<tr><td>15</td><td>There are concerns about how the potential rainfall recharge in various areas and formations is discussed in Appendix C Section 5.3 and how this is linked to the 4 recharge zones detailed in Appendix B - Groundwater Modelling Technical report Section 2.6.3 and ultimately the calibrated recharge in Appendix C, Appendix B, Table 3-9.

Appendix C, Section 5.3 discusses potential recharge in the Rangal Coal measures and at a few bores in the Burngrove formation. It provides no indication of likely high recharge rates, in fact, it generally points to a likely low recharge rate and makes no mention of the weathered Permian.

Identification of Recharge Zones in Appendix C, Appendix B, Figure 2-5 - The weathered Permian zone appears to be roughly identified as the area where the Rangal Coal Measures and Burngrove Formation sub crop or outcrop to the west of the mine area.

To the east, the recharge zone identified as regolith appears to be in the area where the Rewan Formation either sub crops or outcrops.

The outcropping area of the Tertiary sediments does not appear to contribute to these recharge zones, which warrants further clarification.</td><td>a) Provide additional discussion and supporting information to justify the calibrated recharge rates provided in Table 3-9 including the high recharge rates in the weathered Permian.</td><td>The table below compares the prior recharge parameter ranges adopted for calibration and the resulting calibrated recharge ranges reported in Table 3-9 of the Groundwater Modelling Technical Report.

Recharge parameter ranges
<table><tr><th>Recharge Zone</th><th>Prior Range (% Rainfall)</th><th>Calibrated Range (% Rainfall)</th><th>Calibrated Mean (% Rainfall)</th></tr><tr><td>Alluvium Quaternary</td><td>0.01 to 10.3</td><td>0.1 to 0.9</td><td>0.3</td></tr><tr><td>Regolith</td><td>0.01 to 5.2</td><td>0.0 to 0.3</td><td>0.1</td></tr><tr><td>Weathered Clematis</td><td>0.10 to 5.2</td><td>0.2 to 4.2</td><td>1.3</td></tr><tr><td>Weathered Permian</td><td>0.01 to 5.2</td><td>1.5 to 5.1</td><td>3.8</td></tr><tr><td>Spoil</td><td>1.0 to 6.2</td><td>1.0 to 5.4</td><td>2.8</td></tr><tr><td>Tailings</td><td>0.01 to 3.1</td><td>0.0 to 2.5</td><td>0.4</td></tr></table>
The comparatively higher recharge rate estimated for the Weathered Permian recharge zone is considered to be a calibration outcome arising from the model calibration process rather than a consequence of the prior recharge assumptions adopted within the model.</td><td>Appendix C (Section 5.3, Figure 2-5, Table 3-9 and Appendix B Section 2.6, 3.4).</td></tr>
</table>

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		Calibrated recharge values in Appendix C, Appendix B, Table 3-9 - This table reports a calibrated mean rainfall recharge in the weathered Permian of 3.8% of rainfall. This value is notably higher than the calibrated recharge in any other recharge zone including the spoil (2.8%), weathered Clematis (1.3%), alluvium (0.3%) and regolith (0.1%). This result appears unusual and there is no accompanying discussion to assess whether the values are realistic or consistent with expectations.	Prior to calibration, the Weathered Permian recharge parameter was assigned a recharge range of 0.01% to 5.2% of rainfall. This range was not unusually high relative to the other recharge zones. For example, the Alluvium Quaternary recharge zone was assigned a broader range extending to 10.3% of rainfall, while the Spoil recharge zone was assigned an upper bound of 6.2% of rainfall. The Weathered Permian recharge zone therefore was not predefined within the model as the highest recharge area. Recharge parameters were adjusted during calibration together with hydraulic conductivity and other model parameters to improve agreement between simulated and observed groundwater conditions. Through this process, the calibrated ensemble consistently converged towards higher recharge values within the Weathered Permian recharge zone, resulting in a calibrated mean recharge rate of 3.8% of rainfall. This indicates that lower recharge rates within this zone generally provided a poorer match to the calibration dataset, whereas higher recharge rates improved the model's ability to reproduce observed groundwater levels and hydraulic gradients. Importantly, other recharge zones were permitted to attain equivalent or higher recharge rates during calibration. However, calibration did not converge towards comparably high recharge values in those zones. For example, the calibrated mean recharge for the Alluvium Quaternary and Spoil zones was 0.3% and 2.8% of rainfall respectively, despite both zones having allowable recharge ranges extending beyond the calibrated Weathered Permian mean value. This demonstrates that the higher recharge estimated for the Weathered Permian zone was not imposed by the calibration bounds and instead emerged from the parameter estimation process as the recharge distribution most consistent with the groundwater observation dataset. Further, an independent peer review of the GIA undertaken by Dr Noel Merrick (HydroAlgorithmics Pty Ltd [HydroAlgorithmics], 2026) concluded that the: *Recharge rates are plausible (0.1-1% of rainfall) though higher for weathered Permian (4%); spoil 3%.* Accordingly, the calibrated Weathered Permian recharge rate should be interpreted as a data-driven calibration outcome that reflects the recharge contribution required to reproduce observed groundwater system behaviour, rather than an assumed characteristic prescribed during model setup and has been subject to independent peer review.	

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16	Appendix C Section 3.4.2, Table 3-7 and Appendix C, Appendix E – Calibrated Hydraulic Conductivity. Inconsistencies in hydraulic conductivity values: The hydraulic conductivity (K) values and ranges presented in Table 3-7 and Appendix E differ. This discrepancy is likely due to factors such as the application of reducing K with depth. However, there is no explanation provided to confirm whether this is the cause of the differences, such as the Kx values for the Rangal Coal Measures in Table 3-7 compared to those in Appendix E. Example of discrepancy: For the Aries seam (Layer 8, Zone 10): Appendix E reports Kx_z10 calibrated ensemble values ranging from 1 x 10^{-4} to 1.5 x 10^{-3}. Table 3-7 reports Kx values ranging from 2.3 x 10^{-5} to 3.4 x 10^{-4}. Low Kx values for the Aries seam: The Kx values for the Aries seam appear significantly lower compared to the layers above and below it. There is no discussion or explanation provided for this observation. Lack of information on upper and Lower bounds: The report does not appear to include details on the upper and lower bounds adopted for the hydraulic conductivity values across the various layers. It is unclear if this information is provided elsewhere in the report.	(a) Provide clarification and discussion on the differences between the hydraulic conductivity values/ranges presented in Appendix C Section 3.4.2 Table 3-7 and Appendix E, particularly in relation to the calibrated hydraulic conductivity. (b) Confirm and provide details on the upper and lower bounds used during model calibration for the various layers. (c) Explain the potential reasons for the lower Kx values observed for the Aries seam compared to the layers above and below it.	**a)** The hydraulic conductivity values reported in Appendix E and Table 3-7 of the Groundwater Modelling Technical Report represent different stages of the parameterisation process and therefore are not directly comparable. Appendix E presents the calibrated ensemble values for the hydraulic conductivity reference parameter (HC_0) obtained during model calibration. For the deeper geological units, including the Rangal Coal Measures (RCM), hydraulic conductivity was subsequently adjusted using the depth-dependent relationship: $$HC = HC_0 \times e^{(\text{Slope} \times \text{Depth})}$$ Where HC is the effective hydraulic conductivity at depth, HC_0 is the calibrated reference hydraulic conductivity, and Slope is the calibrated depth-decay coefficient. Table 3-7 presents the resulting effective hydraulic conductivity values after application of this depth-dependent reduction. Consequently, values presented in Table 3-7 are generally lower than the corresponding HC_0 values reported in Appendix E. For example, the Aries seam (Layer 8, Zone 10) has calibrated HC_0 values ranging from 1 × 10^{-4} to 1.5 × 10^{-3} metres per day (m/day) in Appendix E. Following application of the depth-decay function, the resulting effective Kx values reported in Table 3-7 range from 2.3 × 10^{-5} to 3.4 × 10^{-4} m/day. **b)** The hydraulic conductivity calibration bounds adopted for the model are summarised below. For Layers 4 to 17, including the Rewan Group, RCM, coal seams, interburden units, Burngrove Formation and Basement, hydraulic conductivity was parameterised using the depth dependence approach (HC_0) with the following calibration bounds: • Lower bound: 1 × 10^{-4} m/day. • Upper bound: 10 m/day. Specific bounds adopted for the shallower units, which utilised pilot points, were: • Alluvium/Tertiary (Layer 1): 0.1 to 10 m/day. • Regolith (Layers 1 and 2): 0.05 to 1 m/day. • Weathered Zone (Layer 2): 0.1 to 10 m/day. • Clematis Group (Layer 3): 0.01 to 1 m/day. These values represent the prior parameter ranges used during calibration.	Appendix C (Appendix B Section 3.4 and Table 3-7). Appendix E (Section 5.4).

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			c) The lower hydraulic conductivity values estimated for the Aries Seam are interpreted as a calibration outcome arising from the model calibration process rather than as a result of the parameterisation approach or calibration bounds applied. The Aries Seam was assigned the same prior hydraulic conductivity calibration range (1×10^{-4} to 10 m/day) as the adjacent coal measures units, indicating that the lower calibrated values were driven by the available calibration data and model fit requirements. Model calibration involved adjusting hydraulic conductivity parameters within the prescribed prior bounds to improve agreement between simulated and observed groundwater conditions. Through this process, the calibrated ensemble consistently converged towards lower hydraulic conductivity values for the Aries Seam relative to the surrounding layers. This indicates that higher conductivity values within the Aries Seam generally resulted in a poorer match to the calibration dataset, while lower conductivity values provided improved reproduction of observed groundwater heads and groundwater flow behaviour. The calibrated Aries Seam Kx values (2.3×10^{-5} to 3.4×10^{-4} m/day) therefore reflect the range of values supported by the calibration dataset and the model conceptualisation. The fact that the calibrated values remain consistently lower than those of the adjacent overburden and interburden units across the calibrated ensemble indicates that this outcome was repeatedly identified during the calibration process rather than being associated with a single realisation or parameter combination. Accordingly, the lower Kx values reported for the Aries Seam represent a data-driven calibration result that was required to achieve an acceptable match between model predictions and observed system behaviour. As the Aries Seam was subject to the same prior parameter bounds as neighbouring units, the calibrated values should be interpreted as reflecting the information content of the calibration dataset and the resulting parameter estimation process rather than a predefined assumption regarding the relative hydraulic conductivity of the seam. Further, an independent peer review of the GIA undertaken by Dr Noel Merrick (HydroAlgorithmics, 2026) concluded that the: *Hydraulic conductivity values cover expected ranges*.	

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17	Appendix C Section 4.4.2 – This section does not provide predicted drawdown contours in the Rewan Formation. This omission limits the ability to assess the extent and propagation of drawdown within the Rewan Formation. Understanding how drawdown propagates through the Rewan Formation is critical for evaluating the mine's overall impacts. It is also essential for assessing potential vertical impacts on the shallower Hydrostrategraphic units above the Rewan Formation. The absence of this information hinders a comprehensive assessment of the potential groundwater impacts associated with the proposed Project activities.	Provide predicted drawdown contours for the Rewan Formation.	Figures illustrating the incremental and cumulative drawdown in the upper, middle and lower Rewan Formation (model layers 4, 5 and 6 respectively), have been incorporated into the Groundwater Modelling Technical Report, as Figures 4-11, 4-12 and 4-13. Figure 4-11 shows the Project would have no incremental impact on drawdown in the Upper Rewan Formation. Drawdown increases with depth across the Rewan Formation, with Layer 6 (Figure 4-13) showing incremental drawdown associated with the Project. The incremental drawdown extent is largely confined to near the pit, and in the lower Rewan. The lower Rewan is expected to be primarily disconnected from shallow receptors, and the drawdown does not propagate into the upper Rewan.	Appendix C (Section 4.4 and Appendix B Figures 4-11 to 4-13).
18	There appears to be an inconsistency between the number of landowner bores within 5 km of the Project and the associated predicted impacts as reported in different sections of the documentation: • Appendix C, Section 5.5.3 Table 5-18 identifies two bores. • Appendix C, Appendix B, Section 4.6.3, Table 4-4 identifies 31 bores. The differences between these tables may be attributed to the landholder bore census. However, Appendix C, Appendix B, Section 4.6.3 does not provide any discussion or justification for why Table 4-4 identifies significantly more bores than Table 5-18. Clarification is necessary to ensure consistency and transparency in the assessment of potential impacts on landowner bores.	Provide additional information in Appendix C, Appendix B, Section 4.6.3 to clarify: (a) The reason for the discrepancy in the number of landowner bores identified in Table 4-4 compared to Table 5-18. (b) Whether the differences are driven by the Landholder Bore Census or other factors. (c) How these differences influence the assessment of predicted impacts on landowner bores within 5 km of the project.	Appendix C, Section 5.5.3, Table 5-18 identified two potential private water supply bores within 5 kilometres (km) of the proposed Project area, aligned with the assessment of the Project. Section 4.6.3, Table 4-4 of the Groundwater Modelling Technical Report presents all identified bores within a 5 km radius of the mining lease (i.e. including mine-owned bores that are used for monitoring purposes and are therefore not considered beneficial-use receptors assessed within the GIA). To summarise, the two statements are reflective of different extents of the assessed area: • Table 5-18: 5 km radius of the Project area – see Figure 5-35 of the GIA. • Table 4-4: 5 km radius of the mining lease (not specific to the northern Project area). The assessment of predicted impacts to landowner bores within 5 km of the Project is as per the GIA.	Appendix C (Section 5.5, Table 5-18 and Appendix B Section 4.6 and Table 4-4).

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19	Appendix C Section 6.4 – This section states: *The predicted mine inflows are sensitive to the timing of when hydraulic conductivity properties are changed. By delaying when the hydraulic properties are changed to the year after mining was completed reduces predicted pit inflows. The reduction in inflows is closer to the observed values; however, it is noted that neither model result has been corrected for evaporation that would occur on the highwalls and pit floors, and as such would be expected to be greater than observed ingress and or values estimated from operational site water balance models.* It is noted that the model used in this assessment was TVM3, but the work described in Section 6.4 suggests that the TVM2 model may provide more realistic predicted inflows although the reference to how evaporation has been dealt with may complicate that issue. There appears to be no final outcome to this discussion. Is it considered that TVM2 would provide more realistic predicted mine inflows.	Provide advice as to whether the TVM2 model discussed in section Appendix C Section 6.4 would provide more realistic predicted mine inflows.	Dr Noel Merrick's peer review of the GIA (refer Attachment 4 of the EA Amendment Supporting Document) states that, in his opinion, the modelling process has resulted in ultra-conservative estimates of pit inflows and their probabilistic ranges, leading to an overestimation of predicted drawdown magnitudes and extents. Dr Merrick notes that these impacts remain immaterial for third-party water supply bores and ecosystems. Dr Merrick considers that the TVM3 approach, which applies high permeability to newly excavated cells while mining is occurring, can result in unrealistic groundwater flow from the upper five layers of the highwall to the artificial layers within the voids. In contrast, the TVM2 approach does not apply high permeability until mining of the cell has been completed. Dr Merrick considers the TVM2 approach to provide more reliable estimates of pit inflows, with predicted inflows approximately halved under the TVM2 approach compared to the TVM3 approach. As identified in Section 6.4 of the Groundwater Modelling Technical Report and the peer of the GIA, the TVM2 results are more consistent with observed groundwater inflows.	Attachment 4. Appendix C (Appendix B Section 6.4).

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20	Appendix B Section 7.5 of the Surface Water Assessment report states: *Groundwater inflows into the five voids have been provided by the Project groundwater consultants (SLR,2026). The inflows were provided as a time series over the 1,000 year simulation. Details on the groundwater inflows to the voids are provided in SLR (2026).* Appendix C, Appendix B (groundwater model report) notes that: *Initial predicted groundwater inflows with time to the voids from the groundwater model were incorporated in the initial water balance model.* It also notes: *To avoid iterating many times between the groundwater model and the water balance model before reaching agreement, SLR used an automated process (using python code) that iterates between the groundwater model and the water balance model until a predefined convergence criteria is reached (Xiao et al., 2025).* It is not clear if the process referred to above provided updated predicted groundwater inflow rates to the voids which were then used to provide the predicted void water levels provided in Appendix B (Surface Water Assessment report).	Provide confirmation that the updated predicted groundwater inflow rates obtained from the automated process described in the groundwater model report were used to provide the predicted void water levels provided in Appendix B (Surface Water Assessment report).	The outputs from the iterative automated process undertaken by SLR and the groundwater model was used as the input to the GoldSim final void water balance model developed by HydroBalance (2026) and presented in Appendix B (Surface Water Assessment report). The groundwater model outputs comprised a time series of annual groundwater inflows over the 1,000-year forecast period. These annual inflows were incorporated into the GoldSim model as daily groundwater inflows. A comparison of the final void water levels predicted by the SLR groundwater model and the HydroBalance GoldSim model confirmed that the two models produced consistent long-term results. Differences in the shape and short-term variability of the predicted final void water-level profiles are attributable to the different model time steps and approaches used to represent climate. The SLR groundwater model applies longer time steps and adopts long-term average climatic conditions. In contrast, the GoldSim water balance model operates on a daily time step and incorporates daily rainfall and evaporation data. The use of daily climatic inputs produces greater short-term variability, including peaks and troughs associated with extended wet and dry periods, while retaining the same overall long-term water-level trend.	Appendix B (Section 7.5). Appendix C (Appendix B).
	Groundwater Quality			

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21	**Under representation of bores for the alluvium** The spatial distribution of the existing shallow alluvial monitoring bores appears to be primarily concentrated on the southern side of the EA boundary and does not sufficiently address the Quaternary alluvial deposits in the northernmost and eastern regions of the proposed expansion (refer to Figure 4-1) or the inferred groundwater flow directions toward Blackwater Creek. In contrast, the Rangal Coal Measures, which are deeper hydrogeological units, appear to have comparatively better monitoring coverage, particularly in the northern areas adjacent to the proposed expansion. To improve the representativeness and efficacy of the monitoring network, it is recommended that the EA consider the inclusion of additional shallow alluvial and Rewan group monitoring bores, particularly in the north-eastern expansion where impacts are most likely.	Provide clear rationale for the limited number and spatial distribution of monitoring bores proposed within the Quaternary alluvial and Rewan units, and consider the inclusion of additional monitoring bores in the EA	The limited number of monitoring bores within the Quaternary alluvial sediments, particularly around the north-eastern expansion is primarily due to a lack of saturated sediments to monitor. Notwithstanding, two new shallow bores are proposed in the north-east region of the Project as outlined below. Two drilling campaigns targeting the Quaternary alluvium in the north of BWM (2020 and 2021) revealed either an absence of alluvium, and/or dry conditions. In 2020, four bores were planned to be installed into the alluvium at north BWM, however only one of the four locations (bore MB19BWM07A at Taurus Creek) was able to be installed into the alluvium, which was then found to be unsaturated (Australasian Groundwater and Environmental Consultants Pty Ltd, 2020). Two bores were planned to be installed into the Two Mile Gully alluvium but did not intersect alluvium and were grouted up. A further two bores targeting the Sagittarius Creek alluvium were attempted to be installed, with one intersecting alluvium (MB19BWM02A) that was found to be unsaturated, and the other (MB19BWM05A) intersecting possible alluvium or possible Tertiary sediments that were also unsaturated. These two drillholes in Sagittarius Creek were converted to monitoring bores targeting the shallow weathered Rewan Group instead, where first shallow groundwater was found. Another bore (BWM_MB03_01) installed into the Taurus Creek alluvium, drilled in 2020 (EMM Consulting Pty Ltd, 2021) has also been dry since installation. In 2021, during an additional drilling campaign, bore MB20BWM01A initially targeted alluvium (near a small unnamed tributary of Bonnie Doon Creek) but again due to the lack of alluvial sediments at the site, the bore was installed into the water table in the shallow Rewan Group (Hydrogeologist Field Services Pty Ltd, 2021). In 2023, five additional bores were installed in the alluvium of Rockland Creek (four bores) and Shotover Creek (one bore) in the south of BWM, two of which (MB19BWM_14A and MB19BWM_19A) found the alluvium to be unsaturated. Figure 3-4 of the GIA shows the location of these ‘attempted alluvial’ bores with the surface geology map. Two additional shallow monitoring bores (targeting first water strike) are proposed to the northeast of the Project area in the north-eastern region of the Project, being Drilling location 7 and Drilling location 8 as presented in Figure 8-1 of the GIA. Acknowledging the extensive drilling program to identify saturated alluvium, and subsequent lack of evidence of saturated alluvium, the proposed network is seen as sufficient for identifying and monitoring saturated strata aligned with potential project receptors.	Appendix C (Figures 3-4 and 8-1).

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22	**Clarification of sampling shallow alluvium** Appendix C indicated that the Quaternary and Tertiary alluvial units were intersected by existing monitoring bores in the EA and other supplementary bores are typically dry. However, it is unclear how frequently these units have been monitored to support this assertion, and whether the monitoring program has adequately captured conditions following wet-season recharge events. Notwithstanding this, it is noted that a monthly monitoring frequency is prescribed under the EA for all the groundwater monitoring bores until final contaminant limits are reflected in the EA. More information is required to determine whether the intermittent saturation and any potential episodic groundwater occurrence has been adequately captured.	(a) Confirm whether the prescribed monitoring frequency has been consistently implemented for the Quaternary and Tertiary alluvial units. (b) Assess and confirm if the available dataset reflects monitoring undertaken across a range of seasonal conditions, including periods of rainfall recharge.	Monitoring records span both wet and dry climatic periods and include significant recharge events. Specific responses are provided below: **a)** Yes, the prescribed monitoring frequency as per the EA has been implemented for the EA bores screening the Quaternary and Tertiary alluvial units (i.e. bores are all visited monthly to confirm if dry). **b)** The available dataset reflects monitoring undertaken across a range of seasonal conditions, including periods of rainfall recharge, with bores monitored on a monthly basis.	Appendix C (Section 5.1).
23	**Potential risk of mine-affected water to the shallow groundwater systems** Appendix C, Section 5.6 and its subsections states that there are limitations in the characterisation of groundwater conditions and groundwater-surface water interactions in the Quaternary alluvium and Tertiary sediments/regolith (Figure 4-1, 5-2 and 5-3). It is specifically noted that groundwater data are scarce, alluvial units are discontinuous, and these units were frequently unsaturated (dry) during the monitoring process. However, the study also suggests that they may become intermittently saturated following rainfall events. Under such conditions, it is understood that groundwater flow is expected to broadly follow topographic gradients (i.e. northward at North Blackwater and south-westward at South Blackwater). There is limited spatial coverage of groundwater quality monitoring within the shallow Quaternary alluvial and Rewan units, particular in the regions of the proposed Project where new potential contaminant sources like the semi-permanent tailings storage facility will be constructed. Clarification is required on how the monitoring program will detect and study the potential migration of impacted water within shallow alluvial systems.	(a) Provide additional information on the potential risks posed by the migration of mine activity-affected water to shallow Quaternary alluvial and Rewan group aquifers, focussing on potential for contamination from the semi-permanent tailing cells and in-pit waste rock emplacement areas, particularly during the operational phase of the proposed Project.	**a)** The GIA identified that the shallow Quaternary alluvium and weathered Rewan units occur as isolated and discontinuous deposits, generally associated with drainage features. These units are commonly unsaturated and only become temporarily saturated following significant rainfall or creek flow events. Groundwater movement within these shallow units is therefore transient and controlled primarily by local topography and surface-water recharge processes. Importantly, the available hydrogeological evidence indicates that these shallow perched systems are not hydraulically connected to the deeper regional groundwater system. Recharge occurs from infiltration of rainfall and streamflow rather than upward flow from deeper aquifers. Consequently, the alluvial groundwater system does not provide an effective pathway for migration of contaminants from the Project facilities to off-site receptors. As identified in Section 8.1.1.1 of the GIA, the semi-permanent tailings cells would be located within the original pit development and used for the disposal of fine rejects during operations. As active pit dewatering would occur during operations, any seepage from the tailings cells would report to the excavated pits and be managed through the existing site water management system. Following closure, the pit lakes would continue to act as hydraulic sinks, capturing any seepage from the tailings cells. Particle tracking confirmed that there would be no flux out from the voids. Accordingly, no sustained off-site contaminant transport pathway has been identified because: • seepage from the semi-permanent tailings cells would be captured by the excavated pits during operations and by the pit lakes post closure;	Appendix C (Sections 7.4, 8.1 and Figures 7-3 and 8-1).

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		(b) Include consideration of risk pathways and explain how the monitoring network has been designed to detect and manage these risks, including bore placement (location and depth) and monitoring frequency. Include particular consideration for transient wet-season conditions when there is an increased potential for lateral groundwater migration, posing a greater risk of migration of contaminants to sensitive receptors such as groundwater-dependent ecosystems (GDEs), particularly the northern and eastern extents of the Project area where potential groundwater movement toward Blackwater Creek is anticipated. (c) Detailed information is required on potential groundwater risk sources associated with the proposed Project during operations phase, including the semi-permanent tailings storage facility. Include: i. precise location of these facilities ii. design characteristics iii. proximity to sensitive receptors. iv. specific consideration for transient wet-season conditions, when there is an increased likelihood of lateral groundwater migration. This is particularly important for assessing risks to sensitive receptors such as groundwater-dependent ecosystems (GDEs), especially in the northern and eastern extents of the project area where groundwater movement toward Blackwater Creek is anticipated.	• the shallow alluvial systems are discontinuous and often absent beneath the facility footprint; • an unsaturated zone exists between operational facilities and any potential perched groundwater; and • there is no demonstrated hydraulic connection between the perched alluvial groundwater and deeper regional aquifers. Overburden emplacement would occur within mined voids that function as hydraulic sinks during operations. Local groundwater gradients remain directed toward the pit area, limiting the potential for outward migration of any seepage generated within emplacement areas. In addition, emplacement materials would be managed in accordance with the Project's waste characterisation and water management controls. As a result, the likelihood of mine-affected water migrating from in-pit waste rock emplacement areas to shallow Quaternary alluvial and Rewan Group aquifers is considered negligible. Even under conservative assumptions where contaminants were hypothetically released from a Project facility, a viable pathway to off-site shallow alluvial groundwater has not been identified. The absence of hydraulic connectivity between operational facilities, the perched alluvial systems and regional groundwater receptors means that contaminant migration risks are inherently low. Consequently, the overall risk of Project-related contamination reaching Quaternary alluvial or Rewan Group groundwater is considered low. **b)** The groundwater monitoring program has been designed to validate the conceptual hydrogeological model and provide early detection of any unexpected seepage associated with Project activities. The network includes monitoring bores completed within: • shallow alluvial and regolith materials where present; • weathered Rewan Group strata; and • deeper groundwater units used to characterise regional groundwater conditions. Monitoring locations have been selected to provide: • baseline groundwater quality and water level data; • monitoring of potential seepage pathways; and • surveillance of areas where groundwater flow may be directed toward local drainage systems, including Blackwater Creek.	

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The monitoring program commits to monitoring prescribed EA bores on a monthly basis (transitioning to quarterly monitoring once statistically robust contaminant limits have been established and incorporated into the EA), inclusive of validating the dry bores remain unsaturated, thus capturing potential seasonal saturation and confirming water levels and quality to assess risks to these intermittent perched saturated zones.

c) i. The location of the semi-permanent TSF was provided in Figure 1-7 of the EA Amendment Supporting Document and now included as Figure 7-3 in the GIA. As noted in Section 7.4.2 of the GIA, these cells would be located within the extent of the original pit development.

ii. Detailed design specifications for the proposed semi-permanent tailings cells have not yet been finalised, as design development is still in progress. The PRCP provides the detailed design associated with the closure of the tailings cells.

Notwithstanding the current stage of design development, numerical groundwater modelling did assess potential risks associated with seepage from the semi-permanent tailings cells. This assessment included particle tracking simulations, with particles intentionally placed in the areas where the tailings cells are proposed. The modelling demonstrated that, even in a hypothetical scenario where leakage from the tailings cells were to occur, any seepage would be captured on site and would not be expected to migrate off-site, due to the operational and post-mining pits acting as strong hydraulic sinks.

Accordingly, the modelling indicates a low risk to off-site groundwater receptors, even before the implementation of any specific seepage control or leachate-limiting design measures. Further design refinement and closure controls would be detailed through the PRCP and subsequent engineering design process.

iii. The mapped TGDE is 5.9 km at its closest point to the location of the proposed tailings cells. Please see the below table summarising the distance from the proposed tailings cells to the landholder bores identified within a 5 km radius of the Project area.

Distance from proposed semi-permanent tailings cells to landholder bores within a 5 km radius of the Project area

Registered RN (ID)	Easting[1]	Northing[1]	Distance to Proposed Tailings Cells (m)
207592	685877	7368329	2,825
Unregistered 10	681315	7380737	7,814

[1] GDA 94, Zone 55.

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			iv. Noting that the semi-permanent TSF would be utilised for disposal of fine rejects during operations, in which active dewatering would be occurring, there is not considered to be any increased likelihood of lateral groundwater migration. The active dewatering generating strong sinks would consequently capture any potential water seepage. Monitoring would be undertaken across the network on a monthly basis as per the EA conditions, capturing any potential seasonal variations and any expected groundwater quality changes, should they occur.	
24	**Continuity in the groundwater quality monitoring program** Appendix C, Figure 5-1 suggests one of the bores (BWM_MB03_01) in the groundwater monitoring network is located within or near the active mine footprint and could be directly impacted by the planned expansion operations. It is unclear how the proponent intends to ensure continuity of monitoring data in any of the bores in the current monitoring network that may be impacted by the proposed expansion.	To address the continuity of the monitoring the following information is required: (a) Identify any monitoring bores within the EA or groundwater monitoring network that may be impacted from the expansion activities. (b) Propose appropriate replacement bores ensuring they target similar water-bearing units. (c) Provide a plan to minimise disruptions to data continuity, particularly for bores critical to compliance monitoring or those located in areas of high environmental sensitivity.	**a)** No groundwater monitoring bores listed in the current EA would be impacted by the Project. Groundwater monitoring bore BWM_MB03_01 is located to the east of the Project area and is not impacted by the Project. Of the non-EA monitoring bores, only MB3, an RCM monitoring bore, falls within the expansion area and would likely be destroyed during operations. **b)** There is no specific requirement for replacement bores, as the Project does not impact any of the EA bores. Whitehaven Blackwater proposes two existing groundwater monitoring bores and five additional groundwater monitoring bores are included in Table I1 of the EA. The GIA and EA Amendment Supporting Document have been updated to reflect the inclusion of these bores within the EA. A summary of the rationale for the additional bores is provided in Table 8-2 and Table 8-3 of the GIA. The groundwater monitoring network to assess potential impacts of the Project is presented in Figure 8-1 of the GIA.	Appendix C (Section 8.2, Tables 8-2 and 8-3 and Figure 8-1).

Item	Matter	Information Requested	Response	EA Amendment Application Reference
25	**Suitability of the new bores for monitoring the groundwater quality** Five additional bores are proposed in Appendix C, Table 4-7. There is insufficient information to evaluate their suitability. The absence of key information, including geographic coordinates, screened intervals, and bore depths, limits the ability to determine whether these bores will be appropriately located to monitor the relevant hydrogeological units and detect potential impacts over time. The proposed monitoring bores should adhere to the prescribed monitoring requirements in the EA, which include the implementation of monthly monitoring until a sufficient dataset is available to establish contaminant limits. Around 2.25 years (27 months) for data from a quarterly monitoring is recommended in the EA for any new compliance bores proposed after the year 2024. In addition, a comprehensive plan for the development and submission of groundwater level and contaminant limits in accordance with Table I2 of the EA within the designated timeframe of 27 months (or earlier, if necessary, based on data stability) should be considered.	(a) Further details are required regarding the proposed additional five monitoring bores, specifically: ▪ the design, location (spatial co-ordinates); ▪ monitoring parameters; ▪ monitoring frequency; ▪ the rational for their placement and how they address gaps in the existing monitoring network. (b) Explain how the proposed bores will mitigate risks and complement the groundwater monitoring requirements in the existing EA.	**a)** Further details for the additional five monitoring bores is provided in Table 8-2 of the GIA, including indicative location and target depth, with final construction to be confirmed during drilling and based on geological logging and water intersection. The rationale for each groundwater monitoring bore is provided in Table 8-2 of the GIA. The monitoring frequency would be monthly until final contaminant limits are reflected in the EA. The monitoring parameters would be consistent with Table I2 of the EA. **b)** Collectively, the five bores strengthen the existing EA monitoring network by improving spatial and hydrostratigraphic coverage, enhancing the ability to detect and track potential drawdown and water quality changes, providing additional data to validate groundwater model predictions, and supporting ongoing EA compliance monitoring requirements. The rationale for each groundwater monitoring bore is provided in Table 8-2 of the GIA.	Appendix C (Section 8.2, Table 8-2 and Figure 8-1).
	Surface Water			
26	There are no proposed changes to release infrastructure and no proposed changes to the currently approved controlled release conditioning in the EA. Appendix B, Section 6.2.4.2 mentions that the Project is expected to increase the controlled release volume requirements up to 20% (110-130 ML/year). A revision of the receiving environment risk assessment (including an assessment of cumulative impacts) and a review of the release conditioning in the EA to ensure the protection of all receiving environmental values is required.	(a) Propose maximum release rates and indicate if multiple release points may be releasing simultaneously. (b) Demonstrate that sufficient dilution will be achieved at all times based on maximum release rates and minimum receiving environment flow proposed to ensure relevant water quality objectives (WQOs) will be met (consider WQO adjustments required in item 28 below). (c) Describe the current and proposed strategy to manage the tail flow of releases (EA Condition F10) to ensure environmental values are protected at all times during this critical period.	BWM has been operating since 1967. A site-specific EA (EPML00717813) has been issued under the *Environmental Protection Act 1994* (EP Act) which regulates the release of mine affected water (MAW) at BWM. The existing EA release conditions for the BWM reflect elements of the principles and framework outlined in the *Guideline – Model water conditions for coal mines in the Fitzroy basin* (Department of Environment and Science [DES], 2015), but they are not fully consistent. The adoption in entirety of *Guideline – Model water conditions for coal mines in the Fitzroy basin* at BWM is not considered reasonable and feasible with the installed water management infrastructure at BWM, including on-stream storages. The potential risk to aquatic ecosystems in the receiving environment associated with the potential increase in controlled releases from BWM was assessed in *Blackwater North Extension Project – Aquatic Ecology and Groundwater-Dependent Ecosystems Assessment* (DPM, 2026). The release of mine-affected water from the Project is not anticipated to affect the receiving environment beyond existing conditions.	Appendix B (Section 6.2).

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	WRM's assessment does not demonstrate that a larger volume of water released with an EC up to 10,000 µS/cm as per the current EA conditioning and current Water Management Plan will be appropriately diluted in the receiving environment to meet relevant water quality objectives protective of all Environmental Values (EVs). This evaluation requires defining proposed dilution rates, based on minimum receiving environment flow and maximum release rates to demonstrate on-site water management practices can achieve the protection of EVs. This has not been provided. The "Model water conditions for coal mines in the Fitzroy basin" (DESI 2015) were specifically designed to support coal mines in defining release conditions for different flow regimes. These contemporary guidelines apply to any EA amendments involving a change related to surface water releases, including volume. It is critical to define representative flow conditions and proposed dilution targets in order to complete the risk assessment. DETSI recommends that the example table provided with this notice is adopted. While the compliance point in Blackwater Creek is located 15km downstream from releases, the risk assessment is required to assess water quality at the point of discharge after mixing in the receiving environment, ensuring all EVs are protected in-stream. The compliance location on the EA is administrative and does not justify the exclusion of 15 km of river from the risk assessment.	For any flow conditions where the risk assessment identifies that current EA conditions alone cannot achieve protective levels, describe the water management strategies in place to ensure these protective levels are met. These strategies should include flow-specific release limits that will ensure water quality objectives can be met in the receiving environment, as per example provided in Table 2 of this notice	**a)** Whitehaven Blackwater does not propose to change the existing EA release conditions for BWM as part of the EA Amendment for the Project. There are no changes to existing water release infrastructure required for the Project. There are no proposed changes to the currently approved EA release conditions, authorised release points or applicable downstream water monitoring sites. The existing water release conditions in the EA would continue to be implemented during the operation of the Project. Under the current EA, multiple release points may be releasing simultaneously. Monitoring of receiving waters does not indicate the current water release framework represents a risk of environmental harm. **b)** Whitehaven Blackwater consider there is an important distinction between the water quality objectives (WQO) adopted for the purposes of interpreting water quality as opposed to contaminant limits for the purpose of regulatory compliance through the EA. Thresholds for regulatory compliance, where required in an EA, need to be based on potential risk of environmental harm, rather than simply detect a change from background conditions. The WQO applicable to BWM are discussed further in the response to Item 27. The compliance limit for electrical conductivity (EC) in the EA (Condition F11) of 2,000 microSiemens per centimetre (µS/cm) is considered protective of aquatic ecosystems in the receiving environment. An assessment of potential controlled-release rates and dilution requirements has been undertaken for release point (RP) 2 and RP3 (discharging to Blackwater Creek) and RP4 (discharging to Two Mile Gully). This assessment has been described in the Project's Surface Water Assessment (WRM Water and Environment Pty Ltd [WRM], 2026a) and the Project's Water Balance Assessment (HydroBalance, 2026) reports. The dilution calculations assumed a downstream mixed EC value of 2,000 µS/cm. Typical upstream (background) EC concentrations were estimated from relationships developed using recorded streamflow and EC data for the Blackwater Creek and Two Mile Gully gauges over the period 2016 to 2025.	

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			The assessment results demonstrate that the allowable release rate reduces as the EC of the release water increases. It was estimated that: • For release water EC of 2,500 µS/cm, releases can theoretically occur a rate of up to 3.5 to 3.6 times the receiving stream flow. • For release water EC of 5,000 µS/cm, releases can theoretically occur at a rate of up to 0.6 times the receiving stream flow. • For release water EC of 10,000 µS/cm, releases can theoretically occur at a rate of up to 0.2 times the receiving stream flow. For RP2 and RP3, which discharge to Blackwater Creek, the calculated release rate would represent the combined allowable discharge from the two release points, rather than a separate allowable rate for each release point. At higher receiving-stream flows, the achievable discharge rate would be constrained by the capacity of the release infrastructure rather than the calculated receiving-stream dilution capacity. Consequently, the dilution achieved under these conditions would generally be greater than the minimum values presented in the assessment. **c)** The assessment demonstrates that controlled releases can be managed by adjusting the combined release rate in response to: • the measured receiving-stream flow • the receiving-stream EC • the EC of the water proposed for release • the applicable downstream EC limit, and • the hydraulic capacity of the release infrastructure. The current controlled-release strategy at BWM is to monitor receiving-stream flow, EC and pH at the relevant stream gauges and manage the release rate accordingly. The release flow rates are adjusted based on predictions from a Release Contaminant Model that BWM maintain onsite. During a controlled release, downstream flow, EC and pH are monitored against compliance limits using automated remote telemetry stations which record data in near-real time. The release rate is reduced, or the release is ceased, based on a combination of Release Contaminant Model predictions and real-time monitoring results where monitoring indicates that the applicable flow or water quality trigger is being approached or exceeded. This adaptive management approach assists in maintaining the quality of tailwaters downstream of the release point within the applicable EA requirements to protect downstream environmental values throughout the release period authorised under the EA (Condition F10).	

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			The existing controlled-release strategy would continue to be implemented during the operation of the Project.	
27	Water quality objectives (WQOs) adopted in Appendix B are not protective of the receiving environment values. Appendix B Table 3.2 has adopted the receiving environment EC trigger level of 2000 µS/cm (based on a toxicity study by DSITIA (2012) as a WQO. The most recent dataset summarised in Table 3.5 of Appendix B, demonstrates that the EC measured in local creeks (80th percentiles between 174 and 374 µS/cm, including locations downstream from releases) is generally aligned with the local EPP water quality objective of 310 µS/cm for the Mackenzie River catchment. The 2024-25 FRREMP results also confirm that the 80th percentile of data in Blackwater Creek generally meet this objective. The WQO adopted to assess the potential impact of the release should be relevant to the local conditions. For parameters other than EC, the assessment provided by WRM in Appendix B Table 3.2 adopted in-stream WQO corresponding to release water quality triggers at the "end-of-pipe" in the EA (EA Table F3). This approach is not appropriate because the release trigger values apply to undiluted release water, as opposed to the receiving environment water quality which is measured after mixing of the release with the receiving environment water. Many of these values are also not reflective of the receiving environment background concentrations (Appendix B Table 3.5) and largely exceed the default ANZG (2018) guideline values for the protection of aquatic ecosystems. WQOs adopted for ammonia (1000 µg/L) and nitrate (7600 µg/L) exceed that of total nitrogen (TN, 775 µg/L, corresponding to the EPP WQO for the Mackenzie River sub-basin). Given ammonia and nitrate are two constituents of TN, the WQOs adopted for ammonia and nitrate are scientifically irrelevant.	(a) Revise the selection of WQOs to ensure they are protective of environmental values identified and relevant to the Project location. If site-specific water quality objectives are required, provide appropriate justification for the source of the value adopted, as per methods provided in DES (2022) *Guideline: Deciding aquatic ecosystem indicators and local water quality guidelines under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019*. (b) Indicate the potential source of nutrients (total nitrogen, total phosphorous, ammonia, nitrate) from the current and proposed operations.	Whitehaven Blackwater consider there is an important distinction between the WQO adopted for the purposes of interpreting water quality as opposed to contaminant limits for the purpose of regulatory compliance through the EA. Thresholds for regulatory compliance, where required in an EA, need to be based on potential risk of environmental harm, rather than simply detect a change from background conditions. **a)** The WQOs adopted for the surface water assessment were consistent with contaminant investigation levels in the EA (Table F3). The rationale for contaminant investigation levels is noted in the EA (Table F3), is the protection of aquatic ecosystem, apart from Aluminium (1,014 micrograms per litre [µg/L], based on background data) and Fluoride (2,000 µg/L protection of livestock, although this is similar default toxicant guideline of 1,700 µg/L (Australian and New Zealand Governments [ANZG], 2018). The application of these contaminant investigation levels in the EA (Table F3) at the Release Points, rather than receiving environment sites, is considered a conservative regulatory approach to require an investigation into the potential for environmental harm as contaminant concentrations would likely be higher at release point than at receiving environment sites. Whitehaven Blackwater acknowledge some of the contaminant investigation levels in the EA (Table F3) are not consistent with the current default guideline values (DGVs) in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018). The WQOs for the Project's Surface Water Assessment (WRM, 2026a) have been considered and the rationale for the adopted WQOs is provided below. *Electrical conductivity* The Project's Surface Water Assessment (WRM, 2026a) has been updated to include the outcomes of previous toxicity studies undertaken between 2011 and 2015. Key findings from the studies are summarised below, with further detail provided in the Project's Surface Water Assessment: • A 95% ecosystem protection toxicant trigger value 2,000 µS/cm for the Bowen Basin (Prasad et al., 2012). • A 95% ecosystem protection toxicant trigger value 2,433 µS/cm based on site-specific ecotoxicity assessment for the Caval Ridge Project for the Bowen Basin (Hydrobiology Pty Ltd, 2011). • A 95% ecosystem protection toxicant trigger value ranged from 2,100 to 3,300 µS/cm based on toxicity analysis of two different mine water compositions (Mann et al., 2014).	Section 4.2.2. Appendix B (Section 3.3 and Tables 3.2 and 3.5).

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			• More than 50% of the organisms collected from four sites in the Fitzroy River basin from were tolerant to ECs of up to 6,000 µS/cm (Dunlop et al., 2015). These studies collectively demonstrate that the adopted WQO of 2,000 µS/cm is expected to be protective of local environmental values. Therefore, the adopted WQO for EC of 2,000 µS/cm would be unchanged. This approach of using a published toxicant guideline is consistent with the approach to establishing WQO in the *Queensland Water Quality Guidelines* (Department of Environment and Heritage Protection, 2009). *Ammonia* The *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) DGV for ammonia (based on 95% level of protection) is 720 µg/L which is lower than the EA trigger level (1,000 µg/L). The ANZG (2018) DGV has been adopted as the WQO for the surface water assessment. *Nitrate* The *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) have published three sets of DGVs for nitrate as the toxicity depends on hardness. The DGV for nitrate (based on 95% level of protection) is 2,600 µg/L in moderately hard water (30 to 150 mg/L calcium carbonate [$CaCO_3$]) and 29,000 µg/L for hard water (>150 mg/L $CaCO_3$) (ANZG, 2018). The EA trigger level of 7,600 µg/L is within the range of DGVs for moderately hard to hard water and has been retained as the WQO for the surface water assessment. *Fluoride* The DGV for fluoride (based on 95% level of protection) is 1,700 µg/L (ANZG, 2018) which is lower than the EA trigger level (2,000 µg/L). The ANZG (2018) DGV has been adopted as the WQO for the surface water assessment. *Aluminium* The EA trigger level for aluminium (1,014 µg/L) is noted in the EA as being based on 80th percentile of background data. This is consistent with the monitoring data in Table 3.4 of the Project's Surface Water Assessment (WRM, 2026a) and has been retained as the WQO for the surface water assessment. *Cadmium* The DGV for cadmium (based on 95% level of protection) is 0.2 µg/L (ANZG, 2018) which is lower than the EA trigger level (5.6 µg/L). The ANZG (2018) DGV has been adopted as the WQO for the surface water assessment.	

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			Iron The DGV for iron (based on 95% level of protection) is 280 µg/L (ANZG, 2018) which is lower than the EA trigger level (1,200 µg/L). The ANZG (2018) DGV has been adopted as the WQO for the surface water assessment. *Zinc* The DGV for zinc (based on 95% level of protection) is 8 µg/L (ANZG, 2018) which is lower than the EA trigger level (17 µg/L). The ANZG (2018) DGV for zinc has been adopted as the WQO for the surface water assessment. *Boron* The ANZG (2018) DGV for boron (based on 95% level of protection) is 940 µg/L, which is higher than the EA trigger level (370 µg/L). The EA trigger level of 370 µg/L is based on the ANZECC/ARMCANZ (2000) DGV, which is now superseded by the ANZG (2018) trigger value. The more contemporary ANZG (2018) DGV has been adopted. *Molybdenum* The EA trigger level of 34 µg/L for molybdenum is consistent with the ANZG (2018) DGVs and Mackenzie River WQOs. Therefore, the EA trigger level has been retained as the WQO. *Selenium, Uranium and Vanadium* The EA (Table F3) notes that the contaminant investigation levels for selenium, uranium and vanadium are based on the Limit of Reporting for Inductively Coupled Plasma Mass Spectrometry. The contaminant investigation levels for selenium, uranium and vanadium are very similar to the respective DGVs, are considered protective of environmental values and have been retained as the WQO for the surface water assessment. The parameters for turbidity, total suspended solids (TSS), total nitrogen and total phosphorous, have been included as they are the relevant water quality indicators for the Great Barrier Reef (GBR). The surface water assessment has been updated to identify the current DGVs published by in ANZG (2018) and the WQOs have been updated in the revised Project's Surface Water Assessment. Whitehaven Blackwater propose to amend the contaminant investigation levels in the EA (Table F3) to align with the current DGVs in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018).	

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			b) The potential source of nutrients (total nitrogen, total phosphorous, ammonia, nitrate) from the current and proposed operations include: • use of fertiliser in rehabilitation works; • explosives residues (ammonia and nitrate); • disturbance of soils and overburden containing naturally occurring nitrogen and phosphorus; • runoff from disturbed areas and stockpiles; • sediment transport containing particulate-bound nutrients; and • sewage generation. Other land uses, including agricultural activities have potential to contribute nutrient loads in the receiving environment.	
28	Appendix B, Appendix C Table 4.3, mentions a loss of median annual discharge volume of 73.9 ML/a. It is not clear if this loss includes the proposed controlled releases estimated at up to 110-130 ML/a during median climatic conditions. While the natural catchment runoff volume is reduced, it cannot be inferred that the proposed increased volumes of controlled releases will not contribute any additional total suspended solids (TSS). Data presented in Appendix B, Appendix C Table 3.1 (Memorandum dated 17 April 2026) suggest higher TSS concentrations downstream from existing activities, compared with upstream monitoring locations, suggesting contributions from BWM. Section 3.3.3 mentions that higher TSS concentrations "may be due to existing mining activities (excluding the Action/Project) but is also likely due to the larger catchments contributing runoff to these downstream sites". The potential increased TSS contributions from the proposed releases should be quantified to address section 41AA of the EP Regulation. Section 4.4.2 indicates that these releases will only occur during "*elevated, event-driven flows characterised by increased water levels, higher velocities and short-duration runoff pulses which would likely include natural turbidity and sediment transport reflecting storm conditions*", however the assessment is about annual TSS loads to the reef rather than concentrations.	(a) Provide the most updated Water Management Plan and Erosion and Sediment Control Plan; (b) Provide further information on the potential impacts from existing mine activities (sediment dams and/or controlled releases) to date on the receiving environment surface water dataset presented in the WRM Memo. Provide specific discussion about the potential source of the higher TSS in Taurus Creek, Two Mile Creek, and downstream Blackwater Creek compared with upstream locations based on release data. (c) Demonstrate how the Project will not worsen TSS concentrations in the receiving environment, including how monitoring of the status of TSS will be achieved to demonstrate ongoing protection, such that the project will not result in a ***residual impact*** as per s. 41AA of the EP Regulation.	The Project's Surface Water Assessment (Appendix C of Appendix B) estimated that the loss of undisturbed catchment due to the Project would result in a loss of annual runoff volume to Blackwater Creek of approximately 73.9 ML/a based on median conditions. Two monitoring sites, Blackwater upstream (U/S) and Two Mile Gully have been incorrectly identified as downstream sites in Appendix B, Appendix C Table 3.1, and in Appendix B, Table 3.3, Table 3.4 and 3.5. Appendix B has been updated to correctly identify the upstream and downstream monitoring sites at BWM. **a)** The current *BWM Plan – Water Management Plan* (Whitehaven, 2026d) and *BWM Plan – Erosion and Sediment Control Management Plan* (Whitehaven, 2026a) has been provided in **Appendix A** of this Response to Information Request. **b)** The mean TSS concentrations recorded at monitoring sites upstream of BWM was 496 mg/L (Taurus Creek U/S), 399 mg/L (Deep Creek U/S), 895 mg/L (Emu Creek U/S), 622 mg/L (Blackwater Creek U/S), and 722 mg/L (Two Mile Gully). The mean TSS concentrations recorded at monitoring sites downstream of Project area was 795 mg/L (Taurus Creek downstream [D/S]) and 716 mg/L (Blackwater Creek U/S). The average TSS concentrations recorded at downstream monitoring sites are broadly consistent with those recorded at the upstream monitoring locations.	Appendix B (Appendix C Sections 3.3, 4.4 and Tables 3.1 and 4.3). Appendix B (Section 4.5 and Tables 3.3, 3.4 and 3.5).

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	The most up-to-date Water Management Plan was not submitted with the application. Appendix B Section 4.5.2 states "*The Blackwater Mine Water Management Plan (WMP) by Whitehaven (2025), outlines the BWM's ESC 'implementation plan'*" and "*Rehabilitation and/or installation of appropriate erosion and sediment controls is planned to be completed over significant areas of the BWM by June 2031*."	(d) Indicate how the efficacy of erosion and sediment controls in place (e.g. sediment dams) is monitored. Specify locations and frequency of monitoring.	The on-stream water storages constructed on Deep Creek and Taurus Creek effectively operate as sediment control structures, capturing sediment in runoff from upstream areas and reducing sediment load on downstream areas. The release of water from water management infrastructure at BWM occurred infrequently from 2021 to 2023 (the period of surface water monitoring record analysed) and is unlikely to have contributed significantly to elevated concentrations of TSS above average concentration at downstream monitoring sites. Elevated TSS concentrations above the average concentrations may be due to localised stream bank erosion and grazing activities, consistent with the findings of Bartley et al. (2017). This due in part to the larger catchments contributing runoff to these downstream monitoring sites. **c)** The Project is an amendment to an existing mining activity and does not propose any new release points, changes to existing authorised release infrastructure, or changes to the release criteria currently approved under the EA. The Project is located within the Fitzroy Basin and therefore consideration of section 41AA of the *Environmental Protection Regulation 2019* (EP Regulation) is required. The *Reef discharge standards for industrial activities guideline* states that, for an amendment to an existing activity, the total load to be considered is limited to the additional point-source releases associated with the amendment and does not include loads already authorised under the existing environmental authority. The Project does not propose any new authorised release points, changes to existing authorised release infrastructure, or amendments to the existing release criteria under the EA. Controlled releases associated with the Project would continue to occur through the existing approved water management system and in accordance with the existing EA release conditions. The Project would therefore operate within the same release framework currently approved for BWM. It should be noted that the assessment of contaminated stormwater that contains sediment only, is excluded under section 41AA of the EP Regulation. Notwithstanding, the potential release of sediments resulting from erosion has been managed through BWM's water management, erosion and sediment controls. Accordingly, the following response focuses on point source releases of MAW, rather than stormwater.	

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			The Project's Water Balance Assessment (HydroBalance, 2026) identified that the Project is predicted to increase controlled releases by around 11% to 20% (110 to 130 ML) under median climate conditions compared to the Approved operations. However, the potential increase in controlled releases is primarily due to the groundwater modelling outputs that predict an increase in groundwater inflows during the operation of the Project. Groundwater inflows are not anticipated to result in a significant increase in the TSS load to the mine water management system. Potential releases of fine sediments from controlled releases would be partially offset by the loss of undisturbed catchment that would otherwise contribute to sediment loads to the GBR. Bartley et al. (2017) estimated that approximately 1,805 kilotons (kt) of suspended sediment are released annually to the GBR from the Fitzroy River catchment. Assuming that controlled releases from BWM discharge an additional 130 ML per year at a TSS concentration of 462 mg/L (the median TSS at Taurus Creek D/S), this equates to approximately 0.06 kt of sediments annually. This represents less than 0.01% of the estimated total sediment load to the GBR from the Fitzroy River catchment. The BWM mine water storages including New Taurus Creek Dam (NTCD) (RP2), New Deep Creek Dam (NDCD) (RP3) and Tannyfoil Dam (TFD) (RP4) provide extended detention and settling opportunities that promote sediment deposition and therefore the above estimate of sediment loads from controlled releases may be conservative and would need to be reviewed with additional monitoring for TSS. Bartley et al. (2017) quantified the contributions of suspended sediment by land use by region. Bartley et al. (2017) found that in the Fitzroy River catchment, the estimated proportion of total fine sediment loads exported to the GBR from each land use are approximately 40% from grazing, approximately 40% from streambank erosion, approximately 10% from dryland cropping, approximately 5% from nature conservation and the remainder of approximately 5% from forestry, irrigated cropping, dairy, horticulture, sugarcane, urban and other land uses. The 2022 Scientific Consensus Statement (Prosser & Wilkinson, 2024) noted the findings from Packett et al. (2009), which found a strong correlation in the Fitzroy River between the concentration of suspended sediment and the proportion of cropland in the contributing catchment, suggesting that cropland is the most significant land-use sediment source. Prosser (2024) noted that in the Fitzroy River, mines make up a very small proportion of the basin and are located much further inland.	

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			The Project's Water Balance Assessment (HydroBalance, 2026) indicates that the Project can be managed within the existing water management system and existing controlled release framework, with releases continuing to occur only in accordance with the approved Schedule F release conditions. Accordingly, in view of the Reef Discharge standards, the Project is not expected to result in a residual impact to GBR catchment waters for the purposes of section 41AA of the EP Regulation because it does not introduce new release points, new release criteria or a material increase in point-source fine sediment loads beyond those already authorised under the existing EA. Surface water monitoring of the receiving environment (which already includes TSS) would continue in accordance with the *Fitzroy Regional Receiving Environment Monitoring Program*. The TSS concentrations for the Mackenzie River at Bingegang (refer to Appendix B, Section 3.4), downstream of mining operations within the Blackwater Creek catchment, are below the WQO (110 mg/L). The memorandum in Appendix C of the Project's Surface Water Assessment (WRM, 2026a) has been updated with additional discussion on the impact of the Project on fine sediment loads to the GBR catchment waters. **d)** The inspection, maintenance and water quality sampling required for sediment controls, including sediment dams, are detailed in the *BWM Plan – Erosion and Sediment Control Management Plan* (Whitehaven, 2026a) (provided in **Appendix A** of this Response to Information Request).	

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29	Appendix B Section 6.2.4.1 states that "*Controlled releases are expected to be required in very wet (5th percentile), wet (10th percentile) and median climatic conditions, as well as dry (90th percentile) climatic conditions in some years*". Releases required during dry conditions pose a potential high risk if appropriate flow conditions are not met to provide a window of opportunity to release while ensuring appropriate minimum dilution can be achieved.	Provide further information on the requirements to release during "dry conditions" and outline how this will be managed. Include details on ensuring adequate dilution in the receiving environment and the potential capacity to store any excess volume.	The requirements for controlled releases under Schedule F of the EA would be maintained for the Project. These requirements include compliance with release water quality limits, monitoring of release water quality during discharge events, and restrictions on releases to periods when receiving waterways exceed the applicable minimum flow triggers. The seasonal conditions identified in Section 6.2.4.1 represent rainfall conditions over an annual period, rather than seasonal conditions. The EA restricts the release of MAW to periods when the natural flow in upstream waters exceed the applicable minimum flow triggers. Typically, the natural flow in upstream waters exceed the minimum flow conditions from November to March (i.e. the release of MAW is not authorised in dry conditions). Accordingly, while controlled releases are expected to be required during dry climatic conditions in some years, releases would only occur when the release criteria specified in the EA are met, thereby ensuring sufficient stream flow is available within the receiving environment to provide dilution and that released water complies with the applicable water quality criteria. The Project would retain sufficient operational water storage capacity to manage periods when controlled releases cannot be undertaken. Where suitable flow conditions are not available, MAW would continue to be stored onsite until conditions are appropriate for release in accordance with the EA. Referring to the response to Item 26, an assessment of potential controlled-release rates and dilution requirements has been undertaken for RP2 and RP3 (discharging to Blackwater Creek) and RP4 (discharging to Two Mile Gully). The assessment demonstrates that controlled releases can be managed by adjusting the combined release rate in response to monitoring of downstream EC and stream flow.	Appendix B (Section 6.2).
30	Appendix B Figures 4.4 to 4.6, not all release points are represented on the Surface Water Management System (SWMS) schematics of the existing operations presented in Appendix B. Based on the information provided, it is understood that the Project-related mine affected water (MAW) would be released at currently authorised release points RP2 (via "New Taurus Creek Dam", NTCD), RP3 (via "New Deep Creek Dam", NDCD) and RP4 (via "Tannyfoil Dam", TFD).	(a) Confirm all release points with the potential to be releasing mine-affected water associated with the Project. (b) Confirm MAW associated with the Project does not have the potential to be transferred to other storages associated with different release points.	The BWM EA identifies 11 MAW release points. Three release locations (RP11, RP12 and RP13) are not currently active and these release points were not included on the Surface Water Management System (SWMS) schematics in the Project's Surface Water Assessment (WRM, 2026a). The SWMS schematics have been updated to more clearly indicate MAW release points RP3 (NDCD) and RP4 (TFD). **a)** The following three release points have been represented as active release points in the Project's water balance model: • RP2 - NTCD. • RP3 - NDCD. • RP4 - TFD.	Appendix B (Section 4.2, Figures 4.4, 4.5 and 4.6).

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	Interpretation of the SWMS schematics suggests that there is the potential for MAW to be redirected to other dams across the site that are connected to other release points. While we note that release points in Burngrove Creek, Sirius Creek and Rockland Creek are not located within the Project area, it is unclear if the Project may potentially redirect MAW to release points in these areas.		These three release points represent the locations with the current potential to undertake controlled releases of MAW managed through the integrated water management system. The remaining authorised release points are not currently used for controlled releases and have not been modelled as active release points in the Project's water balance model. **b)** BWM operates as an integrated water management system. Accordingly, MAW generated within or associated with the Project area may be transferred to and stored within existing MAW storages located in other parts of the mine. As water may be transferred and managed across the integrated system, Project-related MAW may ultimately contribute to water stored within infrastructure associated with more than one authorised release point. All controlled releases of MAW from BWM, whether the water is generated by the Project or by existing mining activities, would continue to be undertaken in accordance with the conditions of the EA. The Project does not propose any changes to the approved release conditions or the authorised release points.	
31	Appendix B Section 10.6 states that "*The proposed release strategy to Blackwater Creek and the Mackenzie River is informed by existing release conditions applied to nearby operating coal mines. These conditions are embedded within a broader strategic framework designed to manage the cumulative impacts of water releases and mining activities. As such, the cumulative effects on surface water quality and associated EVs are expected to be negligible*." Potential for cumulative impact must be considered as part of the risk assessment of the Project. There currently may not be any assimilative capacity for the system in Blackwater Creek due to discharges permitted from nearby mines.	(a) Describe the "broader strategic framework" in place and how it addresses the contemporary requirements defined in '*Model water conditions for coal mines in the Fitzroy basin*' (DESI 2015). (b) Describe current and proposed management strategies implemented by Whitehaven to minimise cumulative impacts associated with the Project.	**a)** The 'broader strategic framework' refers to the regulatory controls and monitoring programs that govern mine water releases in the Fitzroy Basin. This includes the release criteria applied through EAs for coal mines within the Fitzroy Basin, the guidance provided in the *Model water conditions for coal mines in the Fitzroy Basin* (DES, 2015), and regional monitoring programs that evaluate whether these controls remain effective in protecting environmental values and managing cumulative impacts. In particular, the Fitzroy Regional Receiving Environment Monitoring Program, implemented in accordance with the *Fitzroy Basin regional receiving environment monitoring program guideline* (DETSI, 2025), which assesses the cumulative effects of mining activities on receiving waters and provides a mechanism for evaluating the effectiveness of the release management framework. The requirements for releases to the receiving environment from site storages at BWM are detailed in Schedule F of the EA and would be maintained for the Project. The appropriateness of the current WQOs is further discussed in the response to Item 27. As stated in Appendix B (Section 3.4), analysis of receiving water quality was undertaken for the Mackenzie River at Bingegang, which is located downstream of all active mining operations within the Blackwater Creek Catchment. The monitoring data indicates that physicochemical parameters and concentrations of nutrients and metalloids have remained below the adopted local creek WQOs and the Sub-Basin WQOs (WQ 1304).	Appendix B (Sections 3.4 and 10.6).

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			b) Whitehaven Blackwater's primary management strategy to minimise cumulative impacts associated with the Project is to continue managing controlled releases in accordance with Schedule F of the EA, including compliance with release criteria, monitoring requirements and reporting obligations. Note that the Project is not expected to increase the likelihood of uncontrolled discharges from site storages. Monitoring results at Mackenzie River at Bingegang undertaken through the *Fitzroy Regional Receiving Environment Monitoring Program* is summarised in section 3.4.3 of the Project's Surface Water Assessment (WRM, 2026a). No cumulative surface water quality impacts were observed with physiochemical parameters including EC, turbidity and TSS are below the adopted local creek WQOs. The Project's Water Balance Assessment (HydroBalance, 2026) indicates that the Project would result in relatively small changes to annual controlled release volumes. Compared with the Approved Case assessed, annual controlled release volumes are predicted to increase by around 2 to 4% under very wet conditions, up to 7% under wet conditions and around 11 to 20% under median climatic conditions (HydroBalance, 2026). These releases would continue to be managed in accordance with the existing EA release criteria and monitoring requirements. Given the incremental impacts associated with the Project are expected to be minimal, and controlled releases would continue to be undertaken in accordance with the existing EA conditions, no additional surface water management strategies are proposed.	
32	The Project footprint overlaps with Sagittarius Creek; however, this creek does not have a downstream monitoring point and is not included as part of the FRREMP. There are no stream gauging stations within the Sagittarius Creek catchment.	Indicate how potential influence from the proposed activities to Sagittarius Creek is proposed to be managed and monitored.	The Project's eastward pit expansion would reduce the Sagittarius Creek catchment during mining, as a greater portion of undisturbed land would drain to the open cut pits (WRM, 2026a). There are no existing MAW release points that discharge into Sagittarius Creek. BWM does not have any mine water storages located within the Sagittarius Creek catchment, nor is the Project proposing any new mine water storages in this catchment. There is no risk of controlled or uncontrolled MAW releases to the Sagittarius Creek catchment that would necessitate ongoing monitoring in Sagittarius Creek. The potential influence of the proposed Project activities on Sagittarius Creek would be limited to the clearing of undisturbed land ahead of the pit advance. Erosion and sediment controls would be selected and implemented based on the nature, extent and duration of disturbance and may include measures such as check dams, sediment fences and sediment traps. These measures would be subject to routine inspection, maintenance and adaptive management to confirm their ongoing effectiveness.	Appendix B (Section 4.4 and 9.2).

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	Flooding			
33	In section 2.3 Figure 2-5 of the supporting document there appears to be limited separation between the pit, levee and watercourses which raises constructability and failure-pathway concerns. The levees would need to be constructed with adequate footprint, freeboard and erosion protection.	(a) Clarify whether the proposed pit, levee and related works would intrude into *Water Act 2000* watercourse limits and if a RPP (Riverine Protection Permit) would be required to undertake construction of the proposed pit and levee. (b) Demonstrate that there is sufficient physical space to construct and maintain levees, given the proximity of the proposed pit extensions to watercourses. (c) Provide a levee conceptual design to demonstrate consistency with ESR/2016/1933, including crest levels, freeboard, footprint, stability, erosion/scour protection, overtopping and breach pathways, and consequence category assessment including impacts on voids where applicable.	A Levee Concept Design has been prepared by TerraQ (2026) and is included in **Appendix C** of this Response to Information Request. The Levee Concept Design provides designs for the proposed operational levees for the Project. It is anticipated the design would be further optimised during Preliminary and Detailed Design prior to construction. **a)** The nearest mapped watercourse as defined by the *Water Act 2000* (Water Act) is Taurus Creek downstream of the Two Mile Gully confluence. Waterways located traversing the Project area including Deep Creek and Taurus Creek are unmapped (i.e. status not determined under the Water Act. Emu Creek is not a watercourse under the Water Act. The proposed operational levees detailed in the Levee Concept Design (**Appendix B** of this Response to Information Request) demonstrate the pit, levee and related works do not intrude into Water Act watercourse limits for Deep Creek, Taurus Creek Two Mile Gully. A Riverine Protection Permit is not required to undertake the construction of the proposed pits and levees. **b)** The proposed operational levees detailed in the Levee Concept Design (**Appendix C** of this Response to Information Request) demonstrate there is sufficient space to construct and maintain the levees. **c)** The Levee Concept Design (**Appendix C** of this Response to Information Request) is consistent with *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933). The basis of design for the proposed operational levees includes: • Flood immunity level: 0.1% (1 in 1,000) annual exceedance probability (AEP) design flood event (year 2030 climate scenario). • Freeboard: 0.5m above flood immunity level. • Batter slopes: 1V:4H for embankment stability. The proposed operational levees would be protected from flood induced erosion by rehabilitating the finished surface using site won topsoil and seeded with grass species. Rock protection is proposed at high-risk sections of the levees where velocities are expected to exceed 1.5 m. The Levee Concept Design (**Appendix C** of this Response to Information Request) includes a preliminary consequence category assessment (CCA) undertaken in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933). The preliminary CCA assigns a significant consequence category to the Deep Creek Pit Eastern, Stewarton Pit Western and Stewarton Pit North-eastern levees, and a low consequence category to the Deep Creek Pit Western Levee.	Figures 2-4 and 2-5.

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34	Section 2.8.3 of the supporting document states: '*The temporary flood protection levees (in place during mining) adjacent to the R30, Deep Creek and Stewarton North pits would be removed such that the rehabilitated out-of-pit waste rock areas would prevent floodwater from entering the voids*'. Additional information on the pit rehabilitation and final landform is required to assess how flood risk will be managed once the levees are removed.	Demonstrate how flood risks will be managed once the temporary levees adjacent to *R30, Deep Creek and Stewarton North pits* are removed.	As identified in Section 2.8.3 of the supporting document: *The final landform around the final voids would be constructed to prevent floodwater from entering.* To achieve this, the final landform has been designed such that the crest levels of the rehabilitated out-of-pit overburden areas would be above the adjacent 1 in 1,000 AEP peak flood level for the Ramp 30 void and above the adjacent PMF peak flood level for the Deep Creek and Stewarton North voids. In addition, the south-eastern corner of the Deep Creek Pit would be backfilled. As a result, the toe of the final landform at this location would be located further from Deep Creek than the maximum extent of the Deep Creek Pit during operations, providing additional floodplain conveyance around the final landform compared to the operational mining phase (WRM, 2026a). The south-eastern corner of the Stewarton North Pit would also be backfilled, resulting in the toe of the final landform being located further away from Taurus Creek than the maximum extent of the Stewarton North Pit during operations (WRM, 2026a). The proposed clean water drain, which would realign an unnamed tributary of Two Mile Gully during mining, would be retained as part of the final landform. The drain has been designed to be geomorphically stable and self-sustaining (WRM, 2026a). The final landform, including the out-of-pit overburden dumps, would be rehabilitated to achieve at least 70% vegetative cover in accordance with Whitehaven Blackwater's rehabilitation schedule. Erosion resistant materials would also be used where the toe of the landform may be exposed to floodwaters. These measures would support the long-term stability of the final landform and its function in preventing floodwaters from entering the final voids.	Section 2.8.3. Appendix B (Section 8.8).
35	Figure 2-19 of the supporting document indicate that the proposed final void extensions are within the 0.1% AEP floodplain, including the floodplain of Two Mile Gully (order 4 watercourse). Section **126D (3)** of the *Environmental Protection Act 1994 (Qld)* states: "*Despite subsection (2), if land the subject of the proposed PRCP schedule will contain a void situated wholly or partly in a flood plain, the schedule must provide for rehabilitation of the land to a stable condition*."	(a) Clarify the final closure geometry of the final void. (b) Clarify how the proposed pit extensions will be backfilled or reshaped. There cannot be a NUMA in the floodplain. (c) Demonstrate how any void area located wholly or partly within the 0.1% AEP floodplain will satisfy Section 126D (3) of the EP Act.	The residual voids at BWM are located and designed to avoid adverse impacts on floodplain dynamics, maintaining natural inundation patterns and environmental flows. Flood protection landforms would be constructed to provide stability during flood events up to and including the 0.1% AEP (1 in 1,000 event). The proposed voids and associated landforms are subject to multiple design, assessment, monitoring and certification requirements within the proposed PRCP Schedule that have been specifically developed to ensure achievement of a stable condition. These requirements include: • Preparation and maintenance of an AQP-certified Closure Landform Design Report (PRCP12 and PRCP13); • Preparation of permanent diversion Design Plans (PRCP14);	Figure 2-19. Appendix B (Section 8.8 and Figures 8.48 to 8.50).

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	Appendix B Section 8.8 does not demonstrate that the proposed pit extensions within the 0.1% AEP floodplain will be fully backfilled after removal of the operational levees. Appendix B indicates that five residual voids will remain as NUMAs, with only limited backfilling.		• Completion of flood susceptibility and impact assessments addressing extreme flood events and flood interactions with final landforms (PRCP15 and PRCP17); • Implementation of any additional flood protection measures or design modifications identified through the flood assessment process (PRCP16); • Rehabilitation milestone criteria requiring construction in accordance with certified designs, achievement of geotechnical stability, erosion control and flood protection measures (RM3); and • Long-term monitoring, assessment and certification requirements under RM6, RM7 and RM8. Collectively, these requirements provide a structured framework to ensure that final landforms remain safe, structurally stable and non-polluting, and are capable of supporting their approved PMLU. **a)** The conceptual final landform of the Project area at the completion of rehabilitation is presented in Figure 2-19 of the EA Amendment Supporting Document. The geometry of each residual void at BWM was provided in Table 3-1 of the Void Closure Plan (Environmental Resources Management Australia Pty Limited, 2026) (PRCP Planning Document, Appendix 4.14). As identified in Appendix B Section 8.8, the five residual voids would remain as non-use management areas (NUMAs). **b)** TerraQ (2026) has developed concept designs for the flood protection landforms to support the application, provided in Appendix B of the Response to the Information Request. The flood protection landforms constructed within the Cattle Grazing PMLU, providing separation between the 0.1% AEP flood level for the 2100 climate scenario and the residual voids and NUMA. Residual voids would be partially backfilled with spoil to reduce their size. Where spatial constraints require a flood protection landform to be constructed near the highwall crest (Deep Creek and Stewarton North residual voids), the adjacent void would be partially backfilled to form a 30% slope. This would support long-term highwall stability and reduce the risk of highwall failure affecting the integrity of the flood protection landform. Flood protection landforms would be constructed to provide stability during flood events up to and including the 0.1% AEP flood level for the 2100 climate scenario (refer to Figure 8.48 to Figure 8.50 of Appendix B). Consequently, the residual voids that would remain as NUMAs are not located in the 0.1% AEP floodplain.	

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			c) There is no void area proposed within the 0.1% AEP (1 in 1,000) floodplain for the 2100 climate scenario. The flood protection landforms would be constructed within the Cattle Grazing PMLU, providing separation between the 0.1% AEP floodplain and residual voids. As described in the above responses to Items 35(a) and (b), the landforms have been developed to achieve geotechnically stable conditions including during flood events up to and including the 0.1% AEP flood level for the 2100 climate scenario.	
	Ecology			
36	Appendix D Section 4.1.5 has identified potential terrestrial groundwater dependent ecosystems (TGDEs) like *E.coolabah* in the vicinity of Taurus Creek. These ecosystems, while likely to be facultative GDEs, may serve as critical refugia for koalas and other wildlife during periods of heat and water stress. Given the anticipated reduction in the catchment area of Taurus Creek, there is potential for downstream ecosystems to be adversely impacted, which could diminish their ecological function as wildlife refugia. It is necessary to ensure that potential impacts on TDGEs are adequately managed and that ecological values in these areas are maintained.	(a) Outline monitoring measures to assess potential impact on TGDEs associated with Taurus Creek.(b) Propose mitigation measures to address any identified impacts on TGDE's, ensuring the preservation of their role as refugia for fauna during periods of environmental stress.	As described in Appendix E Section 5.6.2: *No direct impacts (i.e. clearing) of terrestrial GDEs is proposed. The Project is unlikely to impact the perched alluvial aquifers of Taurus Creek (Section 5.6.1). Consequently, indirect impacts on terrestrial GDEs associated with this aquifer are unlikely. Impacts to the terrestrial GDE comprising riparian/floodplain vegetation of Taurus Creek have been assessed against the impact criteria identified in the Risk Assessment Guidelines for GDEs (Serov, Kuginis and Williams 2012), as referred to in the Information Guidelines Explanatory Note: Assessing GDEs (Doody, Hancock and Pritchard 2019). Impacts to the integrity of this terrestrial GDE are considered unlikely based on the majority rule as per Serov, Kuginis and Williams (2012) (Table 27).* Table 27 and 28 of Appendix E demonstrates that the Project is unlikely to have a potential impact on the perched alluvial aquifers and associated terrestrial GDEs of Taurus Creek and the magnitude of risk of the Project impacting the perched alluvial aquifers and associated terrestrial GDEs of Taurus Creek is low. Considering that impacts to terrestrial GDEs comprising riparian (and floodplain) vegetation of Taurus Creek are unlikely, key measures would instead comprise the avoidance of both direct and indirect impacts on terrestrial GDEs.	Section 4.4.2 and 4.4.3. Appendix E (Section 5.6.2).
37	Appendix E Section 4.2.3 Table 14 gives the habitat scores for riverine survey sites for pre-wet season. Survey site R10, R11 and R12 are not shown. Survey site R1 is repeated 3 times. This could possibly be a clerical error.	Clarify if survey sites R10, R11 and R12 are included in Table 14 in Appendix E Section 4.2.3.	Survey sites R1 being repeated three times and survey sites R10, R11 and R12 not being shown on Table 14 of Appendix E was a result of a clerical error. This has been amended accordingly, and all sites are now shown and labelled correctly on Table 14.	Appendix E (Table 14).

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38	Appendix D Section 10 indicates that residual impacts on MNES and MSES would be offset in accordance with the EPBC Act Environmental Offsets Policy and Queensland Environmental Offset Policy. However, a demonstration of offset feasibility or conceptual proposed offset approach, whether land-based or financial settlement has not been discussed.	Discuss biodiversity offset measures/strategy and demonstrate offset deliverability.	The preferred offset approach for the Project is via land-based offsets for the significant residual impact on Brigalow threatened ecological community (Matter of National Environmental Significance [MNES]). Whitehaven Blackwater owns the Ganadero and Memooloo properties, both located approximately 50 km from the town of Blackwater to the south of the BWM, which provide an ecologically appropriate offset for the significant residual impacts on MNES as a result of the Project. The significant residual impacts to Matters of State Environmental Significance [MSES], including *Solanum elachophyllum* and RE 11.3.1, would be offset in accordance with the *Queensland Environmental Offset Policy* (EO Policy). The offset for MSES may be delivered through either a land-based offset or financial settlement. Whitehaven Blackwater would demonstrate that the Project's MNES offset liability can be satisfied through the development of the *Environment Protection and Biodiversity Conservation Act 1999* Preliminary Documentation and associated Offset Management Strategy in consultation with the National Environmental Protection Agency.	Section 4.4.3.
	Greenhouse Gas Emission			
39	**Methodology for estimating emissions from land clearing** Appendix G, Section 5.2.1. mentions that the Carbon Gauge Tool Guideline developed by the Transport Authorities Greenhouse Group (TAGG) was used to estimate greenhouse gas (GHG) emissions from land clearing. In general, this simplified model is consistent with the Full Cabon Accounting Model (FullCAM). However, the TAGG model was developed over a decade ago for estimating GHG emissions for road projects, whereas the FullCAM model is used in Australia's National Greenhouse Gas Accounts for the land use, land-use change and forestry sectors. The FullCAM model has undergone significant updates.	(a) Recalculate emissions from land clearing using the FullCAM model. (b) Sufficient information, including methodology, assumptions, input data and model results should be provided.	The Project utilised the Carbon Gauge Tool Guideline developed by the Transport Authorities Greenhouse Group (TAGG) to estimate greenhouse gas emissions associated with vegetation clearing. As acknowledged by DETSI, the TAGG methodology is generally consistent with the Full Carbon Accounting Model (FullCAM) approach and applies the same underlying principles for estimating biomass related emissions. The TAGG methodology provides a fit for purpose estimate of land clearing emissions for environmental impact assessment purposes. Land clearing emissions comprise a negligible contribution (approximately 0.4%) to the Project's overall life of mine greenhouse gas emissions and are not relevant to ongoing Safeguard Mechanism or National Greenhouse and Energy Reporting obligations. Consequently, application of FullCAM is unlikely to materially alter the calculated emissions inventory, impact assessment outcomes, emissions reduction measures or the conclusions of the greenhouse gas assessment and therefore TAGG method has been retained.	Appendix G (Section 5.2).

Item	Matter	Information Requested	Response	EA Amendment Application Reference
40	**Negative emissions for the project-only scenario** Several instances of negative emissions are presented for the project-only scenario in Appendix G, Appendix B Table B.3 (see FY29, FY65 and FY73 data in Table B.3.) For example, FY65 (refer to Table A.3), the reported quantities of ROM coal and product coal are both -1.1 Mt, while diesel consumption is still 39,967 kL. However, no clear justification has been provided.	Provide justification for the negative emissions reported in the project-only scenario.	The following additional text has been added to Section 3.1 of the Greenhouse Gas Management and Abatement Plan (GMAP) explaining these scenarios: *It should be noted that, as the Project Only Scenario represents the mathematical difference between the Project scenario and the Baseline scenario and as a result of this, some individual years may report negative values for production metrics such as ROM coal or waste movement while some material consumption (e.g. diesel consumption) remains positive in those years. These values are an artefact of comparing two independently optimised mine plans and reflect differences in mining sequence, pit development, haulage requirements and scheduling between the scenarios. The Project Only Scenario should not be taken as a standalone or physically achievable mining schedule as it is only used to isolate the greenhouse gas emissions attributable to the Project.* *For example, the Project changes the mine plan and life of mine schedule. As a result, activities such as overburden emplacement, haulage, rehabilitation, construction, decommissioning, clearing and other operations may occur at different times between the Baseline and Project scenarios and are not directly linked to annual ROM coal production or waste movement (i.e. even if ROM coal or waste are negative or 0 in the Project Only Scenario, it does not mean the same ROM coal or waste has been moved between the Baseline and Project Scenarios).*	Appendix G (Section 3.1).
41	**Likely magnitude of impacts** In Appendix G Section 7.2, a comparison has been made between the annual project-only emissions with both Queensland and national emissions reduction targets for 2030 and 2090. However, Section 3.4.2 of the *Queensland GHG Emissions Guideline* (GHG Emissions Guideline) requires a comparison of expected project GHG emissions with the remaining global, national, and state emissions budgets for medium to high emitters. These emissions budgets are cumulative. Notably, the project has a long operational phase (FY27-FY93), extending well beyond 2050.	Provide a comparison of expected project GHG emissions with the remaining global, national, and state emissions budgets. Consider including total project-only emissions in this assessment.	Queensland does not currently publish a detailed cumulative emissions budget or emissions projection framework that allows project level emissions to be compared against a defined state emissions budget (e.g. no sectorial data are presented to allow comparison of the Project with expected mining sector emissions). While Queensland has legislated emissions reduction targets, a quantified remaining emissions budget and associated allocation methodology are not available. Similarly, Whitehaven Blackwater considers that comparison of Project emissions against a global emissions budget would provide limited decision-making value, as the Project is located in Australia and is regulated through Australian policy and regulatory frameworks. Accordingly, Whitehaven Blackwater has undertaken a budget analysis against *Australia's Emissions Projections 2025* (Department of Climate Change, Energy, the Environment and Water [DCCEEW], 2025). The analysis was limited to 2035, as Australia's emissions budget analysis is only published to 2035 and national emissions projections are currently available only to 2040. In order to provide a comparison of Project-only emissions with the remaining natural budget (i.e. the gap between Australia's emission estimates and stated targets), the following paragraphs describe the total Project-only emissions as compared with the available emissions budget over the abovementioned periods.	Appendix G.

Item	Matter	Information Requested	Response	EA Amendment Application Reference
			The Project Only Scenario is estimated to generate approximately 0.1 million tonnes of carbon dioxide equivalent (Mt CO_2-e) between FY27 and FY30. Over the same period, Australia's remaining emissions budget is approximately 136 Mt CO_2-e, based on a 2030 emissions budget of 4,394 Mt CO_2-e and projected baseline emissions of 4,258 Mt CO_2-e (i.e. 4,394 minus 4,258 Mt CO_2-e). The Project Only Scenario would therefore account for less than 0.1% of the remaining budget and would have a negligible effect on Australia's projected emissions trajectory to 2030. Between FY31 and FY35, the Project Only Scenario is estimated to generate approximately 1.1 Mt CO_2-e. Australia's cumulative emissions budget for FY31 to FY35 is estimated at 1,248-1,395 Mt CO_2-e, while projected baseline emissions are approximately 1,678 Mt CO_2-e (i.e. an exceedance of approximately 20.3 to 34.5% against the projected baseline emissions). Inclusion of Project Only Scenario emissions would increase cumulative emissions exceedance marginally to approximately 20.4-34.5%. This change is negligible in the context of Australia's overall emissions trajectory and emissions budget. These results demonstrate that the Project's contribution to Australia's remaining emissions budget is comparatively small. While the Project would result in an increase in national emissions relative to the baseline scenario, the magnitude of this change is minor in the context of Australia's emissions budget and broader national emissions trajectory. On this basis no updates have been made to the GMAP.	

Item	Matter	Information Requested	Response	EA Amendment Application Reference
42	**Carbon offsets** Appendix G Chart 2 presents the facility's Safeguard Mechanism baseline (i.e. Scope 1 emissions reduction targets) and emissions projections. A significant volume of carbon offsets may be required to meet Safeguard obligations. However, information regarding carbon offset management (e.g. market availability and sources) has not been provided. According to the GHG Emissions Guideline (ESR/2024/6819), details about offsets should be provided in the GHG emissions reduction program and offsets should be sourced in Queensland where possible. Applications proposing to offset outside of Queensland must be justified by a report prepared by an appropriately qualified person outlining why offsets are not available within Queensland. Similarly, proposals to offset more than 30% of emissions must be supported by a report prepared by an appropriately qualified person outlining why avoidance, reduction and substitution measures cannot be utilised.	(a) Revise Appendix G Table 8, Safeguard Baseline for FY2047, FY2048 and FY2049 in accordance with the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015. (b) Provide a discussion on carbon offset management, availability of offsets, timing of offsets, estimated offset volumes and how offset will be verified or implemented.	Whitehaven Blackwater confirms that any emissions exceeding the facility's declining Safeguard Mechanism baseline would be managed through the retirement of Australian Carbon Credit Units (ACCUs) and/or Safeguard Mechanism Credits (SMCs), consistent with Commonwealth Safeguard Mechanism requirements. Should the purchase of ACCUs be required, Whitehaven Blackwater would preferentially consider sourcing ACCUs generated from Queensland based projects, subject to market availability, eligibility, timing and relative price at the time of procurement. Whitehaven Blackwater would seek to retire Queensland generated ACCUs where economically feasible and where doing so does not result in a cost premium relative to the prevailing market price of equivalent ACCUs or SMCs at the time of purchase. A review of ACCU issuance data published by the Clean Energy Regulator (CER) (2026) indicates that Queensland represents a substantial and growing source of ACCU generation. Since FY2013, Queensland based projects have generated approximately 24% of all ACCUs issued nationally (CER, 2026). In FY2025 alone, Queensland projects generated approximately 33% of all ACCUs issued, demonstrating an increasing contribution to national supply. Given the significant volume of ACCUs generated in Queensland, Whitehaven Blackwater considers that Queensland sourced ACCUs are likely to remain readily available, subject to normal market conditions (CER, 2026). *Australia's Emissions Projections 2025* (DCCEEW, 2025) indicate that ACCU issuance and demand are projected to remain broadly aligned through to 2040, suggesting sufficient credit availability (and surplus unit holdings) to meet forecast compliance demand. On this basis, Whitehaven Blackwater does not anticipate material constraints on the future availability of ACCUs or SMCs for compliance purposes. The GMAP was independently peer reviewed by Loop Decarbonisation Services (Loop), a suitably qualified greenhouse gas specialist (Loop, 2026). The peer review concluded that the GMAP is robust, satisfies the requirements of the Queensland Greenhouse Gas Guideline and demonstrates that reasonable and feasible avoidance, reduction and substitution measures have been identified and incorporated into the Project (Loop, 2026). Whitehaven Blackwater considers this peer review to satisfy the Guideline's requirement for a report prepared by an AQP to support circumstances where offsets may comprise more than 30% of the required emissions reductions.	Appendix G (Table 8).

Item	Matter	Information Requested	Response	EA Amendment Application Reference
43	**Safeguard baseline target** Appendix G Table 8, the anticipated safeguard baseline forecast for FY2047, FY2048 and FY2049 should be 100,000 t CO_2-e in accordance with the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.	Update Appendix G Table 8 anticipated safeguard baseline forecast values for FY2047, FY2048 and FY2049 in accordance with the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.	Table 8 and Chart 2 of the GMAP has been updated to reflect the minimum baseline provision in section 10(1) of the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015*. The FY2050 and later baseline remains zero, consistent with section 10(3). The following footnote has been included for context: *^ The calculated production adjusted baseline falls below 100,000 t CO2-e from FY2047 to FY2049 due to the declining emissions intensity forecast. In accordance with section 10(1) of the Safeguard Rule, the applicable safeguard baseline has been set to 100,000 t CO2-e for those years.*	Appendix G (Table 8 and Chart 2).

2.2 PRCP Schedule Amendment Application

Whitehaven Blackwater responses to the IR for PRCP Schedule Change application are presented in **Table 2**. A cross reference has been provided to relevant sections of the PRCP Planning document (including supporting technical studies), where required.

Table 2 Response to the DETSI Information Request for PRCP Schedule Amendment Application

Item	Matter	Information Requested	Response	PRCP Reference
	General			
1	Section 126D(2) of the EP Act mentions that the PRCP schedule may state that land is a non-use management area only if: (a) carrying out rehabilitation of the land would cause a greater risk of environmental harm than not carrying out the rehabilitation; or (b) both of the following apply - (i) the risk of environmental harm as a result of not carrying out rehabilitation of the land is confined to the area of the relevant resource tenure; (ii) the applicant considers, having regard to each public interest consideration mentioned in section 126E, that it is in the public interest for that land not to be rehabilitated to a stable condition. Section 126E of the EP Act requires that, for section 126D(2)(b)(ii), each of the following matters is a public interest consideration – (a) the benefit, including the significance of the benefit, to the community resulting from the mining activity or resource project the subject of the environmental authority application to which the PRCP schedule relates; (b) any impacts, including long-term impacts for the environment or the community, that may reduce the benefit mentioned in paragraph (a) or have other negative impacts on the environment or community; (c) whether there are any alternative options to approving the area as a non-use management area having regard to – (i) the costs or other consequences of the alternative options; and	Provide an updated Planning Part that includes sufficient information to demonstrate the requirements of either section 126D(2)(b)(i) or section 126D(2)(b)(ii) and 126E of the EP Act, for the proposed extent of Mimosa/Besgrove, Stewarton North and Stewarton South NUMAs.	Whitehaven Blackwater considers that the proposed NUMAs are capable of satisfying both the section 126D(2)(a) and section 126D(2)(b) pathways available under the EP Act. However, Whitehaven Blackwater considers that section 126D(2)(b), together with the public interest considerations contained in section 126E, provides the most appropriate basis for assessment of the proposed NUMAs. Following further review of the proposed NUMAs, supporting technical assessments and the applicable statutory framework, Whitehaven Blackwater has updated the PRCP to assess and justify the proposed NUMAs against sections 126D(2)(b)(i) and 126D(2)(b)(ii) of the EP Act. Section 3.4 of the PRC Plan has been updated to: • demonstrate that environmental risks associated with the proposed NUMAs are confined to the relevant resource tenure, consistent with section 126D(2)(b)(i); and • assess the proposed NUMAs against each of the public interest considerations contained in section 126E, including consideration of alternative rehabilitation options and their associated costs and consequences, consistent with section 126D(2)(b)(ii). Based on the updated assessment, Whitehaven Blackwater considers that the proposed NUMAs satisfy the requirements of sections 126D(2)(b)(i) and 126D(2)(b)(ii) of the EP Act and that it is in the public interest (section 126E) for the land comprising these proposed NUMAs not to be rehabilitated to a stable condition.	Table 3-23.

Item	Matter	Information Requested	Response	PRCP Reference
	(ii) the impact of the costs or other consequences on the financial viability of the mining activity or resource project; (d) whether the benefit to the community mentioned in paragraph (a), weighed against the impacts mentioned in paragraph (b), is likely to justify the approval of the non-use management area having regard to any alternative options mentioned in paragraph (c); (e) another matter prescribed by regulation. Section 3.4.2 of the PRCP Revision 3 mentions that the proposed NUMA footprint of the Mimosa/Besgrove residual void increases by 140 ha, and the combined Stewarton North and South residual voids increase by 131 ha compared to the single Stewarton residual void in PRCP Revision 2. The proposed NUMA's are of a greater extent to that approved in the PRCP schedule version 1 for Blackwater mine. The updated PRCP Revision 3 provided with the amendment application does not include sufficient information that demonstrates either requirement of section 126D(2).			
	Flooding			
2	**NUMA** Figure 3-31 to section 3.5.1 of the PRCP Revision 3 has Deep Creek, Stewarton North, Stewarton South and Mimosa/Besgrove voids shown as 'pre-approved NUMAs'. The PRCP schedule (P-PRCP-100758455_V1) does not authorise additional residual void created by the proposed Blackwater North Extension Project (BNEP). As the proposed BNEP extensions were not part of the previously approved disturbance, they cannot not be treated as pre-approved NUMAs.	(a) Provide an updated Planning Part to clarify that Deep Creek, Stewarton North, Stewarton South and Mimosa/Besgrove voids shown in Figure 3-31 are proposed as NUMAs (b) Provide a map to distinguish between the existing approved residual void, NUMA boundaries and additional residual-void and proposed NUMA area arising from the BNEP.	**a)** The text in Section 3.4.2 of the PRCP has been updated to clearly identify the Deep Creek, Stewarton North, Stewarton South and Mimosa/Besgrove residual voids and associated NUMA boundaries presented in Revision 3 as proposed, reflecting the revised mine sequencing and final landform design for the Project. **b)** A new figure has also been incorporated into Section 3.4.2 of the PRCP (Figure 3-32). Figure 3-32 compares the approved Revision 2 NUMA boundaries for Deep Creek, Stewarton and Mimosa/Besgrove with the proposed Revision 3 NUMA boundaries for Deep Creek, Stewarton North, Stewarton South and Mimosa/Besgrove NUMA boundaries arising from the revised mine sequencing and final landform design for the Project. Figure 3-32 also compares the Revision 2 residual void extents with the proposed Revision 3 residual void extents, clearly identifying the changes proposed as part of Revision 3.	Section 3.4.2. Figure 3-32.

Item	Matter	Information Requested	Response	PRCP Reference
3	**Floodplain and final landform** Appendix 4.5 identifies the statutory 0.1% AEP floodplain extent using pre-mining conditions, excluding pits, levees, waste rock dumps, diversions and other artificial features. Section 6.3 identifies Deep Creek void located partially within a floodplain. According to Section 126D(3) of EP Act, if the land subject of the proposed PRCP schedule will contain a void situated wholly or partially in a flood plain, the schedule must provide for rehabilitation of the land to a stable condition. Section 3.6.3 of the PRCP Guideline (ESR/2019/4964) mentions that a proposed void in a flood plain must provide for the rehabilitation of the void to a stable condition, that is, it must be safe and structurally stable; there is no environmental harm being caused by anything on or in the land; and the land can sustain a PMLU (section 126D(3) of the EP Act).	Provide an updated Planning Part and PRCP schedule to demonstrate that the proposed Deep Creek void mapped in the statutory 0.1% AEP flood plain will be rehabilitated to a stable condition, that is, it must be safe and structurally stable; there is no environmental harm being caused by anything on or in the land; and the land can sustain a PMLU in accordance with section 126D(3) of the EP Act. Alternatively, demonstrate that the proposed Deep Creek void or the associated NUMA is outside the statutory floodplain.	The proposed Deep Creek void and associated landforms are subject to multiple design, assessment, monitoring and certification requirements within the proposed PRCP Schedule that have been specifically developed to ensure achievement of a stable condition. These requirements include: • preparation and maintenance of an AQP-certified Closure Landform Design Report (PRCP12 and PRCP13); • preparation of permanent diversion Design Plans (PRCP14); • completion of flood susceptibility and impact assessments addressing extreme flood events and flood interactions with final landforms (PRCP15 and PRCP17); • implementation of any additional flood protection measures or design modifications identified through the flood assessment process (PRCP16); • rehabilitation milestone criteria requiring construction in accordance with certified designs, achievement of geotechnical stability, erosion control and flood protection measures (RM3); and • long-term monitoring, assessment and certification requirements under RM6, RM7 and RM8. Collectively, these requirements provide a structured framework to ensure that final landforms remain safe, structurally stable and non-polluting, and are capable of supporting their approved PMLU. The flood protection landforms would be constructed within the Cattle Grazing PMLU, providing separation between the 0.1% AEP flood for a 2100 climate scenario and the Deep Creek void and NUMA. This is demonstrated in Figure 3-31, which show revised NUMA boundaries that exclude the flood protection landforms. Concept design drawings for the Deep Creek flood protection landforms are provided in *Levee and Flood Protection Landform Concept Design – Blackwater North Extension Project* (TerraQ, 2026) prepared in response to Item 33(c) of the IR issued by DETSI in relation to the approval application for the Project (included in **Appendix C** of the Response to Information Request). The designs provide nominal geometry, crest elevations, freeboard and areas anticipated to require additional erosion protection where predicted velocities exceed the adopted vegetation-resilience thresholds. The proposed flood protection landform batters adopt a 1V:4H batter design to minimise instability. Where spatial constraints require a flood protection landform to be constructed near the highwall crest, the adjacent void would be partially backfilled to form a 30% slope. This would support long -term highwall stability and reduce the risk of highwall failure affecting the integrity of the flood protection landform.	PRCP Schedule. Figure 3-31.

Item	Matter	Information Requested	Response	PRCP Reference
			The concept designs demonstrate the flood protection landforms can be rehabilitated to a stable condition and would sustain a PMLU. The design would be subject to AQP review and revision in accordance with the requirements of the PRCP Schedule listed above.	
4	Appendix 4.6 Figures 6.7 and 6.9 shows that the final landform is predicted to prevent 0.1% AEP flood ingress in Stewarton North final void. It appears that hydraulic model is using hard lines and an assumed final terrain to prevent flood ingress at the eastern edge of Stewarton North void. Similar hard lines are noted in the northeastern and southeastern boundary of Deep Creek final void. Figures 6.7 and 6.9 does not demonstrate that Stewarton North and Deep Creek final voids or the associated NUMA are outside the floodplain. To ensure that the Blackwater PRCP provides for NUMAs to be managed in a way that achieves best practice management of the area and minimises risks to the environment as per section 176A(b)(ii) of the EP Act, the department would expect that the proposed NUMAs achieve flood immunity from the 0.1%AEP flood extent. This is with consideration of MM4.7 of the Blackwater PRCP schedule.	(a) Demonstrate that the proposed Stewarton North and Deep Creek final void and the associated NUMA is outside the 0.1% AEP floodplain. (b) Explain why sharp terrain boundaries have been used to terminate floodwater flow and velocity in Figure 6.7 and 6.9 of Appendix 4.6.	**a)** Figure 3-31 and Figure 3-67 of the PRCP has been updated to show revised NUMA boundaries which now exclude the flood protection landforms from the NUMA footprints. The previous NUMA boundaries incorporated flood protection landforms, which inadvertently gave the impression that the modelled 0.1% AEP flood extent was being constrained by, or terminated at, the NUMA boundary. The revised Figure 3-31 and Figure 3-67 now clearly shows a nominal 50 m separation between the proposed NUMA boundaries and the modelled 0.1% AEP flood extent. **b)** The apparent sharp terrain boundaries identified in Appendix 4.6 Figures 6.7 and 6.9 are associated with the flood protection landforms incorporated within the final landform design. These are now captured within the surrounding Cattle Grazing PMLU rather than the NUMA footprint. Accordingly, the NUMA boundaries themselves are not, and have never been, the cause of the apparent sharp terrain boundaries observed in the flood modelling.	Figure 3-31 and 3-67. Appendix 4.6 (Figures 6.7 and 6.9).

Item	Matter	Information Requested	Response	PRCP Reference
5	**Spatial inconsistency** A material spatial issue exists between the submitted figures as follows: The PRCP Figure 3-66 shows the Stewarton void is immediately adjacent to Two Mile Gully, with only a relatively narrow area between. Appendix 4.6 Figure 6.7 shows a substantially wider elevated landform between the Two Mile Gully and the Stewarton North void, with floodwater terminating against a sharp terrain boundary. Appendix 4.6 Figure 6.9 shows the same abrupt hydraulic separation in the velocity results. Some difference is expected because Figure 3-66 is a general site layout figure, whereas Appendix 4.3 Figures 6.7 and 6.9 represent proposed final landform. However, the documents do not demonstrate that consistent void boundaries, NUMA boundaries, creek alignments and final terrain datasets have been used.	(a) Provide explanation for the inconsistencies in spatial features between PRCP figure 3-66 and Appendix 4.6 Figure 6.7 and 6.9. (b) Provide supporting information including cross-sections, final terrain data and spatial reconciliation of void and NUMA boundaries.	**a)** The apparent inconsistency arises because Figure 3-66 (updated to Figure 3-67) of the PRCP is intended to depict the proposed NUMA footprint, whereas Appendix 4.6 Figures 6.7 and 6.9 are thematic outputs derived from the flood modelling and therefore primarily depict the final terrain surface, flood protection landforms and residual void features relevant to the hydraulic assessment. As discussed in Item 4, the previous Figure 3-66 incorporated portions of the flood protection landforms within the NUMA footprint. This unintentionally created the impression that the NUMA boundaries, residual void boundaries and flood modelling features were aligned. Figure 3-66 has been updated (Figure 3-67) to exclude the flood protection landforms from the NUMA footprint, thereby providing clearer separation between the residual voids, flood protection landforms, NUMA boundaries and the modelled flood extent. **b)** Concept design drawings, including cross-sections and contour plans, for the Deep Creek and Stewarton North flood protection landforms are provided in *Levee and Flood Protection Landform Concept Design – Blackwater North Extension Project* (TerraQ, 2026) prepared in response to Item 33(c) of the IR issued by DETSI in relation to the approval application for the Project (included in **Appendix C** of the Response to Information Request). These concept designs would be subject to AQP review and revision in accordance with the PRCP Schedule requirements listed in the response to IR Item 3. Revised NUMA boundaries, excluding the flood protection landforms from the NUMA footprints, are provided in Figure 3-32, Figure 3-63 and Figure 3-67 of the PRCP. These documents when viewed together demonstrate the apparent inconsistencies between the proposed NUMA boundaries and the hydraulic assessment have been rectified.	Figures 3-31, 3-32, 3-63 and 3-67.

Item	Matter	Information Requested	Response	PRCP Reference
6	**Stability evidence** The predicted flood immunity depends on the proposed flood protection landforms being constructed. Appendix 4.6 Section 6.3.4 briefly discusses erosion risk using modelled velocity and a 2.5 m/s threshold. According to section 126C(1)(f) of the EP Act, the planning part of the PRC plan must identify the risks of a stable condition for land described as a post-mining land use not being achieved, and how the applicant intends to manage or minimise the risks. Additionally, section 3.6.3 of the PRCP Guideline (ESR/2019/4964) mentions that, if floodwaters are likely to move over backfilled material, an assessment of the hydraulic properties must be conducted to assess whether instability may occur. If instability is possible, modification to the landform design of the backfilled voids may be required. If floodwaters are allowed to enter the void this may compromise the stability of the wall, which can increase the volume of floodwater entering the void. Where relevant, consideration must be given to the impacts of floodwater interaction on erosion potential. Details of the ability of the final landform to remain stable under floodwater interaction and the erosion risk has not been provided	Consistent with the PRCP Guideline (ESR/2019/4964) Sections 3.6, 3.6.1 and 3.7, the PRCP must address the following topics to demonstrate that the final landform will remain stable under flooding and that the erosion risk has been minimised or managed: i. Final geometry, crest elevation and freeboard ii. Erosion and scour iii. Settlement and geotechnical stability	Whitehaven Blackwater notes that the proposed PRCP Schedule contains a number of integrated controls intended to ensure long-term hydraulic, erosional and geotechnical stability of the final landform. These include: • Closure Landform Design Report requirements prepared and certified by an AQP (PRCP12 and PRCP13); • permanent diversion design requirements prepared by a Registered Professional Engineer of Queensland (PRCP14); • flood susceptibility and impact assessments that evaluate flood interactions with residual voids, flood protection landforms and diversions (PRCP15 and PRCP17); • requirements for updated designs and flood protection measures where assessments identify an unacceptable level of risk (PRCP16); • rehabilitation milestone criteria requiring geotechnical stability, erosion control, flood protection measures and independent certification of achievement (RM3); and • ongoing monitoring and performance assessment requirements under RM6, RM7 and RM8. Collectively, these requirements provide a structured framework to ensure that final landforms remain safe, structurally stable and non-polluting, and are capable of supporting their approved PMLU. Concept design drawings for the Deep Creek and Stewarton North flood protection landforms are provided in *Levee and Flood Protection Landform Concept Design – Blackwater North Extension Project* (TerraQ, 2026) prepared in response to Item 33(c) of the IR issued by DETSI in relation to the approval application for the Project (included in **Appendix C** of the Response to Information Request). The designs include seepage, piping and erosion control measures and provide nominal geometry, crest elevations, freeboard and areas anticipated to require additional erosion protection where predicted velocities exceed the adopted vegetation-resilience thresholds. The proposed flood protection landform batters adopt a 1V:4H batter design to minimise instability. Where spatial constraints require a flood protection landform to be constructed near the highwall crest, the adjacent void would be partially backfilled to form a 30% slope. This would support long -term highwall stability and reduce the risk of highwall failure affecting the integrity of the flood protection landform. The concept designs would be subject to AQP review and revision in accordance with the requirements of the PRCP Schedule listed above to confirm stability would be minimised or managed under flooding conditions.	PRCP Schedule.

Item	Matter	Information Requested	Response	PRCP Reference
	Groundwater			
7	Appendix 4.2 – *PRCP Plan Hydrogeology Assessment – Revision 3* prepared by SLR in May 2026 does not include model construction and calibration details. Details of the numerical groundwater model construction and calibration should be included in the PRCP documentation.	Provide details of model construction and calibration to support the hydrogeology assessment in Appendix 4.2.	The Groundwater Modelling Technical report, produced to support the Project, was the model utilised for the assessment. This report has now been included as Appendix B, of the PRCP Hydrogeology Assessment – Revision 3.	Appendix B.

Item	Matter	Information Requested	Response	PRCP Reference
8	Section 3.8.4.3 of the PRCP Revision 3, in Table 3-74, has bore MB21 incorrectly identified as monitoring the Tertiary sediments. The following matters are noted from the 'Preliminary Hydrogeological Review and Investigation: Bottom Dam Tailings Storage Facility & Sirius Creek prepared by SLR 7 April 2025 (Hydrogeological Review).In Table 4-1 of the hydrogeological assessment (Appendix 4.2), MB21 is identified as being screened between 25 and 31 m. In the Hydrogeological Review, Table 2-1 identified that there was no log for MB21, and they were unable to identify a screened unit for this bore. Furthermore, the Hydrogeological Review stated that more recent co-located drilling indicates that the unit of Tertiary may be mis-attributed to this aquifer. In the same report, monitoring bore BWM_MB135_02 is identified as being located adjacent to MB21. The coordinates provided for MB21 and BWM_MB135_02 indicate that they are approximately 10m apart. BWM_MB135_02 is screened between 17 and 23 m in coal and siltstone in what appears to be the Rangal Coal Measures based on the drilling log. It appears clear that MB21 is not monitoring the Tertiary. Additionally given the lack of knowledge of the construction details for MB21, it is recommended that it be replaced by BWM_MB135_02. In a previous response to Information Request Notice (IRN) for PRCP application dated 19 December 2025, Blackwater's response to Item 4 was that dataset from BWM_MB21_02 bore (representing Rangal Coal Measures) was used for calibrating the model. Bore BWM_MB21_02 does not appear to be the same or near bore MB21. MB21 is 31m deep while BWM_MB21_02 is 129m deep. BWM_MB21_02 appears to be about 8km south of MB21. The response appears to be mixing up bore MB21 with BWM_MB21_02.	The following is sought; (a) To allow continuity of data, MB21 is to be retained in Table 3-74 of the PRCP Revision 3, with an amended hydrogeological unit (e.g. Rangal Coal Measures). (b) BWM_MB135_02 is to be included in Table 3-74 of PRCP Revision 3.	BWM operates under EA EPML00717813, and Table 3-74 is aligned with the EA monitoring regime (Table I1 under Schedule I, Condition I5). Section 202E of the EP Act states that where an inconsistency exists between an EA and a PRCP schedule, the EA prevails to the extent of that inconsistency. Accordingly, it is appropriate that the PRCP is aligned with the EA conditions. It is acknowledged that MB21 is not a suitable monitoring bore due to the absence of logging information required to confirm the screened unit. Consequently, MB21 has been excluded from the model calibration dataset and therefore has not influenced the findings of the assessment, however it is still included in the EA. Whitehaven Blackwater is currently undertaking a groundwater monitoring network review to develop an appropriate monitoring network that satisfies EA requirements. The review assesses the suitability of existing bores, including bore condition, location, completeness of construction details, operational longevity, and overall network coverage. Consideration is also being given to spatial and aquifer representation, as well as alignment with potential receptors. Importantly, the review is also evaluating the suitability of the monitoring network for the post-closure environment. During this study, it was identified that MB21, and consequently BWM_MB135_02, are located within the mining disturbance area and would ultimately be destroyed as part of mining activities. As a result, these bores are not proposed for inclusion in the revised EA monitoring network. It is therefore not recommended that Table 3-74 be amended at this stage, as it currently reflects the EA compliance monitoring bores. The outcomes of the ongoing network review would inform the development of an EA-prescribed monitoring network that is suitable for the post-closure environment and consistent with PRCP requirements, the DES (2021) guidelines, and the EP Act. Once the EA has been updated, the PRCP would be amended accordingly to reflect the revised monitoring network and requirements.	N/A

Item	Matter	Information Requested	Response	PRCP Reference
9	Section 3.8.4.3 of PRCP Revision 3 - Table 3-74, identifies bore BWM_MB15_01 as monitoring the Tertiary sediments. Appendix 4.2 Table 4-1 also identifies BWM_MB15_01 as a tertiary bore with screened internal depth of 10.43 - 16.43m. In a previous correspondence with BHP Mitsubishi Alliance (BMA), DETSI were sent an email on 2 February 2024 advising that bore BWM_MB15_01 is also known as BWMMB15_01_HY. A drilling log for BWMMB15_01_HY was provided to DETSI in that email which indicated that the bore is 34m deep and is screened between 26 – 34m, opposite a coal seam. There appears to be conflicting information regarding the strata log for BWM_MB15_01. DETSI does not hold a drill log that supports the interpretation of BWM_MB15_01 as a tertiary bore and therefore requires confirmation that the bore is monitoring the strata identified in Table 3-74 of PRCP Revision 3 and Table 4-1 of Appendix 4.2.	(a) Clarify, if DETSI should disregard the drilling log for BWMMB15_01_HY previously provided by BMA on 2 February 2024. (b) If the above drill log for BWMMB15_01_HY is disregarded, then provide drill log for bore BWM_MB15_01, demonstrating that it is monitoring the tertiary sediments.	**a)** SLR has no record of a bore BWMMB15_01_HY, constructed to 34 m, screened between 26 to 34 m. Please disregard the drilling log for BWMMB15_01_HY previously provided by BMA on 2 February 2024. **b)** Please see the drill log for bore BWM_MB15_01 in **Appendix B** (Figure B-3), demonstrating that it is monitoring the tertiary sediments.	N/A

Item	Matter	Information Requested	Response	PRCP Reference
10	Section 3.6.3 of the PRCP Guideline (ESR/2019/4964) specifies the requirements for a void closure plan including: ▪ void hydrology, addressing the long-term water balance and water level in the voids ▪ predicted water quality in the long-term including potential stratification. Appendix 4.14 – *Void Closure Plan*, prepared by ERM June 2026 (Void Closure Plan) provides summaries of some information about the void. However, the plan does not provide predicted water quality in the residual voids in the long-term. Additionally, Appendix 4.14 provides a predicted equilibrium water level in each void, which is referenced back to Appendix 4.2 – *PRCP Plan Hydrogeology Assessment – Revision 3* prepared by SLR in May 2026 (the groundwater report). The appendix does not provide predictions of changing water levels in the voids over time. The changing void water levels over time are predicted in the groundwater report but they should also be provided in the Void Closure Plan to demonstrate agreement between the surface water balance and the numerical groundwater model predictions.	Provide an updated Void Closure Plan that includes: (a) predictions of residual void water quality over the long-term; and (a) predictions of changing water levels in the residual voids overtime.	**a)** The Void Closure Plan has been updated to include long-term predictions of residual void water quality for the modelled residual voids. Time-series data and associated figures for relevant water quality parameters, including pH, EC, total dissolved solids, major ions, metals and metalloids, are provided in Appendix A of *Void Closure Plan* (ERM, 2026). **b)** The Void Closure Plan has also been updated to include predicted residual void water level trajectories over the simulation period. The HydroBalance (2026) modelling results presented in WRM (2026b) are provided in PRCP Appendix 4.6 and have been incorporated into the updated Void Closure Plan. These results demonstrate the predicted evolution of residual void water levels over time and provide consistency between the void water balance and groundwater modelling assessments.	Void Closure Plan.
11	Appendix 4.14 regularly references WRM (2026c). For example, in section 6.2 of Appendix 4.14 it states: *Predicted residual void lake levels for all residual voids are plotted in WRM (2026c) and summarised in Table 4-1*. In Appendix 4.14 References, WRM (2026c) is described as: *Blackwater Mine Final Void Water Balance.* Report no: 1559-10-D1. 20 May 2026. WRM (2026c) is also referenced a number of times in PRCP Revision 3. It seems that WRM (2026c) should be included in the PRCP appendices.	Provide a copy of WRM (2026c) in the PRCP appendices.	A copy of WRM (2026b), *Blackwater Mine Final Void Water Balance* is included as a new appendix to the PRCP (refer PRCP Appendix 4.6). This report is referenced throughout the PRCP and provides the supporting water balance analysis underpinning the Void Closure Plan and associated assessments.	Appendix 4.6.

Item	Matter	Information Requested	Response	PRCP Reference
12	Appendix 4.2 – *PRC Plan Hydrogeology Assessment – revision 3*, Section 8.2.4 states: *The equilibrium sink behaviour of the residual voids is driven by evaporative losses from the void lakes predicted by the Hydrobalance (2025) water balance model.* Hydrobalance 2025 is referenced in the Void Closure Plan by ERM dated 17 December 2025 where landform design 3.6.1 is referenced. In the most recent Void Closure Plan by ERM 11 June 2026 where the updated landform design 4.2 is referenced, ERM references Hydrobalance 2026. There is concern that the groundwater modelling has utilised information from a version of the Hydrobalance report (2025) which relates to an older version of the final landform including different void configurations around Stewarton and Deep Creek voids.	(a) Advise as to which version of the void closure modelling the groundwater modelling has utilised. (b) If the groundwater modelling has not utilised the Hydrobalance 2026 water balance model, provide an updated groundwater model to reflect Hydrobalance 2026 or justification otherwise as to how might this impact the predictions provided in Appendix 4.2.	**a)** The groundwater modelling utilised the Hydrobalance (2026) water balance model. The reference to Hydrobalance (2025) in Section 8.2.4 of the PRCP Hydrogeology Assessment – Revision 3 was a typographical error. **b)** The groundwater model was developed using the current final landform configuration and the Hydrobalance (2026) water balance modelling outputs. Accordingly, the groundwater modelling results and associated findings remain valid, and no updates to the predictions or conclusions are required. The erroneous reference has been corrected in PRCP Hydrogeology Assessment – Revision 3 to reflect the use of Hydrobalance (2026).	Appendix 4.2.
13	Appendix 4.2 Figure 8-37- Predicted groundwater elevations in the Burngrove Formation at post mining equilibrium is said to represent the predicted groundwater elevation contours in the Burngrove Formation (layer 14) at post mining equilibrium. Details of the model construction are not provided in Appendix 4.2, but reference is made to SLR 2026b North Extension model report. In that report model layer 14 is defined as representing the Orion seam of the Rangal Coal Measures not the Burngrove Formation. The Burngrove Formation is represented by model layer 16.	Provide advice as to what Figure 8-37 in Appendix 4.2 represents. If it does not represent the Burngrove Formation provide an additional figure showing the predicted groundwater elevations in the Burngrove Formation at post mining equilibrium.	During review, it was identified that Figure 8-37 was based on outputs from Model Layer 14 rather than the Burngrove Formation, which is represented by Model Layer 16 in the groundwater model. Figure 8-37 has been updated using the correct model outputs and replaced in the PRCP Hydrogeology Assessment – Revision 3.	Figure 8-37.

3. References

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SLR Consulting Australia Pty Ltd (2026) *Blackwater North Extension Project – Groundwater Impact Assessment*

TerraQ (2026) *Levee and Flood Protection Landform Concept Design: Blackwater North Extension Project*

Terrenus Earth Sciences (2026) *Geochemical Assessment of Potential Spoil and Coal Reject Materials – Blackwater North Extension Project*

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Whitehaven Coal Limited (2026c) *Blackwater North Extension Project – Environmental Authority Amendment Supporting Document*

Whitehaven Coal Limited (2026d) *BWM Plan – Water Management Plan*

WRM Water and Environment Pty Ltd (2026a) *Blackwater North Extension Project – Surface Water Resources Assessment*

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Whitehaven

Blackwater North Extension Project

Appendix A
Blackwater Mine Management Plans



Whitehaven

WHC-BWM-PLN-AIR QUALITY MANAGEMENT PLAN		
Whitehaven	Document Owner: Superintendent Environment Document Approver: Manager Environmental & Rehabilitation Revision Period: 60 Months	Issue: 1.1 Last Revision Date: October 2026

BWM Air Quality Management Plan

Approval	Name	Position	Date
Document Owner:	Mark Gastaldon	Superintendent Environment	1/10/2026
Authorised by:	Daryl Robinson	Manager Environment & Rehabilitation	1/102026

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1. Introduction

1.1 Overview of approved operations

Blackwater Coal Mine (BWM) is an open cut mining operation located approximately 200 km west of Rockhampton and produces up to 19 Mtpa of ROM coal from a strike length extending approximately 80 km.

BWM produces thermal and metallurgical coal from open-cut pits using draglines and truck-and-shovel pre-strip fleets. Drilling and blasting of overburden and interburden material enables the efficient excavation of overburden material using dragline or conventional truck and shovel fleets in addition to both dragline and dozer fleets. The BWM is operational on both dayshift and nightshift, 7 days per week.

Existing infrastructure includes a Train Load-out Facility (TLF) and product coal stockpiles, RoM stockpiles, Coal Handling and Preparation Plant (CHPP), mobile plant maintenance facilities, water management infrastructure and other supporting infrastructure such as roads, powerlines, laydown areas, workshop and administration areas

The BWM is a joint venture between:

- Whitehaven Coal Limited (Whitehaven) (70 %)
- Nippon Steel Corporation (20%)
- JFE Steel Corporation (10%)

Whitehaven Blackwater Pty Ltd (Whitehaven Blackwater), a wholly owned subsidiary of Whitehaven, is the operator of the BWM.

2. Legislative Requirements

The general requirements and commitments associated with this Air Quality Management Plan (AQMP) are defined within the BWM ***Environmental Authority (EA) EPML00717813*** and are outlined below. These conditions are also included in ***Appendix B.***

Table 1 Relevant air quality conditions in the BWM Environmental Authority

Condition #	Condition
Schedule A, Condition A2	**Prevent and /or minimise likelihood of environmental harm** In carrying out the environmentally relevant activities, the environmental authority holder must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this environmental authority.
Schedule A, Condition A11	**Monitoring on Request** When requested by the administering authority, the environmental authority holder must investigate any nuisance, or contaminant release, or environmental harm, or complaint that is neither frivolous nor vexatious in the opinion of the authorised person, by: a) undertaking the monitoring specified by the administering authority; b) undertaking the monitoring in the timeframe nominated or agreed to by the administering authority; c) completing an analysis and interpretation of the monitoring results; and d) implementing abatement measures, where required.
Schedule B, Condition B1	**Odour nuisance** The release of noxious or offensive odour or any other noxious or offensive airborne contaminant resulting from the mining activities must not cause an environmental nuisance, at any sensitive place or commercial place.
Schedule B, Condition B2	**Odour nuisance** If the administering authority determines odour released from the mining activities to constitute an environmental nuisance, the environmental authority holder must immediately implement abatement measures so that emissions from the mining activities do not result in further environmental nuisance.

Schedule B, Condition B3	**Dust nuisance** The release of dust or particulate matter or both resulting from the mining activities must not cause an environmental nuisance, at any sensitive place or commercial place.
Schedule B, Condition B4	**Dust Nuisance** Monitoring of dust and particulate matter resulting from the mining activities, undertaken in accordance with condition A11, must be carried out at a place relevant to the potentially affected sensitive place or commercial place and must not exceed the following levels when measured at any sensitive place or commercial place: (a) dust deposition, measured as total insoluble matter, of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air –Determination of particulate matter – Deposited matter – Gravimetric method. (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of either: *i. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method; or* *ii. Australian Standard AS3580.9.8 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser; or* *iii. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 low volume sampler –Gravimetric method; or* iv. *Australian Standard AS3580.9.11 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 beta attenuation monitors.* *NOTE: Exceedances due to events that cannot be managed by the environmental authority holder, such as bushfires, fuel reduction burning for fire management purposes or dust storms, would not be considered to be in breach of condition B4 if the environmental authority holder can demonstrate that the exceedance was caused by such events.*
Schedule B, Condition B5	**Dust nuisance** If monitoring, undertaken in accordance with condition A11, indicates exceedance of the relevant limits in condition B4, the environmental authority holder must immediately implement abatement measures so that emissions from the mining activities do not result in further environmental nuisance.

Other relevant EA conditions to the AQMP are outlined below:

Table 2 Alternative Arrangements in the BWM Environmental Authority

Condition #	Condition
Schedule A, Condition A10	A register of alternative arrangements must be established and maintained by the environmental authority holder. The register must include: a) the location to which the alternative arrangement applies; b) the period of the alternative arrangement; c) details about the particular environmental nuisance impact or impacts the arrangement is for; and d) details about the mitigation measures, where relevant.

Table 3 Key Definitions in the BWM Environmental Authority

Condition	Definition
Alternative Arrangement	a) A written agreement: i. between the environmental authority holder and a third party; ii. that identifies a particular type(s) of environmental nuisance; iii. about the way in which the particular environmental nuisance impact(s) will be dealt with; iv. at a particular location; and v. for a defined period of time. b) An alternative arrangement must make clear to the third party that by entering in to the agreement that: i. their place will be excluded as a sensitive place or commercial place; and ii. the consequences of exclusion as a sensitive place or commercial place.
Sensitive Place	a) Any of the following: i. a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or ii. a motel, hotel or hostel; or iii. an educational institution; or iv. a medical centre or hospital; or v. a protected area; or vi. a public park or gardens. b) Despite paragraph (a), the following places are not sensitive places: i. subject to paragraph (c), a place that is the subject of an alternative arrangement; or ii. a mining camp (i.e. accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority), whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the environmental authority holders for the mining project, or a related company; or iii. a property owned or leased by one or more of the environmental authority holders, or a related company, whether or not it is subject to an alternative arrangement. c) A place that is the subject of a current alternative arrangement in relation to a particular type(s) of environmental nuisance, is not a sensitive place for the purposes of that type(s) of environmental nuisance, however remains a sensitive place for the purpose of other types of environmental nuisances.
Commercial Place	a) A work place that is used as: i. an office; or ii. a place of business; or iii. a place used for commercial purposes. b) Despite paragraph (a), the following places are not commercial places: i. subject to paragraph (c), a place that is the subject of an alternative arrangement; or ii. places that are part of the mining activity; or iii. employees accommodation or public roads; or iv. a property owned or leased by one or more of the environmental authority holders, or a related company, whether or not it is subject to an alternative arrangement. c) A place that is the subject of a current alternative arrangement in relation to a particular type(s) of environmental nuisance, is not a commercial place for the purposes of that type(s) of environmental nuisance, however remains a commercial place for the purpose of other types of environmental nuisances.

Standards, guidelines and additional legislation relevant to the preparation this AQMP and the management of air quality impacts from BWM are available in ***Section 10*** and include:

- ***Environmental Protection Act 1994 and Environmental Protection Regulation 2019 (QLD)***
- ***Environment Protection (Air) Policy 2019***

- ***Environment Protection (Air) Amendment Policy 2024***
- ***National Environmental Protection (Ambient Air Quality) Measure 2021***

2.2 Purpose

The purpose of this AQMP is to provide an overview of, and direction to the systems, processes and documentation that have been established to:

- ensure compliance with operating conditions of all active approvals;
- minimise the impacts from mining activity on the environment and nearby sensitive / commercial places;
- evaluate and report on the effectiveness of the AQMP system; and
- maintain an effective response mechanism to deal with any elevated measurements, exceedances and complaints.

2.3 Scope

The scope of this AQMP applies to all mining activities at BWM under the current approval ***EPML00717813***. The current operational area of the mining leases is referred to as “Blackwater North”.

2.4 Management Systems

The BWM as a Whitehaven operation, has well-established management systems. These management systems provide the framework to support the planning, implementation, monitoring and review to achieve continual improvement in air quality management from mining activities. To minimise the impacts of these activities a risk-based approach has been established, which includes mechanisms for predictive forecasting and monitoring, providing feedback on the effectiveness of controls and enabling adaptive air quality management.

3. Risk Management

BWM implements a comprehensive risk management system as documented in the Whitehaven Coal HSE Risk Management Standard (***WGRP-WH-STD-Risk Management***) and the Whitehaven Coal HSE Risk Management Procedure (***WGRP-WH-PRO-HSE Risk Management***). Air quality risks associated with Operational Environmental Non-compliance (***RSK-0000140***) and their associated control measures are summarised in ***Section 5*** of this Management Plan. Operational and project related changes that have the potential to materially alter the air quality management risk profile are managed through the Whitehaven Coal Management of Change Standard (***WGRP-WH-PRO-Management of Change***).

4. Baseline Meteorological Conditions

The generation, dispersion, transformation and eventual removal of pollutants from the atmosphere is dependent on the prevailing meteorology. BWM is located in a semi-arid climatic zone, which is characterised by high summer temperatures, warm dry winters and a distinct wet and dry season; with higher rainfall and higher evaporation occurring over the summer months (December to February).

Wind records for Emerald Airport for January-April show an easterly predominance of moderate strength (1-20 km/h), with south-easterlies dominating in May-July. East to north-easterly winds predominate for August-December with strong gusts increasing from October to December over 100km/h. Daily mean wind speeds are consistently of moderate strength (1-20 km/h).

Continuous meteorological monitoring is conducted at BWM at the three meteorological sites. These are the Northern, Central, and Southern AWS. The locations of the Central and Northern AWS and the location of real-time dust monitors are presented in ***Figure 1***. Data recorded at these stations is used to identify ‘adverse meteorological conditions.

Temperature Inversions: Characterised by calm conditions and the development of low-level temperature inversions (typically in winter) that trap dust close to the Earth’s surface. Air quality impacts under these conditions have been observed to increase rapidly over very short periods of time.

5. Control Measures

5.1 Overview of operations controls

The BWM EA specifies that all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused are to be undertaken. Key operational control measures that may be utilised at BWM are included in ***Table 4***. Further information regarding control measures related to Spontaneous Combustion / Odour are included in the ***Section 5.2*** and ***Section 5.3***, respectively.

Table 4 Key control measures

Risk	Source	Mitigation Measures	Responsibility	Timing
Dust levels exceed EA limits or result in a complaint	Mining Activities	Planning Controls Construction of bunds if required in operational areas closely situated to sensitive or commercial places to reduce nuisance potential Utilising dust forecasting and assessing meteorological conditions to adhere to dust limits Procurement of new and/or best available technology where it is considered reasonable and or feasible to do so Minimise exposed surface areas by only clearing vegetation/disturbing areas required for mining activities Progressive rehabilitation to reduce dust exposure Sufficient provision for sheltered dumping during adverse wind conditions Optimising base materials during haul road design to reduce the silt content of surface material and increase the retention of coarser aggregates Setting aside sufficient water within the site's water balance for dust suppression activities Providing suitable fill point infrastructure proximal to disturbance activities	Mine Scheduling, Site Environment, Maintenance, Pit Operations, ROC	Ongoing
Dust levels exceed EA limits or result in a complaint	Mining Activities	Operational Controls Real-time dust monitoring system to clarify and understand where and what operations need to be modified to reduce dust emissions Effective implementation of the dust TARP (***WHC-BWM-TAR-DUST MANAGEMENT FOR SENSITIVE RECEPTORS)*** Limited speed of heavy machinery / vehicle traffic on haul roads (e.g. optimizing mining on night shift) Machinery to operate in less exposed / sensitive areas at sensitive times or during adverse meteorological conditions Availability and utilisation of water trucks to provide dust suppression on haul roads and light vehicle roads Maintenance procedures to minimise nuisance emissions including servicing and maintenance of exhaust systems on mining equipment Real time system monitoring and implementation of a TARP trigger system to reduce dust emissions All equipment used on site will be maintained in a proper and efficient manner Limiting speed of heavy vehicle traffic on haul roads Progressive backfilling of overburden and rejects to in pit spoil dumps Progressive rehabilitation	Mine Scheduling, Site Environment, Maintenance, Pit Operations, ROC	Ongoing
Dust levels exceed EA limits or result in a complaint	CHPP & Processing & TLO	Operational Controls Water sprays on stacker/reclaimer units at NCPP and TCP TLO to incorporate veneering Dust suppression water sprays on the ROM Hoppers at NCPP and TCP	Production Coal, CHPP, ROC	Ongoing

[1] Refer to Document Control System (i.e. QIC,WIC,Dochaven) for latest version

5.2 Spontaneous Combustion & Odour Emissions

Spontaneous combustion above ground commonly occurs in waste dumps containing reject coal material, in unconsolidated heaps where oxygen can come into contact with the coal and heat can't dissipate. The problem is compounded when rainfall events cause erosion, progressively exposing the coal. Spontaneous combustion may also occur in the coal seam exposed in the remaining high wall of the final void. Spontaneous combustion can cause visual smoking and sulphur-like odours.

However, the potential for spontaneous combustion associated with BWM is documented to be generally low due to the low coal sulphur and moisture contents of the coal seams. Any spontaneous combustion that does occur is monitored by the Open Cut Examiners (OCE) and is controlled via incorporation of benign coal material or spoil to eliminate the source of oxygenation.

5.3 Greenhouse Gas Emissions

All information regarding National Greenhouse and Energy Reporting Scheme (NGERS) and National Pollutant Inventory (NPI) reporting is supplied to WHC Group Environment by as required. This includes diesel consumption, coal tonnage, efficiencies and emissions associated with mining. There's currently no on-site system/process for replacing technology with more efficient technology. Given the size of BWM and the magnitude of the mining fleet this would be a business-level decision and would not sit with site i.e. not practicable.

6. Monitoring program

All air quality monitoring is undertaken for internal management purposes until Condition A11 is triggered (i.e. Monitoring on Request). On this basis, any exceedance of dust limits from this internal monitoring is investigated, reported internally and addressed with corrective action. The BWM has a comprehensive internal dust monitoring network.

Internal monitoring undertaken at BWM includes:

- Real-time Particulate Matter ($PM_{2.5}$ and PM_{10}) "Osiris" Monitoring (as presented in ***Figure 1*** and outlined ***Table 5***);
- Dust Depositional Monitoring (DDG) (outlined in ***Table 6*** and presented in ***Figure 2***);
- Weather and meteorological monitoring (AWS) (as presented in ***Figure 1*** and outlined ***Table 7***); and
- Supplementary real-time monitoring locations ("PM_{10} beta attenuation monitors "E-BAM") (outlined in ***Table 8***).

The monitoring locations as presented in ***Figure 1*** are used to be representative of sensitive places and will be used to assess performance against the air quality criteria. The monitoring data is reviewed by the BWM Environment Team ensure continuity and compliance with the monitoring program requirements.

Table 5 Real-time "Osiris" Monitoring Locations

Location ID	Location Description	Monitoring Type	Frequency
Taurus Ck (Ramp 20 East)	To the east of the BWM off Ardurad Road	Osiris Monitors (PM10 and PM2.5), wind speed & direction	Continuous (5min average) - utilised for the Dust TARP
TCP Dam (Ramp 20 West)	On the western side of the active MLs nearby the TCP Dam		
Town (Ramp 10 East)	Towards town in the north east off Capricorn Highway		
Vipen (Ramp 16 West)	Off the Blackwater Mine CHPP Public access road (neighbouring property) on the western side of the mine		

Table 6 Depositional Dust (DDG) Monitoring Locations

Location ID	Location Description	Monitoring Type	Frequency
DB3	Tolmies Creek Station	Depositional Dust (DDG)	Monthly
DB9	Eastern end of Rockland Dam		
DB10	Off Tolmies Road north of Hobby Farm 1		
DB11	East of TCP Dam across from old quarry		
DB12	Behind dam in Jacksons Paddock		

DB14	North West Bedford Weir Pipeline Easement beside the Capricorn Highway
DB15	Off Ardurad Road at the Town (Ramp 10 East) Osiris
DB16	North of the Ambulance Bay / South West of the Goodman Residence

Table 7 Real-time Automatic Weathers Stations (AWS)

Location ID	Location Description	Monitoring Type	Frequency
Central AWS	Main Industrial Area (MIA)	Automatic Weather Station (AWS) – Rainfall, Temperature, Wind Speed, Dust Mass (TSP)	Continuous (10 min average)
Northern AWS	Laydown Yard 1.5km North of the TCP		
Southern AWS	South Blackwater Mine		

Table 8 Other Air Quality Monitoring Locations

Location ID	Location Description	Monitoring Type	Frequency
G1 (TR163)	Variable. Utilised for in a strategic manner i.e. projects, areas of potential concern, etc.	E-Bam (Real-time PM_{10} Measurements)	Continuous
G1 (TR164)			
G1 (TR162)			

6.1 Real-time Dust Management System “AEMS”

The “AEMS” system is an industry-recognised platform including an associated revised Dust Management TARP. Data and associated TARP alarms are more useful, accurate, valid, and reliable (resulting in less workloads for stakeholders) through:

- directional dust measurements to better identify specific source areas of mine dust
- the removal of background / regional air quality measurements to focus specifically on "mine contribution" / “incremental” dust in accordance with Condition B3 and B4 of the ***BWM Environmental Authority (EPML00717813)***
- a reduced “false” alarming frequency to:
    - better utilise OCE, Pit Operations Superintendent and ROC time;
    - reduce any unnecessary production/equipment down-time; and
    - improve overall environmental compliance outcomes through mitigation of dust nuisance risk to sensitive receptors.
- improve usability from ROC in the AEMS system through a mapping interface and the ability to log actions in response to dust alarms (which are evident through noises, flashing TARP colours, etc.)
- an updated Dust TARP for the site to accompany the system

The AEMS can be accessed at the following link: https://bwmaems.com

7. Accountabilities

Table 9 Roles and Responsibilities

Role/Team	Accountability
Manager Environment & Rehabilitation	Overall accountability for Operational Environmental Non-Compliance Risk (RSK-0000140)
Mine Scheduling Team	Implement planning controls as per **Table 5** to minimise compliance risk at BWM Lead and undertake exceedance investigations as required

Production Coal, CHPP, Production Overburden & Maintenance Department	Implement operational and planning controls as required and noted in **Table 4** to minimise compliance risk at BWM Lead and undertake exceedance investigations as required Assist with supplying relevant NGERS data to WHC Group Environment as required
Environment Team	Update and review the AQMP as required Participate in investigations from exceedances as required Provide guidance on environmental matters to achieve the required environmental outcome Provide governance on air quality monitoring results and data (including real-time data) Contract owner for real-time dust system and other monitoring Report any non-compliances with the EA or internal elevated measurements as required Liaise with DETSI as required Assist with supplying relevant NGERS data to WHC Group Environment as required
ROC & Pit Operations Team (incl. OCEs)	Implement the BWM Dust TARP (**WHC-BWM-TAR-DUST MANAGEMENT FOR SENSITIVE RECEPTORS**)

8. Data quality assurance

All raw air quality and weather data is received in an online data collation website / platform (i.e. AEMS, PiVision, INX Preserve, Sentinex.). The hardware on the monitors is regularly serviced and calibrated by a specialist consultant. Validated data can be requested following these service and calibration visits. DDG results are analysed by ALS Laboratories (NATA Accredited).

9. Compliance obligations

9.1 Non-compliances

Any non-compliances with the EA will be reported in accordance with the EA by the Environment Team with approval from the Superintendent Environment and Manager Environment & Rehabilitation.

9.2 Complaint handling

Reporting, response and follow-up to any complaints will be undertaken by the Superintendent Environment in line with ***WGRP-QLD-PRO-006-Complaints Management Protocol 001***.

9.3 Reporting and Review

Review of this management plan will be on an as required basis. This plan is an internal management plan only. Typical instances where this plan may be reviewed for update includes but is not limited to:

- a non-compliance with the EA or repeated elevated air quality results;
- an updated approval (i.e. major amendment or EIS);
- a significant change in operations at BWM or the mining plan;
- an internal audit finding which recommends a review and update to this plan;
- an internal document control requirement / policy via BWM Site Systems Team.

10. References

- ***Environmental Authority (EA) EPML00717813***
- ***Environmental Protection Act 1994 and Environmental Protection Regulation 2019 (QLD)***
- ***Environment Protection (Air) Policy 2019***
- ***Environment Protection (Air) Amendment Policy 2024***
- ***National Environmental Protection (Ambient Air Quality) Measure 2021***
- ***WGRP-WH-STD-Risk Management***
- ***WGRP-WH-PRO-HSE Risk Management***
- ***WGRP-WH-PRO-Management of Change***
- ***WGRP-QLD-PRO-006-Complaints Management Protocol 001***

11. Version control

Revision	Description	Author	Authorised by	Date
1.0	AQMP Development for BWM in accordance with WHC Environment STD	Chris Masters	Mark Gastaldon	August 2026
1.1	Minor update and review.	Ryan Gassman	Mark Gastaldon	October 2026

Appendix A - Figures

Figure 1: BWM Real-Time Osiris & AWS Monitoring Locations

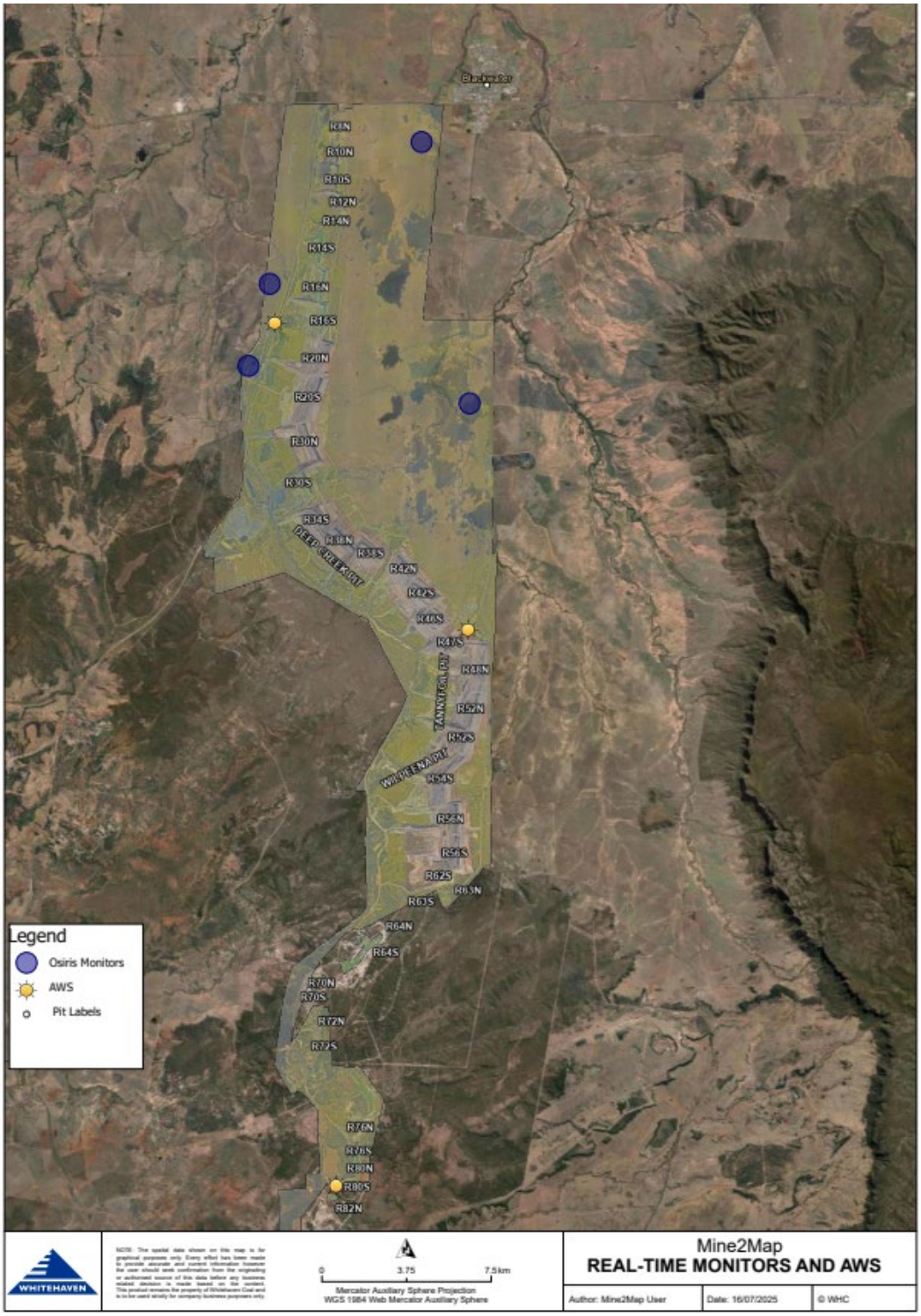


Figure 2: BWM DDG Monitoring Locations (North)

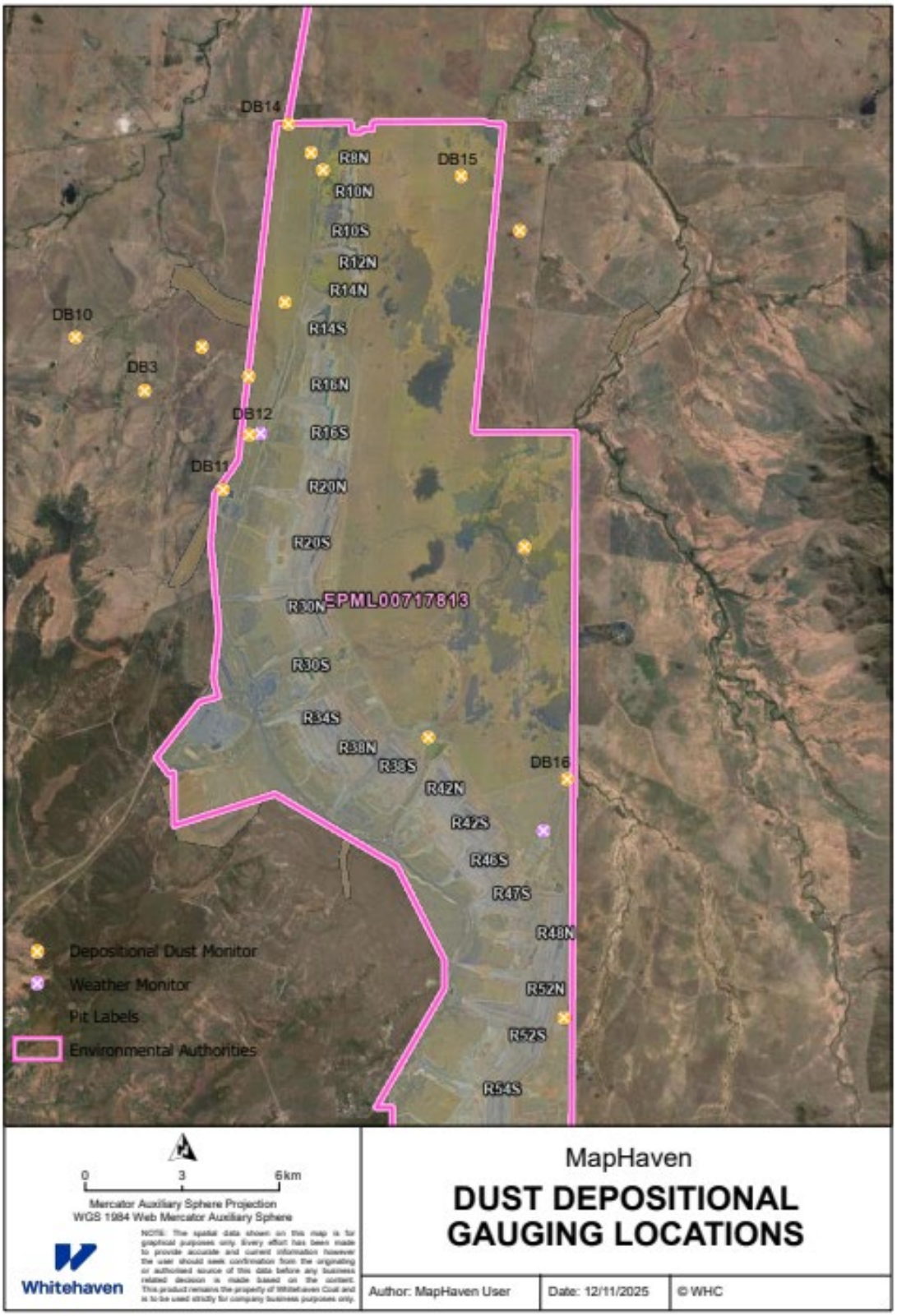
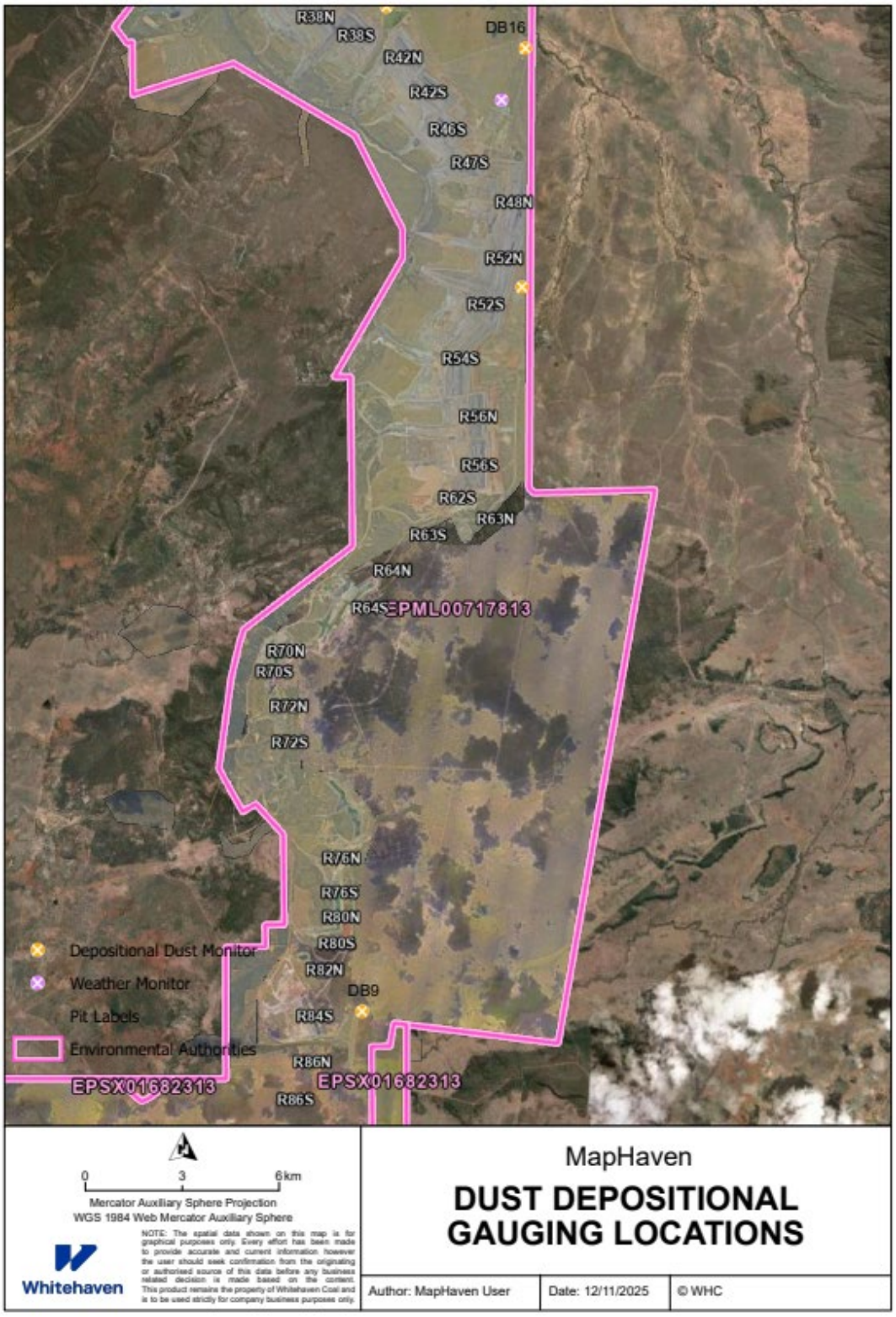


Figure 3: BWM DDG Monitoring Locations (South)



Appendix B - Project Approval Conditions/Requirements

Approval condition	Relevant section of this EMP
Operating Conditions	
Schedule A, Condition A2 Prevent and /or minimise likelihood of environmental harm In carrying out the environmentally relevant activities, the environmental authority holder must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this environmental authority.	Section 5
Schedule A, Condition A11 Monitoring on Request When requested by the administering authority, the environmental authority holder must investigate any nuisance, or contaminant release, or environmental harm, or complaint that is neither frivolous nor vexatious in the opinion of the authorised person, by: a) undertaking the monitoring specified by the administering authority; b) undertaking the monitoring in the timeframe nominated or agreed to by the administering authority; c) completing an analysis and interpretation of the monitoring results; and d) implementing abatement measures, where required.	Section 9
Schedule B, Condition B1 Odour nuisance The release of noxious or offensive odour or any other noxious or offensive airborne contaminant resulting from the mining activities must not cause an environmental nuisance, at any sensitive place or commercial place.	Section 5
Schedule B, Condition B2 Odour nuisance If the administering authority determines odour released from the mining activities to constitute an environmental nuisance, the environmental authority holder must immediately implement abatement measures so that emissions from the mining activities do not result in further environmental nuisance.	Section 5
Schedule B, Condition B3 Dust nuisance The release of dust or particulate matter or both resulting from the mining activities must not cause an environmental nuisance, at any sensitive place or commercial place.	Section 5
Schedule B, Condition B4 Dust Nuisance Monitoring of dust and particulate matter resulting from the mining activities, undertaken in accordance with condition A11, must be carried out at a place relevant to the potentially affected sensitive place or commercial place and must not exceed the following levels when measured at any sensitive place or commercial place: (a) dust deposition, measured as total insoluble matter, of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air –Determination of particulate matter – Deposited matter – Gravimetric method. (b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of either: *i. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method; or* *ii. Australian Standard AS3580.9.8 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser; or* *iii. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air –Determination of suspended particulate matter – PM10 low volume sampler –Gravimetric method; or* iv. *Australian Standard AS3580.9.11 Methods for sampling and analysis of ambient air –Determination of suspended particulate*	Section 5

matter – PM10 beta attenuation monitors.

NOTE: Exceedances due to events that cannot be managed by the environmental authority holder, such as bushfires, fuel reduction burning for fire management purposes or dust storms, would not be considered to be in breach of condition B4 if the environmental authority holder can demonstrate that the exceedance was caused by such events.

Schedule B, Condition B5

Dust Monitoring

If monitoring, undertaken in accordance with condition A11, indicates exceedance of the relevant limits in Condition B4, the environmental authority holder must immediately implement abatement measures so that emissions from the mining activities do not result in further environmental nuisance.

Section 6

Whitehaven	Document Owner: Superintendent Environment Document Approver: Manager Environment & Rehabilitation Revision Period: 12 Months	Issue: 2.1 Last Revision Date: 9 October 2026

Blackwater Mine Water Management Plan

WHC-BWM-PLN Water Management Plan

Approval	Name	Position	Date
Author:	Ryan Gassman	Specialist Environment	9/10/2026
Reviewed by:	Chris Masters	Principal Environment	9/10/2026
Document Owner:	Mark Gastaldon	Superintendent Environment	9/10/2026
Authorised by:	Daryl Robinson	Environment & Rehabilitation Manager	9/10/2026

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1. Introduction

Blackwater Mine (BWM) is located in the Fitzroy River Catchment as shown in Figure 1. This Water Management Plan (WMP) addresses Condition F29 of the Environmental Authority EPML00717813 (the EA) and has been developed by appropriately qualified persons. The guideline *Preparation of water management plans for mining activities (ESR/2016/3111) referenced in Condition F29* is no longer published. The condition is reproduced as follows:

F29	**Water Management Plan** A Water Management Plan must be developed by an appropriately qualified person(s) and implemented for all mining activities and must include an Implementation Plan. The Water Management Plan must address, as a minimum, the following: (a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and (b) be developed in accordance with administering authority's guideline *Preparation of water management plans for mining activities* (ESR/2016/3111) and include: (i) a study of the source of contaminants; (ii) a water balance model for the site; (iii) a water management system for the site; (iv) measures to manage and prevent saline drainage; (v) measures to manage and prevent acid rock drainage; (vi) contingency procedures for emergencies; and (vii) a program for monitoring and review of the effectiveness of the Water Management Plan.

BWM agreed to an Environmental Evaluation which included a commitment to an Implementation Plan. The Implementation Plan is presented as Appendix 3.

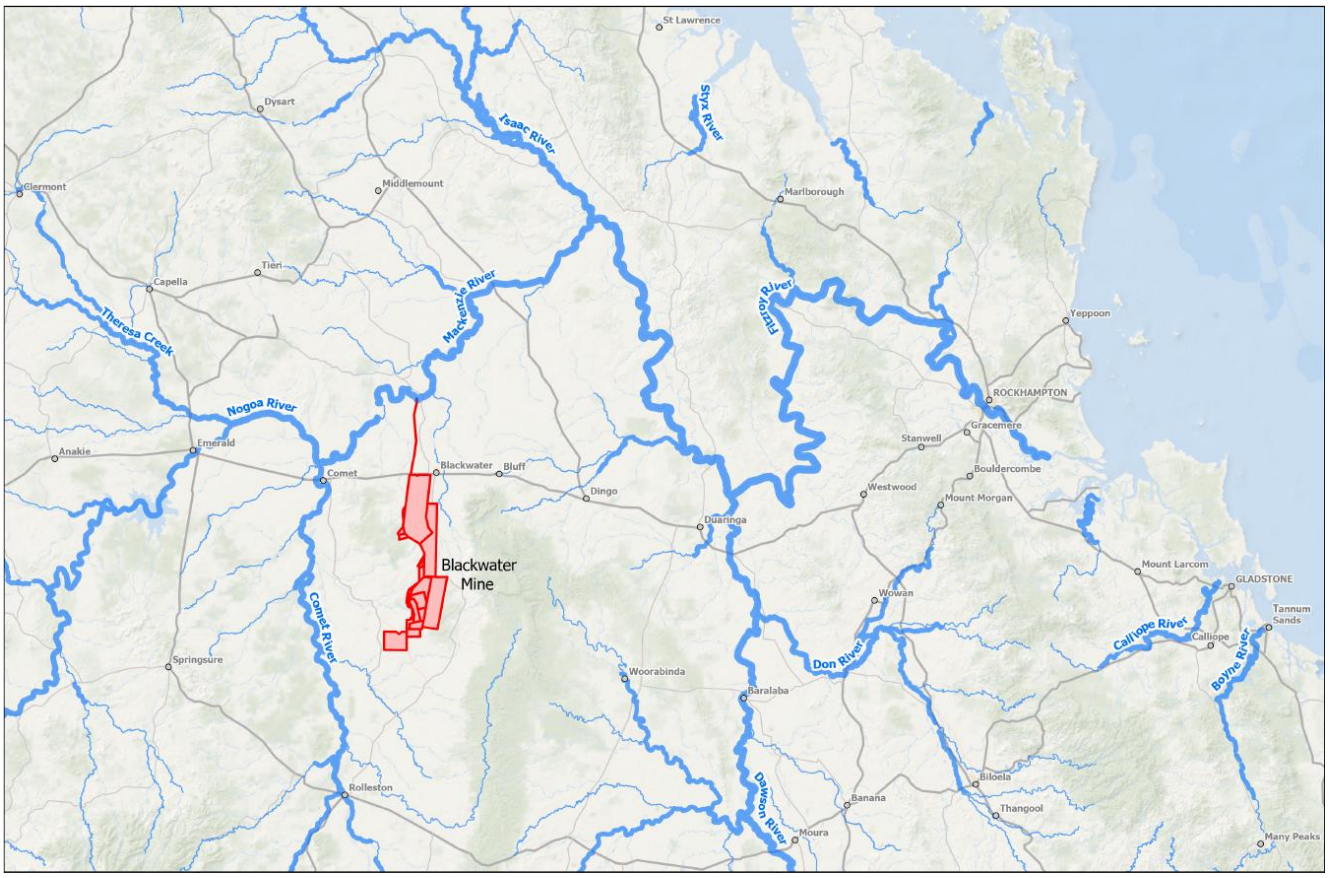


Figure 1: Location of Blackwater Mine and major drainage

2. Management of Actual and Potential Impacts

2.1 Environmental Values

The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (EPP) provides a framework for establishing Environmental Values (EVs) for a waterway and for determining water quality objectives (WQOs) to protect or enhance those values.

EVs and water quality objectives for the receiving environment of BWM are scheduled under the EPP:

- Waters of the Mackenzie southern tributaries of the Upper Mackenzie Sub-basin (WQ1304), includes Burngrove Creek, Taurus Creek, Deep Creek and Emu Creek, and
- Waters of the Comet River eastern tributaries of the Comet River Sub-basin (WQ1307), includes Sirius Creek, Rockland Creek and Shotover Creek.

EPP Schedule WQ1304 for the Mackenzie River Sub-Basin includes Burngrove Creek, Taurus Creek, Deep Creek and Emu Creek. These creeks comprise the receiving environment for BWM. The EVs identified in the schedule are summarised in Table 1.

Table 1: Environmental Values

Environmental Values	Mackenzie Southern Tributaries – Developed Area	Comet River Eastern Tributaries – Developed Area
Aquatic ecosystems	✓	✓
Irrigation	-	✓
Farm supply/use	✓	✓
Stock water	✓	✓
Aquaculture	-	-
Human consumer	✓	✓
Primary recreation	x	x
Secondary recreation	x	x
Visual recreation	✓	✓
Drinking water	x	x
Industrial water	x	x
Cultural and spiritual values	✓	✓

✓ Indicates EV selected for protection, relevant
X Indicates EV selected for protection, not relevant
- Indicates EV not selected for protection

2.2 Monitoring program

BWM performs monitoring in the upstream and downstream receiving environment, and at key water storages on site. Monitoring is conducted during times of mine water release, and at times when releases are not occurring. Results of monitoring are compared against background levels and to EA criteria to assess potential for any environmental harm. Monitoring data is housed in the INX Preserve platform and the Pi Platform. Water monitoring includes:

- Water storages and MAW dams water quality and level monitoring (grab samples and real-time telemetry system);
- ESC Dam Monitoring and sampling;
- Creek and river water quality and level monitoring;
- Effluent monitoring;
- Groundwater monitoring;
- Tailings monitoring; and
- Release monitoring including the receiving environment.

2.3 Evaluation of Receiving Environment Impacts

Hydrological studies of the environment surrounding the BWM area have been undertaken as part of the Receiving Environment Monitoring Program (REMP) and Fitzroy Regional Receiving Environment Monitoring Program (FRREMP), as required under the EA. These studies have not identified any significant impacts on the receiving waters from the release of mine-affected water, nor any cumulative effects on the downstream system from operational discharges.

Data from the FRREMP indicates that any changes to water quality following mining activities were within acceptable limits for slightly-to-moderately disturbed systems and downstream medians were within guideline values. Therefore, it is concluded that the current EA limits provide acceptable levels of protection for the receiving environment. Table 2 summarises the watercourses at BWM.

The Comet River is monitored as part of the FRREMP and includes monitoring of local tributaries (upstream and downstream of the mine) and the Comet River main watercourse during both baseflow and flow event conditions. A summary of the 2024 water quality data for the Comet River indicates:

- Median salinity generally exceeds the Water Quality Objective (WQO) of 375 µS/cm;
- pH is generally neutral to slightly alkaline, in line with the WQO range of 6.5 to 8.5;
- Median total phosphorus and total nitrogen generally exceed the WQOs of 0.05 mg/L and 0.5 mg/L, respectively, reflecting the high levels of agriculture in the river's catchment;
- The 80th percentile for total suspended solids (TSS) generally exceeds the WQO of 30 mg/L in the river; and
- Median turbidity generally exceeds the WQO of 50 NTU, reflecting the dispersive nature of soils in the area.

The Mackenzie River is monitored as part of the FRREMP and includes monitoring of local tributaries (upstream and downstream of the mine) and the Mackenzie River main watercourse during both baseflow and flow event conditions. A summary of the 2024 water quality data for the Mackenzie River indicates:

- The 80th percentile for salinity generally exceeds the WQO of 310 µS/cm;
- pH is generally neutral to slightly alkaline, in line with the WQO range of 6.5 to 8.5;
- The 80th percentile for total phosphorus and total nitrogen generally exceeds the WQOs of 0.16 mg/L and 0.775 mg/L, respectively, reflecting the high levels of agriculture in the river's catchment;
- Total suspended solids are generally below the WQO of 110 mg/L; and
- Median turbidity generally exceeds the WQO of 50 NTU, with values often above 500 NTU, reflecting the dispersive nature of soils in the area.

Table 2: Summary of watercourses within BWM

Name	Upstream Catchment (ha)	Summary of watercourse	Discharges to
Mackenzie River Catchment			
Burngrove Creek	2,900	Originates in low relief ranges on the northwestern side of BWM Primary land use is grazing	Mackenzie River
Deep Creek	1,500	Originates from the west and south-west of the North CHPP Tailings Dam. Primary land use is native vegetation	Taurus Creek
Taurus Creek	2,400	Originates in low relief ranges on the western side of BWM Primary land use is a mix of grazing and native vegetation	Blackwater Creek
Emu Creek	2,100	Originates in low relief ranges on the western side of BWM Primary land use is a mix of grazing and native vegetation Not classed a watercourse under the Water Act 2000	Taurus Creek
Comet River Catchment			
Sirius Creek	11,000	Originates in low relief ranges east of Blackwater South Primary land use is native vegetation	Comet River

Rockland Creek	11,000	Originates from the outer (western escarpment) slope of the Blackdown Tableland east of BWM.	Humboldt Creek
		Primary land use is grazing except on the steep slopes of and adjacent to the escarpment	
		Large Flood detention basin constructed across the valley (18 m high and 1.4 km long) to provide flood protection. Freely drains via outlet	

3. Contaminant Source Study

Monitoring of mine affected water shows that contaminants are most likely to be elevated levels of salinity, and elevated levels of some metals. Table 3 presents a summary of contaminants and their source.

Table 3: Water Management Control measures

Risk	Source	Mitigation Measures	Responsibility	Timing
Saline drainage that exceeds release criteria	Spoil/overburden with saline material	Material characterisation to identify selective handling	Operations & Mine Scheduling	As required
	Dewater of pits and the concentration of salts/materials in MAW dams	MAW dams monitored as per Schedule F of the EA	Environment	Ongoing
	Coal stockpiles and reject/tailings facilities	Tailings disposal in pit, MAW containment for out of pit disposal	CHPP	Ongoing
Acid drainage that exceeds release criteria	Spoil/carbonaceous material with AMD potential	Material characterisation to identify selective handling	Operations & Mine Scheduling	As required
	Concentration of AMD material in MAW dams	MAW dams monitored as per Schedule F of the EA	Environment	Ongoing
	Coal stockpiles and reject/tailings facilities	Tailings disposal in pit, MAW containment for out of pit disposal	CHPP	Ongoing
Biological pathogens that exceed EA conditions or guideline values	Sewage treatment plant	MAW dams monitored as per Schedule F of the EA	Environment	Ongoing
		GW monitoring as per the GMMP	Environment	Ongoing
Capture of clean water	Runoff from undisturbed areas and/or rehabilitated areas	Construction of clean water diversions where possible and practical	Operations, Engineering & Environment	As required
		Site ESCP catchment mapping	Group Water	As required
Stormwater discharge with elevated TSS	Runoff from areas disturbed by mining operations whereby the predominant contaminant is sediment	Disturb minimum area as per the mine plan	Mine Scheduling	Ongoing
		Installation and operation of ESC measures as per the site ESCP	Operations, Engineering & Environment	Ongoing
		Progressive rehabilitation as per the PRCP	Environment & Rehab. Department	Ongoing
Discharge of MAW that exceeds EA conditions	Hydrocarbons from industrial areas Elevated metals from operational areas High salinity from groundwater or seepage Altered pH from seepage or groundwater	Oil water separators installed and operated in workshop areas	Engineering & I & S	As required
		Dams design as per the WHC MAW and ESC standard	Engineering & Environment	Ongoing
Insufficient supply to meet operational needs	Bedford East and West Weirs	Site WBM as described in Section 5.2.2	Group Water	Bi annual
		Monthly reporting of site inventory with TARPs	Group Water & Environment	Ongoing
Non-compliant discharge due to excess water	MAW dams unable to be dewatered post rain event	Site WBM as described in Section 5.2.2	Group Water	Bi annual
		Monthly reporting of site inventory with	Environment	Ongoing

Risk	Source	Mitigation Measures	Responsibility	Timing
		TARPs described in Section 5.2.2		
		Dams design as per the WHC MAW and ESC standard	Engineering & Environment	Ongoing
		Dam and pump register maintained as shown in Table 7	Environment	Ongoing
Regulated dam failure	Excess runoff from mining areas	Regulated dams designed and operated as per the QLD guidelines	Dams Engineer	Ongoing
		Site WBM to assess spill risk	Group Water	Annual
Creek Diversion erosion	Diversion is damaged during large flow event	Annual diversion monitoring program	Environment	Annual
		Diversions designed in accordance with the relevant QLD guidelines	Engineering & Environment	As required
		Repair damage to diversion post event	Engineering	As required
Flood inundation of mining pits	Levee absence or failure during a flood event	Site Flood model to identify at risk pits	Group Environment	Annual
		Regulated levees designed and operated as per the QLD guidelines	Dams Engineer	Ongoing

4. Water Balance Model

4.1 Model Description

BWM utilises the Goldsim platform to represent the movement of water about site in response to climatic conditions and operational requirements as a water balance model (WBM). The conceptual water balance model is presented in Figure 2. The WBM is able to provide inventory forecasting using SILO climatic data and predicted system responses to climatic conditions and operational assumptions. The model accounts for the following:

- Climatic variability, using over 130 years of SILO data to assess wet and dry conditions;
- Catchment delineation by water type, using land use mapping to estimate runoff volume and quality;
- Predicted pit dewatering and pit inundation days;
- Predicted water consumption through the CHPP, haul roads, and hardstand watering for dust suppression;
- Predicted evaporative losses and groundwater seepage;

The WBM is used to assess risk in the water management system, focusing on:

- Spill risk from Authorised Release Points in the EA;
- Total site inventory forecasting to inform decisions as to manage supply and maintain operations; and
- Forecast water imports to manage compliance with extraction limits.

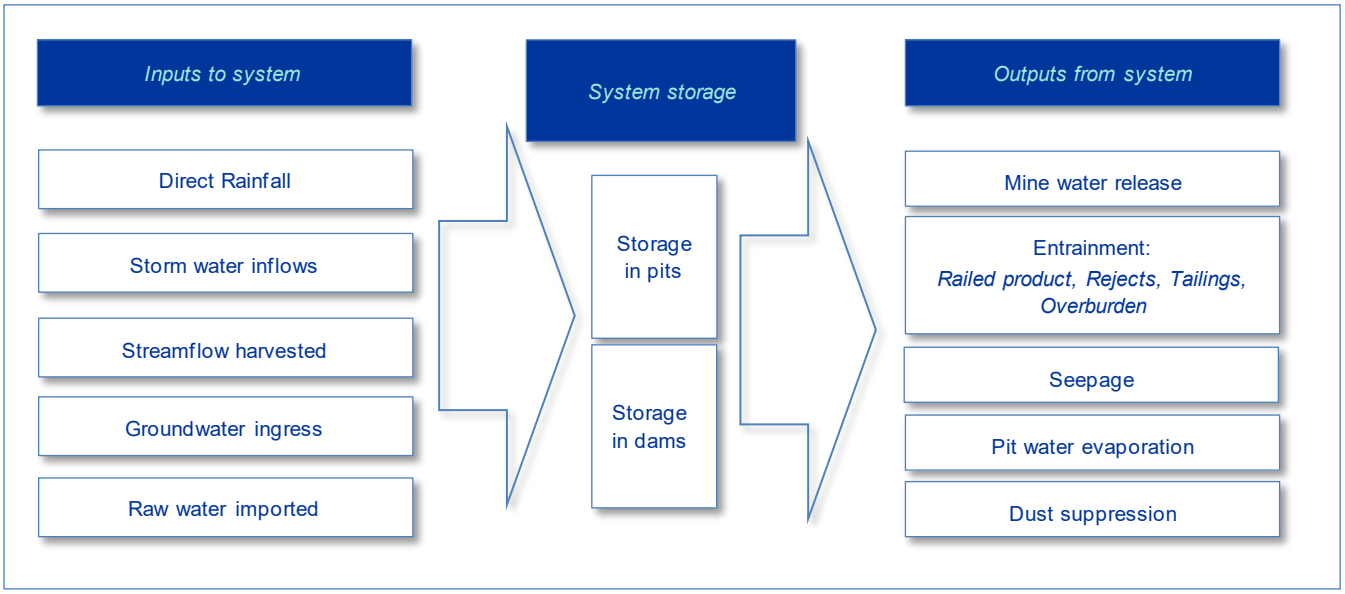


Figure 2: Conceptual representation of the water balance model

4.2 Operationally Dependent Imports and Demands

4.2.1 Raw Water Import

BWM prioritises the use of mine water and recycled process water for operational needs, however, raw water is required for the operation as the site is a net water consumer in average and dry conditions. The extraction limits for raw water are:

- Bedford East pipeline: 678 ML/year (2.5 ML/day); and
- Bedford West pipeline: 1,603 ML/year (10 ML/day).

Mine water and raw water are used to supply the mine's operational water demands, including:

- BWM Coal Handling and Preparation Plant (CHPP) and Thermal Coal Plant (TCP) – approximately 2,800 ML/year to 3,200 ML/year based on 14.8 to 16.8 Mtpa ROM coal (net usage ~180 L/t); and
- Dust suppression of haul roads and other areas of the mine with intensive traffic or activity. Volumes vary based on climate conditions and the location of mining activities – approximately 1,300 to 2,000 ML/year.

4.2.2 Dust Suppression

Dust suppression is performed by water carts that source water at fill points from designated mine storages. The location of these points varies based on the operation's needs; however the following generally occurs at each site:

- The area is bunded, so any overflow is directed to the storage;
- The fast fill point only operates when a truck is present; and
- The volume of water used is either tracked in truck counts or pumped volumes.

4.2.3 CHPP

The CHPP water management system supports the washing of coal at two processing plants. Water is transferred to the CHPP from mine water dams and raw water. Used process water is captured in tailings disposal facilities or CHPP area dams and recycled back into the mine's water management system. The CHPP uses raw water for certain processes that require higher-quality water, such as fire suppression systems.

The WBM accounts for the portion of water supplied to the CHPP that is recycled as process water. Tailings slurry is pumped to the tailings dam and decanted back into the water management system for reuse.

The site storages included in the WBM are shown in Figure 5, Figure 6 and Figure 7.

4.2.4 Mine Water Release

Mine water releases are effected when specific streamflow criteria set out in the EA are met. The objective of releasing mine water is to relieve inventory and reduce salt load. The EA release criteria for quality and release rate are set by the regulator with consideration for protecting the downstream receiving environment.

The following activities are undertaken to manage the risk of non compliant releases:

- Pre-wet season and post-rain event inspections;
- Monthly water level monitoring to maintain Minimum Operating Volume (MOV), Dam Safety Allowance (DSA), and Mandatory Reporting Level (MRL) as applicable and pre rain event dam level monitoring;
- Real-time telemetry for pH and EC as per Table F2 of the EA
- Routine water quality sampling and monitoring; and
- Routine inspections of regulated structures by a suitably qualified person (RPEQ)

5. Water Management System

5.1 Water Management Strategy

The Water Management Strategy for BWM is based on targeted management of water from different sources according to water quality Water on site is categorised as follows:

- Clean water – water from areas not disturbed by mining or achieved rehabilitation through safe, stable, non-polluting and self-sustaining landform;
- Stormwater (sediment-laden) – runoff from areas disturbed by stripping or overburden placement, with controls in place as per the site ESCP (WHC-BWM-PLN Erosion & Sediment Control Plan)
- Mine-affected water (MAW) - includes groundwater inflows and surface runoff in mining and industrial areas likely to contain elevated salinity, hydrocarbons, or metals, or altered pH.

The objectives of the Water Management System follow the hierarchy of controls, and are presented as follows:

- Minimise disturbance where possible, and rehabilitate as soon as practical to reduce the risk of contaminant generation;
- Divert clean water catchments where possible and practical;
- Operate stormwater catchments in accordance with the ESCP and EA;
- Contain and minimise runoff from mining activity areas that generate MAW;
- Prioritise the reuse and recycling of MAW for dust suppression and process requirements;
- Release MAW in accordance with EA conditions to reduce the risk of excess accumulation and minimise potential for downstream environmental harm;
- Import good quality raw water to supplement supply.

Note: The EA currently excludes runoff from catchments subject to the Implementation Plan while BWM is required to complete the Implementation Plan issued following the Environmental Evaluation conducted by the Administering Authority in July 2020 (CCPLRC100001152, CCPLRC100001215, STATE100008311), in accordance with EA Condition F29. Accordingly, the water management system and any additional components or infrastructure are operated, designed, and constructed as though the Implementation Plan catchments are not exempt from the MAW definition.

5.2 Water Storage and Pumping System

The EA requires the consequence category of any structure to be assessed by a suitably qualified and experienced person against the administering authority's Manual for Assessing Consequence Categories and Hydraulic Performance of Structures. BWM has several regulated dam structures that are monitored and reported annually in accordance with the EA EPML00717813. These are presented in figures in Appendix 1

BWM has constructed an extensive pipe and pump network to support the regulated structure. The network facilitates the movement of MAW across the site generally as follows:

- Transferring water to required operational infrastructure (CHPPs);
- Transferring MAW to release storages for discharge when EA release criteria are met;
- Dewatering of pits to allow for the continuation of mining;
- Dust suppression; and
- Mine expansion/construction activities.

5.3 Flood Protection Levees

In accordance with Schedule G of the EA, BWM assesses flood risk to the pit and mine infrastructure in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures. Flood protection levees around mine pits are designed to a 0.1% annual exceedance probability (AEP). There are three regulated levees at BWM, shown in Figure 3 and Figure 4 in Appendix 1, including:

- Two levees on either side of Taurus Creek, protecting Ramps 42N and 38S; and
- A levee on Sirius Creek, protecting Ramp 74.

In addition to the three levees, flood protection for Ramp 82 is provided by Rocklands Dam, which is a referred structure on Rocklands Creek. All regulated levees and referred structures are overseen by the site's Responsible Dams Engineer (RDE) and managed in accordance with Schedule G of the BWM EA and other relevant safety guidelines.

5.4 Watercourse Diversions

Watercourses interacting with the mining area are diverted to allow for the continuation of mining and to divert streamflow away from active mining areas to avoid contamination. Watercourse diversions are listed in Table 4 and shown in Figure 3 and Figure 4 in Appendix 1.

Table 4 Summary of creek diversions

Creek Diversion	Regulated or Non Regulated	Regulation	Description of diversion
Burngrove Creek	Regulated	Water Act 2000	Constructed prior to 1990 along the BWM western boundary to allow mining in Ramps 14 to 18 The diversion channel is straight for its entire length and up to 8 m deep. Terminates at the western boundary of the mine Burngrove Creek Retention Dam is built on the watercourse, downstream of the diversion and is not part of the mines WMS
Deep Creek	Regulated	Water Act 2000 and EA (EP Act)	Constructed prior to 1990 between Ramps 30 and 34 to convey flows west to east Several small diversions in the vicinity of NCPP Tailings dam have been constructed to divert minor tributaries around the facility, before coalescing into a single watercourse The diversion terminates at the New Deep Creek Dam (NDCD) where releases (RP3) occur in compliance with the EA As per EPML00717813, Deep Creek Diversion is utilised as internal water management infrastructure until the commencement of the Stage 2 Deep Creek Diversion.
Taurus Creek	Regulated	Water Act 2000	Constructed prior to 1990 between Ramps 42N and 38S to convey flows west to east Includes an on stream, excavated storage called the R42 Dam in the upstream section of the diversion immediately prior to flowing between the two pits The diversion terminates at the Taurus Creek Dam where releases (RP2) occur in compliance with the EA
Emu Creek	Non-Regulated	NA	Constructed in 2023 to divert water northwest into Taurus Creek to allow mining in Ramp 47 Not classified as a designated watercourse under the Water Act 2000 the diversion is designed to perform as a permeant watercourse diversion.
Sirius Creek	Regulated	Water Act 2000	Constructed prior to 1980 between Ramps 74 and 76 to convey flows east to west Constructed as a deep channel using a drag line The diversion flows through Old Cut 4 which is a mine void. Releases (RP7) occur in compliance with the EA (if required). Old Cut 4 acts as a sediment control for the diversion currently.

			The diversion terminates west of Old Cut 4, where it passes over backfilled mined areas prior to connecting to the original drainage line
Rockland Creek	Regulated	Water Safety & Reliability Act 2008 and Water Act 2000	Constructed in the 1990s south of Ramp 84 to allow mining Rockland Creek dam is constructed upstream of the diversion to provide flood protection to Ramp 82. The dam is a detention dam, and so water is release passively

6. Acid Rock Drainage

Acid rock drainage from sulphate oxidation reactions have been observed at BWM tailing storage facilities. If certain sulphate containing materials are subject to wetting and drying and subsequent oxidation, the sulphate reaction products can be mobilised into leachate and cause acidity resulting in lower pH.

Observations at BWM typically are that any acid drainage is buffered by the naturally occurring carbonates and salts in the tailings material, and the leachate is expressed as Saline Drainage. Measures to manage and prevent Acid Rock Drainage include:

- In pit disposal of tailings where possible
- Seepage interception and return to mine water system where appropriate
- Capping and rehabilitation of legacy tailings storage facilities to limit infiltration
- Monitoring of surface water and groundwater

7. Saline Drainage

Saline Drainage from spoil and tailings storage facilities has been observed at BWM from the neutralization of acid forming reactions and leachate from some spoil types. Measures to manage and prevent Saline Drainage include:

- In pit disposal of coal mine wastes where possible
- Overburden dumping plan to bury hostile spoil deep in profile
- Hydraulic gradient is generally toward mined areas and mine water system
- Seepage interception and return to mine water system
- Capping and rehabilitation of legacy tailings storage facilities to limit infiltration
- Monitoring of surface and groundwater

8. Contingency for Emergencies

8.1 Emergency Procedures

In the event of emergencies, exceptions or incidents, all reasonable actions are taken to minimise potential or actual environmental harm. Relevant notifications are provided to the administering authority in accordance with the requirements of the EA and the Environmental Protection Act 1994 (Qld). The identification, activation, response and recovery of emergency and crisis situations are managed in accordance with the WHC BWM PLN Site Emergency Response Plan.

The WHC-BWM-PLN- NCPP TSF Emergency Action Plan provides the procedure to be followed in the event of a dam failure or downstream release hazards from the Tailings Storage Facility.

Investigation and reporting of events take place as per the sites EA and WHC QLD PRO Incident and Hazard Management.

8.2 Complaint handling

In order to ensure an appropriate and consistent level of reporting, response, and follow-up to any complaints, complaints will be managed generally in accordance with the WHC Complaints Management Protocol and as per the below:

- A publicly advertised telephone complaints line will be in place to receive complaints;
- An initial response will be provided, where practical, within 24 hours of receipt of a complaint;
- An investigation will be initiated if an exceedance has occurred; and

- All details regarding the complaint, including any investigation outcomes and follow-up actions (including monitoring), will be documented in a Complaints Register.

A copy of the Complaints Register will be made available upon request by the administering authority.

9. Review

This Management Plan will be reviewed and evaluated to assess its adequacy and effectiveness each calendar year by an appropriately qualified person in accordance with Condition F32. If necessary, the WMP will be revised to incorporate any recommended measures to improve the environmental performance of BWM resulting from the review, monitoring data, community complaints and incident investigation findings. In addition, the review process will include ongoing evaluation of operational modifications, approvals/amendments to the EA, alternative methodologies and new technologies that become available for their potential to lessen surface water impacts.

10. Accountabilities

Table 5 Roles and Responsibilities

Role	Responsibilities
Environment & Rehabilitation Manager	Overall accountability for Environmental Non-Compliance Risk (RSK-0000140)
Mine Planning	Integrating water management and ESC in the mine planning process.
Engineering Manager	Overall accountability for Dam Failure Risk
Engineering Projects	Manage the actions within the WMIP, from studies and detailed designs through to execution.
	Maintain evidence within the EE SharePoint Page
	Provide guidance on the design and associated requirements of improvement structures.
Dams Engineer	Provide guidance on the design and associated requirements to complete the actions detailed within the WMIP, including structures in respect of the DES Manual for Assessing Consequence Categories and Hydraulic Performance of Structures.
	Inspect unregulated improvement structures pre- and post-wet season
Environment Team	Ensure all relevant legislation, guidelines and policies are adhered to during MAW releases as per Schedule F of the EA. Compliance reporting.
	Update the WMP and WMIP.
	Liaise with stakeholders and provide reports to the DETSI on the progress of the WMIP.
	Document and where required escalate any issues to the appropriate party.
	Provide guidance on environmental matters to achieve the required environmental outcome
	Identify when environmental technical experts are required to achieve the required environmental outcome
Group Water	Strategy, reporting, governance and Water Balance Modelling. Long term climate forecasting. Project work and business initiatives, sustainability reporting, etc.
Maintenance and other Departments	Coordinate and complete dam and pump maintenance activities in a timely manner and record evidence of activities completed.
RPEQ	May be consulted in the design, construction and inspection of sediment dam/basins.
Mine Services Superintendent	Responsibility for pumping operations and executing the water strategy Coordinate and complete maintenance activities for MAW pipeline in a timely manner and record evidence of activities completed.
Contractors, Site Supervisors, or Project Teams	Ensure stipulated and planned controls are implemented to achieve the required environmental outcome.
	Inspect/monitor the effectiveness and condition of controls during and/or after works. If required, implementing additional controls or maintenance works.
	Report any issues or non-compliance to the Environment Team

11. Version control

Revision	Description	Author	Authorised by	Date
1.0	WMP updated at the acquisition of BWM by Whitehaven	BWM	Superintendent Environment	April 2024
2.0	WMP update following the annual review	Huw Morgan – Soda Engineering	Superintendent Environment	August 2025
2.1	WMP update following the annual review	Ryan Gassman – Specialist Environment	Superintendent Environment	9 October 2026

Appendix 1: Figures

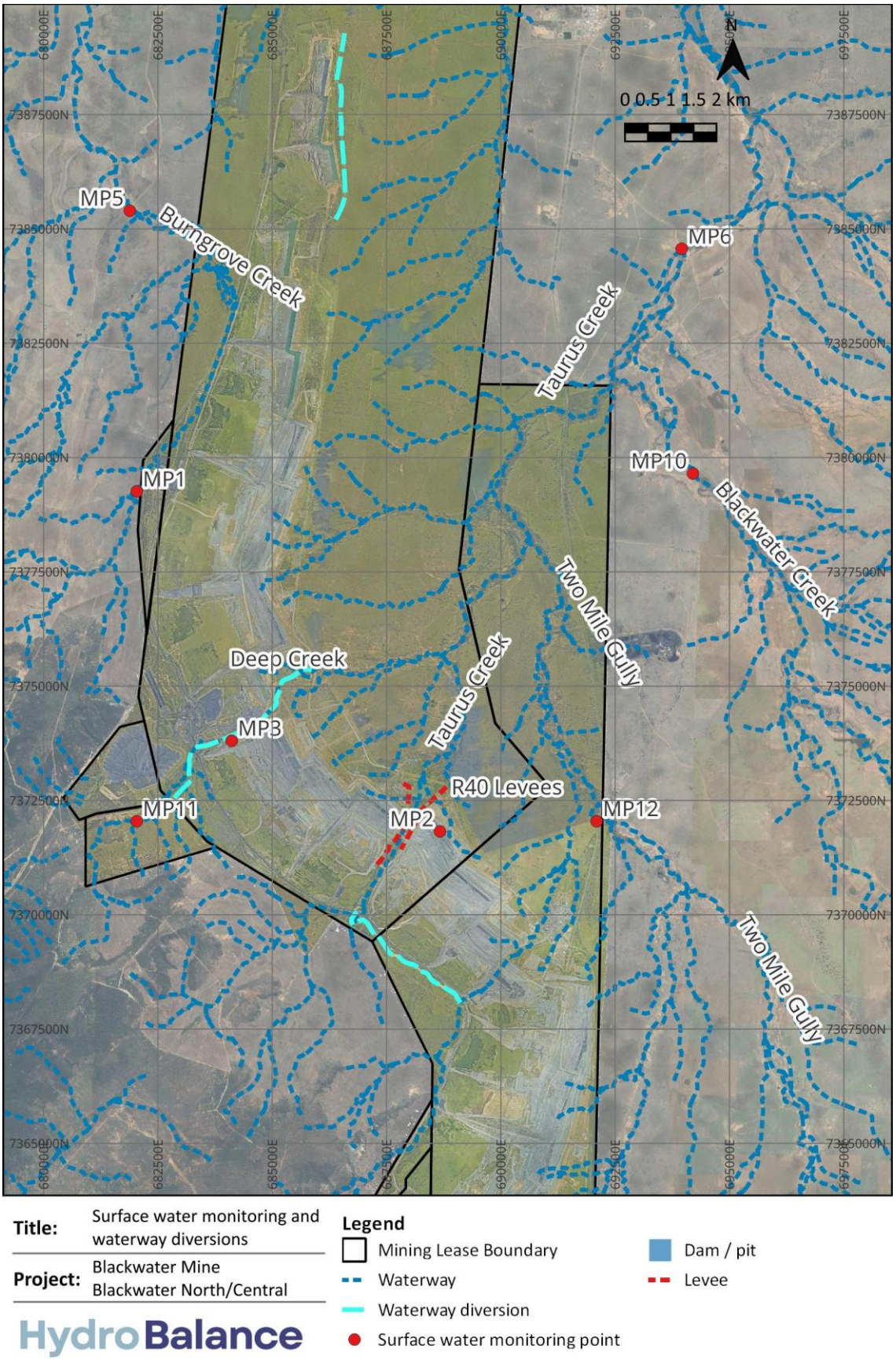


Figure 3: Site overview – North Drainage

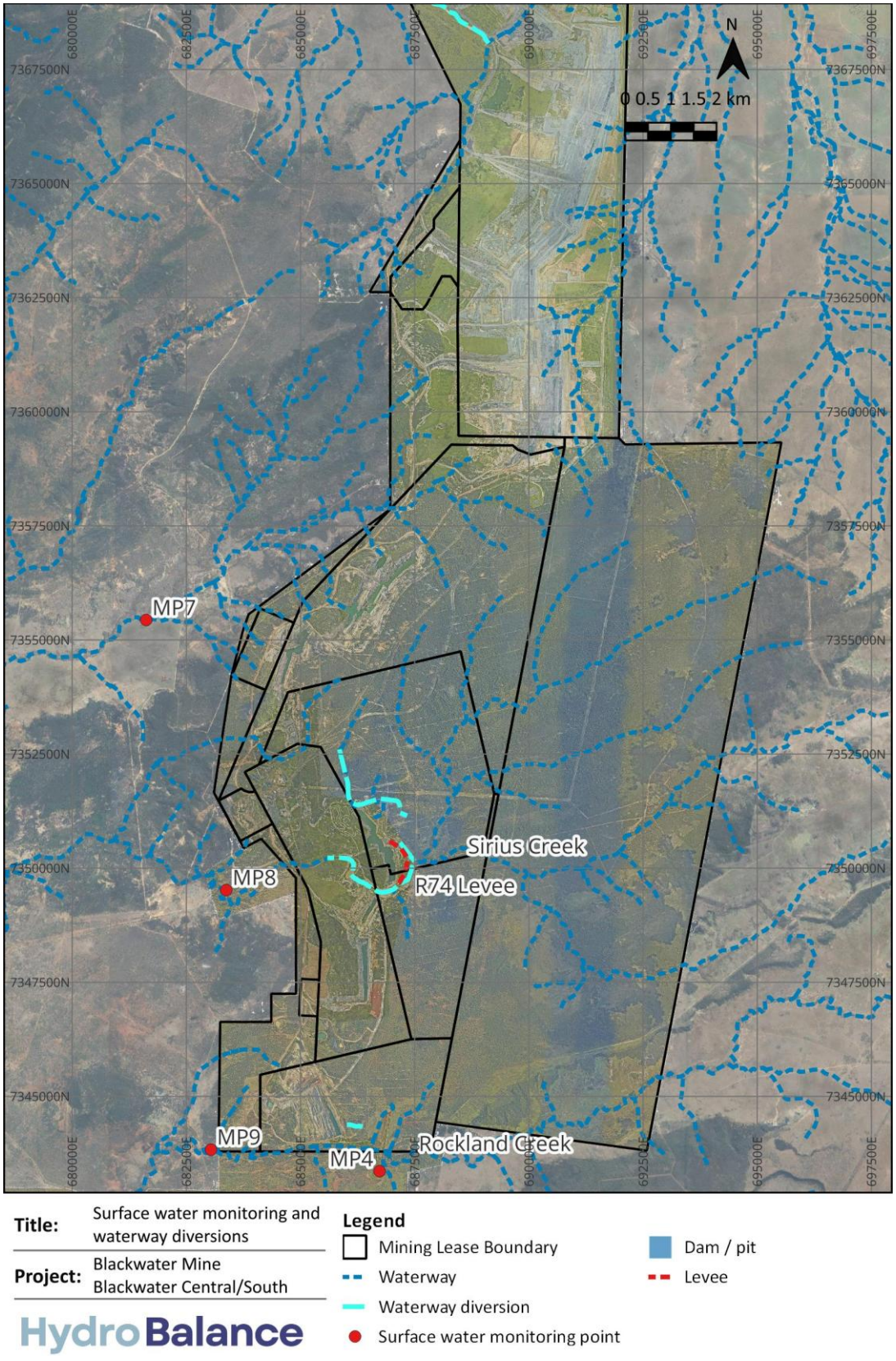


Figure 4: Site overview –South Drainage

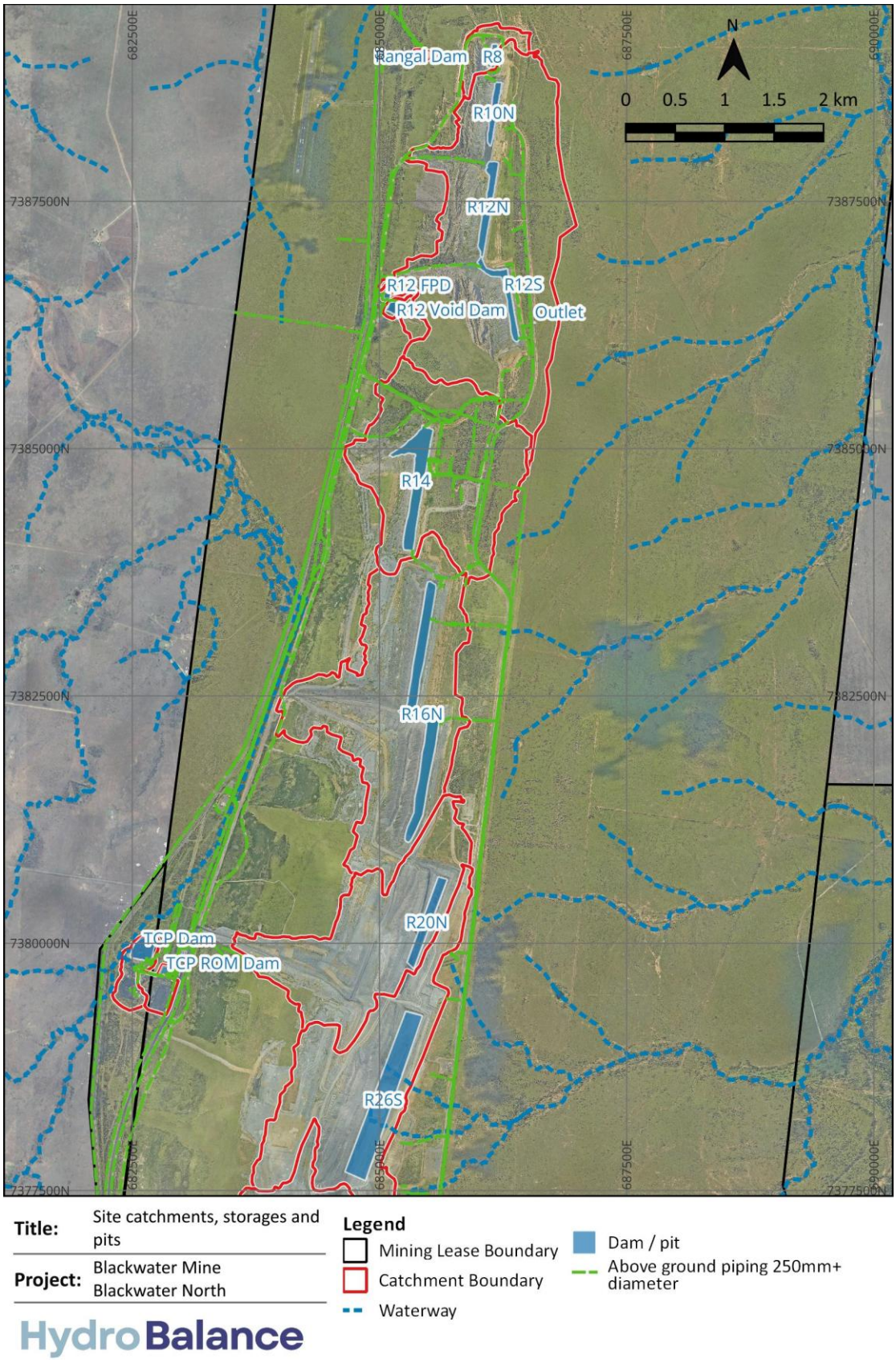


Figure 5: Site overview – North Infrastructure

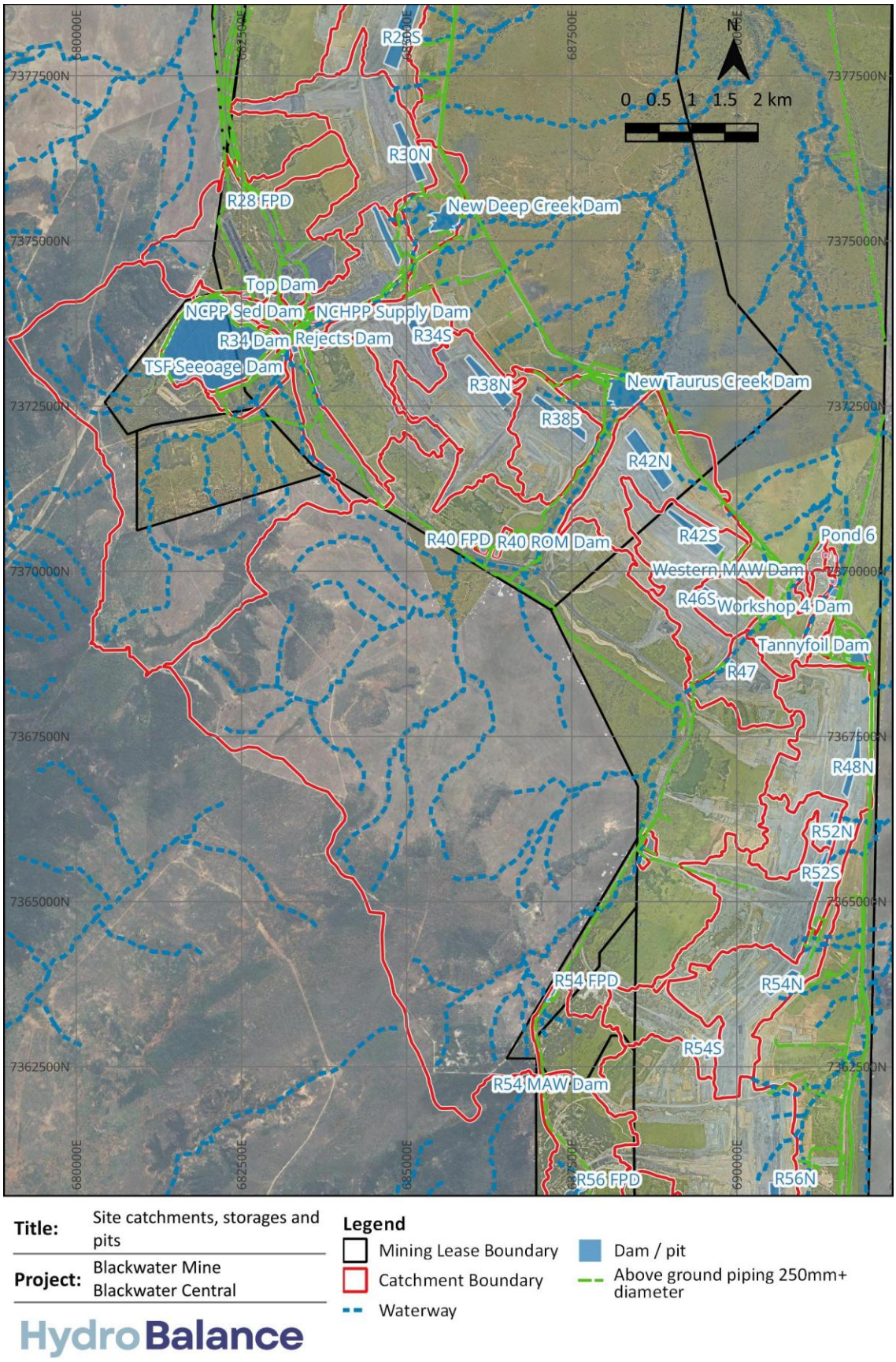


Figure 6: Site overview – Central Infrastructure

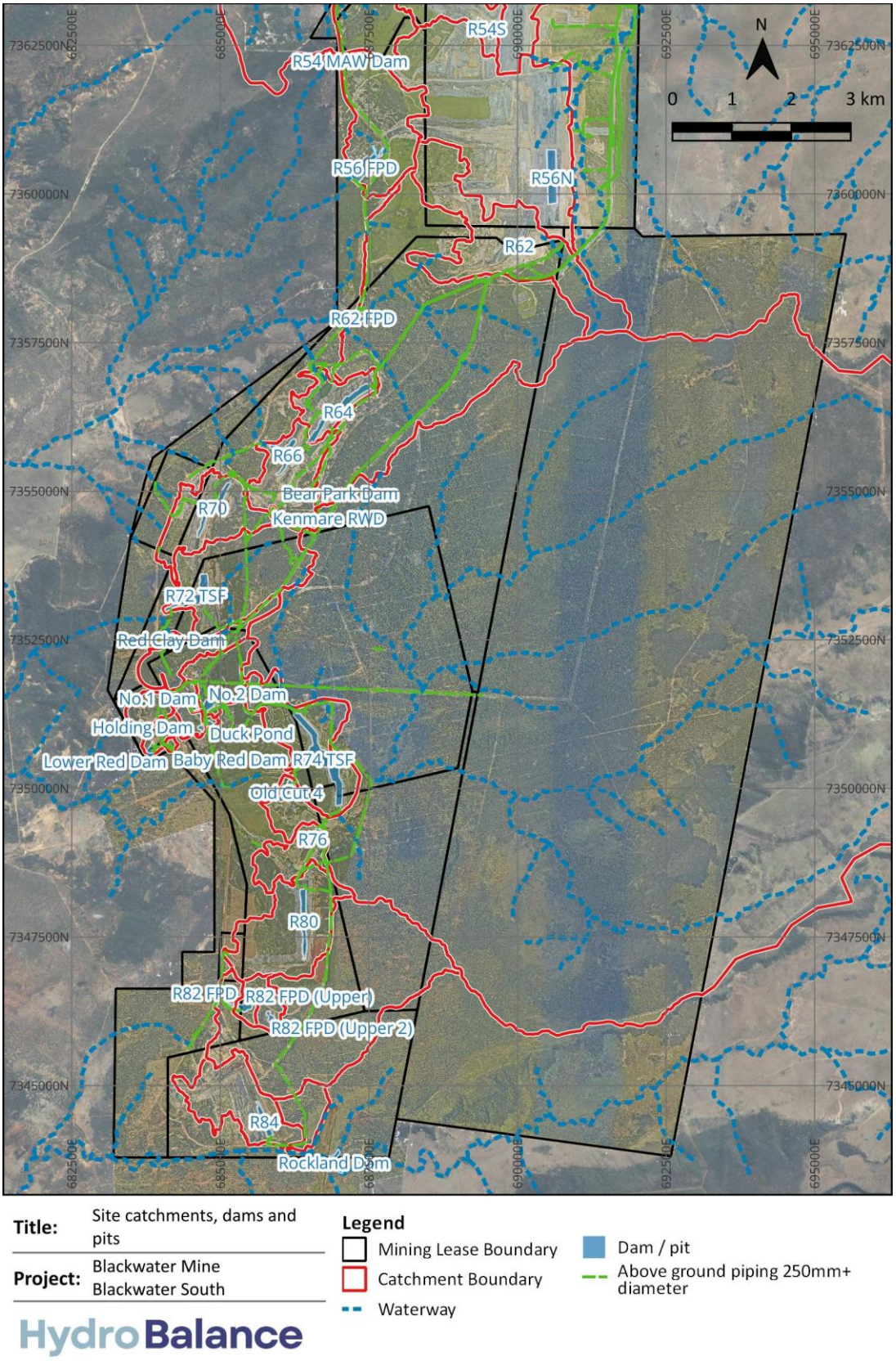


Figure 7: Site overview – South Infrastructure

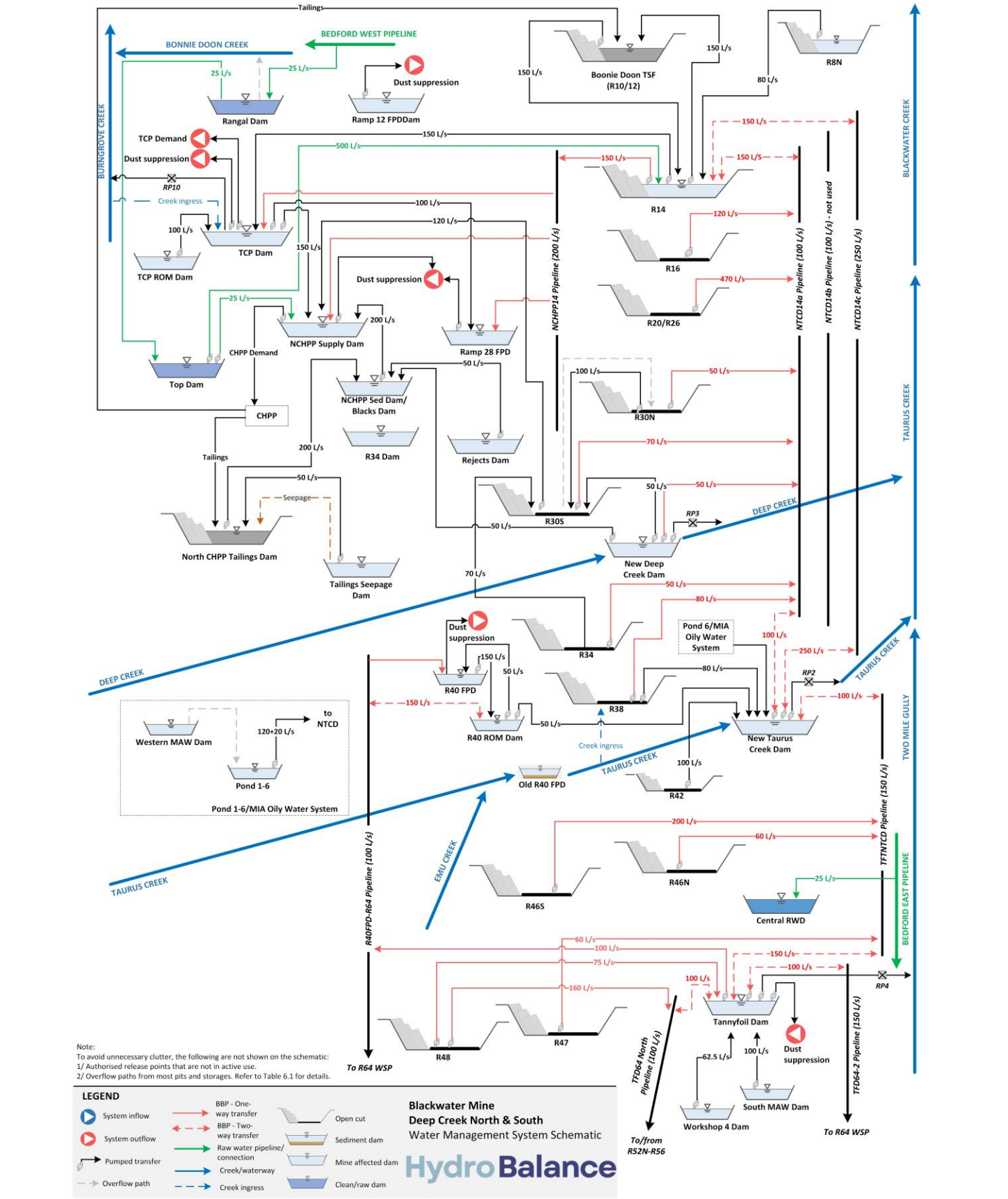


Figure 8: Water balance schematic - Northern area with CHPP

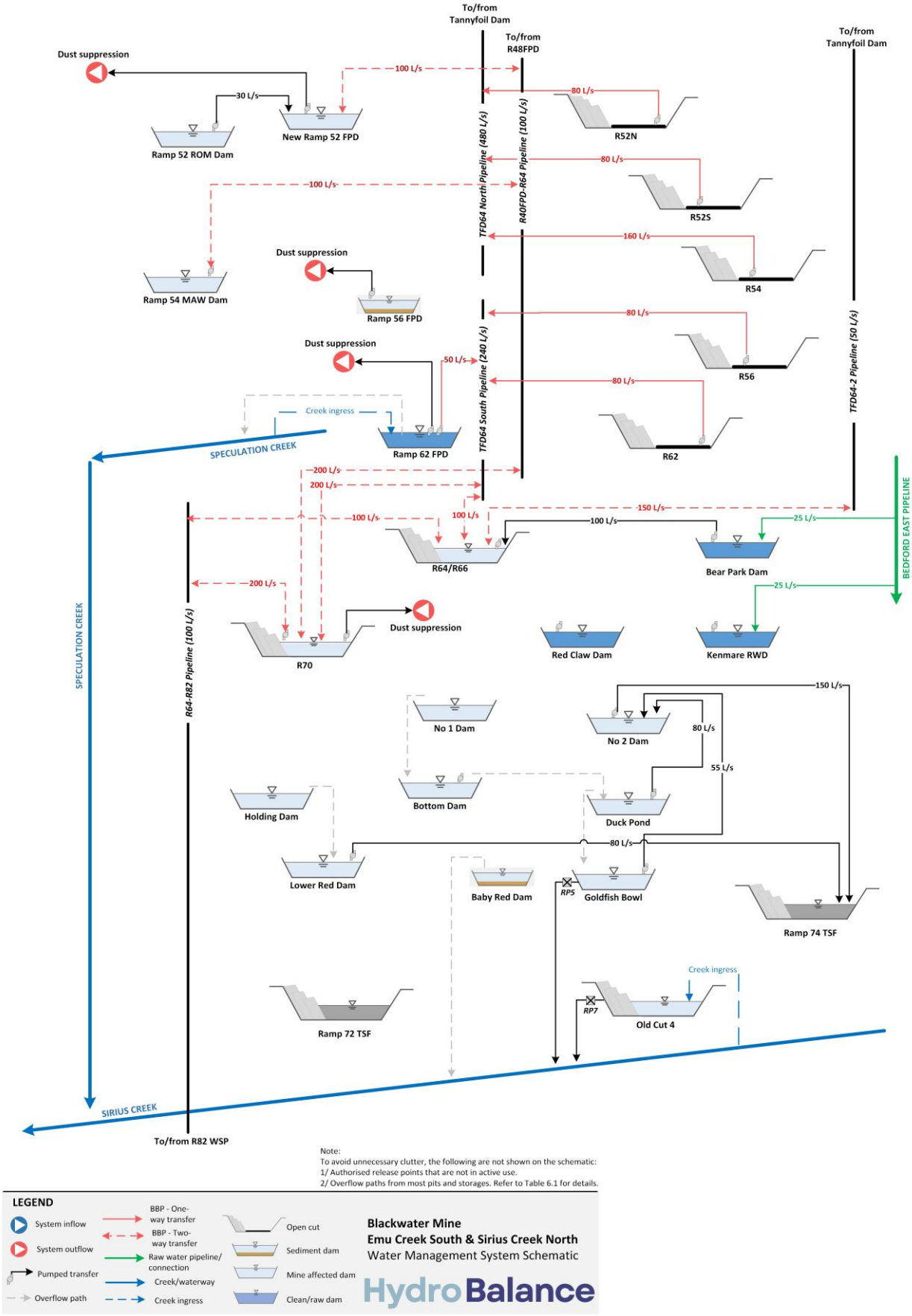
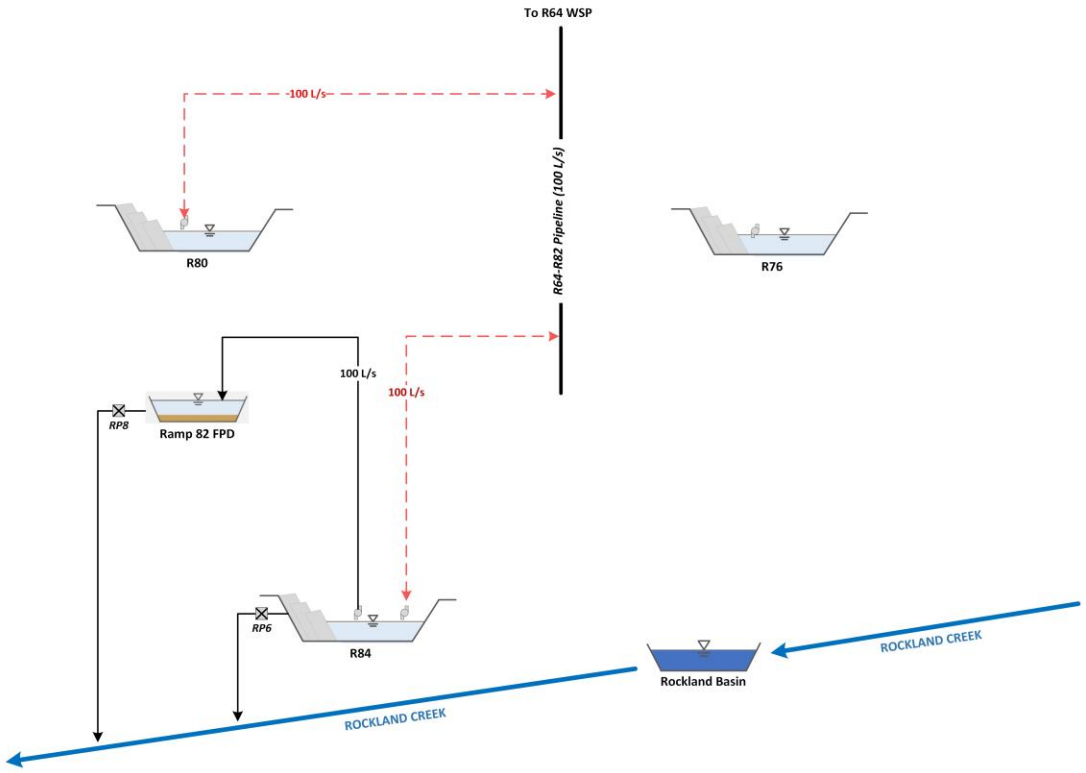


Figure 9: Water balance schematic - Central area



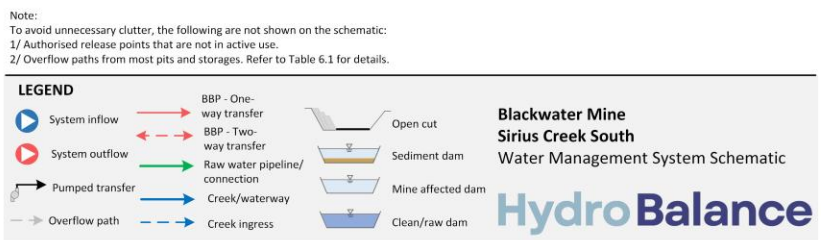


Figure 10: Water balance schematic - Southern area

Appendix 3: Water Management Implementation Plan

12. Implementation Plan

12.1 Introduction

The purpose of this Water Management Implementation Plan (WMIP) is to outline the actions required to bring the areas subject to the Environmental Evaluation (November 2020) into compliance with the BWM Environmental Authority (EA). The proposed Program of Works (as detailed in the Environmental Evaluation Investigation Report submitted to DES in November 2020) was used as the basis for developing the actions listed in Table 2: Implementation Plan.

12.2 Action Verification and Data Management

Visible leadership activities are to be undertaken to verify the completion of the Implementation Plan actions, in collaboration between Engineering and Environmental personnel, to ensure the environmental intent of the actions has been achieved. At an appropriate frequency, the relevant information is to be collated and saved in Documentum for historical record management purposes.

12.3 Reporting

The report required as per EA condition F30 will be known as the ***Implementation Plan Interim Report.*** An annual report (***Implementation Plan Interim Report***) will be provided to DES on 30 November each year, in accordance with condition F30 of the EA. The annual report will include:

- A summary of the actions completed in accordance with the Implementation Plan required by condition F29 during the previous 12 month period, between 30 November and 29 November, including before and after photographs and designs, where appropriate;
- A summary of any amendments made to this Implementation Plan by the environmental authority holder in the previous 12 months; and
- A list of those catchments which have been removed from the Implementation Plan due to all actions for those catchments having been completed.

The report will also include updated catchment areas as per ***Catchment Areas*** of this document. The report required as per EA condition F31 will be known as the ***Implementation Plan Finalisation Report.*** Once all actions in this WMIP have been completed, a final report (***Implementation Plan Finalisation Report***) will be provided to DES in accordance with condition F31 of the EA. The final report will include:

- evidence of completion of each action;
- a map which shows:
- the location (including GPS coordinates) of the erosion and sediment control measures and infrastructure established within each catchment;
    - the direction of runoff within the catchment; and
- creeks and tributaries within the catchment, identifying their direction of flow; and
- details of ongoing monitoring and maintenance requirements of any works required as an outcome of each action.

EA condition F30(a) states *before and after photographs to be provided, where appropriate*. Due to the number of similar actions for multiple catchments the ***Implementation Plan Interim Report*** will therefore include a selection of before and after photograph to highlight the work that has been completed, rather than provide a before and after picture for each and every line item. The remaining before and after photographs will be stored and can be made available to DES upon request.

12.4 Catchment Areas

For this WMIP, BWM has been broken down into hydrological catchment areas. As operations at the mine progress, these catchments are likely to change. Updated catchment areas, and associated maps, are to be provided in the ***Implementation Plan Interim Report*** submitted for each reporting period, in accordance with condition F30 of the EA. ***Figure 1*** to ***Figure 12*** depicts the catchment areas.

12.5 Implementation Plan

The Implementation Plan includes the actions to mitigate potential environmental harm for each sub-catchment classified as generating mine-affected water and potentially discharging to Burngrove Creek, Deep Creek, Taurus Creek, and Emu Creek during rainfall events. These actions include both permanent controls and temporary mitigating works, which may be undertaken while further studies and design work are completed to inform the final permanent controls required.

Table 6 lists the Implementation Plan of actions. Ongoing updates on actual mitigation actions (completed and ongoing) will be provided in the Implementation Plan Interim Report submitted for each reporting period, in accordance with condition F30 of the EA.



Figure 1:

Catchment Map 1

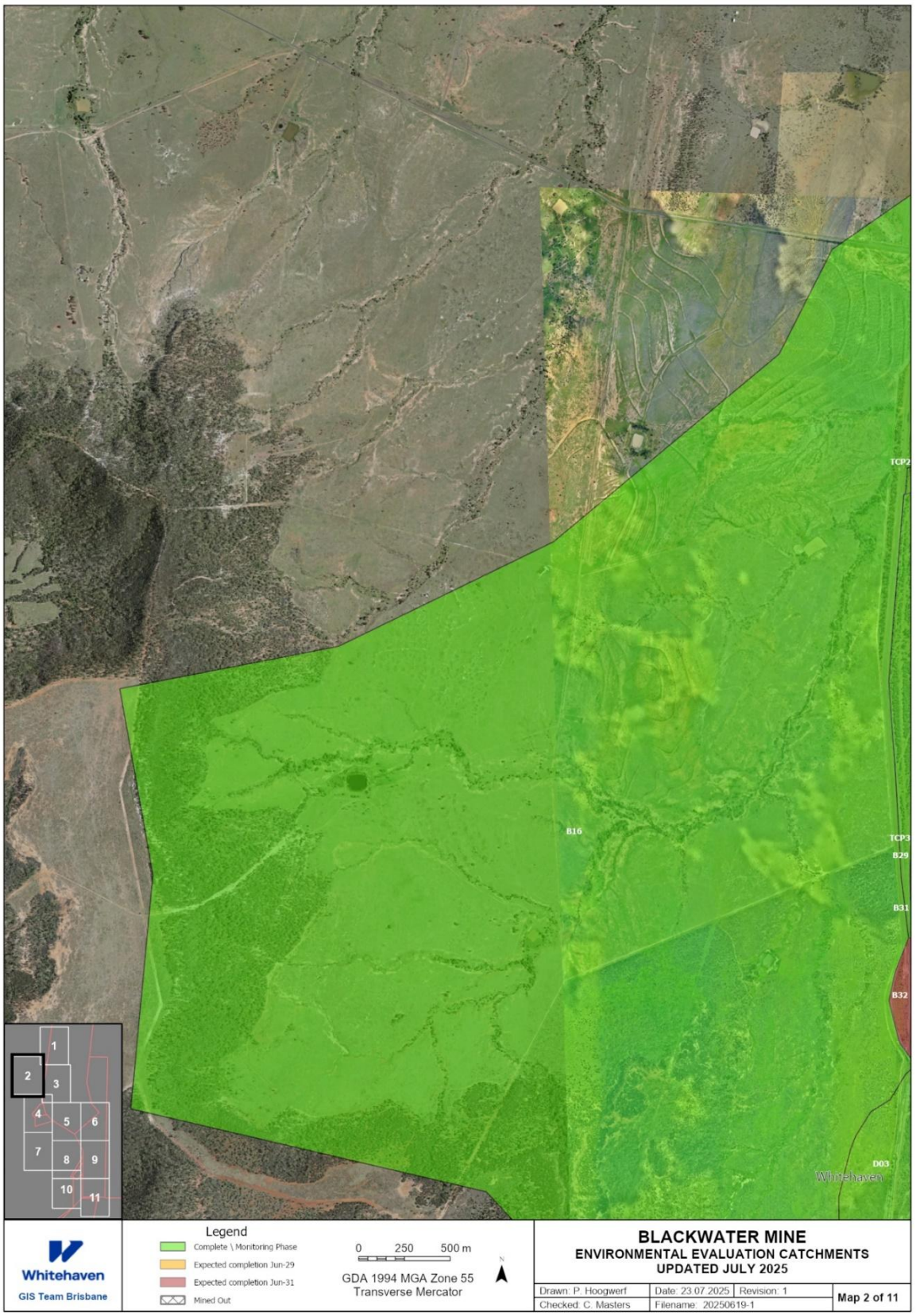


Figure 2: Catchment Map 2

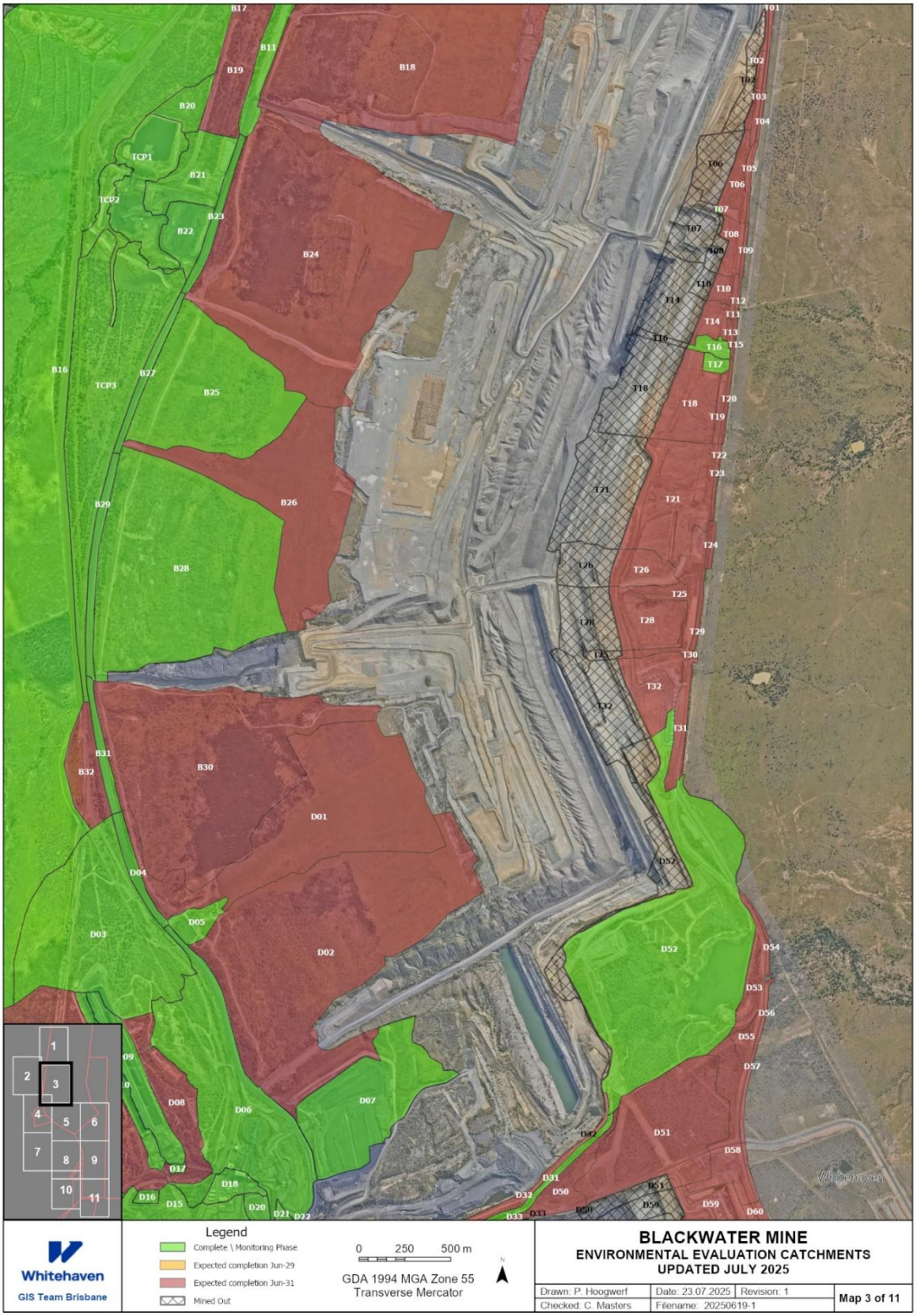


Figure 3: Catchment Map 3

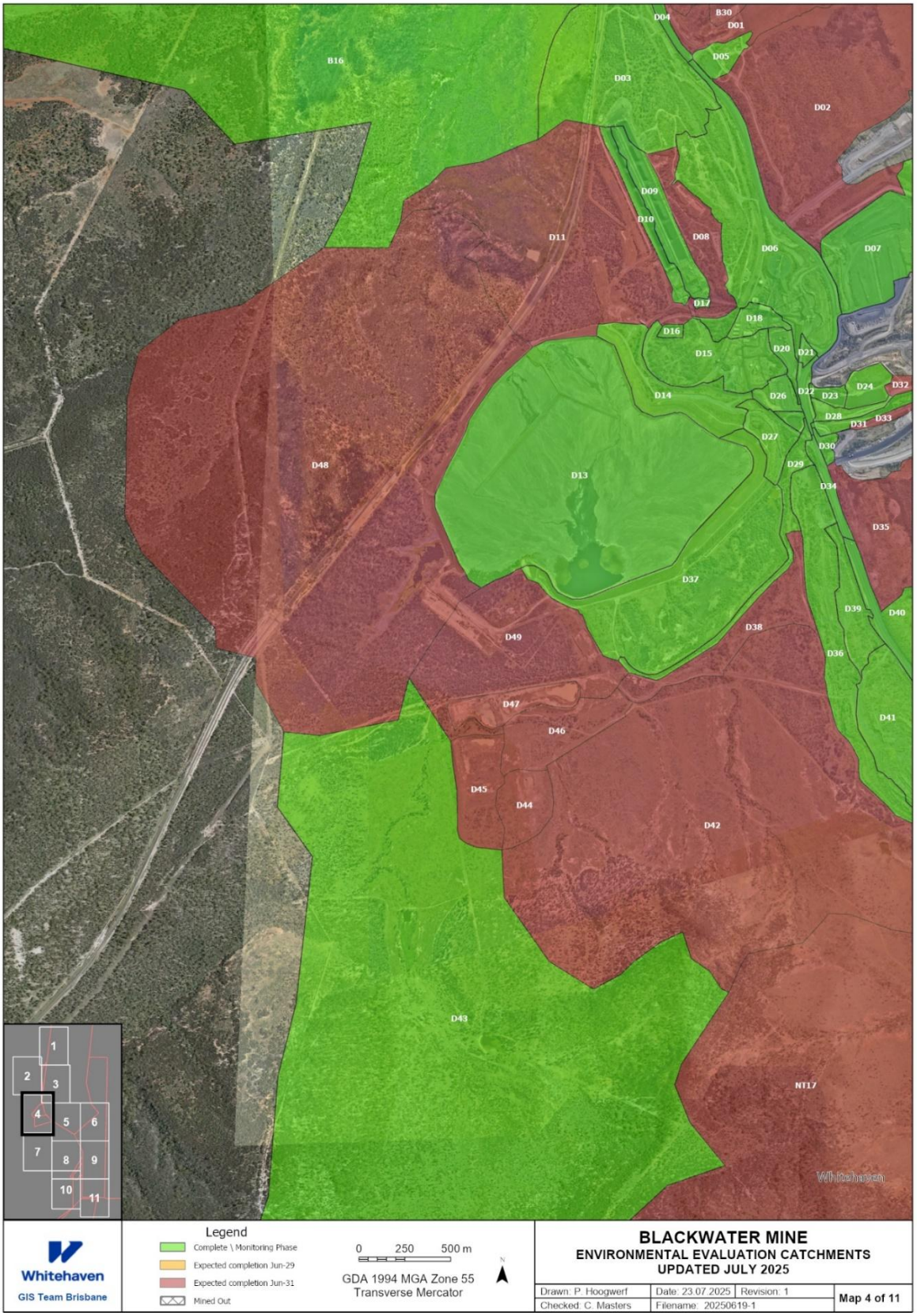


Figure 4: Catchment Map 4

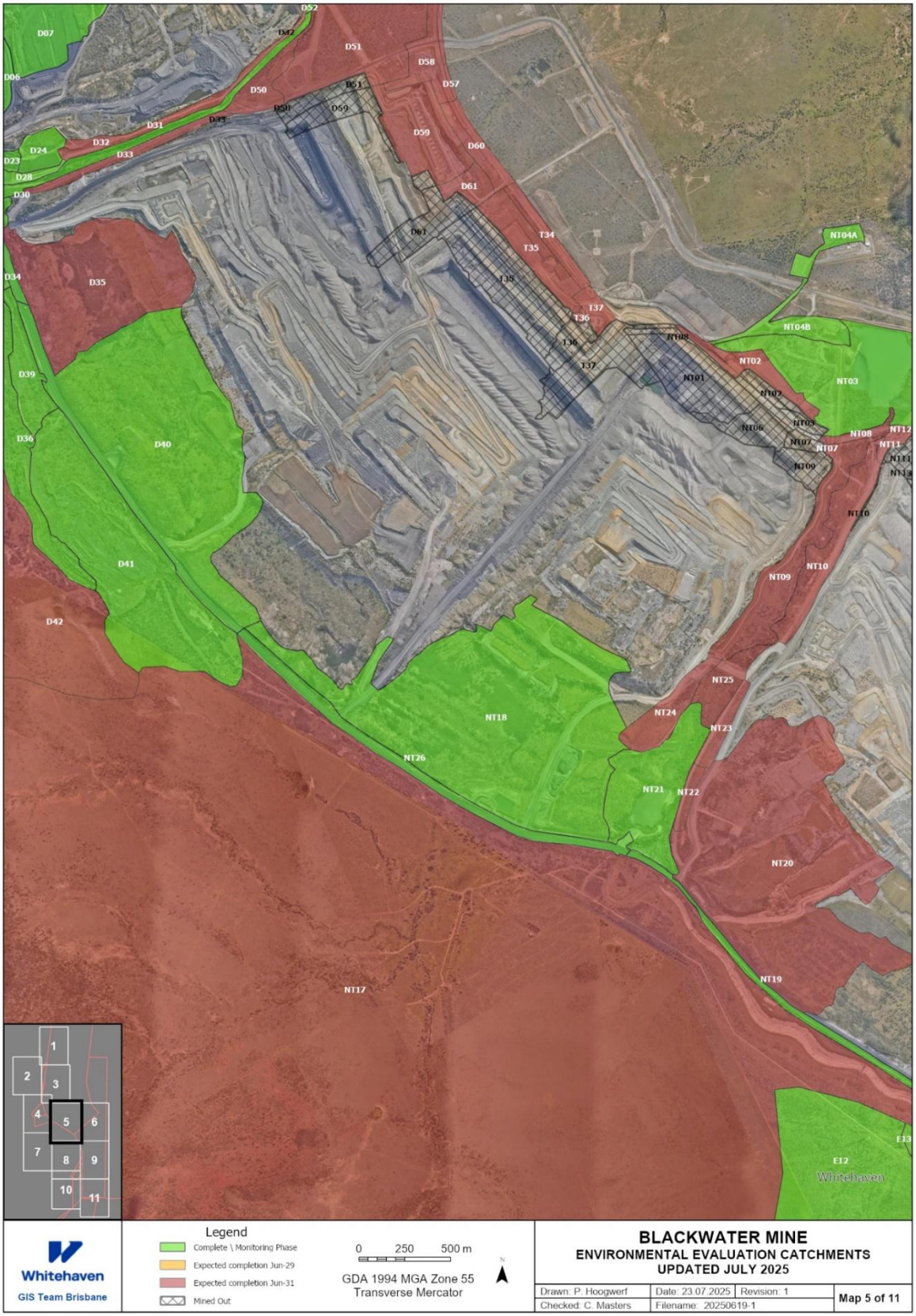


Figure 5: Catchment Map 5

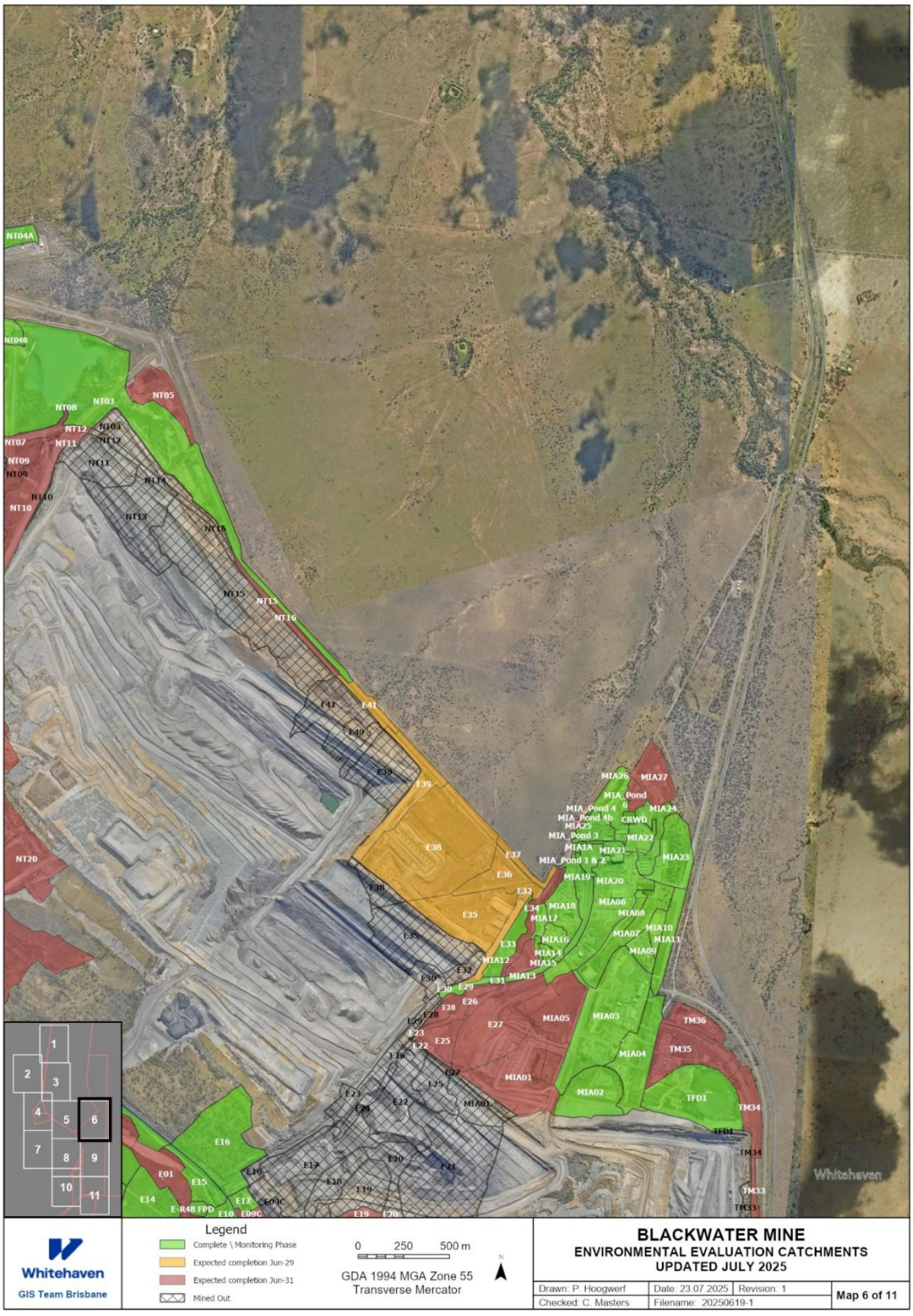


Figure 6: Catchment Map 6

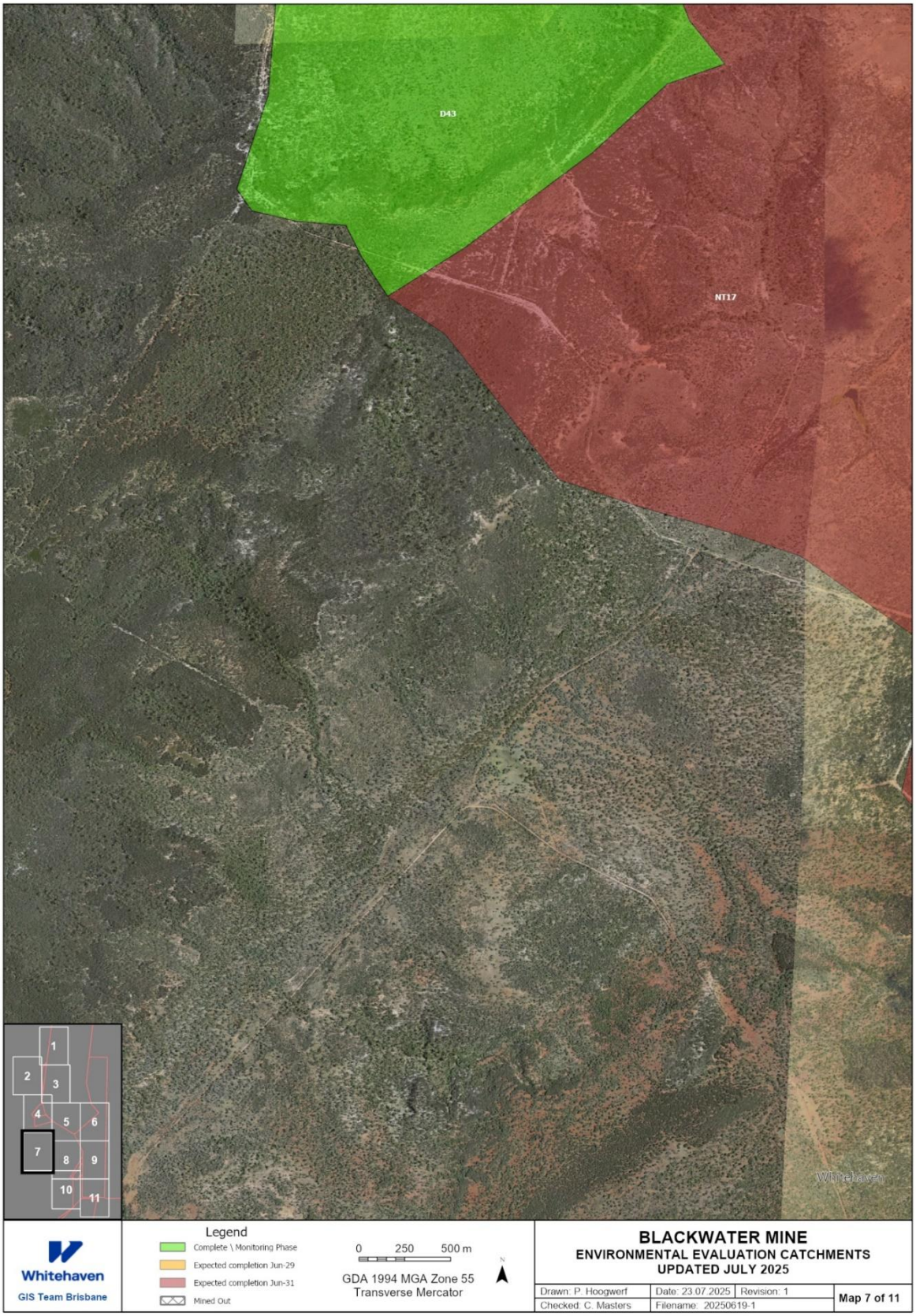


Figure 7: Catchment Map 7

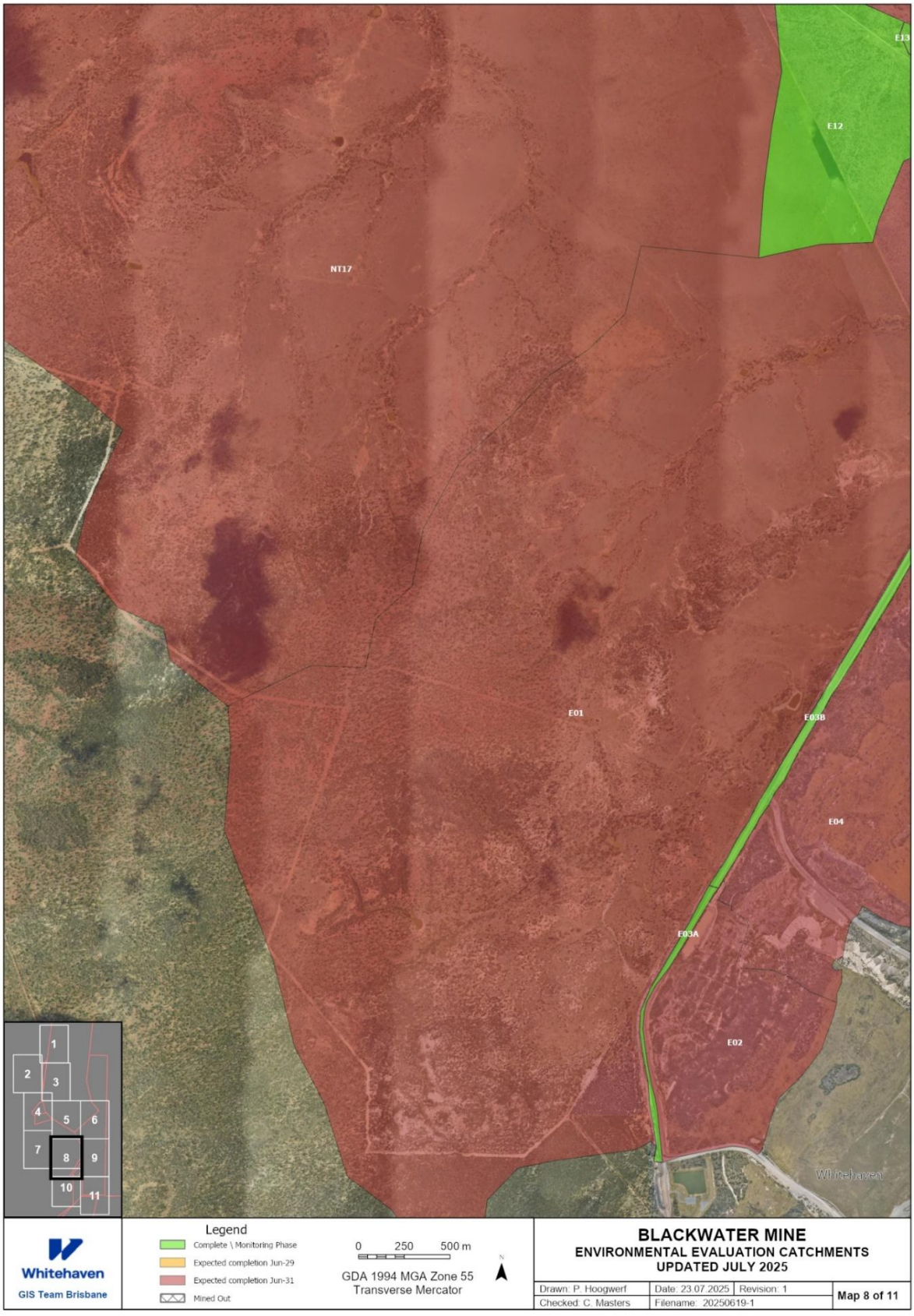


Figure 8: Catchment Map 8



Figure 9: Catchment Map 9



Figure 10: Catchment Map 10

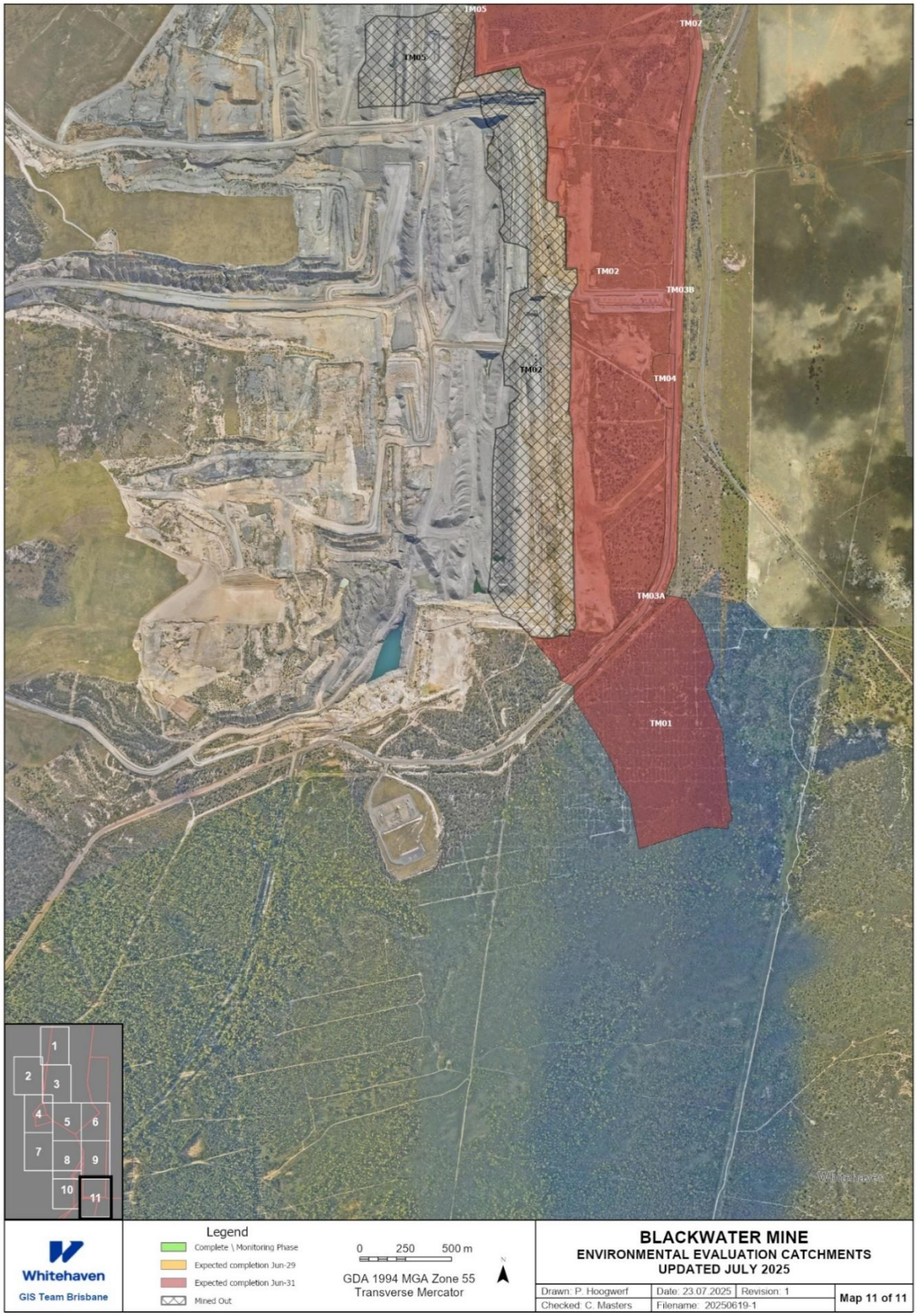


Figure 11: Catchment Map 11

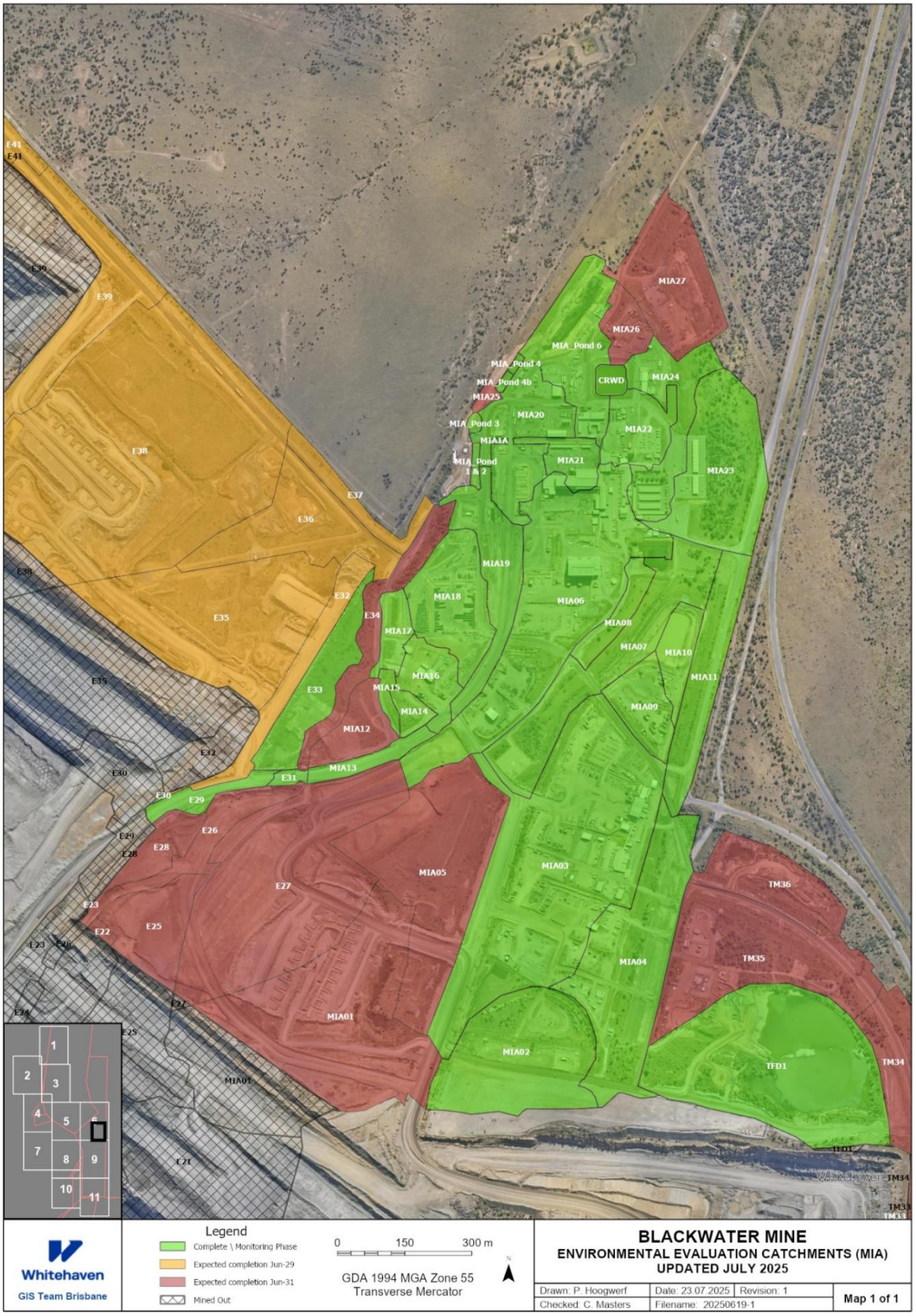


Figure 12: Catchment Map 12

Whitehaven

Table 6: Implementation Plan

Creek	Sub catchment	Catchment ID	Catchment (ha)	Classification	Action Type	Action	Expected Completion Date	Status
TCP WEST OF HAUL ROAD								
Burngrove Creek	TCP & N Burngrove	B19	28.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B21	28.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Burngrove Creek	TCP & N Burngrove	B21	28.8	MAW	Study	Study to investigate options for segregation of clean, ESC and MAW at TCP	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B22	7.9	MAW	Study	Study to investigate options for segregation of clean, ESC and MAW at TCP	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B22	7.9	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	TCP1	19.2	MAW	Mitigation	De-silt dam and install appropriate controls	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	TCP1	19.2	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	TCP2	5.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Burngrove Creek	TCP & N Burngrove	TCP3	60.8	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
TSF, CHPP, NDC & NDC DIVERSION (BOTH SIDES OF HAUL ROAD)								
Burngrove Creek	Sth Burngrove Creek	B32	9.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D03	54.6	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D06	55.8	MAW	Mitigation	CHPP - Complete drainage works and capture of coal fines through local sumps.	1/06/2025	Complete
Deep Creek	Deep Creek	D06	55.8	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D07	35.4	MAW	Mitigation	CHPP - Complete drainage works and capture of coal fines through local sumps.	1/06/2025	Complete
Deep Creek	Deep Creek	D07	35.4	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D08	14.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D08	14.8	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D09	11.7	MAW	Mitigation	CHPP - Complete drainage works and capture of coal fines through local sumps.	1/06/2025	Complete
Deep Creek	Deep Creek	D09	11.7	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D10	6.1	MAW	Mitigation	CHPP - Complete drainage works and capture of coal fines through local sumps.	1/06/2025	Complete
Deep Creek	Deep Creek	D10	6.1	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D11	102.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D13	156.9	MAW	Study	Study to understand any potential seepage pathways and hydraulic connections	1/06/2025	Complete
Deep Creek	Deep Creek	D48	400.4	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D49	54	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D14	19.5	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D15	20.6	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D17	0.4	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D18	3.8	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D20	3	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D21	1	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D22	2.4	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D23	1.8	MAW	Mitigation	De-silt dam and install appropriate controls	1/06/2025	Complete
Deep Creek	Deep Creek	D23	1.8	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D24	4.6	MAW	Mitigation	De-silt dam and install appropriate controls	1/06/2025	Complete
Deep Creek	Deep Creek	D24	4.6	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D26	6.7	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D27	1.2	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D30	1.4	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete

Deep Creek	Deep Creek	D34	3.4	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D35	51.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D37	63.1	MAW	Study	Study to understand any potential seepage pathways and hydraulic connections	1/06/2025	Complete
Deep Creek	Deep Creek	D28	1.2	MAW	Study	Study to provide a holistic investigation of options to manage MAW in NDC Catchments.	1/06/2025	Complete
Deep Creek	Deep Creek	D32	6.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D33	5.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D50	6.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
EAST OF HAUL ROAD (Inc Haul Road) - BURNGROVE (R14S) TO BESGROVE (NORTH OF R30) LOW WALLS								
Burngrove Creek	TCP & N Burngrove	B01	21.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B02	2.1	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B03	59.1	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B04	9.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B05	59.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B07	2.7	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B08	7.4	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B09	27	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B10	28.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B11	18.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B12	32	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B13	7.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B14	88.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B15	4.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B17	15.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B18	140.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B24	128.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B23	18.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Burngrove Creek	TCP & N Burngrove	B26	49.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	TCP & N Burngrove	B27	3.9	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or	1/06/2025	Complete

						b) install regional or localised MAW structures.		
Burngrove Creek	Sth Burngrove Creek	B29	28.1	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Burngrove Creek	Sth Burngrove Creek	B30	93.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Burngrove Creek	Sth Burngrove Creek	B31	3.6	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Deep Creek	Deep Creek	D01	65.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D04	7.9	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Deep Creek	Deep Creek	D05	7.9	MAW	Mitigation	Undertake rehabilitation of area or install appropriate controls	1/06/2025	Complete
Deep Creek	Deep Creek	D02	115.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
						WEST OF HAUL ROAD - SOUTH OF TSF TO WILPEENA PITS		
Deep Creek	Deep Creek	D38	18.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D41	68.6	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Deep Creek	Deep Creek	D42	286.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D44	10.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D45	15	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D46	17.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D47	9.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Deep Creek	Deep Creek	D36	29.6	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Deep Creek	Deep Creek	D39	9.2	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT17	2360	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (West Haul Road)	E12	104	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek (West Haul Road)	E13	5.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek (West Haul Road)	E14	6.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek (REST)	E15	3.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E10	10.2	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete

Emu Creek	Emu Creek (REST)	E-R48 FPD	0.7	MAW	Mitigation	Undertake rehabilitation of area or install appropriate controls	1/06/2025	Complete
Emu Creek	Emu Creek (West Haul Road)	E01	1302.4	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E11	1.7	MAW	Mitigation	Install MAW and or erosion and sediment controls	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E08	6.4	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E07	0.7	MAW	Mitigation	Undertake rehabilitation of area or install appropriate controls	1/06/2025	Complete
EAST OF HAUL ROAD - NORTH OF R36 TO NORTH OF R46 LOW WALLS INCLUDING CREEK/DIVERSION								
Deep Creek	Deep Creek	D40	104.3	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Deep Creek	Deep Creek	D40	104.3	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT18	131.9	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT26	14.4	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT21	26.6	MAW	Mitigation	Undertake rehabilitation of area or install appropriate controls	1/06/2025	Complete
Taurus Creek	Taurus Creek Dam	NT24	8.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT09	36.7	ESC	Mitigation	Establish Local ESC around the Taurus Creek diversion system	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT10	15.6	ESC	Mitigation	Establish Local ESC around the Taurus Creek diversion system	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT25	13.4	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT22	2.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT23	6.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT19	10.5	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Taurus Creek	Taurus Creek Dam	NT20	120.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
EAST OF HAUL ROAD - SOUTH OF R46 TO WILPEENA PITS LOW WALLS								
Emu Creek	Emu Creek (REST)	E16	18.7	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E16	18.7	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E17	6.8	MAW	Mitigation	Undertake rehabilitation of area or install appropriate MAW controls	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E17	6.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete

Emu Creek	Emu Creek (REST)	E18	4.9	ESC	Mitigation	Consumed by pit progression	1/06/2031	Complete
Emu Creek	Emu Creek (REST)	E19	14.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E20	21.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E21	41.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E22	4.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E23	5.7	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E23	5.7	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E24	0	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E09C	17	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E09B	29.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E09B	29.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E09A	41.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E09A	41.5	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E06	84.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E05	2.9	MAW	Mitigation	R52 Stockpile - Install appropriate MAW and ESC containment Structures	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E04	310.7	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E04	310.7	MAW	Mitigation	R54 Stockpile - Install appropriate MAW and ESC containment Structures	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E02	91	MAW	Mitigation	Undertake rehabilitation of area or install appropriate controls	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E02	91	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E03A	4.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E03B	12.6	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
MIA & TANNYFOIL								
Emu Creek	Emu Creek (REST)	E25	11.4	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E26	2.9	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E27	9.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek (REST)	E28	2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	

Emu Creek	Emu Creek (REST)	E29	2	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E31	0.3	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek (REST)	E34	2.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA12	1.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA13	1.5	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA14	0.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA15	0.4	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA16	1.8	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA05	10.7	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA01	19	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA02	8.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA03	19.5	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA04	9.3	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Two Mile Gully	Two Mile Gully	TFD1	14	MAW	Mitigation	De-silt dam and install appropriate controls	1/06/2025	Complete
Two Mile Gully	Two Mile Gully	TM34	4.7	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Two Mile Gully	Two Mile Gully	TM35	9	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Two Mile Gully	Two Mile Gully	TM35	9	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Two Mile Gully	Two Mile Gully	TM36	3.8	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA09	2.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA10	1.5	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA07	6.6	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA08	1.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA06	13.3	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA19	3.8	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA19	3.8	MAW	Study	Undertake a contamination study and options assessment for the haul road to determine if; a) MAW (rejects) on or along the haul road can be removed and/or managed as ESC, or b) install regional or localised MAW structures.	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA17	1.1	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete

Emu Creek	Emu Creek MIA	MIA18	4.2	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA20	4.3	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA21	1.3	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA22	2.4	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA23	6.8	ESC	Mitigation	Install appropriate ESC controls around gravel carpark	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA24	3.7	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	Complete
Emu Creek	Emu Creek MIA	MIA25	0.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA26	1.3	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA27	5.2	ESC	Mitigation	Undertake rehabilitation of area or install appropriate erosion and sediment controls	1/06/2031	
Emu Creek	Emu Creek MIA	MIA_Pond 1&2	0.2	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA1A	0.2	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA_Pond 3	0.1	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA_Pond 4	0.2	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA_Pond 4b	0.2	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
Emu Creek	Emu Creek MIA	MIA_Pond 6	4.6	MAW	Mitigation	Install appropriate MAW and erosion and sediment controls and clean water diversions within MIA	1/06/2025	Complete
TOP TO BOTTOM HIGHWALLS (EXCLIUDING MIA & Tannyfoil Dam)								
Taurus Creek	Taurus Creek Rest	T01	1.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T02	5.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T03	1.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T04	0.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T05	1.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T06	11.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T07	7.9	ESC	Mitigation	Consumed by pit progression	1/06/2031	Complete
Taurus Creek	Taurus Creek Rest	T08	4.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T09	0.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T10	3.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T11	0.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T12	0.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T13	0.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T14	15.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T15	0.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T16	2.9	MAW	Mitigation	Install MAW containment Structures at Reload Facility and manage residual area through ESC at the point of discharge	1/06/2025	Complete

Taurus Creek	Taurus Creek Rest	T17	1.3	MAW	Mitigation	Install MAW containment Structures at Reload Facility and manage residual area through ESC at the point of discharge	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	T18	28.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T19	1.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T20	1.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T21	48.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T22	0.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T23	0.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T24	1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T25	10.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T26	12.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T28	22.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T29	1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T30	0.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T31	4.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T32	26.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D52	115.7	MAW	Mitigation	De-silt dam and install appropriate controls	1/06/2025	Complete
Deep Creek	Deep Creek	D51	43.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D53	5.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D54	0.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D55	2.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D56	0.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D57	2.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D58	11.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D59	26	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D60	5.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Deep Creek	Deep Creek	D61	13.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T34	4.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T35	33.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T36	4.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	T37	16.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT01	16.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT02	8.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT03	71.7	MAW	Mitigation	De-silt dam and install appropriate controls	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT04A	5.4	MAW	Mitigation	Install MAW containment Structures at Reload Facility and manage residual area through ESC at the point of discharge	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT04B	5.4	MAW	Mitigation	Undertake rehabilitation of area or install appropriate controls	1/06/2025	Complete
Taurus Creek	Taurus Creek Rest	NT05	5.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Dam	NT06	6.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT07	1.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT08	36.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT11	9.2	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	

Taurus Creek	Taurus Creek Rest	NT12	1.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT13	9.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT14	4.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT15	28.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Taurus Creek	Taurus Creek Rest	NT16	4.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Emu Creek	Emu Creek (West Haul Road)	E41	2.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (West Haul Road)	E40	1.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (West Haul Road)	E39	15.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (West Haul Road)	E38	30.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (West Haul Road)	E37	1.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (West Haul Road)	E36	6.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (West Haul Road)	E35	24.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (REST)	E32	4.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2029	
Emu Creek	Emu Creek (REST)	E30	2.5	ESC	Mitigation	Consumed by pit progression	1/06/2029	Complete
Two Mile Gully	Two Mile Gully	TM33	16.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM32	4.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM31	12.8	ESC	Mitigation	Consumed by pit progression	1/06/2031	Complete
Two Mile Gully	Two Mile Gully	TM30	3.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM29	4.4	ESC	Mitigation	Consumed by pit progression	1/06/2031	Complete
Two Mile Gully	Two Mile Gully	TM28	4.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM27	11.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM26	4.4	ESC	Mitigation	Consumed by pit progression	1/06/2031	Complete
Two Mile Gully	Two Mile Gully	TM25	10.8	ESC	Mitigation	Consumed by pit progression	1/06/2031	Complete
Two Mile Gully	Two Mile Gully	TM24	7.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM23	33.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM22	8.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM21	36	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM20	7.7	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM19	9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM18	2.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM17	0.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM16	1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM14	10.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM15	3.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM13	3.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM12	1.8	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	

Two Mile Gully	Two Mile Gully	TM11	8.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM09	2.1	MAW	Mitigation	Install appropriate MAW Controls	1/06/2025	Complete
Two Mile Gully	Two Mile Gully	TM10	2.4	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM08	7.9	MAW	Mitigation	Install appropriate MAW Controls	1/06/2025	Complete
Two Mile Gully	Two Mile Gully	TM07	3.1	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM06	112.5	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM05	29.1	MAW	Mitigation	Install MAW containment Structures at Reload Facility and manage residual area through ESC at the point of discharge	1/06/2025	Complete
Two Mile Gully	Two Mile Gully	TM04	2.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM03A	7.3	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM03B	18.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM02	350.6	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	
Two Mile Gully	Two Mile Gully	TM01	73.9	ESC	Mitigation	Implement ESC measures ahead of pit progression	1/06/2031	

Appendix 4: Tables

Table 7: List of site storages

Storage Name	Operating capacity (ML)	Spill risk (AEP)	Regulated status	LDP	Function
Tailings Dams					
NCPP Tailings Dam	4131 [A]	>1%	Regulated	-	Northern Coal Preparation Plant tailing storage - Emergency deposition of tailings only
Ramp 10/12 (Bonnie Doon)	13,120 [A]	>1%	Regulated	-	Active tailings disposal for NCPP
SCPP Ramp 72 In Pit Tailings	487	>1%	Regulated	-	Tailings storage SCPP - No active deposition of tailings, MAW storage
SCPP Ramp 74 In Pit Tailings	6,932 [A]	>1%	Regulated	-	Tailings storage SCPP - No active deposition of tailings, MAW storage
On stream storages					
New Deep Creek Dam	268.9	93%	Licensed (active)	RP3	Receives mine affected water from Deep Creek Diversion for reuse in NCPP or discharge in accordance with EA conditions. MAW is not pumped into New Deep Creek Dam.
Old Cut 4	447.5	TBA	Licensed (inactive)	RP7	Old mine void at the end of Sirius Creek diversion to capture sediment
Rockland Dam	13,800	>1%	Licensed (active)	-	Detention dam - flood mitigation for Ramp 84.
Taurus Dam	533.9	53%	Licensed (active)	RP2	Storage of mine affected water for reuse (including pit and process water for use in the NCPP) or discharge in accordance with EA conditions.
Pit storages					
Ramp 8N Pit	<200	<1%	-	-	Storage of long-term water supplies.
Ramp 14S Pit	8,191	<1%	-	-	Storage of long-term water supplies.
Ramp 16 Pits	11,999	<1%	-	-	Contingency storage. Mine schedule indicates this pit will be dewatered and mined in the mid to long-term planning horizon (<5 yrs)
Ramp 30S Pit	860	<1%	-	-	Storage of long-term water supplies.
Ramp 62	2,000	<1%	-	-	Storage of long-term water supplies.
Ramp 64 Dam	594	<5%	-	-	Part of the pit ramp but separate from main void
Ramp 64 and 66	4,963	<1%	-	-	Storage of long-term water supplies.
Ramp 70	2,170	<1%	-	-	Storage of long-term water supplies.
Ramp 76	2,149	<1%	-	-	Storage of long-term water supplies.
Ramp 80	7,879	<1%	-	-	Storage of long-term water supplies.
Ramp 84	7,563	<1%	Licensed (inactive)	RP6	Storage of long-term water supplies.
Blackwater North MAW Dams					

Storage Name	Operating capacity (ML)	Spill risk (AEP)	Regulated status	LDP	Function
Tannyfoil Dam	106.1	1%	Licensed (active)	RP4	Capture and storage of MAW including pit and process water for use in NCPP and dust mitigation.
Rejects Dam	16	<20%	Licensed (inactive)	RP12	Capture of MAW off the rejects dump
Ramp 34 Storage	11.8	<20%	Licensed (inactive)	RP13	Capture of MAW runoff from the Southern Shut Down Pad
NCHPP Sediment Dam / Blacks Dam	39.3	<20%	Licensed (inactive)	RP11	Capture and management of MAW and ESC water from the NCHPP area and supply to the CHPP to satisfy site water demands
NCHPP Supply Dam	48.7	NA	-	-	MAW storage dam, raw water dam to supply the CHPP water demands
TSF Seepage Dam	41.3	<10%	-	-	Capture of MAW and collection of seepage from the eastern embankment of the NCPP Tailings Dam
R12 Fill Point Dam	241.8	-	-	-	MAW storage dam and fill point for dust suppression
TCP Dam	68	<20%	Licensed (active)	RP10	Capture and storage of MAW including pit and process water for use in the NCPP.
Top Dam (NCHPP Rail Loop Dam)	100	-	-	-	Capture and management of MAW and ESC water from the NCHPP area and supply to the CHPP to satisfy site water demands
R28 Fill Point Dam	7.5	-	-	-	MAW storage dam and fill point for dust suppression
South MAW Dam	13.4	5%	-	-	Capture of runoff from the Main Industrial Area (MIA)
Pond 1	<0.6	<20%	-	-	Capture of runoff from the Main Industrial Area (MIA), oily water treatment plant
Pond 2	<0.6	<20%	-	-	Capture of runoff from the Main Industrial Area (MIA) and overflow from Pond 1
Western MAW Dam	3	5%	-	-	Capture of runoff from the Main Industrial Area (MIA) and drill yard catchments and any overflows from Pond 2. Gravity fed to Pond 4
Pond 4	1.2	<5%	-	-	Capture of runoff from the Main Industrial Area (MIA) and any overflows from Pond 4. Gravity fed from Western MAW.
Pond 6	23.5	<1%	-	-	Capture of runoff from the Main Industrial Area (MIA), holding dam for the MIA MAW system (overflow from Pond 4)
Workshop 4 Dam	51.3	1%	-	-	Capture of runoff from the Main Industrial Area (MIA) - Pre-strip contractor workshop
R40 Fill Point Dam	13.1	5%	-	-	MAW storage dam and fill point for dust suppression
R40 ROM Dam	12.3	5%	-	-	Store MAW from adjacent ROM pad
R52 ROM Dam	12	5%	-	-	Store MAW from adjacent ROM pad
R52 Fill point Dam	20.1		-	-	MAW storage dam and fill point for dust suppression
R54 MAW Dam	26.6	5%	-	-	MAW storage dam and fill point for dust suppression
South Blackwater MAW Dams					

Storage Name	Operating capacity (ML)	Spill risk (AEP)	Regulated status	LDP	Function
Ramp 82 Fill Point Dam	110.3	-	Licensed (inactive)	RP8	Intermittently has been used as a MAW storage dam and MAW fill point dam in the past. No active MAW water being pumped to dam for fill point use.
Lower Red Dam	80	TBA	Regulated	-	To prevent off-lease discharge of low pH surface water to Sirius Creek.
Upper Red Dam (Holding Dam)	113	TBA	Regulated	-	To prevent off-lease discharge of low pH surface water to Sirius Creek.
Baby Red Dam	0.5		-	-	MAW catchment containment dam
Bottom Dam	0.45	5%	Regulated	-	Duckpond System (SCPP Holding Dams) - Integrated Containment System. Captures MAW runoff from the SCPP and ROM
Duck Pond	61.9			-	
Goldfish Pond	15			RP5	
No 1 Dam	7.2			-	
No 2 Dam or Laleham Dam	156			-	

[A] – volume is inclusive of tailings and water

Whitehaven

WHC-BWM-PLN-EROSION AND SEDIMENT CONTROL MANAGEMENT PLAN		
Whitehaven	Document Owner: Superintendent Environment Document Approver: Manager Environmental & Rehabilitation Revision Period: 60 Months	Issue: 1.1 Last Revision Date: October 2026

BWM Erosion and Sediment Control Management Plan

Approval	Name	Position	Date
Document Owner:	Mark Gastaldon	Superintendent Environment	1/10/2026
Authorised by:	Daryl Robinson	Manager Environment & Rehabilitation	1/10/2026

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1. Purpose

The primary purpose of the Blackwater Mine (BWM) Erosion and Sediment Control Plan (ESCP) is to outline the processes and activities to be implemented as per the requirements of the WHC QLD STD Erosion and Sediment Control and Mine Affected Water (***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***) in an effort to control erosion and sedimentation resulting from mining and associated operational activities.

The objectives of this ESCP are to:

- Minimise and mitigate erosion and sedimentation resulting from operations as well as erosion impacts associated with clearing of vegetation along banks of drainage lines;
- Prevent the degradation of water quality resulting from erosion and sedimentation through continued monitoring and improvement measures;
- Separate runoff from disturbed and undisturbed areas where practicable;
- Divert water from disturbed catchments into mine water storages or sediment dams constructed to contain runoff;
- Divert clean water from entering areas of planned and existing disturbance;
- Rehabilitation of disturbed areas to allow vegetation propagation and regrowth;
- Improve the integrity of areas prone to erosion through temporary and permanent erosion control techniques; and
- Provide information necessary to implement effective erosion control measures.

2. Scope

This plan addresses, but is not limited to:

- Erosion and sedimentation controls;
- Management of surface water flow from operational areas;
- Contingency plans, operational measures and mitigation techniques to manage erosion and sedimentation impact; and
- Measures to minimise the release of sediment to receiving waters.

Activities which may cause erosion and sedimentation impacts include, but are not limited to:

- Rehabilitated and partially rehabilitated spoil emplacements;
- Disturbed pre-strip areas;
- Civil earthworks;
- Topsoil stockpiles;
- Haul roads without rejects used as road base;
- Hardstand areas (excluding industrial/workshop areas); or
- Exploration areas and access tracks.

This ESCP will be reviewed on an annual basis by the Environment Department. Revisions will be undertaken in the event of changes to the WHC QLD STD Erosion and Sediment Control and Mine Affected Water as well as whenever work methods or mitigation controls are deemed inappropriate/ ineffective.

This ESCP covers all activities at BWM and applies to all employees and contractors. The ESCP forms part of the BWM EMS (Environmental Management System).

3. Legal and Other Requirements

Details of BWM's legal obligations are specified in the online Environmental Legal Compliance Register. Relevant legislation includes:

- The Environmental Protection Act 1994 (QLD); and,

- Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (QLD)

This ESCP addresses the "Stormwater and water sediment controls" Conditions F35 and F36 as stated in the Environmental Authority (EA) EPML00717813, and the commitments in the WHC QLD STD Mine Affected Water and Erosion and Sediment Control Standard

4. Risk Management

BWM implements a comprehensive risk management system as documented in the Whitehaven Coal HSE Risk Management Standard (***WGRP-WH-STD-Risk Management***) and the Whitehaven Coal HSE Risk Management Procedure (***WGRP-WH-PRO-HSE Risk Management***). Air quality risks associated with Operational Environmental Non-compliance (***RSK-0000140***) and their associated control measures are summarised in the below sections of this Management Plan. Operational and project related changes that have the potential to materially alter the air quality management risk profile are managed through the Whitehaven Coal Management of Change Standard (***WGRP-WH-PRO-Management of Change***).

5. Site Description

5.1 Site Layout

BWM is located 24km south of the town of Blackwater, Queensland, between the Capricorn and Dawson Highways. BWM is approximately 200km west of Rockhampton and about 800km north-west of Brisbane. The northern extent of the mining area abuts the Capricorn Highway while the southern extent is approximately 55km south of the highway.

BWM produces thermal and metallurgical coal from open-cut pits with an approximate strike length of 80km through the use of draglines as well as truck and shovel pre-strip fleet. Total lease area at BWM is 42,000 ha. Refer to Figure 1.

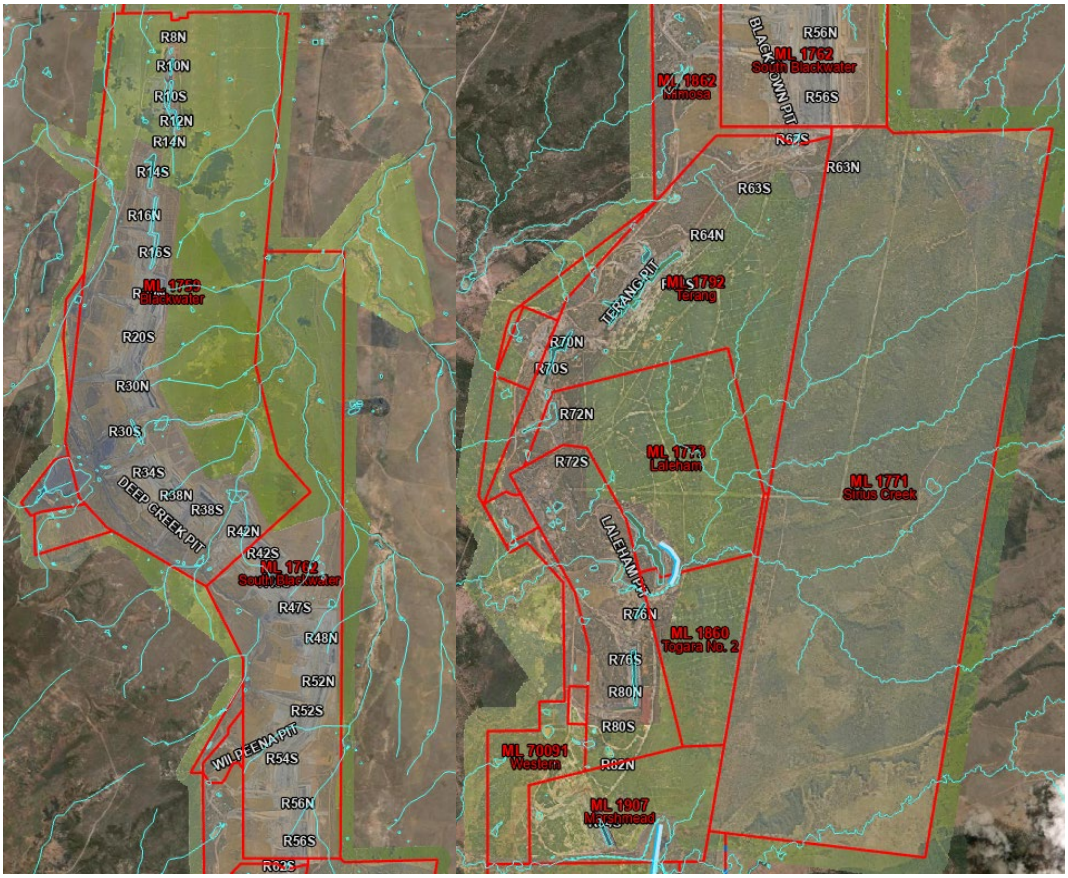


Figure 1: BWM Site layout

5.2 Climate

BWM is located in the dry subtropical climatic region. Summer temperature regularly exceeds 35 degrees Celsius with periods of prolonged high temperatures and high humidity. Winters are mild with occasional frost.

The primary climatic influences on hydrology and surface water flows are rainfall and evaporation.

The longest climatic records available in the district are from Emerald, about 70km west of BWM, which has been recording rainfall since 1882. Rainfall averages for Emerald are summarised in Table 1.

Table 1: Summary of rainfall averages

Summary of Climatic Data													
Month	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	**Total**
Mean Rainfall (mm)	84.2	87.6	59.7	28.9	18.0	30.4	17.2	20.3	26.2	42.6	50.8	83.0	**549**
Mean Evaporation (mm)	232	185	195	153	115	93	102	127	171	208	222	236	**2039**

The annual average rainfall in the Emerald area is 549mm/ year. Approximately three quarters of the annual rainfall occurs between November and April. The annual evaporation rate for BWM has been estimated as 1846mm, about three times the average rainfall.

Much of the rainfall results from thunderstorm activity and sporadic cyclonic depressions. Thunderstorms are often high in intensity and of short duration, where runoff generally exceeds infiltration causing local flooding and erosion.

The Intensity -Frequency-Duration (IFD) charts for BWM north, central and south are provided in Table 2, Table 3, and Table 4, and Figure 2.

Table 2: IFD Design Rainfall Depths – North BWM

	Annual Exceedance Probability (AEP)						
Duration	63.20%	50%	20%	10%	5%	2%	1%
5 min	8.24	9.26	12.5	14.7	16.9	19.9	22.1
10 min	13.7	15.3	20.6	24.2	27.8	32.5	36.2
15 min	17.5	19.6	26.3	30.9	35.5	41.5	46.2
20 min	20.3	22.8	30.7	36	41.4	48.5	53.9
30 min	24.4	27.4	36.9	43.5	50	58.6	65.4
45 min	28.4	31.9	43.1	50.9	58.6	69	77.2
1 hour	31.1	35	47.4	56.1	64.7	76.5	85.6
1.5 hour	34.8	39.2	53.3	63.3	73.3	87	97.8
2 hour	37.4	42.1	57.4	68.3	79.4	94.5	107
3 hour	41.1	46.3	63.4	75.7	88.2	106	120
4.5 hour	45	50.7	69.8	83.6	97.8	118	134
6 hour	48	54.2	74.8	89.8	105	127	145
9 hour	52.8	59.8	82.9	99.8	117	142	162
12 hour	56.7	64.3	89.6	108	127	154	176
18 hour	63	71.6	100	121	143	174	199
24 hour	68	77.5	109	132	156	190	217
30 hour	72.1	82.4	117	142	167	203	232

36 hour	75.6	86.6	123	150	177	215	245
48 hour	81.2	93.4	134	163	192	233	266
72 hour	88.9	103	148	181	215	260	295

Table 3: IFD Design Rainfall Depths – Central BWM

	Annual Exceedance Probability (AEP)						
Duration	63.20%	50%	20%	10%	5%	2%	1%
5 min	8.35	9.36	12.6	14.8	17	19.9	22.2
10 min	13.8	15.4	20.7	24.2	27.8	32.5	36.1
15 min	17.6	19.7	26.4	31	35.5	41.5	46.1
20 min	20.5	22.9	30.7	36.1	41.4	48.4	53.9
30 min	24.6	27.6	37.1	43.6	50	58.7	65.4
45 min	28.7	32.2	43.4	51.1	58.8	69.2	77.3
1 hour	31.5	35.4	47.8	56.4	65	76.7	85.9
1.5 hour	35.3	39.7	53.8	63.7	73.7	87.3	98.1
2 hour	37.9	42.6	58	68.8	79.8	95	107
3 hour	41.6	46.8	63.9	76.2	88.7	106	120
4.5 hour	45.5	51.2	70.2	83.9	98.1	118	134
6 hour	48.4	54.6	75	90	105	127	145
9 hour	53	59.8	82.7	99.5	117	142	162
12 hour	56.6	64	88.9	107	126	153	175
18 hour	62.3	70.8	99	120	141	172	196
24 hour	66.9	76.1	107	130	153	186	213
30 hour	70.6	80.6	114	138	164	199	227
36 hour	73.8	84.4	120	146	173	209	239
48 hour	78.9	90.6	129	158	187	227	258
72 hour	86	99.1	143	175	208	252	286

Table 4: IFD Design rainfall Depths-South BWM

	Annual Exceedance Probability (AEP)						
Duration	63.20%	50%	20%	10%	5%	2%	1%
5 min	8.31	9.33	12.6	14.8	17	20	22.3
10 min	13.7	15.4	20.6	24.3	27.8	32.6	36.3
15 min	17.5	19.6	26.4	31	35.5	41.6	46.3
20 min	20.3	22.8	30.7	36.1	41.4	48.5	54
30 min	24.5	27.5	37	43.6	50	58.7	65.4
45 min	28.5	32	43.3	51.1	58.8	69.2	77.3
1 hour	31.3	35.2	47.6	56.3	65	76.7	85.8
1.5 hour	35.1	39.4	53.6	63.6	73.6	87.3	98.1
2 hour	37.7	42.4	57.8	68.7	79.7	94.9	107
3 hour	41.4	46.6	63.8	76.1	88.6	106	120
4.5 hour	45.3	51	70.1	83.9	98.1	118	134
6 hour	48.3	54.4	75	90	106	127	145

	Annual Exceedance Probability (AEP)						
Duration	63.20%	50%	20%	10%	5%	2%	1%
9 hour	52.9	59.8	82.8	99.6	117	142	162
12 hour	56.6	64	89	107	127	154	176
18 hour	62.4	70.8	99.2	120	142	172	197
24 hour	67	76.3	107	130	154	187	214
30 hour	70.8	80.8	114	139	164	200	228
36 hour	74	84.6	120	146	173	210	240
48 hour	79.1	90.8	130	158	188	228	259
72 hour	86.2	99.3	143	176	209	252	286

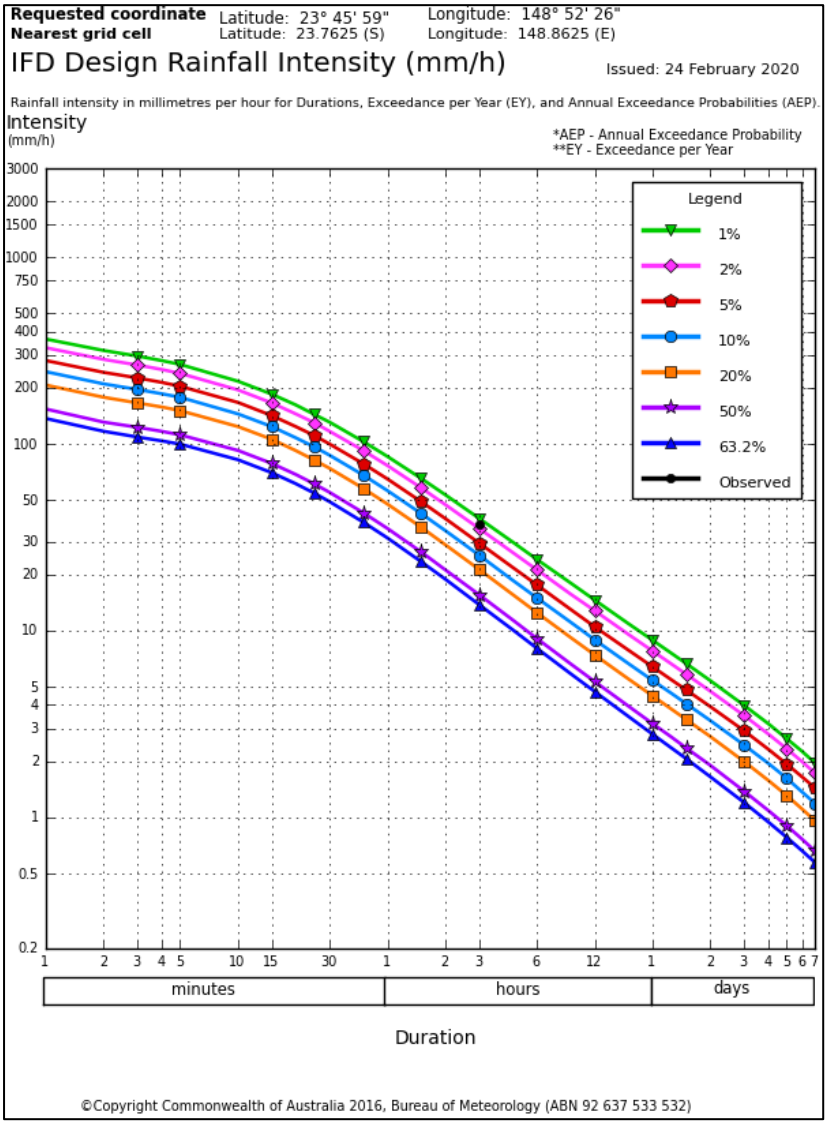


Figure 2: BWM Rainfall IFD

5.3 Geology

BWM is located within the Bowen Basin, which contains fluvial and shallow marine sediments with extensive coal measures.

The structure of the BWM and South BWM mine areas relates to their location on the eastern limb of the axis of the Comet Ridge and proximity to the large displacement Shotover Fault. It has been identified that thrust faulting in the BWM and South BWM mine areas may be related to possible thrusts in the footwall of the Shotover Fault.

The general stratigraphy of the area includes quaternary alluvium, Tertiary basalt and sediments, the Triassic Rewan formation and Upper Permian units including the Blackwater Group, Rangal Coal measures and the Burngrove formation.

Within the project area, the Upper Permian Rangal Coal Measures and the Burngrove Formation both contain coal seams but only the Rangal Coal Measures contain seams of current economic interest. The Rangal Coal Measures are composed of interbedded mudstone, siltstone, claystone and sandstone. The Rangal Coal Measures lie conformably on the high-ash coal bearing Burngrove Formation.

Uniform cracking and non-cracking Brigalow clay soils are predominate within the central and northern lease areas of BWM. They are characterised by a sandy, firm to hard-setting surface with neutral to strongly alkaline clay subsoils. The soils typically have tightly compacted sodic clay subsoils with very low infiltration rates and are highly susceptible to water erosion if exposed.

5.4 Hydrology and Topography

The natural topography of the BWM area is characterized by a variety of topographic settings ranging from flat to gently undulating plains to gravely ridgelines and hills.

Generally, rehabilitated areas are graded to <10% but historical rehabilitation includes areas of up to 17%.

Spoil dumps vary in topography and are up to angle repose (~37%).

BWM is located in the McKenzie and Comet catchments. Natural surface waters in the vicinity of BWM are limited to post rainfall events which drain via Burngrove Creek, Deep Creek, Taurus Creek, Two Mile Creek, Emu Creek, Sirius Creek, Speculation Creek, Rockland Creek, and their tributaries, refer to Figure 3 and 4. The creeks in the area are ephemeral, holding water in pools on a semi-permanent basis which dry out after extended dry periods.

Creek diversions on Deep Creek, Taurus Creek and Emu Creek direct water away from mine workings to prevent mine inundation and water contamination.

The mine has a number of constructed water storages containing water from surface flows, groundwater and imported raw water via pipeline.

In addition to mining, agriculture and development impacts (e.g. roads, quarries, etc.) contribute to the sediment and nutrient loading downstream.

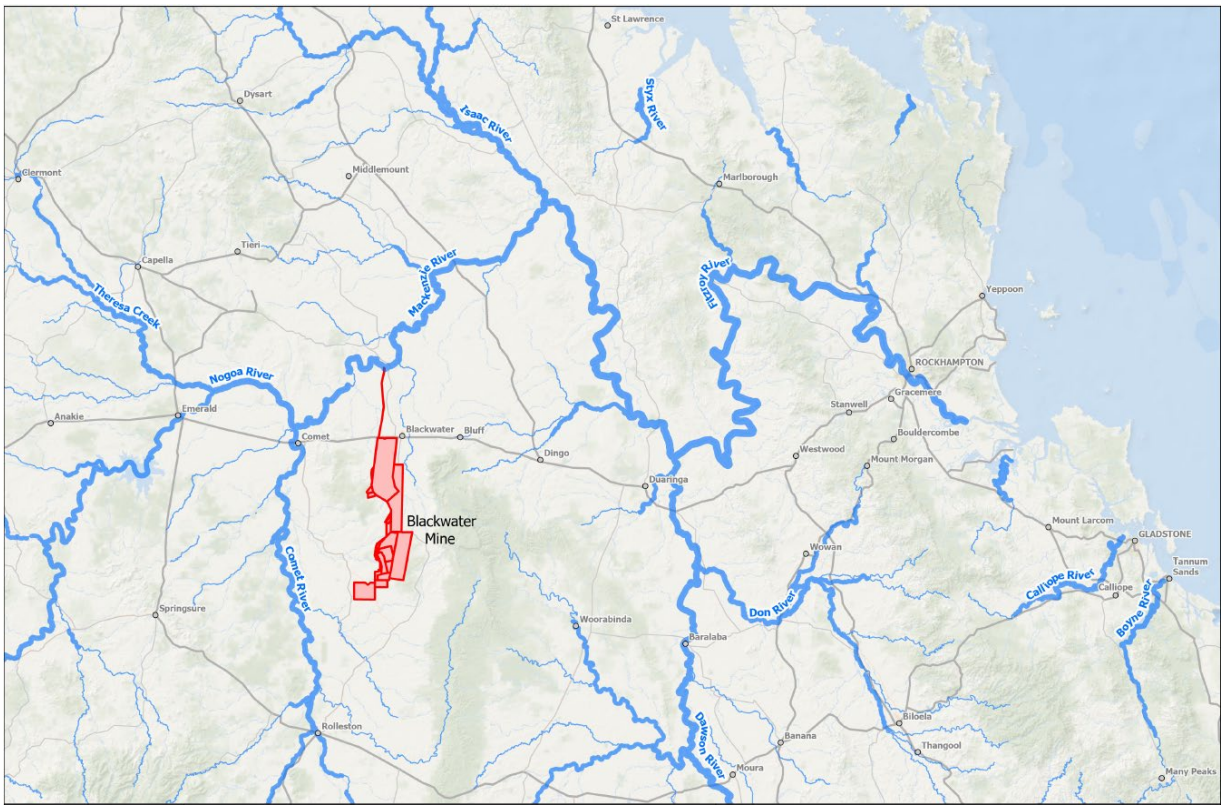


Figure 3: BWM Mine Drainage

5.5 Soil and Spoil Characteristics

Uniform cracking and non-cracking Brigalow clay soils predominate within the central and northern lease areas. They are characterised by a sandy, firm to hard-setting surface with neutral to strongly alkaline clay subsoil. The soils typically have tightly compacted sodic clay subsoil with very low infiltration rates and are highly susceptible to water erosion if exposed.

Generally, poorer quality shallow gravelly sandy loams and texture contrast soils occur along ridgelines, dissected uplands and depositional areas towards the southern end of the mine area. Table 5 summarises the predominant Geology Units and Soil Erodibility for BWM.

Table 5: Predominant Geology Units and Soil Erodibility for BWM

Characteristic Lithology	Description	Erosion Potential
Quaternary Alluvium		
Fine sandy or silty materials	Recent sandy or silty Quaternary alluvium associated with current streams.	High sediment contribution expected.
Unconsolidated Cainozic Sediments		
Fine sandy clays	Unconsolidated, relict alluvial/ colluvial cainozic sediments sourced from the dissection of Tertiary and Permian sedimentary landscapes. Deposits are typically fine sandy, either loamy or clayed materials that are typically neutral to alkaline, dispersive and usually saline.	Easily mobilised; high sediment contribution.
Insitu Tertiary Sediments (deeply weathered and/or lateralized)		
Petroreticulate and/ or ferricrete	Insitu Tertiary caprock from the upper leached zone of intact laterite profiles; as well as fine grained, hardened, mottled kaolinitic materials from underlying mottled zone layers. These materials normally present themselves as scarp exposures or as sub-surface regolith below resistant mesas.	Moderate sediment expected.

Characteristic Lithology	Description	Erosion Potential
	Typically, only minor spoil component, but sometimes locally important, particularly at BWM.	
Sands and loams	Insitu or colluvial sandy/loamy material derived from deeply weathered Tertiary landscapes. Important at BWM.	Easily mobilised; high sediment contribution.
Permian Sedimentary Rocks (Predominantly Fresh)		
Labile mudstones, siltstones and shales	Predominantly fresh, labile, fine grained Permian sedimentary rocks (mudstones, siltstones and/or shales) that weather readily to produce clayey materials.	High sediment contribution expected. Soils can be difficult to revegetate effectively.
Semi competent siltstones and fine to medium grained sandstones	Predominantly fresh, relatively stable, grey Permian siltstones and interbedded fine to medium grained, lithic, semi-competent sandstones, or less commonly interbedded, relatively labile feldspathic sandstones and/or fine grained, calcareous sedimentary rocks (sandstones/shales). Weathers readily to produce relatively clayey spoil materials.	Moderate sediment contribution expected when freshly disturbed, but this would decline with time and rock armouring.
	This group also includes boxcut type materials with poorer characteristics and behaviour that are dominated by weathered, fine grained, lithic sandstones/siltstones.	Disturbed areas have high levels of dispersion and moderate runoff and erosion. Some rock armouring occurs with time.
Acid-forming sedimentary rocks	Fresh Permian sedimentary rocks characterized by a mineralogical suite with significant pyrite content. Acid generation is normally higher than neutralising capacity of the materials and net spoil acidity is expressed.	Moderate sediment contribution expected when freshly disturbed, but this would decline with time and rock armouring.
Coal Enriched Materials		
Carbonaceous materials	Dark, carbonaceous Permian siltstones and shales or coal enriched spoil/waste products.	The clay and silt fraction is easily mobilised, however only moderate sediment contribution is expected, mainly due to dissociation of the clay with the strong acidity present.

6. Planning

Erosion and Sediment Control (ESC) should be incorporated into and considered during the planning stages of any activity or project that includes ground disturbance.

Activities which may result in erosion and sedimentation impacts following rainfall events include, but are not limited to:

- Unrehabilitated and partially rehabilitated spoil emplacements;
- Disturbed pre-strip areas;
- Civil earthworks;
- Topsoil stockpiles;
- Haul roads without rejects used as road base;
- Hardstand areas (excluding industrial/workshop areas); or,
- Exploration areas and access tracks.

The Permit to Disturb (PTD) process is used to control and minimize new disturbances, pre-mature disturbance and disturbance to rehabilitated land, refer to the WHC QLD PRO Permit to Disturb. The PTD includes consideration of erosion and sediment impacts and determination of appropriate controls.

6.1 Principles of Erosion and Sediment Control (ESC)

The guiding principles of ESC as defined in the WHC QLD STD ESC and MAW:

- Erosion control – prevention or minimisation of erosion caused by runoff on disturbed surfaces;
- Drainage control – a secondary erosion control, prevention or minimisation of soil erosion caused by concentrated flows. Appropriate management and separation of different water types through/ around the area of concern; and
- Sediment control – trapping or retention of sediment generated from either overland flow or concentrated flow.

6.2 Stormwater or Mine Affected Water (MAW)

The first step in ESC planning is to determine whether the water from the catchment associated with the activity or project can be managed as stormwater, i.e. the water is not Mine Affected Water (MAW) in accordance with the definition of MAW in the EA.

MAW is defined by the EA as:

Mine affected water means the following types of water:

- means the following types of water:
  - pit water, tailings dam water, processing plant water;
  - water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the Environmental Protection Regulation 2008 if it had not formed part of the mining activity;
    - rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding
    - rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
    - rainfall runoff from catchments the subject of the current version of the Implementation Plan
  - groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
  - groundwater from the mine's dewatering activities; or
  - a mix of mine affected water (under any of paragraphs i to v) and other water.
- does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:
  - land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
  - land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
    - areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
    - evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or
  - Both.

Once determined that the water is stormwater the following steps should be undertaken to facilitate the correct design process:

- Determine the area of the activity or project, including location, size/extent and duration of the activities and associated catchment.
- Consult with the site Environment Adviser to determine if the associated water can be managed as stormwater.
- If the water can be managed as stormwater consult with the relevant stakeholders to determine the appropriate controls.
- If the water is determined to be MAW, refer to the WHC BWM PLN Water Management or WHC QLD STD ESC and MAW for further guidance on management of the water. However, erosion controls should still be implemented to reduce sedimentation of MAW structures.

6.3 Stakeholder Engagement

Various stakeholders should be engaged when planning for ESC. Refer to the RACI in Section 9 of ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***.

7. Design

7.1 Commencement of Design Standards

The ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water*** provides design standards set out in Section 5.

WHC has developed a works program to bring this infrastructure into compliance with the intent of the design standards set out in this ESCP, noting that the full requirements of the standard do not apply retrospectively.

7.2 Relevant Guidelines

The design of erosion and sediment control measures should generally consider the guiding principles within:

- Manual for Assessing Consequence Categories and Hydraulic Performance of structures (DETSI ESR/2016/1933) for structures determined to be regulated structures; and
- ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***, which considers the Best Practice Erosion and Sediment Control Guidelines (IECA, 2008).

NB: The IECA guideline is generally intended for urban environments or short-term disturbance activities. However, it encompasses strategies that can be adapted for the mining environment as outlined in the ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***.

7.3 Key Considerations

The design of ESC is influenced by a number of site and project specific characteristics which include:

- The scale and type of the disturbance;
- The soil types and/or slopes;
- The locality of the disturbance;
- Any site specific legislative requirements or hydraulic/ structure design requirement; and
- Other constraints such as available space, agreed maintenance frequencies and sensitive receptors.

Where appropriate, the design of ESC should consider and integrate with the following controls:

- Permit to Disturb – a process to control and minimise new disturbances, premature disturbance and disturbance to rehabilitated land. Refer to the WHC QLD PRO Permit to Disturb;
- Activities in a Watercourse Self-Assessment – a process to control and minimise disturbances to watercourses that intersect the mine site;
- Progressive rehabilitation – disturbed land is rehabilitated to a stable, vegetated landform following completion of mining related activities. Rehabilitation of disturbed land is completed in accordance with the WHC QLD MAN Rehabilitation Manual and WHC BWM PLN Rehabilitation Management;
- Rehabilitation Monitoring Program – methodology for the assessment of rehabilitation which includes erosion, vegetation, spoil, flora and fauna;
- Water Balance Model – is governed by Water Planning and assists with management of BWM's stored water inventories, releases and investigations into improved water management across both dry and wet climate regimes;
- Flood Study and Model – study to determine the existing flood conditions of BWM watercourses and flood water ingress into pits; flood model utilised as an active design tool for proposed site works; and
- Pit Protection Modelling and Planning – Mine Planning maintains topography and drainage plans for ensuring that water is

drained away from mining areas.

7.4 Erosion Control

Erosion control is the action of minimising the potential for soil erosion. General principles to manage soil erosion include controlling the flow rate of runoff before it develops into an erosive force and protecting soil surfaces with some form of cover.

The application of temporary erosion control can be implemented to reduce short term impacts as part of the 'wet weather management plan'. However, this is not a long-term solution due to the nature of mining operations and further controls are required to mitigate this risk. Examples include the following:

- Minimise the area of disturbance, where possible, and schedule the disturbance such that it is not exposed for longer than is necessary. BWM pit protection models should be used to plan drainage away from the excavation.
- Where the surface is to be disturbed, topsoil should be stripped and stockpiled in line with the PTD requirements.
- Placing any stockpile material in a channel or flow path should be avoided. Consideration should also be given for revegetating or rip the materials surface to promote surface cover or infiltration, respectively thus reducing surface runoff and erosion.
- Clean water should be diverted around the disturbed and/or sensitive areas where possible.
- Exposed surfaces should then be protected with surface cover as soon as practical after works to assist in reducing surface erosion.
- Rehabilitation should be undertaken to provide a stable and vegetated landform and should be completed in accordance with the WHC BWM PLN Rehabilitation Management.
- Surface treatment must consider the type of material/ rock suitable for the required slope and velocity to ensure the selected material is fit for purpose. Table 6 provides guidance on selecting an appropriate surface cover based on slope.
- Where disturbance has occurred within a waterway, the area should be revegetated as soon as practical. Consideration should be given to the use of a soil binder, coir mesh or rock/ topsoil matrix, depending on the significance of the waterway, to stabilise the surface during vegetation establishment. As per WHC QLD MAN Rehabilitation Manual.
- Stabilise the surface of slopes using appropriate slope protection measures.
- Where possible limit exposure to wind and consider surfacing crusting and wind erosion.

Table 6: Typical surface treatments for erosion control

Gentle slopes (less than 1 in 10)	Mid Slopes (1 in 10 to 1 in 4)	Steep slopes (greater than 1 in 4)
Minor Works (e.g. Construction of site facilities, temporary topsoil stockpile)		
Gravelling Mulching Revegetation Rock mulching Erosion control blankets	Revegetation Rock mulching Rock armouring Mulching well anchored Erosion control blankets, mats and mesh	Revegetation Hydromulch Rock armouring Erosion control blankets, mats and mesh
Major Works (e.g. Overburden emplacement, creek diversion, major creek crossing)		
Revegetation	Revegetation Mulching well anchored Rock armouring	Revegetation Hydromulch Rock armouring

7.5 Drainage Control

According to Section 4.4.1 of the WHC QLD STD ESC and MAW the design standard of all drains can either be for permanent or operational drainage structures dependent on the anticipated design life of the structure and its purpose in the water management system.

Runoff can be controlled in a number of ways to reduce the risk of erosion. Table 7 outlines the options, criteria and principles that should be considered in the design of drainage controls. Designs should consider velocity and the material type and sizing required to manage those velocities

Table 7: Drainage control options and criteria

Drainage Control	Function	Minimum Design Criteria	Justification
Minor Works (e.g. Construction of site facilities, temporary topsoil stockpile)		The minimum design criteria for drainage conveyance is the 1 in 10	Designed to have a non-erosive hydraulic capacity to convey. The design criteria is aligned with IECA Guidelines for maximum design life.
Gravelling Mulching Revegetation Rock mulching Erosion control blankets	Revegetation Rock mulching Rock armouring Mulching well anchored Erosion control blankets, mats and mesh		
Major Works (e.g. Overburden emplacement, creek diversion, major creek crossing)			
Revegetation	Revegetation Mulching well anchored Rock armouring		

Other important operational drainage aspects to consider supporting drainage ESC management include:

- Wherever safe and practicable to do so, haul roads should be graded such that they are internally draining;
- Road surfaces should be regularly inspected and maintained;
- Runoff should be collected from road or hardstand areas down slopes to channels or pipes, to avoid eroding the slope;
- Collector drains should be installed at the base of slopes to convey flow from the slope drains towards the nearest stormwater drain;
- Where road drainage conveys sediment laden flow, consideration should be given to install sediment traps or sediment basins at convenient locations, where these facilities can be maintained;
- Where velocity is determined to be high, install riprap aprons at the outlets of culverts and ditches to dissipate the flow energy and prevent erosion;
- Install check dams, as needed, to dissipate flow energy and limit channel erosion;
- Flow diversion banks should be used during the construction of service crossings through a waterway or any disturbance activities in which clean water can be diverted around the activity, to prevent erosion;
- Where required, place check dams across open channel drains to dissipate energy;
- Where required, install sediment traps at regular intervals inside drainage structures, and always before discharge into natural streams; and
- Creek diversions are considered permanent drainage structures and are managed in accordance to their water licenses.

7.6 Sediment Control

In Queensland, due to higher intensity (concentrated) rainfall and the dispersive nature of soils, the preferred and most effective sediment control are sediment basins (Type 1). Type 1 controls are the most conservative and are considered the most effective in long-term sediment entrapment.

Small-scale or supplementary sediment controls (Type 2 and 3 as per Section 4.5.2 of the WHC QLD STD ESC and MAW) may be appropriate controls on a temporary basis during small-scale, short-term construction/exploration stages prior to implementing erosion protection measures such as revegetation. Typical supplementary sediment controls are listed in the Best Practice Erosion and Sediment Control Guidelines (IECA, 2018), but may include:

- Excavated sediment traps;
- Rock check dams; and,
- Sediment fencing/bunds.

The risk rating, as outlined in the WHC QLD STD ESC and MAW should guide the selection of sediment control requirements, based on the catchment risk assessment as presented in Table 8.

Table 8: Catchment risk assessment criteria and sediment control design standard

Risk Rating	Soil/spoil category	Disturbed Catchment area	Duration of disturbance	Average catchment slope	Sediment control design standard
Very low	Competent material	Less than 0.5 ha	Less than 3 months	Less than 1%	No controls
Low		0.5-1 ha	3 – 6 months	1% - 3%	Supplementary sediment controls
Medium	Non-dispersive topsoil	1-4 ha	6 months – 2 years	3% - 10%	FT Sediment basin 80%ile 5 day
High	Dispersive topsoil	Greater than 4 ha	Greater than 2 years	Greater than 10%	FT Sediment basin 90%ile 5 day
	Non-dispersive spoil				
Very High	Dispersive spoil	Any	Any	Any	FT Sediment basin 95%ile 5 day
MAW	Per MAW definition Section 3	Any	Any	Any	MAW Dam (Section 4.2)

For larger scale projects any proposed sediment basin or dam should be assessed against the DETSI Manual for Assessing Consequence Categories and Hydraulic Performance of Structures in consultation with the Governance and Technical Stewardship (G&TS) team and/or the Engineering Projects team. The correct naming convention for sediment dams/basins should be adhered to:

- If the storage is designed/constructed to be pumped it is a sediment dam; and
- If the storage is designed/constructed as a passive system, it is a sediment basin.

The dam or basin will act to capture eroded or disturbed soil that is entrained in surface water runoff during rain events. IECA outlines a number of Type 1 sediment controls which are summarised in Table 9

Table 9: Types of Sediment Controls

Sediment Control Type	Soil and/or catchment conditions
Type A	The duration of soil disturbance within a given discharge catchment exceeds 12 months Most effective basin for clayey soils
Type B	The duration of soil disturbance within a given discharge catchment, does not exceed 12 months
Type C	Less than 33% of soil finer than 0.02 mm and no more than 10% of soil is dispersive Most effective within non-dispersive, low clay sandy soils
Type D	An alternative to Type A or Type B when it is demonstrated that automatic chemical flocculation is not reasonable or practical.

Sediment dams or basins should be designed in an accordance with the principles and criteria as referenced in the ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***. The minimum total volume of a sediment basin or dam equates to the sum of the settling volume and the sediment volume. Consideration should also be given to providing sufficient freeboard between the top of embankment and the settling volume maximum water level.

8. Construction

Disturbance activities will be conducted in accordance with a variety of administrative processes, as outlined in the WHC QLD STD ESC and MAW, including but not limited to:

- This ESCP and any relevant Contractor plans and procedures;
- Permit to Disturb;
- Project-specific approvals;
- Inspections; and
- The design of any Type 1 structure will be assessed by the required engineering or Governance and Technical Stewardship (G&TS) team who will decided if external certification is required.

Ensure ESC measures are put in place prior to disturbance to reduce sediment laden flow. The schedule and timing of works is an important element of any construction activity. Construction, particularly within floodplain areas, should consider the risk rating for monthly rainfall outlined in Section 5.2 of the ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water*** and associated actions.

Where construction must occur during wet season, appropriate levels of erosion and sedimentation controls shall be established and includes:

- Stormwater management measures, such as drainage diversions and bunding, will be implemented before works occur; and
- Emergency response procedures and flood forecasting will be incorporated into operating procedures.

WHC Management of change (MoC) process (***WGRP-WH-PRO-Management of Change***) is to be followed for construction of ESC and MAW infrastructure.

Each ESC and MAW dam is to be registered in 1SAP with a Functional Location as part of Management of Change.

Construction designs, records, testing, operational rules, as-built survey, basis of design and other Engineering documentation are to be saved against the Functional Location in 1SAP and/or site document library as a minimum.

Routine inspections and maintenance are to be set up in Documentum as part of the operational readiness.

9. Inspection, Monitoring and Maintenance

9.1 Inspections

Inspections are to be carried out in accordance with Section 6.1 of the ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***.

All inspections must be recorded in the Inspection Pro Forma (Section 6.2 of ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***) and at a minimum shall record:

- Sediment storage volume;
- Details of any drainage, erosion and sediment control measures with signs of erosion/scour that require maintenance;
- Occurrence of excessive sediment deposition; and
- Embankment toe, crest, spillway for cracking, settlement, slumping, erosion, scour, overtopping and seepage.

RPEQ inspections are also required for regulated structures on an annual basis.

Creek diversion monitoring is carried out as described in the BWM Water Licenses.

9.2 Maintenance

Maintenance requirements will be actioned in the relevant work order management system and actioned prior to the wet season (November).

Maintenance that is identified by an inspection will be carried out in a timely manner. Examples of deficiencies that will trigger maintenance activities include, but are not limited to:

- Damage/scouring to ESC and MAW measures;
- Sediment deposition in excess of sediment storage volume;
- Damage/ deterioration of access tracks or the ability to inspect/ monitor or maintain and/ or operate area/infrastructure/ equipment;
- Damage to erosion and/ or sediment controls;

- Spill, contaminated or waste materials accumulated/ deposited in controls or their associated catchment areas; and
- Damage/ malfunctions of outlet controls of spillways and discharge points.

9.3 Water Quality Sampling

Water quality sampling are required to be undertaken according to the requirements of Section 6.3 of the ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***.

Representative water quality samples are required from sediment dams at least one rain event per year following a rain event. Samples should be acquired within a week of the rain event, subject to being safe to do so and access permitting.

Site Environment Team should conduct a review of dams that can discharge to the receiving environment with Water Planning in order to determine the scope of the sampling program.

10. Performance Indicators

Performance indicators are based on legislative requirements and are outlined in Table 12 below

Table 10: Performance Indicators

Parameter	Performance Indicator
Compliance is maintained with EA conditions	ESCP developed and implemented in accordance with EA. Historical records of monitoring reports and inspections are maintained. Historical records of release and discharge water quality, where recorded, is maintained on the PI Vision.
Community complaints	No complaints received regarding erosion and sediment control impacts. All complaints received from the community or workforce related to erosion and sediment impacts will be recorded and investigated in accordance with EA requirements for investigative complaints.
Visual Inspection	Sediment basins and dams must not contain waters that have visual or odours evidence of slick, hydrocarbons and/or coal. ESC dewatered within 5 days of a rain event.

11. Data Management and Reporting

Any deficiencies observed that require remedial action will be raised the relevant work order management system to ensure the ESC remains in accordance with the intent of the design.

11.1 Event Investigations and Reporting

In the event of emergencies, exceptions or incidents, all reasonable actions must be taken by operations to minimise potential or actual environmental harm and notification must be given to the Administering Authority.

Investigation and reporting of events must occur as per the sites EA, the Environmental Protection Act 1994 (Qld) and WHC PRO Incident and Hazard Management.

If inspections identify potential embankment integrity issues or failures, then the downstream area must be cleared of personnel, downstream landholders contacted (if applicable) and situation referred to the site Responsible Dam Engineer in the Engineering team as soon as possible.

11.2 Complaints

Complaints should be managed in accordance with WHC PRO Complaints Management Protocol.

12. Roles and Responsibilities

Roles and responsibilities which hold relevance for erosion and sediment management at BWM and for implementation, review, and improvement are outlined in RACI in Section 9 of the ***WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water***.

The below provides an overview of the roles and associated accountabilities for the implementation of this Management Plan.

Role	Accountability
Risk Owner	Ensure fulfilment of all applicable laws, regulations, and requirements in relation to erosion and sediment control. Overall responsibility for implementation of ESCP at BWM.
Mine Planning	Integrating water management and ESC in the mine planning process. Submit erosion and sediment control plans with PTD applications (when appropriate).
Engineering	Provide guidance on design and associated requirements of ESC structures. Construct dams in accordance with the standard and ESCP.
Dams Engineer	Provide guidance on the design and associated requirements of ESC structures in respect of the DETSI Manual for Assessing Consequence Categories and Hydraulic Performance of Structures.
Managers/Risk Owners	Provide the necessary resources to manage erosion and sediment onsite and to ensure environmental impact targets can be achieved. Implement any actions of this plan for which they are responsible.
Environment Specialist	Identify and advise Operations of potential initiatives relating to erosion and sediment control and meeting regulatory commitments. Identify and measure environmental impacts of erosion and sedimentation associated with the operations. Monitoring, inspection, and reporting. Coordinating erosion and sediment compliance to Environmental Authority requirements with risk owners.
Mine Services	Conduct the inspections defined in this ESCP, including documenting the inspection outcomes and any maintenance activities. Complete maintenance activities in a timely manner.
All Workers	Ensure stipulated and planned erosion and sediment controls are implemented. Inspect/monitor the effectiveness and condition of erosion and sediment controls during and/or after works. If required, implementing additional controls or maintenance works. Report any erosion and sediment control issues or non-compliance to the Environment Team. Provide input and ideas to identify opportunities for improvement. Comply with requirements associated with their role and activities in accordance with procedures.

13. Definitions

The terms and definitions in Table 12 are provided to assist in the application of this Management Plan.

Table 11: Terms and definitions

Term	Definition
AEP	Annual Exceedance Probability
WHC	Whitehaven Coal
BWM	Blackwater Mine
EA	Environmental Authority EPML00717813
ESC	Erosion Sediment Control
ESCP	Erosion Sediment Control Plan
DETSI	Department of Environment and Science
IFD	Intensity -Frequency-Duration
MAW	Mine Affected Water
PTD	Permit to Disturb
RPEQ	Registered Practicing Engineer in Queensland, either internal or external consultant

14. References

This Management Plan has been designed to meet the requirements contained in the following reference material:

- WGRP-QLD-STD-Erosion & Sediment Control and Mine Affected Water
- WQLD-BWM-PLN-Rehabilitation Management Plan
- WQLD-BWM-PLN-Land and Biodiversity Management Plan
- BWM REG Environmental Risk Register
- WGRP-QLD-PRO-Permit to Disturb
- WGRP-QLD-PRO-006-Complaints Management Protocol 001
- WGRP-QLD-PRO-Rehabilitation Monitoring Methodology

15. Revision History

Table 13 provides a summary of the last four (4) revisions of this Management Plan by version. Where the revision number exceeds four (4), refer to previous version(s) of this Management Plan for additional document review information.

Table 12: Revision history

Revisions	Revision Description	Author	Date
1.0	WHC template	Environment Team	April 2024
1.1	Minor update and review	Ryan Gassman	October 2026

Whitehaven

Blackwater North Extension Project

Appendix B
Response to Information Request Supporting Figures



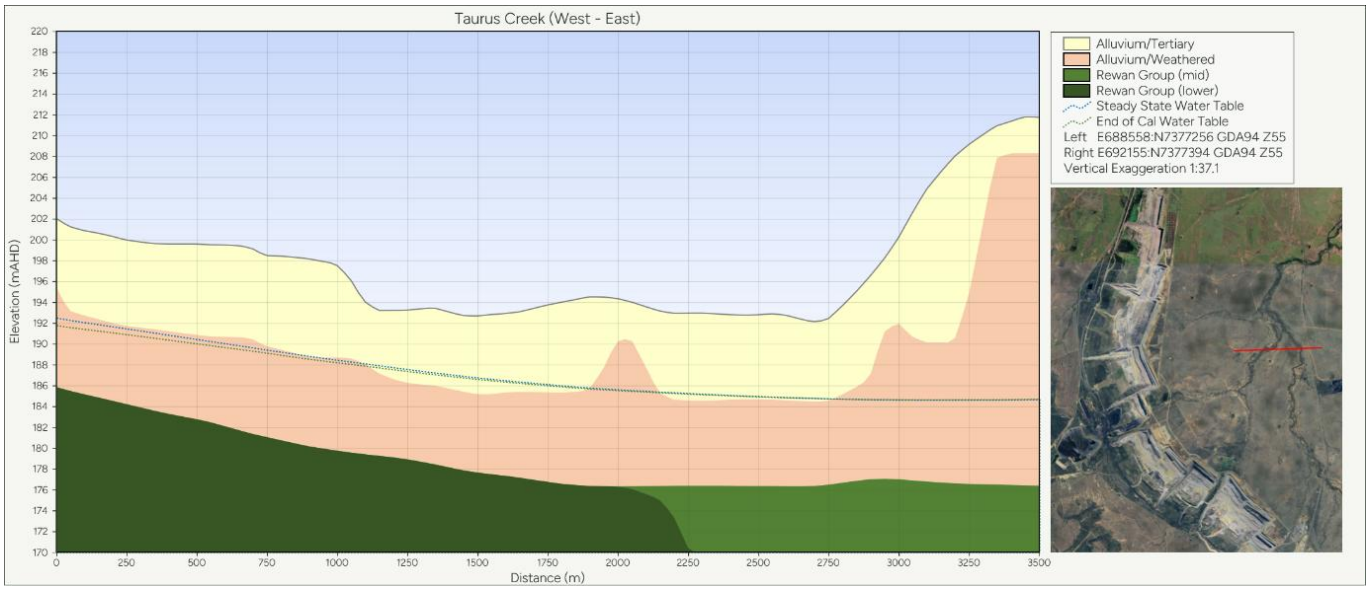


Figure B-1 West-East Cross Section at Taurus Creek

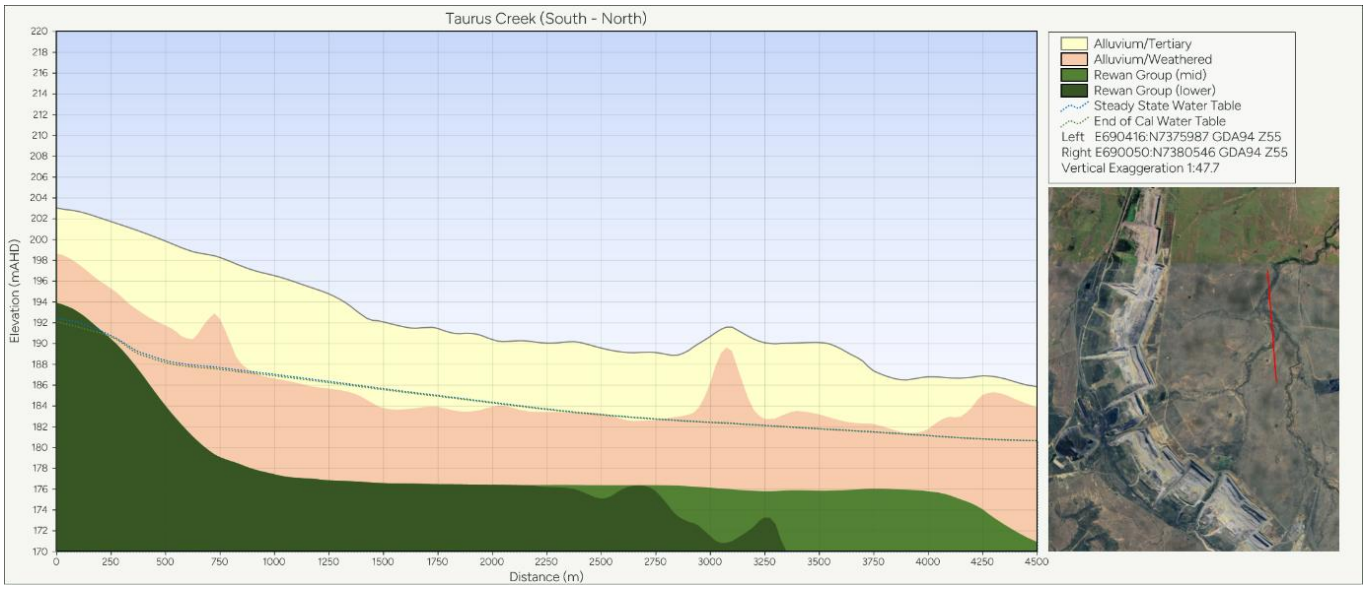


Figure B-2 North-South Cross Section at Taurus Creek

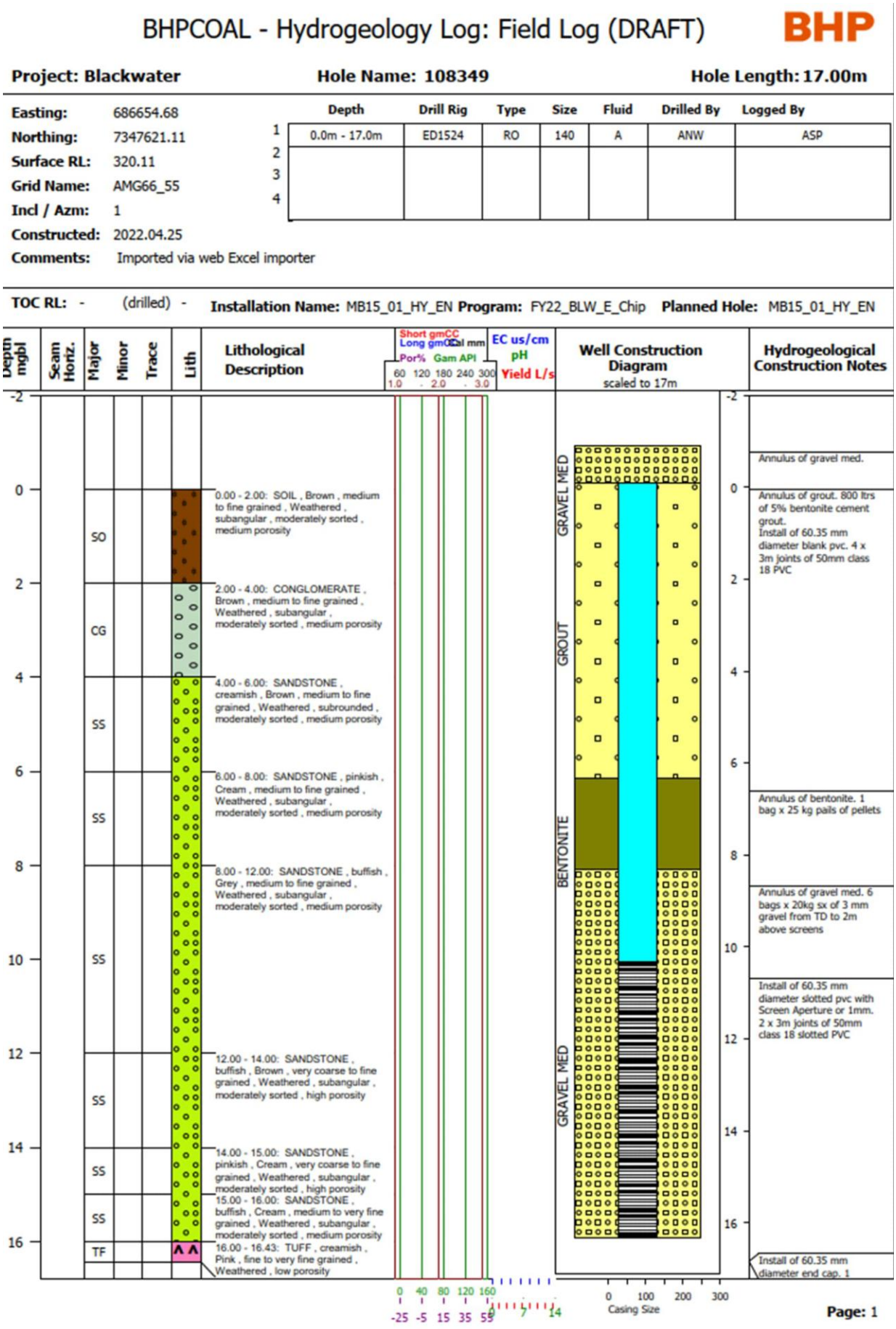


Figure B-3 Bore BWM_MB15_01 Drill Log

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Appendix C
Levee and Flood Protection Landform Concept Design



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Levee and Flood Protection Landform Concept Design

Blackwater North Extension Project

September 2026

Q3000-014-REP-001

Document Control			
Client		Whitehaven	
Document Number		Q3000-014-REP-001	
Revision		Rev 1	
Date		28/09/2026	
Revision	**Date**	**Revision Description**	**Approved**
0	03/09/2026	Issue for review	Ben Kiernan
1	28/09/2026	Updated following review	Ben Kiernan

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1. INTRODUCTION

Whitehaven Blackwater proposes to develop the Blackwater North Extension Project (BNEP), which would extend the existing open-cut mining operations at Blackwater Mine (BWM) into Surface Area (SA) 7 on ML 1762 and SA 10 on ML 1759. Whitehaven is currently seeking approval for the project. As part of the approvals process, the Department of Environment, Tourism, Science and Innovation (DETSI) has issued a Request for Information (RFI).

TerraQ has been engaged by Whitehaven to assist in responding to Item 33(c) of the RFI, which requests further information regarding the conceptual design of flood protection levees for the Stewarton and Besgrove open-cut pits. Item 33(c) specifically states:

Provide a levee conceptual design to demonstrate consistency with ESR/2016/1933, including crest levels, freeboard, footprint, stability, erosion/scour protection, overtopping and breach pathways, and consequence category assessment, including impacts on voids where applicable.

This report presents the conceptual designs for the proposed operational levees, as described in Section 3, together with the conceptual designs for the flood-protection landforms (FPLs) required to provide post-closure flood protection, as described in Section 4.

2. DESIGN BASIS

2.1 Flood Protection Strategy

In accordance with the Blackwater North Extension Project - Surface Water Assessment (WRM, 2026), flood protection for open-cut voids and final voids will be provided progressively as the respective open cuts advance and encroach onto the floodplains of Deep Creek, Taurus Creek and Two Mile Gully.

During the operational phase of the project, the design and operation of flood-protection works are regulated through the Environmental Authority (EA). Structures are assessed in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (DETSI, 2014). Where a structure is assigned a significant or high consequence category, as is likely for flood-protection works, it will generally be regulated under the EA. Regulated flood-protection structures, which typically comprise compacted earth-fill levees, must be designed for a 0.1% Annual Exceedance Probability (AEP) flood event. These 'operational levees' will be constructed progressively and maintained throughout the operational phase of the project.

Following closure the EA ceases to apply following surrender of the mining lease, and there is currently no equivalent mechanism for the ongoing regulation of these structures after mine closure. Accordingly, flood protection at closure will be provided by 'flood protection landforms' that have no plausible failure mode and require maintenance no more onerous than that accepted for rehabilitated spoil landforms. These landform levees will be constructed at closure to provide immunity from the 0.1% AEP design flood event, consistent with the Blackwater Mine Progressive Rehabilitation and Closure Plan (Whitehaven, 2026).

2.2 Design Data

The following datasets have been used to inform the concept design of the proposed flood protection works:

- Lidar survey for the project area dated June 2026
- Aerial photography for the project area dated June 2026
- Proposed final project final landform surface (LF 4.4)
- 0.1% AEP flood-level and velocity mapping for the 2030 climate scenario
- 0.1% AEP flood-level and velocity mapping for the 2100 climate scenario

2.3 Operational Levee Design Basis

2.3.1 Design Criteria

The operational levees will be designed and constructed as homogeneous earth-fill structures in accordance with the key design criteria summarised in Table 2.1.

Table 2.1 Operational Levee Design Criteria

Parameter	Value	Basis
Flood Immunity Level	0.1% AEP 2030 climate scenario	Surface Water Impact Assessment
Freeboard	0.5 m	Nominal allowance to climate change level
Crest Width	6 m	Constructability
Batter Slopes	1V:4H	Construction safety and stability
Crest Crossfall	1%	Prevention of ponding on crest

2.3.2 Breach Pathways

The Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (DETSI, 2014) includes the following provision regarding flood freeboard for a levee:

'In at least one place in the levee crest, there is a restricted length of low crest, limiting the freeboard at that point, such that a flood exceeding the design protection level of the levee will be directed to a planned area or areas within the zone to be protected.'

Due to the nature of the proposed levees, any breach or overtopping would result in floodwater entering the respective pits. Therefore, there is no opportunity to provide a preferential overflow point that would direct floodwater away from the pits. As a result, the freeboard has not been reduced to establish a designated overflow point.

2.4 Flood Protection Landform Design Basis

As outlined in Section 2.1, the flood protection landforms will be designed to remain in place in perpetuity and to have no credible geotechnical failure modes. This will be achieved by providing sufficient width to limit the hydraulic gradient through each levee to 4% or less, thereby making internal erosion (piping) a non-credible failure mode. The substantial width of the levees, coupled with their relatively low height, also means that a batter slip would not result in a loss of flood protection.

The crest levels of the flood-protection landforms will be based on the 0.1% AEP flood levels for the 2100 climate scenario, with the addition of a nominal 0.5 m freeboard. The adopted freeboard will be assessed further during detailed design.

3. OPERATIONAL LEVEE CONCEPT DESIGN

3.1 Levee Locations

Eight locations will require flood protection during the operational phase. These locations are shown in the drawings in Appendix A and summarised in Table 3.1.

Table 3.1 Summary of Operational Levees

Levee Name	Pit Protected	Waterway	Length	Maximum Height
Deep Ck - Western Levee 1	Deep Creek	Deep Creek	200 m	0.9 m
Deep Ck - Western Levee 2	Deep Creek	Deep Creek	352 m	1.3 m
Deep Ck - Eastern Levee 1	Deep Creek	Taurus Creek	210 m	1.4 m
Deep Ck - Eastern Levee 2	Deep Creek	Taurus Creek	962 m	2.2 m
Stewarton North - Western Levee 1	Stewarton North	Taurus Creek	445 m	2.7 m
Stewarton North - Western Levee 2	Stewarton North	Taurus Creek	314 m	1.7 m
Stewarton North - Eastern Levee 1	Stewarton North	Unnamed	1,331 m	1.9 m
Stewarton North - Eastern Levee 2	Stewarton North	Two Mile Gully	514 m	2.5 m

3.2 Consequence Category Assessment

Condition G1 of Environmental Authority (EA) EPML00717813 for the Blackwater Mine requires the assessment of the consequence category structures to be assessed in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures – Version 4 (DETSI, 2014). This condition is outlined below:

The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (Version 4, 10 April 2014) (EM635) at the following times:

(a) prior to the design and construction of the structure, if it is not an existing structure; or

(b) prior to any change in its purpose or the nature of its stored contents.

A preliminary consequence category assessment for the operational levees has been undertaken as described in the following sections.

3.2.1 Receiving Waterways

The proposed levees are located on both Taurus and Deep Creeks. Deep Creek flows into Taurus Creek within the Blackwater Mine mining lease.

Downstream of Blackwater Mine, Taurus Creek flows into Blackwater Creek which flows in a northerly direction before eventually discharging into the Mackenzie River approximately 50 km away. The confluence of Blackwater Creek and the Mackenzie River is approximately 2 km downstream of the Bedford Weir.

3.2.2 Land Use

The land use downstream of the Blackwater Mine consists mainly of low-intensity beef cattle grazing with some dryland cropping.

Coal mining operations downstream of the Blackwater Mine include the Cook Colliery and the Curragh Mine.

3.2.3 Environmental Values

Environmental values (EVs) for the Mackenzie River sub-basin of the Fitzroy River catchment have been determined by the Queensland Government (DEHP, 2011). The surface water EVs identified for the undeveloped parts of the Mackenzie River sub-basin are:

- Aquatic ecosystems
- Stock water
- Human consumption
- Primary recreation
- Secondary recreation
- Visual recreation
- Drinking water
- Cultural and spiritual values
- Industrial use

Given the land use activities that are known to occur downstream of the Blackwater Mine, the primary uses of surface water along the receiving waters between the site and the Mackenzie River are considered to be aquatic ecosystems, stock water, and cultural and spiritual values.

There are no High Ecological Value waters between the Blackwater Mine and the Mackenzie River (DEHP, 2011).

3.2.4 MSES and MNES

Regional Ecosystems (REs) ground-truthed in the Project area comprise small areas of remnant RE 11.3.6 and 11.3.1 and high value regrowth RE 11.3.1, 11.4.9 and 11.9.5 located in the central and southern extents of the Project area (e2m, 2026). Of the four REs within the Project area, three have a conservation status of 'Endangered' and one of 'Least Concern' under the Vegetation Management Act 1999 (e2m, 2026). A total of six conservation significant terrestrial fauna species listed under the Nature Conservation Act 1992 (NC Act) are known to occur within the Project area and an additional one conservation significant terrestrial flora species listed under the NC Act is known to occur within the Project area (e2m, 2026).

No aquatic flora or fauna species listed under the Environment Protection and Biodiversity Conservation Act 1999 and/or NC Act were recorded during the aquatic ecology surveys (DPM, 2026).

A search using the Australian Government's Protected Matters Search Tool indicates that no Matters of National Environmental Significance are located downstream of the proposed levees.

3.2.5 Habitable Dwellings

There is several agricultural farming properties located within and downstream of the Blackwater Mine. The nearest habitable dwellings are the Taurus Homestead and Retreat Homestead.

The Taurus Homestead is located within the Project area, and the Retreat Homestead is located approximately 0.3 km east of the Project.

3.2.6 Consequence Assessment

Under Part 3 of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures – Version 4 (DETSI, 2014) a levee is only deemed to be a regulated structure the consequence of overtopping or dam break (breach) the volume of clean water inflows has the potential to overwhelm the containment system. This could result in either overtopping of the containment system impacting downstream or could require the need to temporary release of mine affected water could cause environmental harm. The results of the preliminary consequence category assessment are provided in Table 3.2. Further analysis assessing levee breach scenarios, potential inflow volumes and resultant impacts to the water management system will need to be confirmed during detailed design.

Table 3.2 Preliminary Consequence Category Assessment

Levee	Consequence Category	Basis
Deep Ck - Western Levee 1	Low	Low potential for any significant inflow volume. It is expected any inflow could be managed by the wider site water management system.
Deep Ck - Western Levee 2	Low	Low potential for any significant inflow volume. It is expected any inflow could be managed by the wider site water management system.
Deep Ck - Eastern Levee 1	Low	Low potential for any significant inflow volume. It is expected any inflow could be managed by the wider site water management system.
Deep Ck - Eastern Levee 2	Significant	Potential for large inflow volumes that could impact the overall water management system and trigger the need for a temporary release resulting in authorised environmental harm.
Stewarton North - Western Levee 1	Low	Low potential for any significant inflow volume. It is expected any inflow could be managed by the wider site water management system.
Stewarton North - Western Levee 2	Significant	Potential for large inflow volumes that could impact the overall water management system and trigger the need for a temporary release resulting in authorised environmental harm.
Stewarton North - Eastern Levee 1	Significant	Potential for large inflow volumes that could impact the overall water management system and trigger the need for a temporary release resulting in authorised environmental harm.
Stewarton North - Eastern Levee 2	Significant	Potential for large inflow volumes that could impact the overall water management system and trigger the need for a temporary release resulting in authorised environmental harm.

3.3 Seepage Control Measures

The following measures will be adopted to minimise seepage through and beneath the levee embankment:

- Zone 1 embankment fill to minimise embankment seepage comprised of low to moderate permeability material compacted to 98% of Standard Maximum Dry Density.
- Low to moderate permeability Zone 1 key trench extended into low to moderate permeability soil foundations.
- Inspection of the excavated key trench foundation during construction by the design engineer (or other certifying RPEQ for the construction works) to confirm that the key trench is sufficiently deep to cut-off any high permeability zones.

The anticipated typical levee foundation stripping and key depths are not known at this stage and will be determined as part of the future geotechnical investigations prior to detailed design.

3.4 Piping Control Measures

The following measures will be adopted to minimise the risk of piping (internal erosion) through and beneath the levee:

- Removal of soft or loose materials within the levee footprint to minimise the risk of differential settlement and associated embankment cracking which may lead to initiation of piping through the embankment during flood events.
- Low permeability Zone 1 key trench extended below any observed shallow defects (eg. Roots, desiccation cracking, fissured soils, blast induced cracking etc) that may lead to initiation of piping through foundations during flood events.
- Zone 1 low permeability embankment fill compacted to a minimum 98% of Standard Maximum Dry Density (SMDD) at approximately Optimum Moisture Content (OMC).

3.5 Embankment Stability

For the conceptual design of the operational levees, a batter slope of 1V:4H has been adopted. This is considered relatively flat based on the expected material properties and the low risk of instability. Detailed slope stability analyses will be undertaken during the detailed design phase, once the material properties and local foundation conditions are better understood. A minimum acceptable factor of safety of 1.3 will be adopted for transient flood conditions, based on ANCOLD (2012) recommendations for similar short-term loading conditions, such as rapid drawdown.

3.6 Erosion Control Measures

The levees will be protected from flood-induced erosion by covering the finished surfaces with site-won topsoil and seeding them with suitable grass species. Some sections may be exposed to velocities that could cause erosion, depending on the density and condition of the vegetation cover. Based on the current conceptual design, rock protection is proposed for high-risk sections where predicted velocities exceed 1.5 m/s (Queensland Government, 2015). These sections are identified in the concept design drawings included in Appendix A.

3.7 Overtopping Control Measures

A nominal 0.5 m of freeboard has been applied to the 0.1% AEP design flood level to mitigate the risk of overtopping from a number of potential mechanisms including:

- Wave action
- Inaccuracy in survey information and/or flood level estimates
- Construction tolerances

4. FLOOD PROTECTION LANDFORM DESIGN

4.1 Landform Locations

Six locations will require flood protection under the closure scenario. These locations are shown in the drawings in Appendix B and summarised in Table 4.1

Table 4.1 Summary Flood Protection Landforms

Landform Name	Pit Protected	Waterway	Approximate Length	Maximum Height
Deep Ck - Western FPL 1	Deep Creek	Deep Creek	163 m	0.7 m
Deep Ck - Western FPL 2	Deep Creek	Deep Creek	388 m	1.4 m
Deep Ck – Eastern FPL	Deep Creek	Taurus Creek	790 m	2.1 m
Stewarton North - Western FPL	Stewarton North	Taurus Creek	310 m	2.2 m
Stewarton North - Eastern FPL 1	Stewarton North	Unnamed	990 m	2.6 m
Stewarton North - Eastern FPL 2	Stewarton North	Two Mile Gully	1,335 m	2.4 m

4.2 Seepage Control Measures

The following measures will be adopted to minimise seepage through and beneath the landform embankment:

- Inspection of the excavated key trench foundation during construction by the design engineer (or other certifying RPEQ for the construction works) to confirm that the key trench is sufficiently deep to cut-off any high permeability zones.
- A sufficient width of bulk general fill will be provided to ensure that any wetting front through the landform does not daylight on the downstream side of the structure.

The required foundation-stripping and key-trench depths are not known at this stage and will be determined through future geotechnical investigations before detailed design.

4.3 Piping Control Measures

The flood-protection landforms have been designed with sufficient width to ensure that piping is not a plausible failure mode. This is achieved by limiting the hydraulic gradient through each landform to no greater than 4%, based on the 0.1% AEP design flood event under the 2100 climate scenario (WRM, 2026). The proposed minimum widths of the flood-protection landforms are summarised in Table 4.2.

Table 4.2 Flood Protection Landform Widths

Landform Name	0.1% AEP Water Depth	Minimum Landform Width
Deep Ck - Western FPL 1	1.0 m	25 m
Deep Ck - Western FPL 2	1.0 m	25 m
Deep Ck – Eastern FPL	1.8 m	45 m
Stewarton North - Western FPL	1.8 m	45 m
Stewarton North - Eastern FPL 1	0.6 m	15 m
Stewarton North - Eastern FPL 2	2.6 m	65 m

4.4 Embankment Stability

The conceptual design of the proposed flood-protection landforms adopts a 1V:4H batter profile, consistent with the operational levees, resulting in a low risk of instability. Where spatial constraints require a flood-protection landform to be constructed near the highwall crest, the adjacent void will be partially backfilled to form a 30% slope. This will support long-term highwall stability and reduce the risk of highwall failure affecting the integrity of the flood-protection landform. Detailed assessments of local landform stability, global highwall stability and settlement will be undertaken during detailed design.

4.5 Erosion Control Measures

As shown in the concept design drawings included in Appendix B, vegetation is proposed as the primary erosion-control measure for all flood-protection landforms. Rock lining is proposed at locations where predicted velocities exceed the adopted vegetation-resilience threshold.

5. CONCLUSIONS

TerraQ has developed conceptual designs for the operational levees and post-closure flood-protection landforms required to protect the proposed Deep Creek and Stewarton North open-cut pits from flooding associated with Deep Creek, Taurus Creek, Two Mile Gully and adjacent unnamed drainage features. The designs have been prepared to address Item 33(c) of the DETSI Request for Information and demonstrate that suitable flood-protection measures can be incorporated into the proposed project landform.

Eight operational levee sections have been identified. These levees will comprise homogeneous earth-fill embankments with a 6 m crest width, 1V:4H batters and crest levels based on the 0.1% AEP flood event under the 2030 climate scenario, including a nominal 0.5 m freeboard. Seepage, piping, instability and erosion risks will be managed through foundation preparation, keyed low-permeability fill, controlled placement and compaction, surface rehabilitation and rock protection where predicted flood velocities exceed the adopted vegetation-resilience threshold.

Six flood-protection landforms have been identified for the post-closure landform. These structures will provide immunity from the 0.1% AEP flood event under the 2100 climate scenario, together with a nominal 0.5 m freeboard. Minimum landform widths of between 15 m and 65 m have been adopted to limit the hydraulic gradient to no more than 4%, such that piping is not considered a credible failure mode. The landforms will incorporate 1V:4H batters, with partial backfilling of adjacent voids to a 30% slope where construction near a highwall crest is required. Vegetation will provide the primary erosion-control treatment, supplemented by rock protection in areas exposed to higher flow velocities.

The concept designs demonstrate that the proposed operational and post-closure flood-protection measures are technically feasible at the nominated locations. Further geotechnical investigation and detailed design will be required to confirm foundation conditions, material properties, key-trench dimensions, local and global stability, settlement and erosion protection requirements.

6. QUALIFICATIONS

The following qualifications apply unless otherwise stated in the body of this report.

1. This report has been prepared for the exclusive use of the Client and solely for the purpose described in this report. It must not be used for any other purpose without the prior written consent of TerraQ.

2. This report has been prepared using information supplied by the Client and third parties. TerraQ has relied on this information in good faith and, unless otherwise stated, has not independently verified its accuracy or completeness.

3. This report has been prepared at a level of assessment appropriate to the project stage described herein. Further investigations, detailed design, or additional studies may be required as the project progresses.

4. Opinions, conclusions, and recommendations contained in this report are based on the information available at the time of preparation and on professional judgement consistent with generally accepted engineering practice.

5. Where modelling has been undertaken, results represent predictions based on assumptions, input datasets, and selected methodologies. Model outputs should be interpreted as indicative rather than definitive.

6. Interpretations of legislation, policy, and guidelines are based on information available at the time of writing. Regulatory requirements may change and should be confirmed with the relevant authority prior to implementation.

7. This report is not intended for use by any third party. TerraQ accepts no responsibility for reliance on this report by parties other than the Client.

8. Site conditions, environmental conditions, and operational constraints may change over time. TerraQ accepts no responsibility for the continued applicability of this report where conditions differ from those described.

9. Unless otherwise stated, datasets used in this assessment represent the most recent information available at the time of analysis. Updated datasets may alter the conclusions presented.

10. Figures, plans, and conceptual layouts included in this report are indicative only unless specifically identified as issued for design or construction purposes.

This report remains the intellectual property of TerraQ unless otherwise agreed in writing.

7. REFERENCES

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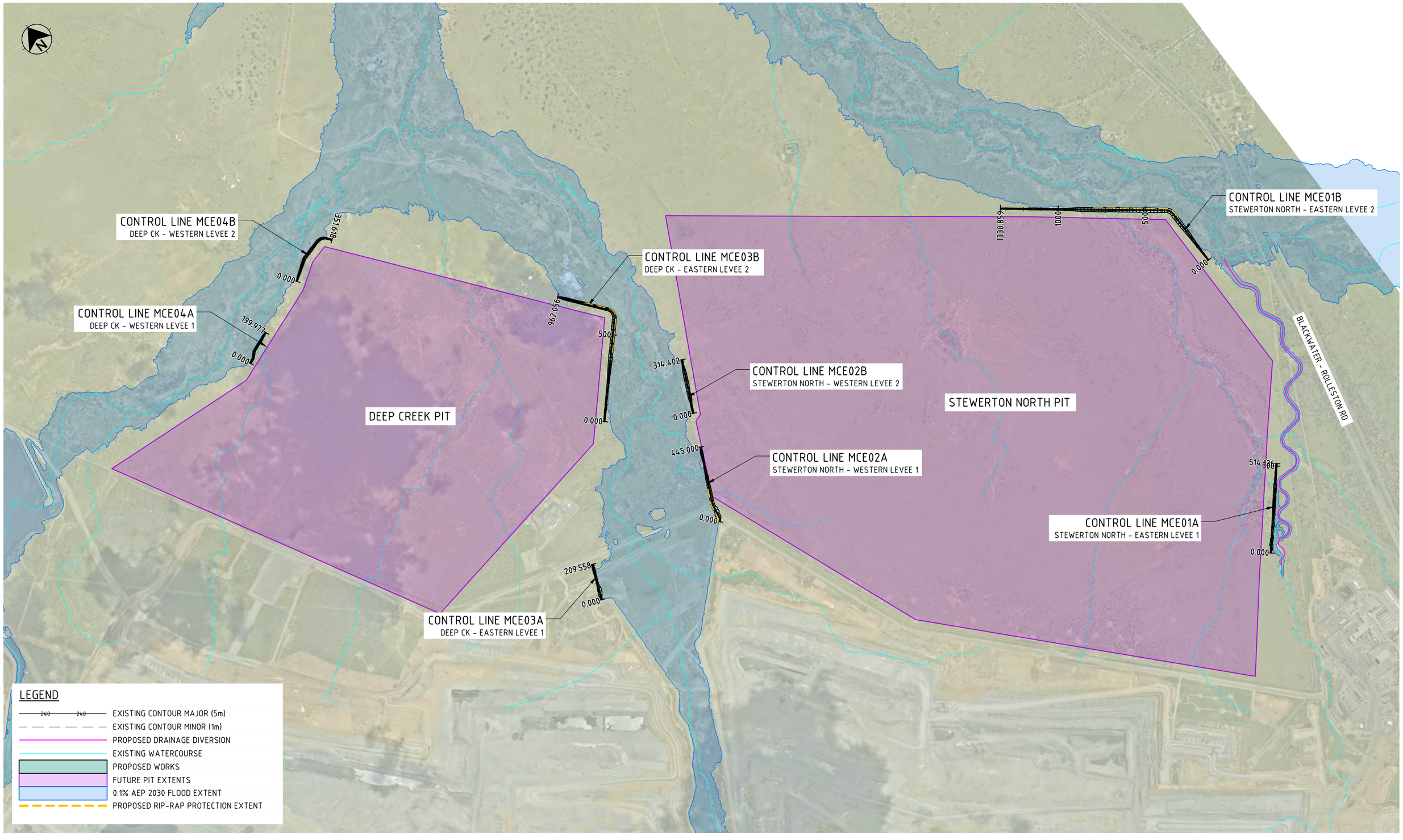
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APPENDIX A

Operational Levee Concept Design Drawings



VENDOR DRG NUMBER
Q3000-014-DWG-1100

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
B	28.09.26	FOR INFORMATION	MT	BK	BK
A	24.09.26	FOR INFORMATION	MT	BK	BK

REVISION

DRAWING No. | TITLE

REFERENCE DRAWINGS

UNCONTROLLED IF PRINTED OR DOWNLOADED

Whitehaven

BLACKWATER MINE
A.B.N. 89 672 151 941
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Ardurad Road
Blackwater Qld 4717

VENDOR APPROVALS	SIGNATURE	DATE
DRAWN	MT	28.09.26
DRN. CHK	BK	28.09.26
ENGINEER	BK	28.09.26
ENG. CHK (QA)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE
PROJECT No.
EQUIPMENT TAG

WHC REVIEW
SIGNATURE
DATE

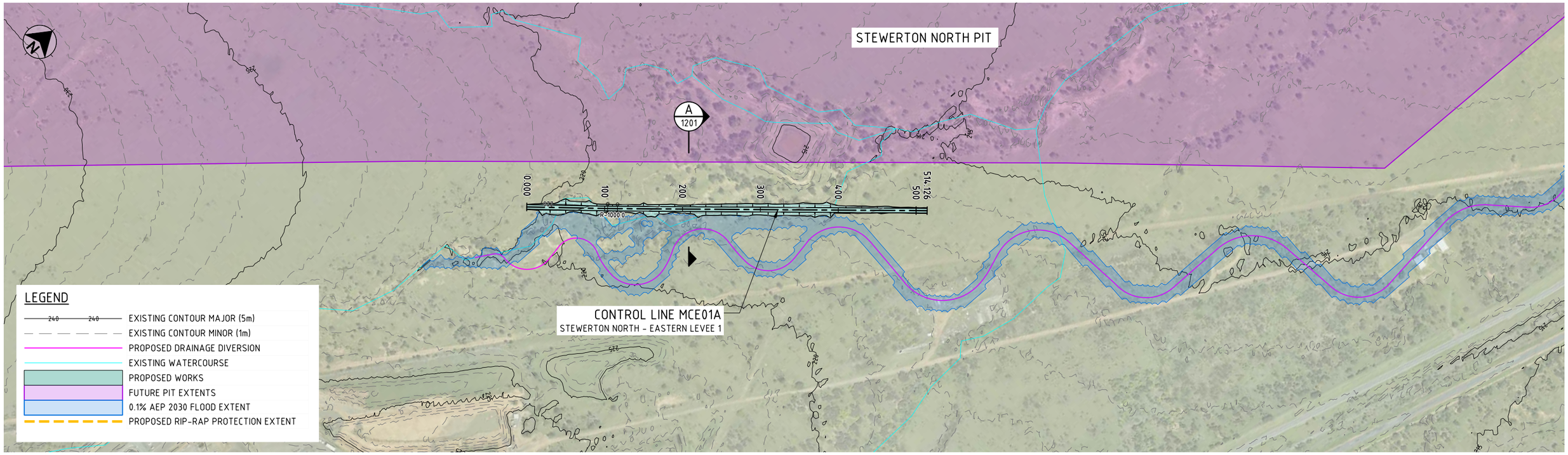
BLACKWATER NORTH EXTENSION PROJECT
OPERATIONAL FLOOD LEVEES CONCEPT DESIGN
KEY PLAN

DRG. No.
LEGACY DRG No.
STATUS: FOR INFORMATION
DISCIPLINE: CIVIL

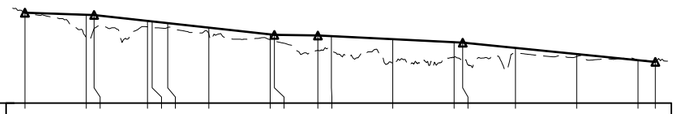
Sht 1 / 1
Shf Size A1
Scale N.T.S.
Rev. No. A

CAD FILE: Q3000-014-DWG-1100.dwg

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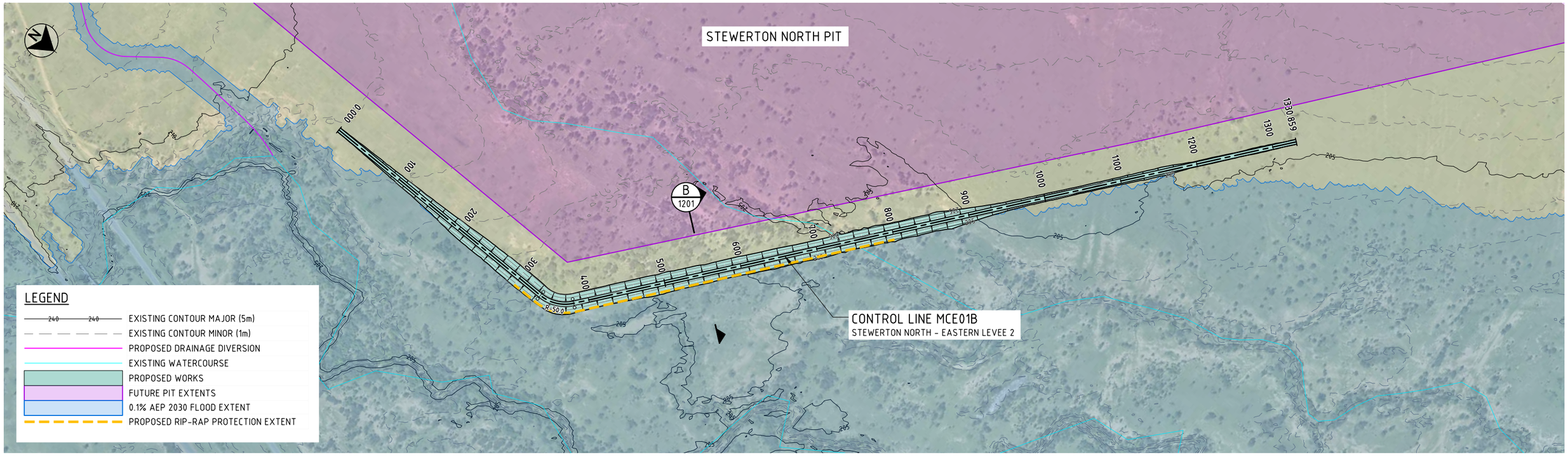


PLAN
SCALE 1:2500

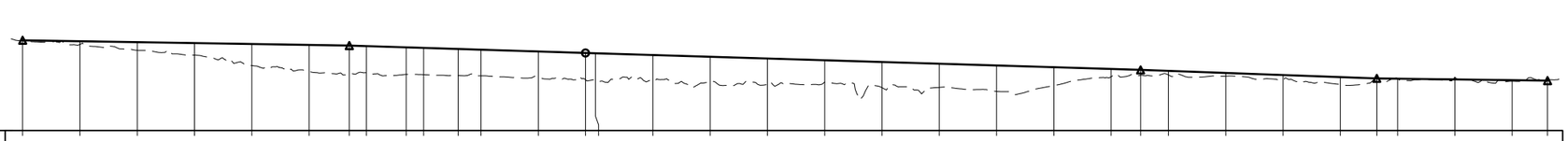


DATUM 213.0

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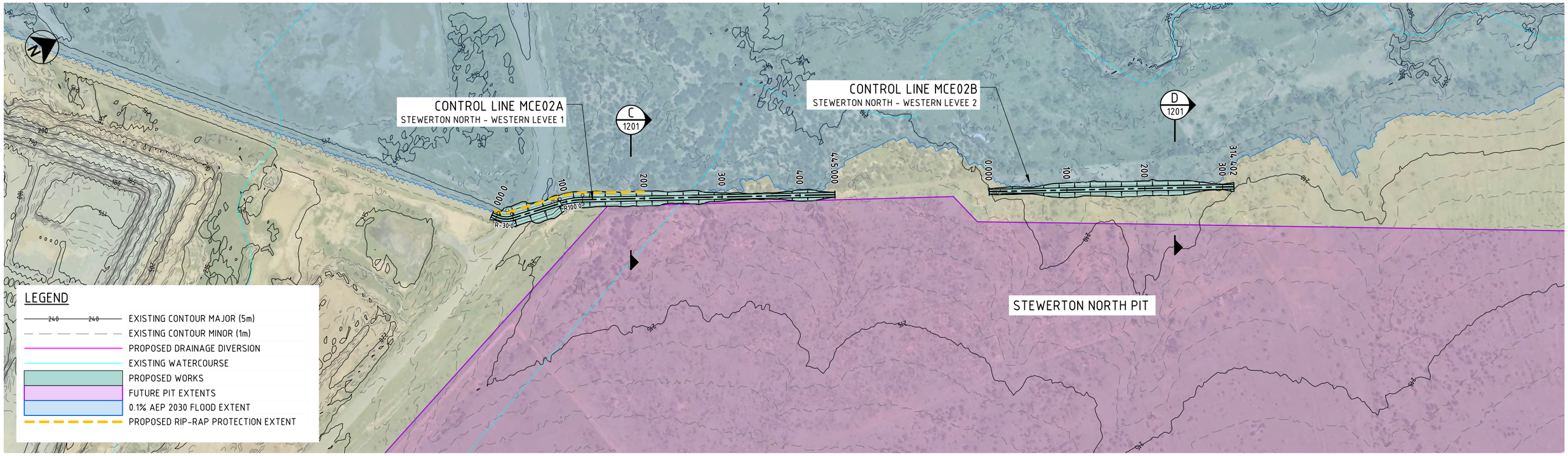


PLAN
SCALE 1:2500



DATUM 201.0

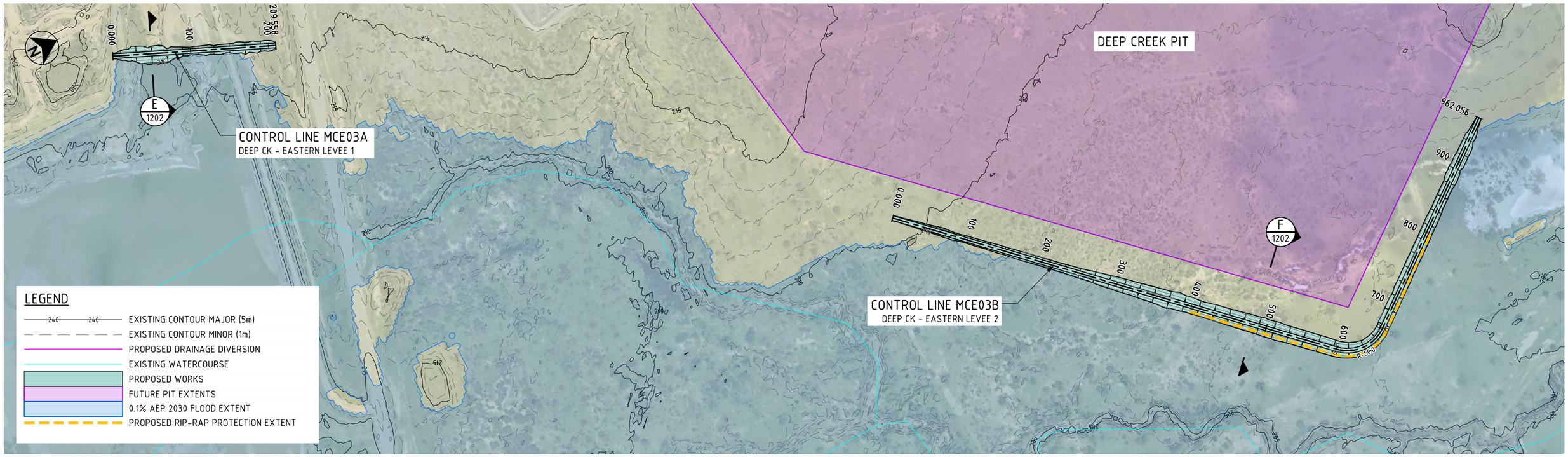
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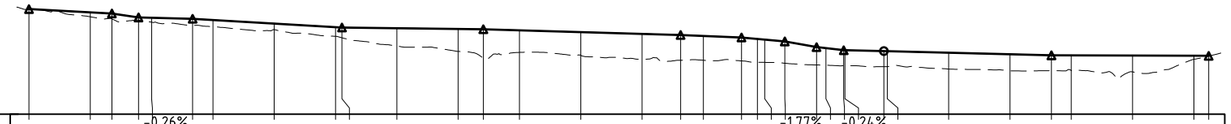
PLAN
SCALE 1:2500

DATUM 208.0

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PLAN
SCALE 1:2500



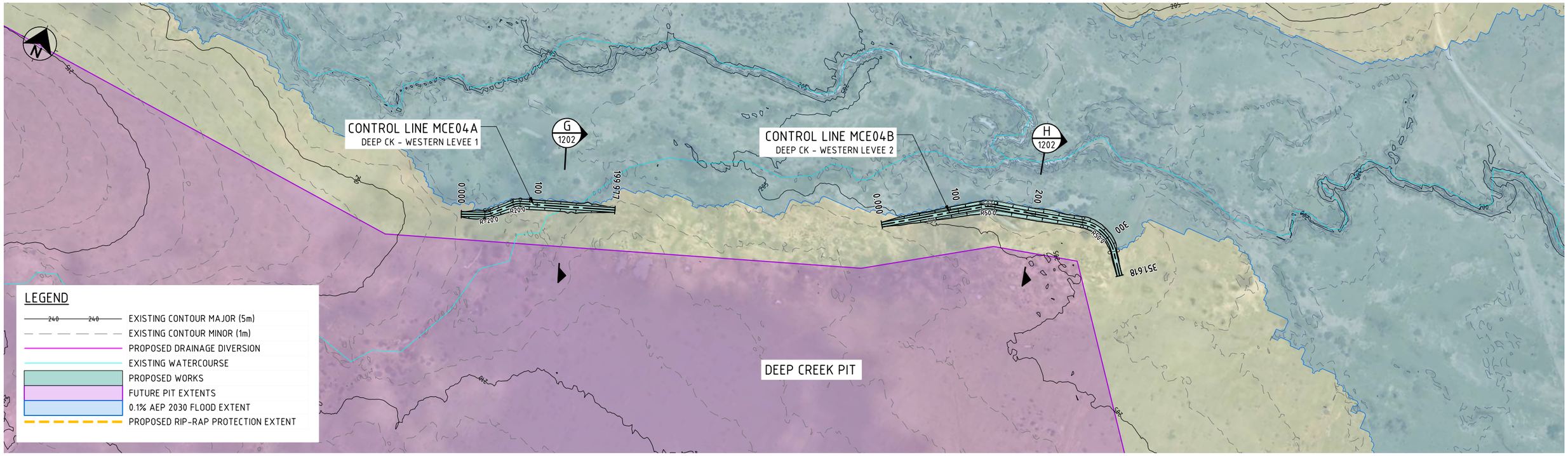
DATUM 212.0

VERT. DETAILS	-0.00%					
HORIZ. DETAILS	L=209.558					
DEPTHS	-0.002	-1.372	-0.545	-0.657	-0.970	-0.052
DESIGN LEVELS	217.258	217.258	217.258	217.258	217.258	217.258
EXISTING LEVELS	217.256	215.887	216.713	216.601	216.288	217.206
CHAINAGES	0.000	50.000	100.000	150.000	200.000	209.558

CONTROL LINE MCE03A (DEEP CK - EASTERN LEVEE 1)
SCALE 1:2500 HORIZ
SCALE 1:250 VERT

DATUM 202.0

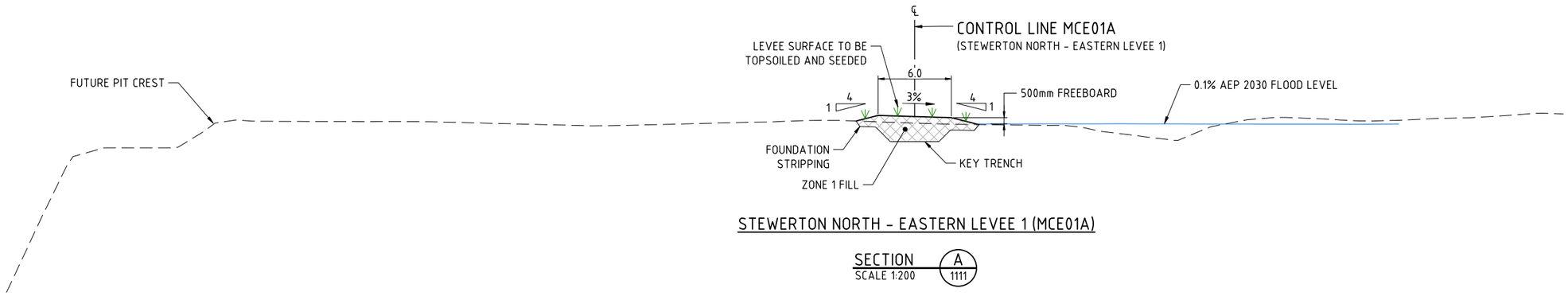
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PLAN
SCALE 1:2500

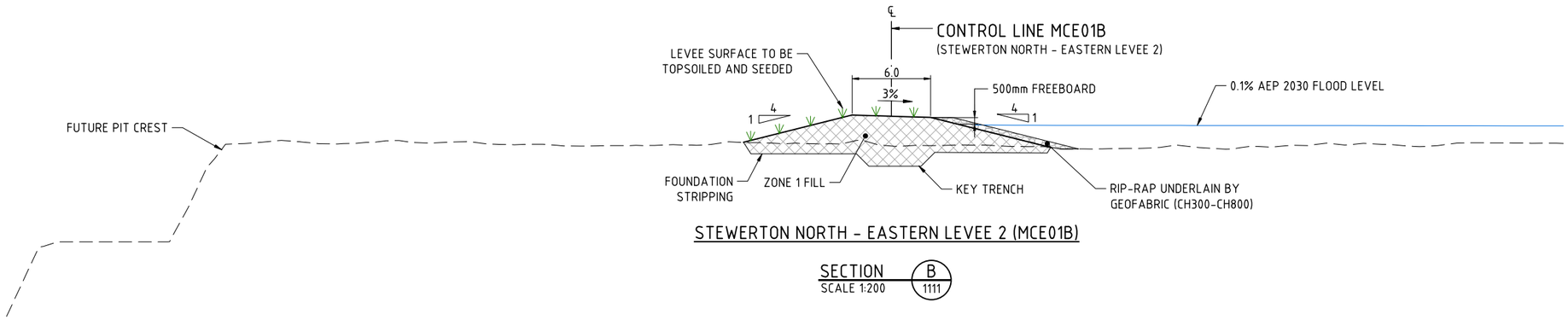
DATUM 203.0

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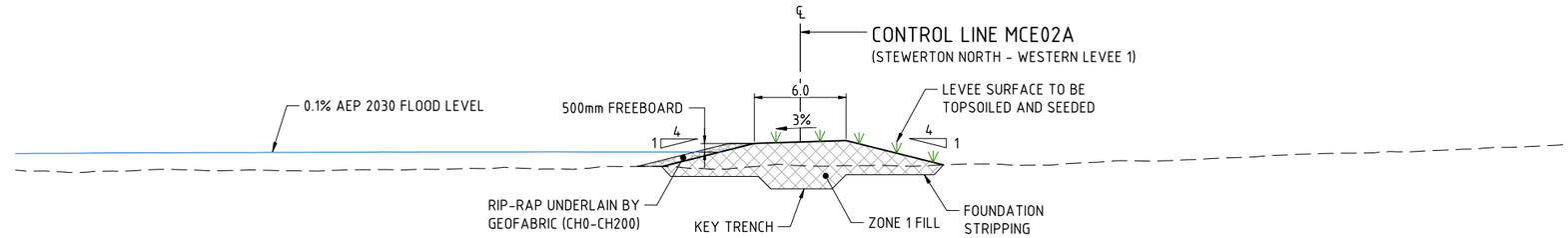
STEWERTON NORTH - EASTERN LEVEE 1 (MCE01A)

SECTION A
SCALE 1:200
1111



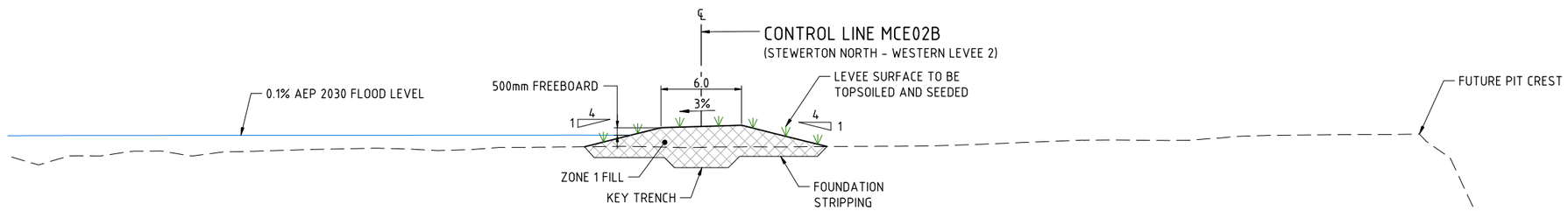
STEWERTON NORTH - EASTERN LEVEE 2 (MCE01B)

SECTION B
SCALE 1:200
1111



STEWERTON NORTH - WESTERN LEVEE 1 (MCE02A)

SECTION C
SCALE 1:200
1112



STEWERTON NORTH - WESTERN LEVEE 2 (MCE02B)

SECTION D
SCALE 1:200
1112

LEGEND

ZONE 1 FILL
RIP-RAP
TOPSOIL AND SEED

0 2 4 6 8 10m
SCALE 1:200 (A1)
SCALE BEFORE REDUCTION

VENDOR DRG NUMBER
Q3000-014-DWG-1201

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
B	28.09.26	FOR INFORMATION	MT	BK	BK
A	24.09.26	FOR INFORMATION	MT	BK	BK

REVISION

DRAWING No.	TITLE

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A.B.N. 89 672 151 941
Phone: +61 7 4980 5666

Ardurad Road
Blackwater Qld 4717

VENDOR APPROVALS	SIGNATURE	DATE
DRAWN	MT	28.09.26
DRN. CHK	BK	28.09.26
ENGINEER	BK	28.09.26
ENG. CHK (QA)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE

PROJECT No.

EQUIPMENT TAG

WHC REVIEW
SIGNATURE

DATE

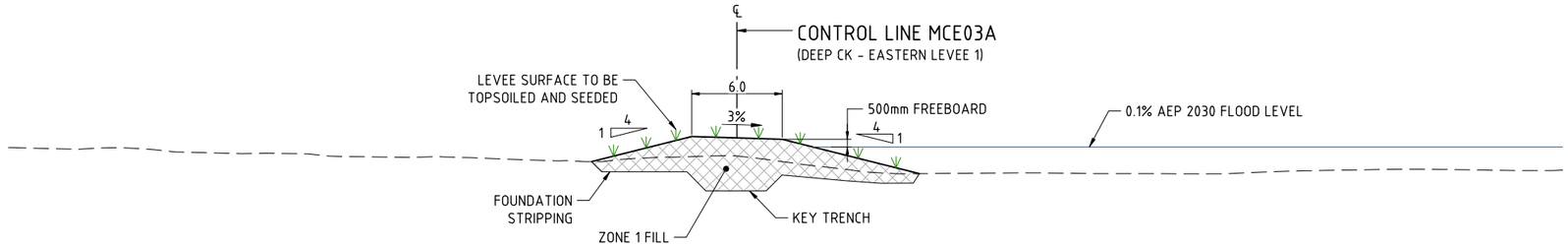
BLACKWATER NORTH EXTENSION PROJECT
OPERATIONAL FLOOD LEVEES CONCEPT DESIGN
TYPICAL SECTIONS & DETAILS
SHEET 1 OF 2

DRG. No.
LEGACY DRG No.
STATUS: FOR INFORMATION
DISCIPLINE: CIVIL

Sht 1 / 1
Shr Size A1
Scale N.T.S.
Rev. No. A

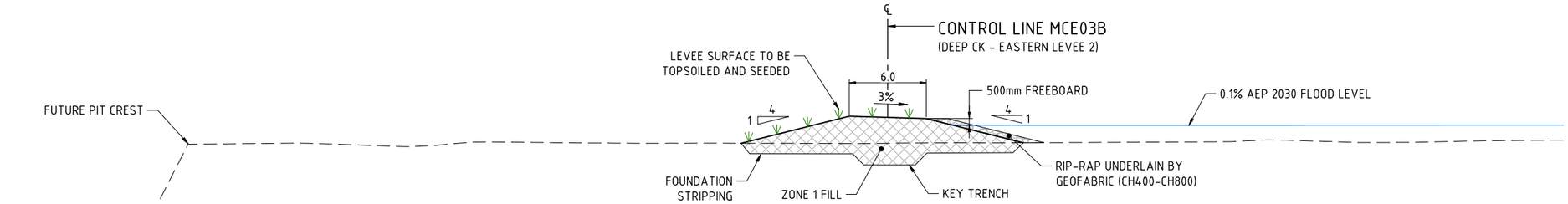
CAD FILE: Q3000-014-DWG-1201.dwg

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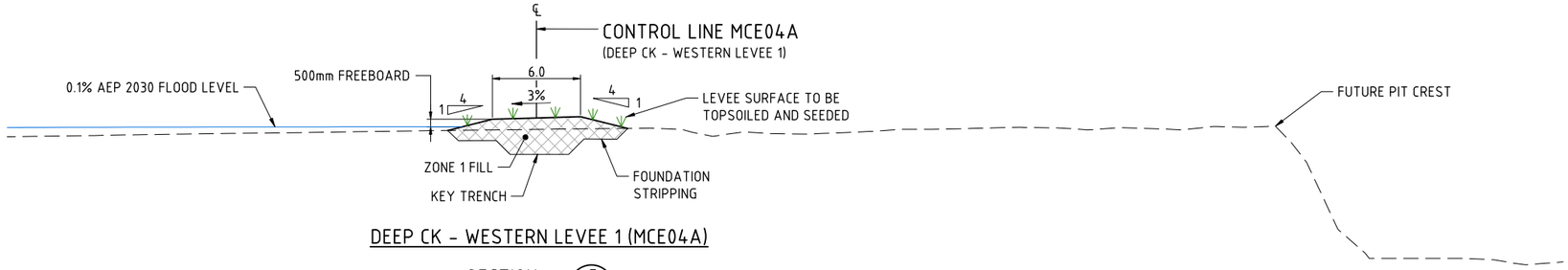
DEEP CK - EASTERN LEVEE 1 (MCE03A)

SECTION E
SCALE 1:200 1131



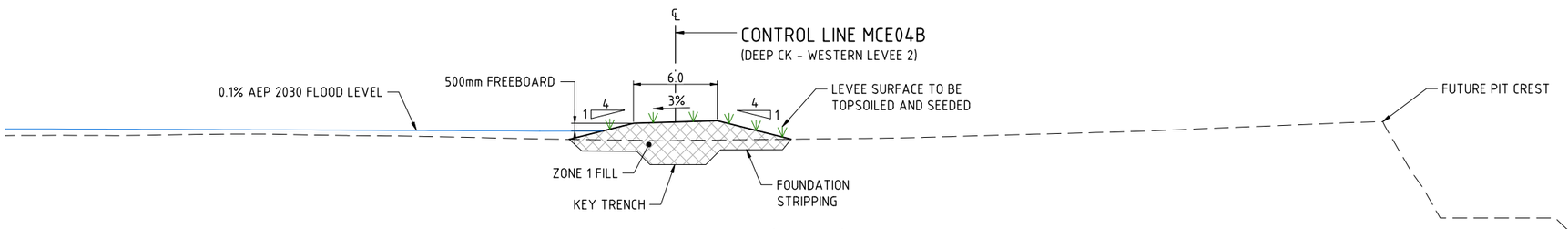
DEEP CK - EASTERN LEVEE 2 (MCE03B)

SECTION F
SCALE 1:200 1131



DEEP CK - WESTERN LEVEE 1 (MCE04A)

SECTION G
SCALE 1:200 1141



DEEP CK - WESTERN LEVEE 2 (MCE04B)

SECTION H
SCALE 1:200 1141

LEGEND

ZONE 1 FILL
RIP-RAP
TOPSOIL AND SEED

0 2 4 6 8 10m
SCALE 1:200 (A1)
SCALE BEFORE REDUCTION

VENDOR DRG NUMBER
Q3000-014-DWG-1202

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
B	28.09.26	FOR INFORMATION	MT	BK	BK
A	24.09.26	FOR INFORMATION	MT	BK	BK

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VENDOR APPROVALS	SIGNATURE	DATE
DRAWN	MT	28.09.26
DRN. CHK	BK	28.09.26
ENGINEER	BK	28.09.26
ENG. CHK (Q.A)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE

PROJECT No.

EQUIPMENT TAG

WHC REVIEW
SIGNATURE

DATE

BLACKWATER NORTH EXTENSION PROJECT
OPERATIONAL FLOOD LEVEES CONCEPT DESIGN
TYPICAL SECTIONS & DETAILS
SHEET 2 OF 2

DRG. No.	LEGACY DRG No.
STATUS: FOR INFORMATION	DISCIPLINE: CIVIL

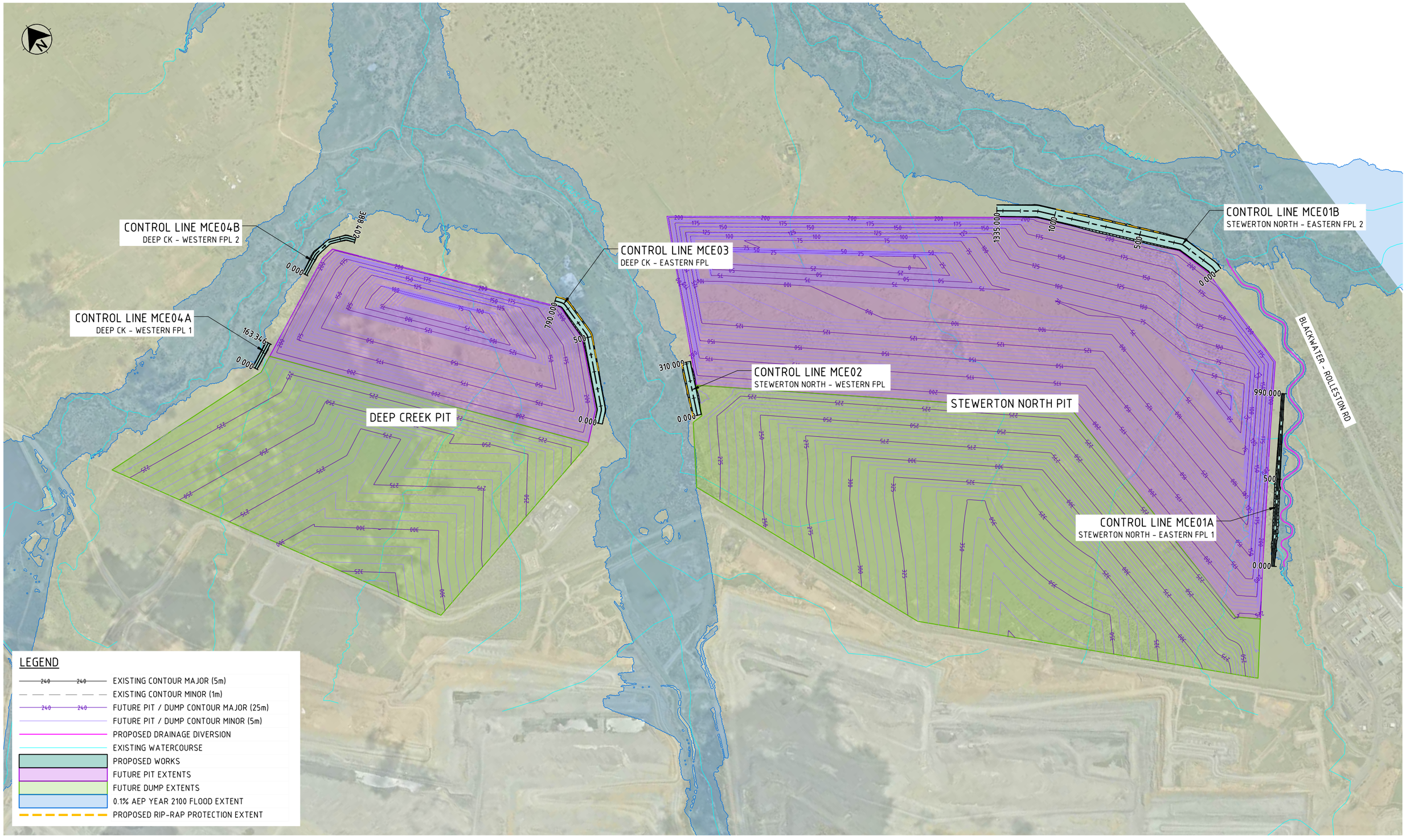
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Sht Size	A1
Scale	N.T.S.
Rev. No.	A

CAD FILE: Q3000-014-DWG-1202.dwg

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APPENDIX B

Flood Protection Landform Concept Design Drawings



VENDOR DRG NUMBER
Q3000-014-DWG-0100

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
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A	01.09.26	FOR INFORMATION	MT	BK	BK

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Blackwater Qld 4717

VENDOR APPROVALS	SIGNATURE	DATE
DRAWN	MT	24.09.26
DRN. CHK	BK	24.09.26
ENGINEER	BK	24.09.26
ENG. CHK (QA)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE
PROJECT No.
EQUIPMENT TAG

WHC REVIEW
SIGNATURE
DATE

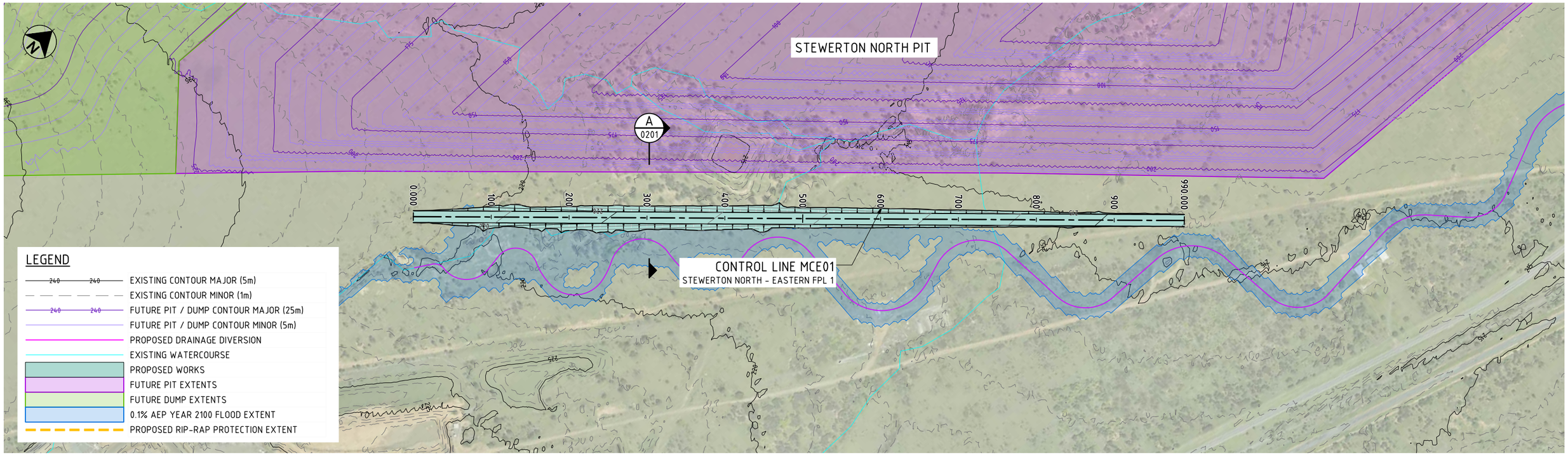
BLACKWATER NORTH EXTENSION PROJECT
FLOOD PROTECTION LANDFORM CONCEPT DESIGN
KEY PLAN

DRG. No.
LEGACY DRG No.
STATUS: FOR INFORMATION
DISCIPLINE: CIVIL

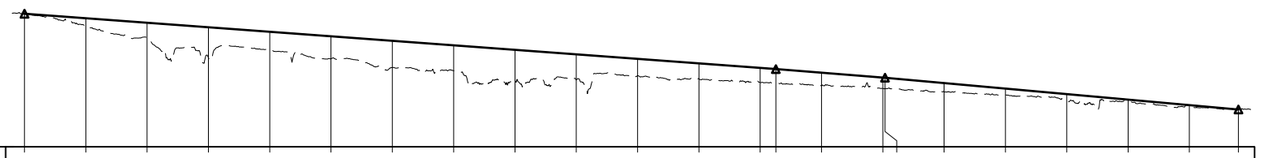
Sht 1 / 1
Sht Size A1
Scale N.T.S.
Rev. No. A

CAD FILE: Q3000-014-DWG-0100.dwg

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PLAN
SCALE 1:2500



DATUM 211.0

VERT. DETAILS	-0.74%												-0.79%		-0.90%										
HORIZ. DETAILS	L=990.000																								
DEPTHS	-0.061	-0.674	-1.195	-2.482	-1.532	-1.832	-2.177	-2.065	-2.551	-2.086	-1.370	-1.258	-1.193	-1.160	-1.036	-0.888	-0.894	-0.698	-0.520	-0.556	-0.129	-0.104	0.049		
DESIGN LEVELS	221.850	221.482	221.114	220.746	220.378	220.010	219.642	219.274	218.906	218.538	218.170	217.802	217.434	217.340	217.044	216.647	216.633	216.199	215.750	215.300	214.850	214.401	214.041		
EXISTING LEVELS	221.789	220.809	219.920	218.265	218.846	218.178	217.466	217.209	216.355	216.452	216.800	216.544	216.241	216.180	216.008	215.759	215.739	215.501	215.229	214.744	214.721	214.297	214.090		
CHAINAGES	0.000	50.000	100.000	150.000	200.000	250.000	300.000	350.000	400.000	450.000	500.000	550.000	600.000	612.762	650.000	700.000	701.771	750.000	800.000	850.000	900.000	950.000	990.000		

CONTROL LINE MCE01A (STEWERTON NORTH - EASTERN FPL 1)
SCALE 1:2500 HORIZ
SCALE 1:250 VERT

0 2.5 5.0 7.5 10.0 12.5m
SCALE 1:250 (A1)
SCALE BEFORE REDUCTION

0 25 50 75 100 125m
SCALE 1:2500 (A1)
SCALE BEFORE REDUCTION

VENDOR DRG NUMBER
Q3000-014-DWG-0111

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
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A	01.09.26	FOR INFORMATION	MT	BK	BK

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Phone: +61 7 4980 5666

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Blackwater Qld 4717

VENDOR APPROVALS		
	SIGNATURE	DATE
DRAWN	MT	24.09.26
DRN. CHK	BK	24.09.26
ENGINEER	BK	24.09.26
ENG. CHK (Q.A)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE

PROJECT No.

EQUIPMENT TAG

WHC REVIEW
SIGNATURE

DATE

BLACKWATER NORTH EXTENSION PROJECT
FLOOD PROTECTION LANDFORM CONCEPT DESIGN
LAYOUT PLAN - STEWERTON NORTH
EASTERN FPL 1

DRG. No.

LEGACY DRG No.

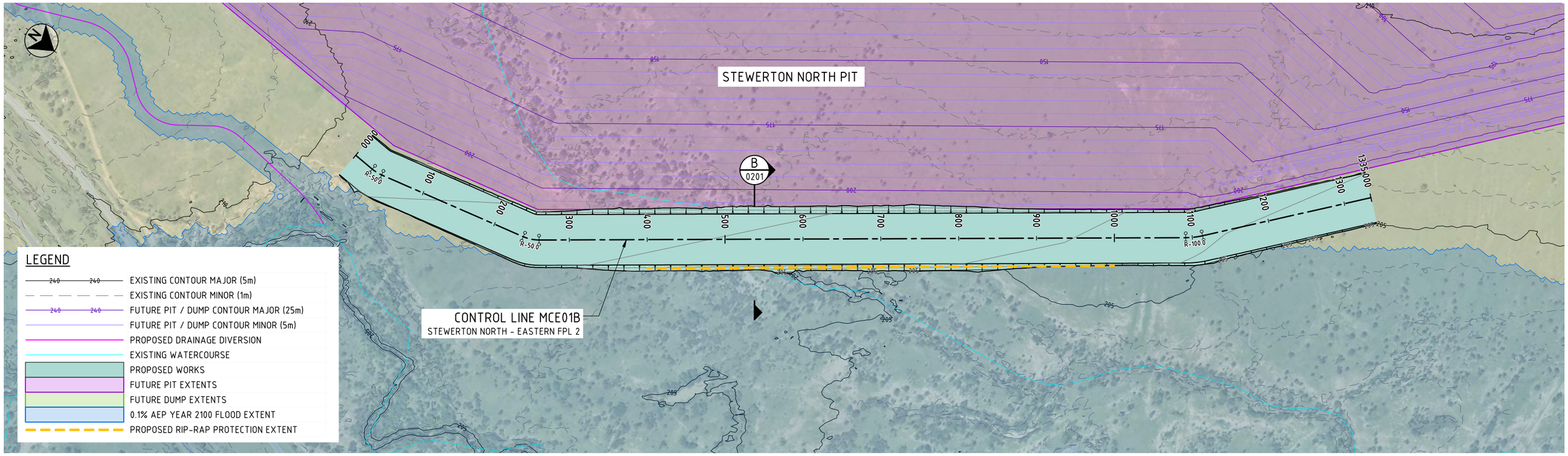
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DISCIPLINE: CIVIL

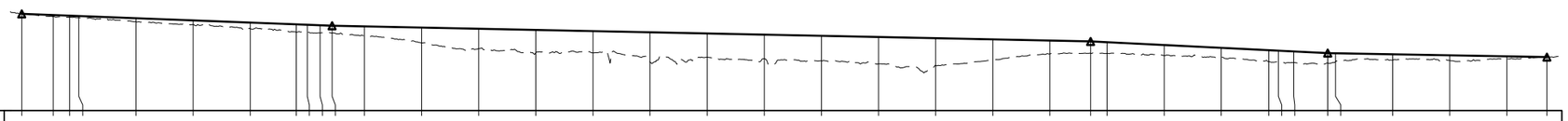
Sht 1 / 1
Sht Size A1
Scale N.T.S.
Rev. No. A

CAD FILE: Q3000-014-DWG-0111.dwg

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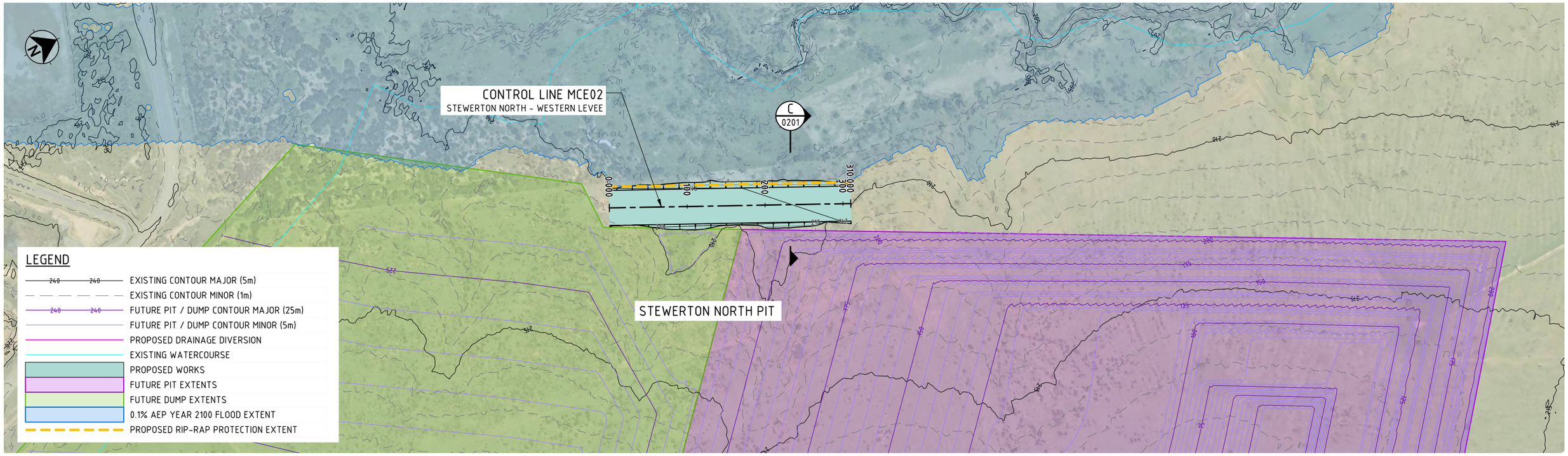


PLAN
SCALE 1:2500

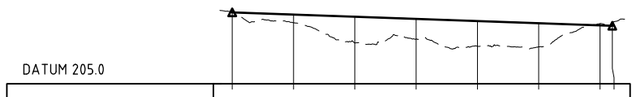


DATUM 201.0

| | | |



PLAN
SCALE 1:2500



DATUM 205.0

VERT. DETAILS	-0.35%						
HORIZ. DETAILS	L=310.000						
DEPTHS	0.074	-0.676	-2.152	-1.643	-2.059	-1.931	0.136 / 0.135
DESIGN LEVELS	210.827	210.650	210.474	210.297	210.121	209.944	209.768 / 209.732
EXISTING LEVELS	210.901	209.974	208.321	208.654	208.062	208.014	209.904 / 209.868
CHAINAGES	0.000	50.000	100.000	150.000	200.000	250.000	300.000 / 310.000

CONTROL LINE MCE02 (STEWERTON NORTH - WESTERN FPL)
SCALE 1:2500 HORIZ
SCALE 1:250 VERT

0 2.5 5.0 7.5 10.0 12.5m
SCALE 1:250 (A1)
SCALE BEFORE REDUCTION

0 25 50 75 100 125m
SCALE 1:2500 (A1)
SCALE BEFORE REDUCTION

VENDOR DRG NUMBER
Q3000-014-DWG-0121

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
B	24.09.26	FOR INFORMATION	MT	BK	BK
A	01.09.26	FOR INFORMATION	MT	BK	BK

REVISION

DRAWING No. | TITLE
REFERENCE DRAWINGS

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A.B.N. 89 672 151 941
Phone: +61 7 4980 5666

Ardurad Road
Blackwater Qld 4717

VENDOR APPROVALS		
	SIGNATURE	DATE
DRAWN	MT	24.09.26
DRN. CHK	BK	24.09.26
ENGINEER	BK	24.09.26
ENG. CHK (QA)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE
PROJECT No.
EQUIPMENT TAG

WHC REVIEW
SIGNATURE
DATE

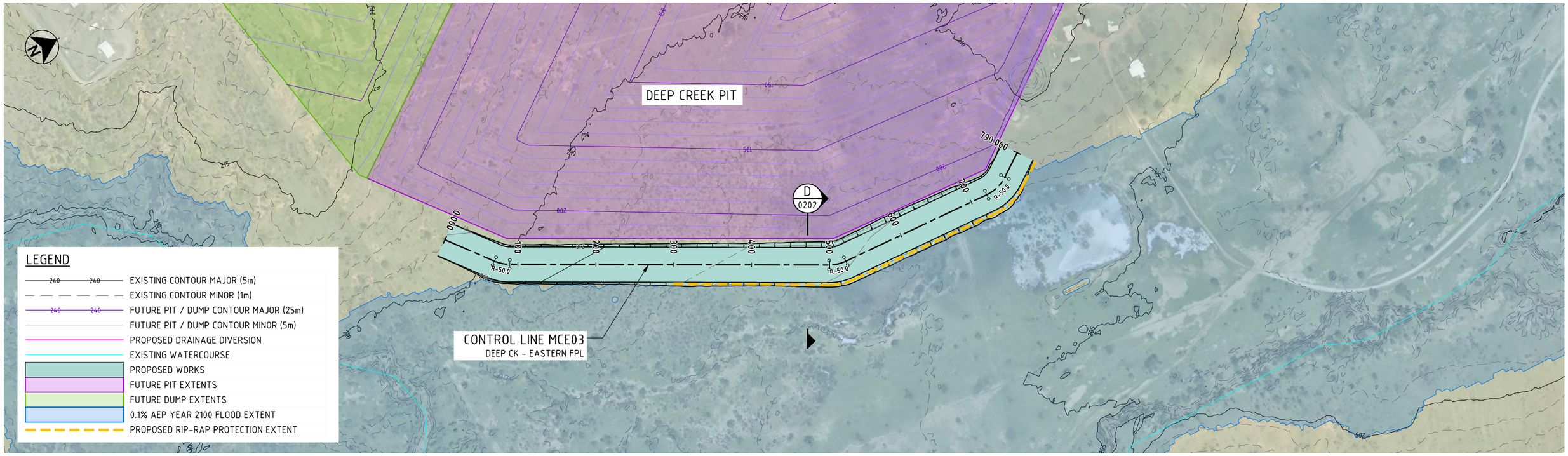
BLACKWATER NORTH EXTENSION PROJECT
FLOOD PROTECTION LANDFORM CONCEPT DESIGN
LAYOUT PLAN - STEWERTON NORTH
WESTERN FPL

DRG. No.
LEGACY DRG No.
STATUS: FOR INFORMATION
DISCIPLINE: CIVIL

Sht 1 / 1
Sht Size A1
Scale N.T.S.
Rev. No. A

CAD FILE: Q3000-014-DWG-0121.dwg

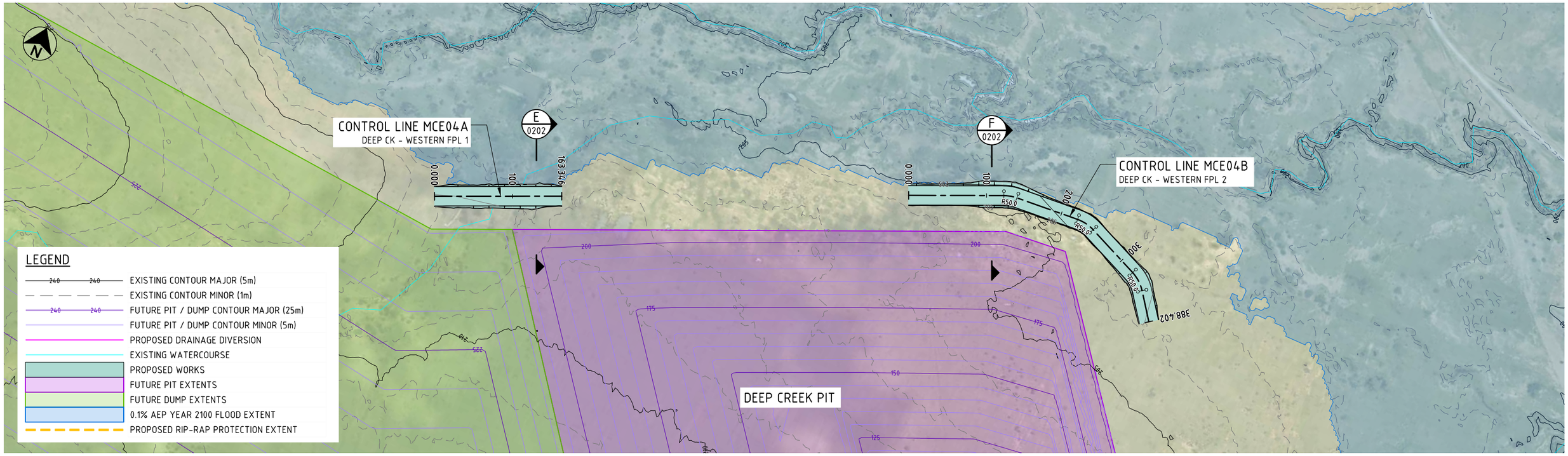
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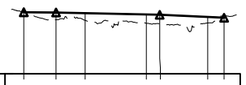
PLAN
SCALE 1:2500

DATUM 202.0

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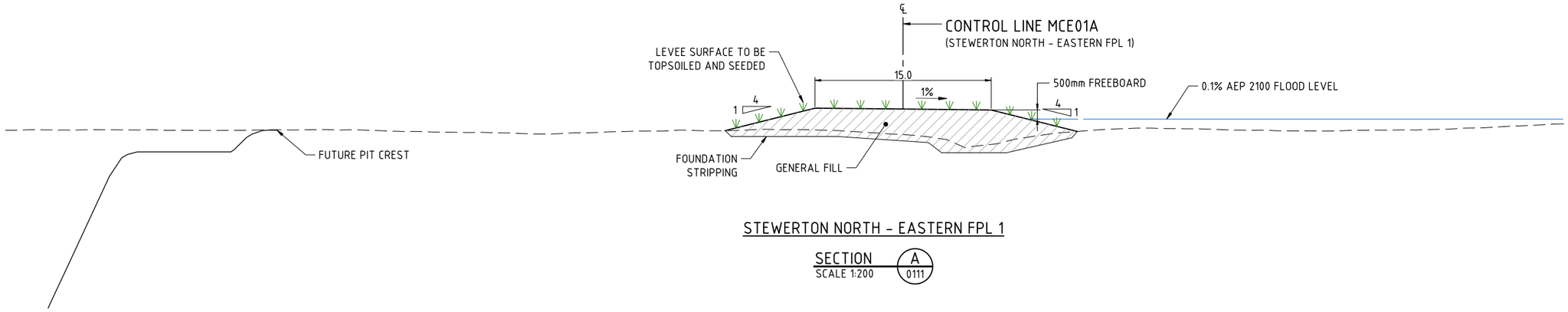


PLAN
SCALE 1:2500



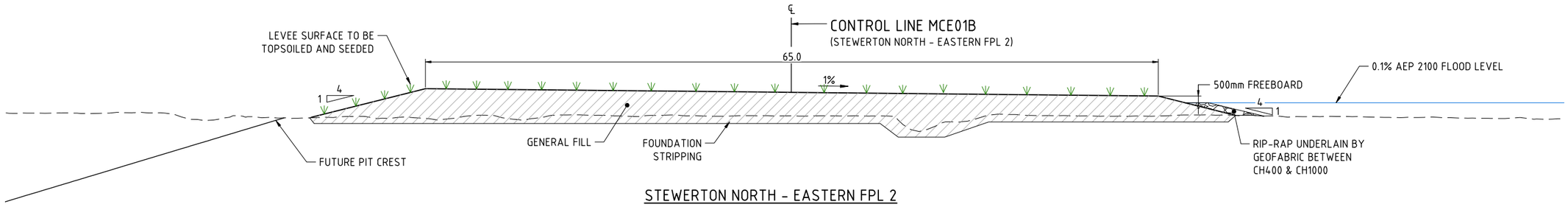
DATUM 203.0

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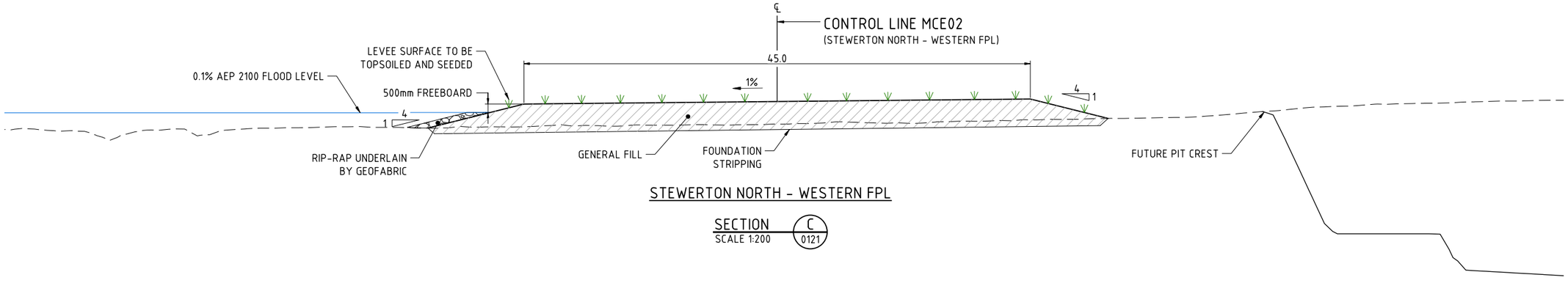
STEWERTON NORTH - EASTERN FPL 1

SECTION A
SCALE 1:200 0111



STEWERTON NORTH - EASTERN FPL 2

SECTION B
SCALE 1:200 0112



STEWERTON NORTH - WESTERN FPL

SECTION C
SCALE 1:200 0121

LEGEND

GENERAL FILL
RIP-RAP
TOPSOIL AND SEED

0 2 4 6 8 10m
SCALE 1:200 (A1)
SCALE BEFORE REDUCTION

VENDOR DRG NUMBER
Q3000-014-DWG-0201

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
B	24.09.26	FOR INFORMATION	MT	BK	BK
A	01.09.26	FOR INFORMATION	MT	BK	BK

REVISION

DRAWING No. | TITLE
REFERENCE DRAWINGS

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Whitehaven

BLACKWATER MINE
A.B.N. 89 672 151 941
Phone: +61 7 4980 5666

Ardurad Road
Blackwater Qld 4717

VENDOR APPROVALS		
	SIGNATURE	DATE
DRAWN	MT	24.09.26
DRN. CHK	BK	24.09.26
ENGINEER	BK	24.09.26
ENG. CHK (QA)		
APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE
PROJECT No.
EQUIPMENT TAG

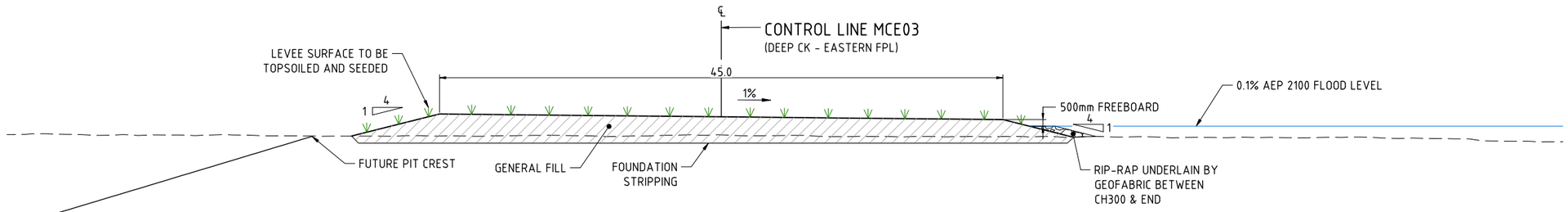
WHC REVIEW
SIGNATURE
DATE

BLACKWATER NORTH EXTENSION PROJECT
FLOOD PROTECTION LANDFORM CONCEPT DESIGN
TYPICAL SECTIONS & DETAILS
SHEET 1 OF 2

Sht 1 / 1
Sht Size A1
Scale N.T.S.
Rev. No. A
DRG. No.
LEGACY DRG No.
STATUS: FOR INFORMATION
DISCIPLINE: CIVIL

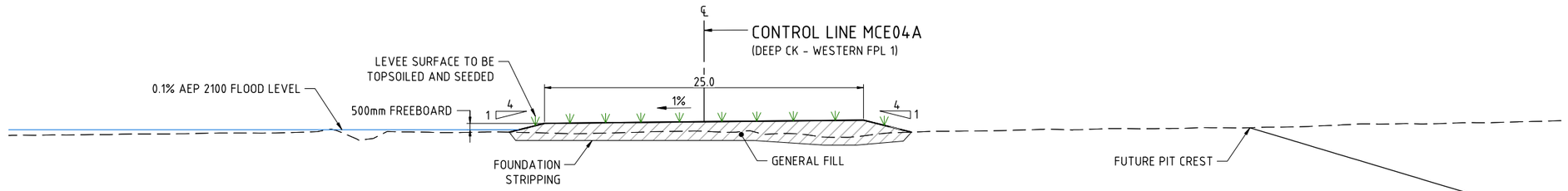
CAD FILE: Q3000-014-DWG-0201.dwg

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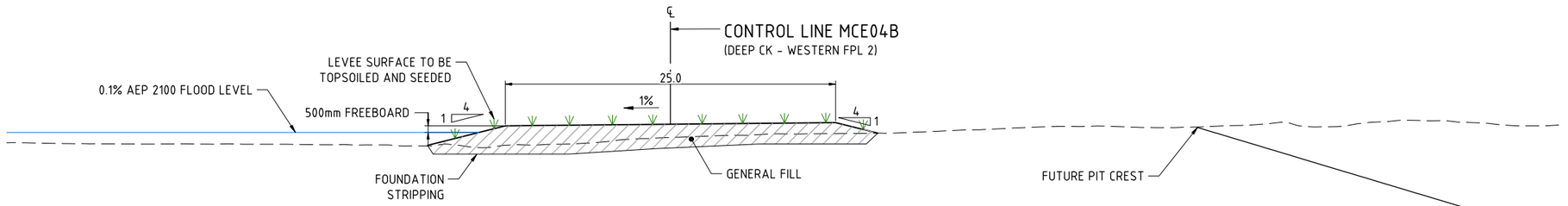
DEEP CK - EASTERN FPL

SECTION D
SCALE 1:200 0131



DEEP CK - WESTERN FPL 2

SECTION E
SCALE 1:200 0141



DEEP CK - WESTERN FPL 2

SECTION F
SCALE 1:200 0141

LEGEND

GENERAL FILL
RIP-RAP
TOPSOIL AND SEED

SCALE 1:200 (A1)
SCALE BEFORE REDUCTION

VENDOR DRG NUMBER
Q3000-014-DWG-0202

VENDOR LOGO
TERRAQ

REV	DATE	DESCRIPTION	DRN	ENG	APP
B	24.09.26	FOR INFORMATION	MT	BK	BK
A	01.09.26	FOR INFORMATION	MT	BK	BK

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APPROVED		

RPEQ APPROVAL
RPEQ ENGINEER
B.KIERNAN
RPEQ No. DATE

PROJECT No.

EQUIPMENT TAG

WHC REVIEW
SIGNATURE

DATE

BLACKWATER NORTH EXTENSION PROJECT
FLOOD PROTECTION LANDFORM CONCEPT DESIGN
TYPICAL SECTIONS & DETAILS
SHEET 2 OF 2

DRG. No.

LEGACY DRG No.

STATUS: FOR INFORMATION

DISCIPLINE: CIVIL

Sht 1 / 1
Sht Size A1
Scale N.T.S.
Rev. No. A

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