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DIANNE COPPER MINE

Final Landform & Cover Design Report

17 October 2025

Revision 01

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1. INTRODUCTION

1.1. Project Description

The Dianne Copper Mine (DCM) is in Cape York Peninsula, Queensland, approximately 165 kilometres northwest of Cairns and 100 km southwest of Cooktown. DCM comprises Mining Leases ML 2810, ML 2811, ML 2831, ML 2832, ML 2833, and ML 2834. The mine has been under care and maintenance since copper mining activities ceased in 1982. The proponents for the Dianne Copper Mine are Mineral Projects Pty Ltd (MPP) and Tableland Resources Pty Ltd.

The Dianne Copper Mine consists of the following infrastructure, of which key features are shown in Figure 1.

- A small open cut pit;
- Historic underground portal (backfilled in 1983);
- Waste rock stockpile;
- Settling dam, drainage channels, spillway, and other water management infrastructure;
- Run of mine laydown areas;
- Main access road and internal mine roads;
- Old mine camp building concrete footings and associated remnant infrastructure;
- Rehabilitation areas.

The mine was developed for copper in the 1970s, and operations ceased in 1982 when the mine was put under care and maintenance due to the global fall of copper prices. At this time, all processing infrastructure, administration, and accommodation were removed from site and rehabilitation of some areas of the site was carried out.

Figure 1: Site Location and Existing Layout

The site is currently under care and maintenance, with the recommencement of mining activities being proposed under a major EA amendment. Current disturbance at the site is minimal, totalling 14.1 ha across all mining leases. Rehabilitation related activities to date have focused on water management, in particular the construction and maintenance of infrastructure to isolate the waste rock stockpile from overland flow and to manage mine affected water.

The Dianne Recommencement Project (the project) involves the recommencement of mining and associated activities at the Dianne Copper Mine. The project will be a traditional truck and shovel hard rock mine and processing facility. It will consist of the following elements, which are shown in Figure 2:

- Reprocessing and disposing of the existing waste rock stockpile from previous mining operations;
- Mining Overburden, Waste Rock and Ore from the pit;
- Crushing and beneficiating Ore;
- Acid leaching of copper metal in gravity heaps;
- Solvent extraction of the leach liquor for purification and concentration of copper and subsequent recycling of acid to leaching;
- Electrowinning of high purity copper cathodes from the concentrated SX solution;
- Ancillary operations such as maintenance and camp facilities;
- Exploration activities;
- Rehabilitation and closure.

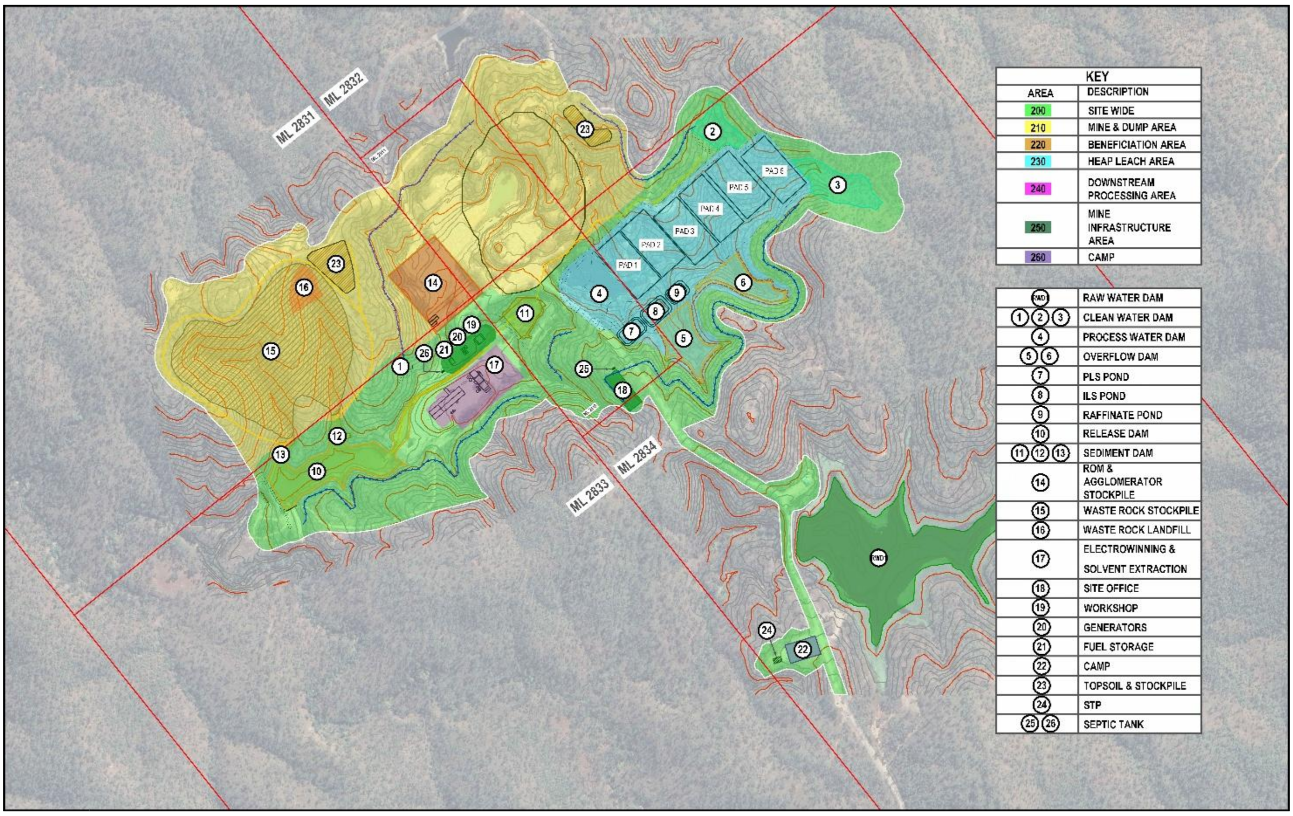

Figure 2: Planned Site Layout
(See Also Dwg. J022.200.00-DWG-003.08.1-Area_Layout)

1.2. Purpose of this Report

This report has been prepared in accordance with Statutory guideline Progressive rehabilitation and closure plans (PRC plans) (ESR2019/4964) developed by the Department of the Environment, Tourism, Science and Innovation (DETSI) (Department of the Environment, Tourism, Science and Innovation, 2024) referred to hereafter as The Guideline.

This report considers two discrete closure landforms, being the In Pit Waste Rock Stockpile and Out of Pit Waste Rock Stockpile.

Table 1 demonstrates how this report complies with the requirements of The Guideline.

Table 1: Compliance with The Guideline Requirements

Guideline Requirement	Where Addressed
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2. SITE CONDITIONS

2.1. Topography and Location Features

Figure 3 shows an aerial of the existing site. The mining leases are located on undulating topography and on the upper stretches of a ridgeline, with a number of small gullies that constitute ephemeral drainage lines that connect to Gum Creek, which connects to the Palmer River and flows into the Mitchell River. All drainage lines within the mining leases are minor in nature and unnamed (Groundwater and Surface Water Report, C&R, 2024).

The site itself is located high in the upper catchment of a small tributary of Gum Creek. The drainage lines in this area are characterised as steep, small valleys formed in between the various hills with ephemeral or intermittent drainage lines.

As the existing disturbance is all within the catchment area of one small tributary of Gum Creek, mine planning and design has focused on containing the proposed development within this same catchment area. The pit is on the northern side of the main drainage line in the catchment, so design has been developed to divert clean water within the catchment around the southern side of the project and contain all disturbance north of this clean water diversion.

Figure 3: Aerial View of Dianne Project Site

2.2. Site Layout and Topography

The site layout is shown in Figure 2.

Elevations of the out of pit waste rock stockpile (WRS) footprint range approximately between 384mRL and 424mRL, with up to 20° slope inclination. The proposed waste rock stockpile crest is at 433mRL, giving a height against the existing terrain of approximately 10m on the western, 8m on the northern, 15m on the eastern, and between 30-50m on the southern sides. The size of the proposed waste rock stockpile is approximately 280m along west-east and 250m along north-south directions. The WRS was placed in the western portion of the site to minimise the water catchment area and enable the capture, measurement and potential neutralisation of runoff from the waste rock stockpile.

Once mining is completed, rehabilitation milestone 2 consists of backfilling the pit void generated from mining activities. The in pit waste rock stockpile will be filled from the rehandling of material from the interim waste rock stockpile and spent ore on the leach pads at the time of mine closure. The pit void will be refilled from 315mRL to the lowest point of the edge of the pit at 390mRL, stretching 250m north-south and 170 east-west. An encapsulation zone will be created for potentially acid forming material with a benign material cover 20m in all directions. The top exposed surface of the in pit waste rock stockpile will be graded at 1% to allow water shedding to the southern exit of the pit. Cover selection and post mining land use of the in pit waste rock stockpile will be identical to the out of pit waste rock stockpile.

2.3. Surface Water

Dianne Copper Mine is located within the Gulf of Carpentaria Drainage Division, the Mitchell drainage basin (71,622 km^2), and the Palmer River drainage sub-basin (8,424 km^2). The confluence of the Palmer River and the Mitchell River occurs approximately 243 km downstream of the DCM.

The receiving environment of the project site is Gum Creek. The site has two main watercourses, both unnamed tributaries of Gum Creek and referred herein as South Creek and North Creek. These tributaries flow into Gum Creek, which joins Granite Creek before entering the Palmer River less than 2 km north of the mine lease boundary. Gum Creek is a contributing catchment to the Palmer River sub-basin, which is part of the Mitchell River basin flowing west into the Gulf of Carpentaria.

The catchment context is shown in Figure 4. The site itself is located high in the upper catchment of a small tributary of Gum Creek. The drainage lines in this area are characterised as steep, small valleys formed in between the various hills with ephemeral or intermittent drainage lines. Drainage lines in the region peak during the wet season, with ephemeral systems like North Creek flowing only during rainfall, and intermittent streams such as Gum Creek and South Creek sustained for a period afterward by groundwater seepage from the highly fractured rock (Hodgkinson Formation). These systems likely dry out in the dry season, though some pools may persist year-round.

Figure 4: Catchment Context (Umwelt, 2022)

2.4. Site Hydrology

The Palmer River sub-basin covers approximately 8,424 km2, while the Michell River basin contains about 71,622 km2. Large portions of the Palmer River catchment area have historically been targeted for gold mining (dating back almost 150 years), including the Gum Creek catchment. While alluvial gold mining still occurs within Gum Creek, it is no longer the dominant land use within the region. Beef cattle grazing is the main land use within the Palmer River catchment area. The area of the Gum Creek catchment above the junction with the site is approximately 3,750 ha. The site has a catchment area of approximately 310 ha.

Watercourses within the region record peak flows in the wet season, with North Creek being ephemeral (only flowing while rains persist) and South Creek being intermittent (minor flows sustained for an extended period after the wet season via groundwater seepage). It is likely that all three systems dry out entirely over the dry season, although pools are expected to persist year-round in some areas (C&R, 2024).

The mine site is located high in the upper catchment. The drainage lines/watercourses in this area are characterised as steep, small valleys formed in between the many hills. The mine's positioning within the catchment and the geomorphology of the catchment area suggests it would be highly unlikely to be affected by riverine flooding (C&R, 2021).

Based on the Water Act definitions of a watercourse and drainage feature and the onsite observations, the unnamed tributary (and associated tributaries) meets the criteria for classification as a drainage feature. Therefore, no diversions are required for the recommencement of operations at Dianne Copper Mine.

2.5. Groundwater Levels and Properties

A detailed groundwater investigation and impact assessment has been completed for the site, including field work and completion of a conceptual groundwater model. In summary:

- No registered groundwater bores exist within the bounds of the mining leases, or within a 10 km radius. There are 23 registered bores within a 30 km radius of the site, of which 9 are abandoned. These bores are utilised for groundwater monitoring of nearby mines, exploration, and homestead water supply.
- There are no mapped groundwater dependent ecosystems (GDEs) within the mining leases, however most of the waterways within the local area are considered GDEs because water (flows and remnant pools) is maintained for an extended period (i.e. months) following significant rainfalls.
- Groundwater quality data displays no evidence of impacts from historical mining operations.

There are currently three groundwater monitoring bores within the DCM area, with an additional seven proposed for the project, which will be constructed in two phases, as shown in Figure 5 and Table 2 below.

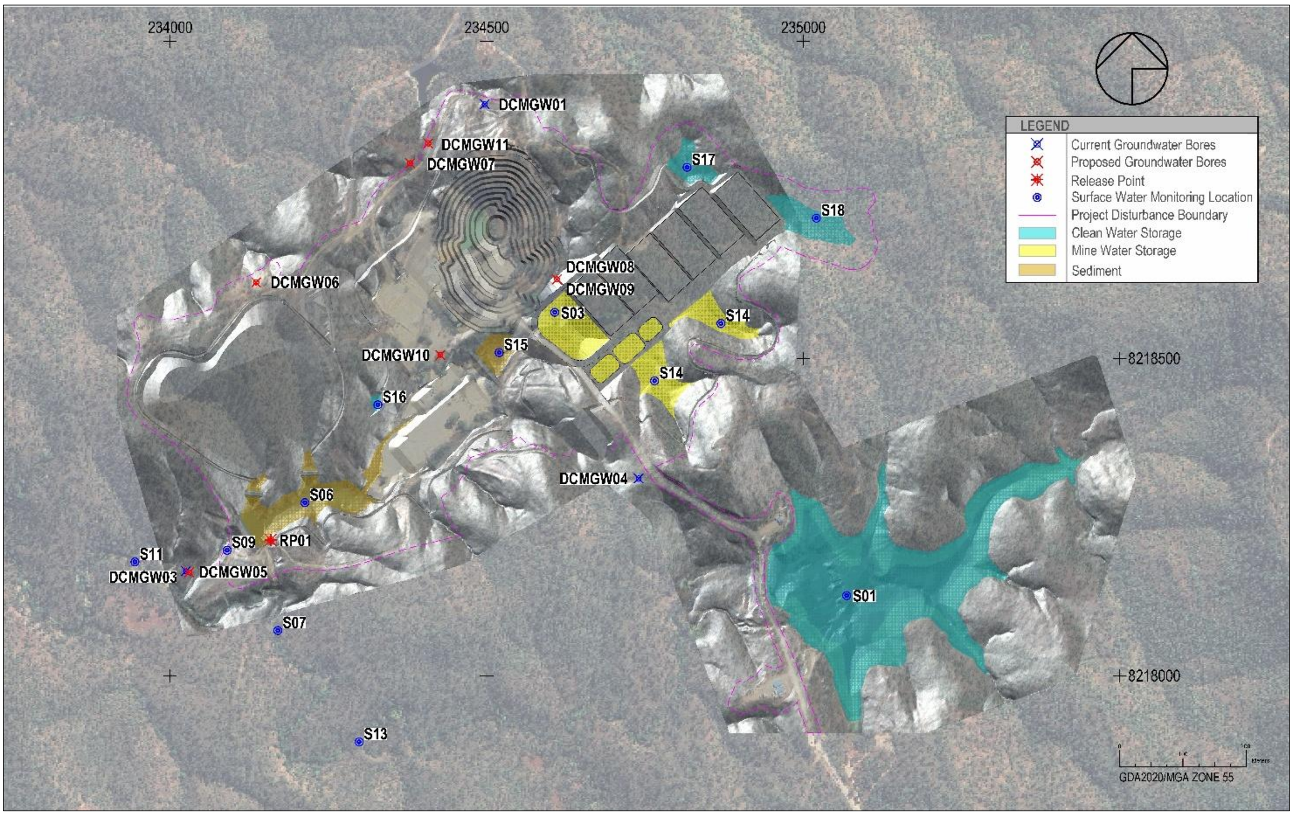


Figure 5: Surface and Groundwater Sampling Locations
(See Also Dwg. J022.200.00-SKE-009.00D-Grounwater_Borehole_Locations)

Table 2: Current & Proposed Groundwater Monitoring Network at DCM (C&R, 2025)

Bore ID	Easting	Northin g	Total depth (mBGL)	Surface elevation (mAHD)	Screen interval (mBGL)	Screened formation	Screened lithology
GW01	234497	8218901	86.5	429.34	80.5–86.5	Hodgkinson	Metasediment – phyllite/slate
GW03	234025	8218165	58.0	387.27	50–56	Hodgkinson	Metasediment – sandstone / greywacke
GW04	234740	8218311	83.0	420.31	75–81	Hodgkinson	Metasediment – phyllite/slate
DCM_GW05	234030	8218163	7.5	374.90	1.5 – 6	Phase 1	Unconsolidated Sediments
DCM_GW06	234136	8218620	22.6	417.6	16.6 – 22.6	Phase 1	Metasediment – sandstone / greywacke
DCM_GW07	234379	8218808	77.2	418.2	71.2 – 77.2	Phase 1	Metasediment – sandstone / greywacke
DCM_GW08	234611	8218625	TBA	TBA	TBA	Phase 2	Unconsolidated sediments
DCM_GW09	234611	8218625	TBA	TBA	TBA	Phase 2	Metasediment – phyllite/slate

Bore ID	Easting	Northing	Total depth (mBGL)	Surface elevation (mAHD)	Screen interval (mBGL)	Screened formation	Screened lithology
DCM_GW10	234427	8218506	TBA	TBA	TBA	Phase 2	Unconsolidated sediments
DCM_GW11	234408	8218839	TBA	TBA	TBA	Phase 2	Metasediment - microdiorite

Note: ID's with a "DCM_" prefix are proposed, those without the prefix are existing. Phase 2 bore locations are approximate, to be confirmed with final constructed designs.

Three groundwater monitoring bores were installed in mid-2022, water quality monitoring has occurred seven times between October 2022 and May 2025. Based on the laboratory analysis data performed by C&R (2025), the pH for all bores was within the range of 7.07 and 8.10. ECs varied minimally within and between the three DCM monitoring bores, as shown in Figure 6.

Reported sulphate levels ranged between 41 mg/L and 70 mg/L in GW03, and 14 mg/L and 69 mg/L in GW04. Conversely, GW01 has consistently shown overall lower levels of sulphate, with concentrations ranging from 9 mg/L to 24 mg/L over the seven monitoring rounds. All levels of sulphate are substantially below the ANZG (2018) WQO for sulphate (1,000 mg/L).

Water quality generally meets all WQOs, with the exception of dissolved manganese and zinc. Exceedances of these metals are typical of highly altered zones and are associated with the target ore body. Copper and nickel concentrations also occasionally exceed guideline values (C&R, 2025).

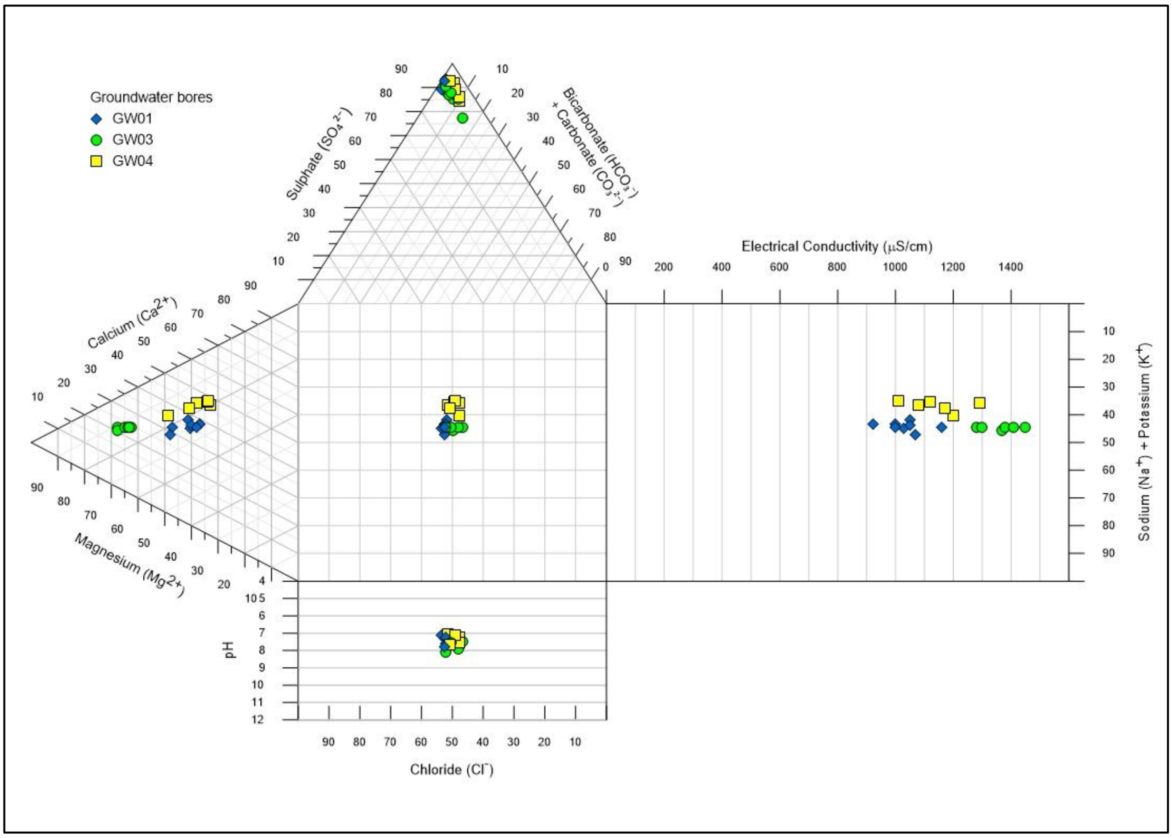


Figure 6: Hydrochemical facies of DCM monitoring bores (C&R, 2025)

2.6. Climate

Dianne Copper Mine is located within the Queensland dry tropics region, with highly seasonal rainfall and high temperatures characterising the region's climate. The wet season generally occurs from November through to April, while dry conditions are experienced from May to October.

The closest Bureau of Meteorology (BoM) rainfall gauge is located at Maitland Downs Station (BoM Station 28013), approximately 24 km from the site. The average annual rainfall total from 1965 – 2021 recorded at BoM Station 28013 is 929 mm, however, annual averages are highly variable, ranging from 333.2 mm (1966) to 1,879.0 mm (1981). High, intense rainfall is commonly observed throughout the summer months, with little to no rainfall throughout the dry season.

High temperatures are observed year-round, contributing to high evaporation rates which can exceed 2,000 mm annually. Subsequently, water losses to evaporation typically exceed total rainfall volumes recorded in the region.

Rainfall and evaporation statistics were derived from daily rainfall and evaporation data sourced from the SILO Climate Database for grid point (-16.10° latitude, 144.55° longitude) for the period 1 January 1900 to 31 December 2022 and are presented in Table 3 and Figure 7.

Table 3: Annual Rainfall and Evaporation

Statistic	Rainfall (mm)	Pan Evaporation (mm)
10th percentile	612	1,876
50th percentile	949	1,909
90th percentile	1,301	2,040
Average	957	1,934

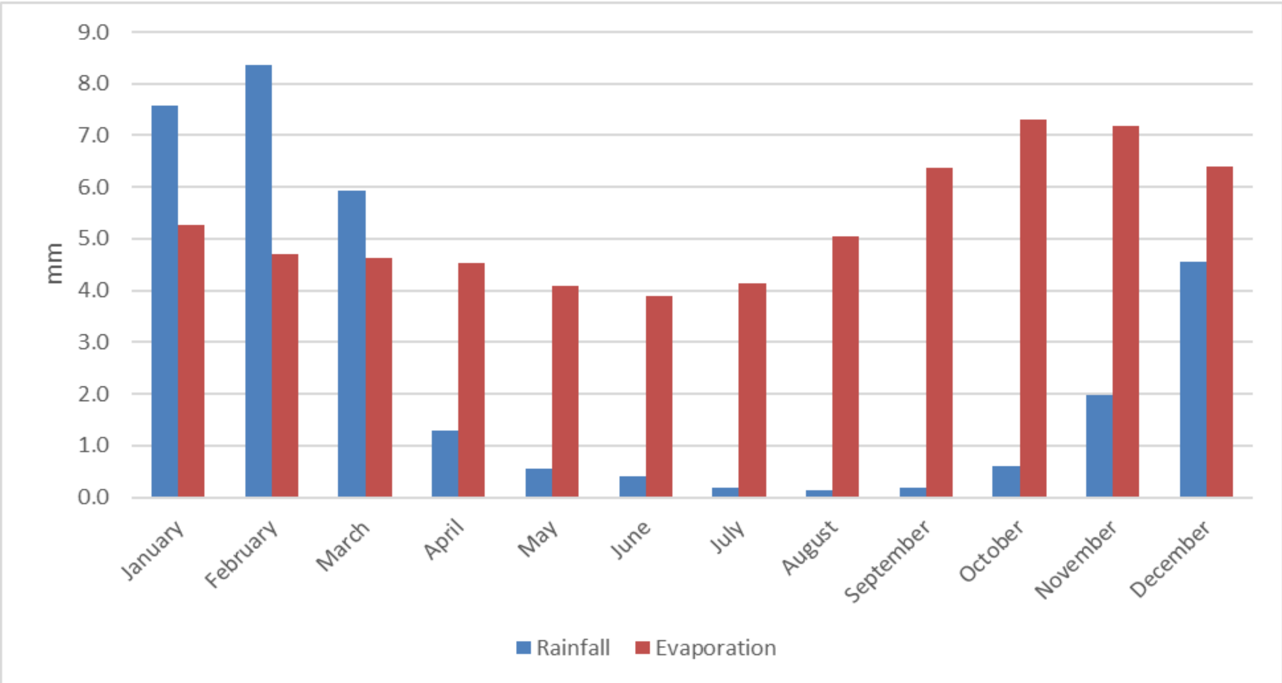


Figure 7: Average Daily Rainfall and Evaporation

2.7. Geology

Mineralisation is hosted by Late Silurian to Late Devonian age, Hodgkinson Formation, a sequence of interbedded phyllitic shales and greywacke on the western limb of a north-northwest plunging syncline which is overturned and dips steeply to the west. Numerous NNE trending diorite dykes occur within a 3 km wide, high strain zone that hosts the mineralisation. The "dykes" are typically moderately sericte-pytite-siderite altered adjacent to the deposit but don't directly host primary copper mineralization. No genetic link between the copper deposit and the dykes has been demonstrated. However, it is possible the "dykes" originated as a series of subseafloor sills that are temporally related to mineralisation and have subsequently been tectonically rotated into a sub-vertical position during post-mineral folding that has also rotated the massive sulphide lens into the current sub-vertical position.

The Dianne mineralisation is developed as a sub-vertical 0.2 to 7.8 m wide massive sulphide lens. The primary sulphide is dominated by banded pyrite-chalcopyrite-sphalerite and has been interpreted as an epi-genetic intrusive related body. The main ore lens is broadly north south trending and steeply dipping and separates the eastern and western domain waste zones. The footwall-hanging wall contact, lithologically, is along the contact between thick massive sandstone (footwall, west side) and weak phyllitic slates (hanging wall, east side).

A broad halo of oxide/supergene copper mineralisation (Greenhill Mineralisation) hosted in sandstone with stockwork veining that envelope the massive sulphide lens. The Greenhill domain strikes NNW over 240m and has a 'Y' shape geometry in cross-section with broad low-grade mineralisation (>0.2% Cu) hosted in sandstone at surface, most strongly developed to the west of the massive sulphide. The mineralisation narrows rapidly, plunging to a depth of 240m following the trend of the massive sulphide mineralisation. The Greenhill mineralisation is dominated by copper carbonates, oxide, supergene sulphides and locally native copper. Malachite-Azurite in the upper portion of the deposit transitions to tenorite dominant in the supergene zone (tenorite commonly logged as chalcocite or black copper oxides).

A series of more intense stacked lenses/zones of veining within the Greenhill halo contain higher-grade mineralisation (Greenhill West) for which sub-domains have been generated at higher 1% and 3% Cu cut-off grades. Higher-grade mineralisation at Greenhill West is steeply dipping (75 degrees) to the NE.

Geotechnical stability of the waste rock has been confirmed with a Slaked Durability test on a combined representative of cores from the site achieving 98.1% on the first cycle and 96.5% on the second cycle (Trilab Report No. 25090868-RSDI, Sep 2025)

2.8. Soils

Soil sampling was conducted in 2024 and 2025 across both disturbed and undisturbed sites.

All soils in undisturbed areas have an A horizon of clayey loam overlying a finer-textured, light- to medium clay B horizon. In most cases, coarse, angular to sub-angular metamorphic pebble fragments are abundant. These soils would generally be classed as dermosols, which have structured B2 horizons and lack a strong texture contrast between the A and B horizons. Each soil was classified in accordance with the ASC. Their distribution, as allocated under the ASC, was mapped within the project footprint in Figure 8 below.

The sampling of natural soils across the mine site indicated that they were generally within nutrient and salinity ranges conducive to the successful growth of endemic plant species. Most sampled soils are not overly susceptible to erosion based on their physical and chemical properties.

Soil mapping indicated that the undisturbed sites consisted of red and brown dermosols, while the disturbed areas were classified as anthroposols. The soil classifications and sampling locations are shown in Figure 8 below.

In natural soils, Electrical Conductivity (EC) values varied between 1 µS/cm and 26 µS/cm, which corresponds to a very low salinity rating (defined as <70 µS/cm; Hazelton, 2016). In contrast, EC values in disturbed soils were more variable. The only sample taken in 2024 (SS5) had a salinity of 1,530 µS/cm. However, further salinity tests in 2025 (ROM1, ROM2 and ROM4) had salinity values of 100 µS/cm, 6–21 µS/cm and 259 µS/cm indicating that the 2024 sample is an outlier.

Emerson Aggregate Tests were undertaken on all natural soils and subsoils sampled in 2024. All surface soils and most subsoils were assigned an Emerson class of 7, except for SS1 and SS10, which were rated 5, and SS9, which was rated 3. This indicates that most of the project soils and subsoils have a low erosion risk with only some of the soils (as represented by samples SS1, 9 and 10) have a moderate to low erosion risk.

The soils are non-sodic and non-dispersive, which is visibly evident when visiting the site (CCE, 2025).

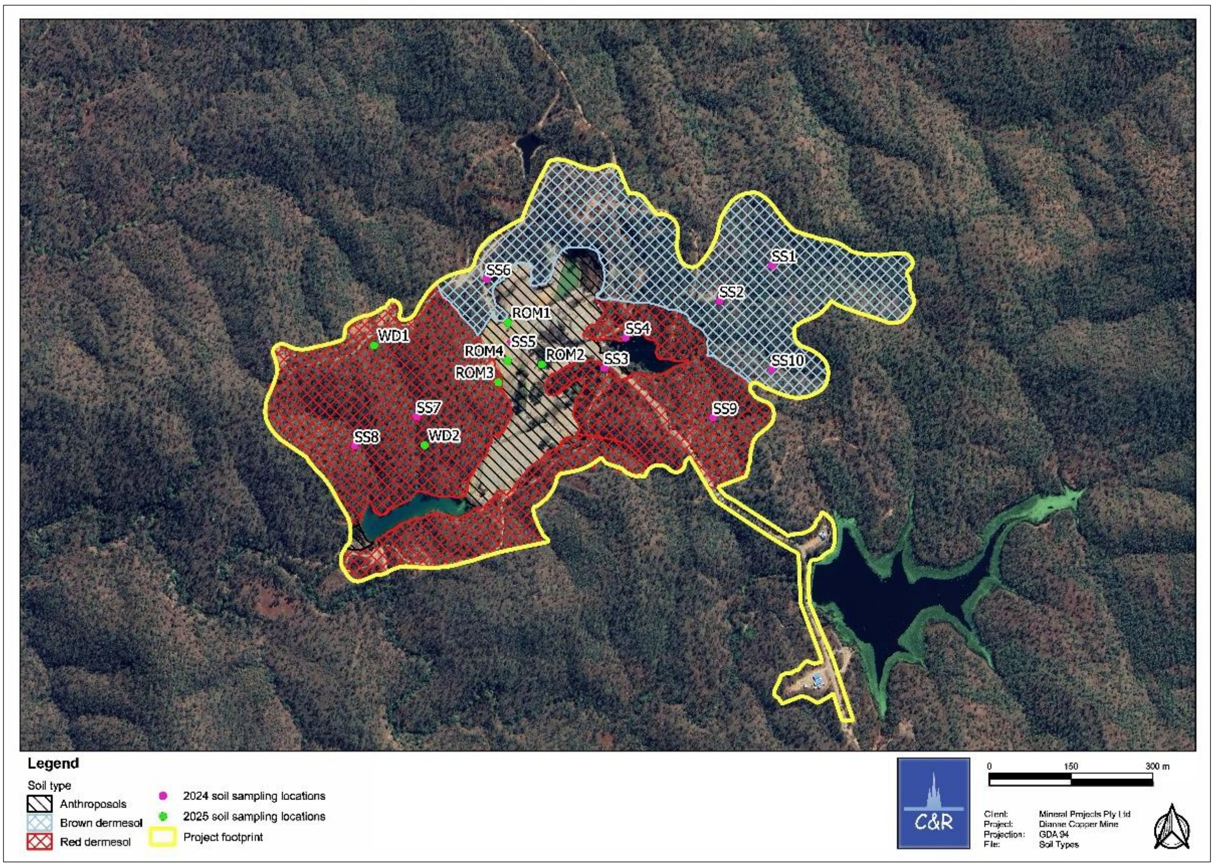


Figure 8: Soil Mapping and Sampling Locations

2.9. Existing Land Use and Ecology

The existing land use within the mining leases and surrounding areas is cattle grazing, with a number of other mining tenements overlaying the grazing properties. The area remains subject to exploration and mining activities primarily prospecting alluvial gold.

The region has been heavily impacted for over 120 years, with significant areas cleared and disturbed historically for gold mining including alluvial and instream mining; and cattle grazing; and is subject to frequent uncontrolled fire. Approximately 30% of the proposed disturbance area has previously been cleared for historic mining operations and exploration activities, with much of the remainder historically disturbed for cattle grazing.

The vegetation within the project site is listed as Least Concern Regional Ecosystems and consists of Eucalypt low, open woodlands. No threatened ecological communities or flora species have been identified.

3. LANDFORM CONSIDERATIONS

3.1. Specific Landform Requirements

Mine waste cover system trials, Technical Papers 1, 2 and 3, Office of the Queensland Mine Rehabilitation Commissioner (2025) have been considered and incorporated into the mine planning process for Dianne Copper Mine.

The out of pit waste rock stockpile design will be located on the northwest corner of the project on the steep slope rising up from the Release Dam and processing area. It covers two drainage channels that run downgrade on the hill, effectively making an eastern and western zone of the waste stockpile. The general waste landfill cell is also contained within the eastern zone footprint (under what will be the final landform). This is intended to be a similar landform to the surrounding topography.

In keeping with mine closure best practice Mineral Projects has also committed to filling the pit with mine waste so that there is no void at closure.

The final landform has been developed with the following objectives in mind:

- Encapsulate all PAF with a minimum of 20m of benign material within the in pit waste rock stockpile.
- Minimise double handling of materials to achieve environmental sustainability.
- Match the surrounding topography.
- Promote rehabilitation at closure.
- Providing an ongoing stable landform, with a minimum Factor of Safety (FoS) of 1.5.

3.2. Lining and Water Shedding Properties

The climate at Dianne Copper Mine is considered to be challenging in terms of cover system design with an average annual precipitation of 943 mm and evaporation of 1967 mm. Over 80% of the precipitation occurs during the summer wet season (between November and April), with evaporation dominating the climate (evaporation to rainfall) ratio in all other months of the year.

Based on the Global Acid Rock Drainage (GARD) guidance on climate and cover systems shown in Figure 9, the Dianne Copper Mine climate is classified as semi-arid, for which a store-and-release type cover is considered most suitable. For this cover type, water infiltrates into the cover during periods of high precipitation and is stored until atmospheric and biotic demands are able to remove the water through evaporation and transpiration. In order to prevent the transport of any acid and metalliferous drainage (AMD) developed in the emplaced material, it is important for store-and-release covers to limit percolation of rainfall into the waste rock layer. In instances where relatively short-duration seasonal rainfall events may exceed the storage capacity of the store-and-release layer, additional infiltration barrier layers may be incorporated into the cover system to prevent percolation into the waste rock material.

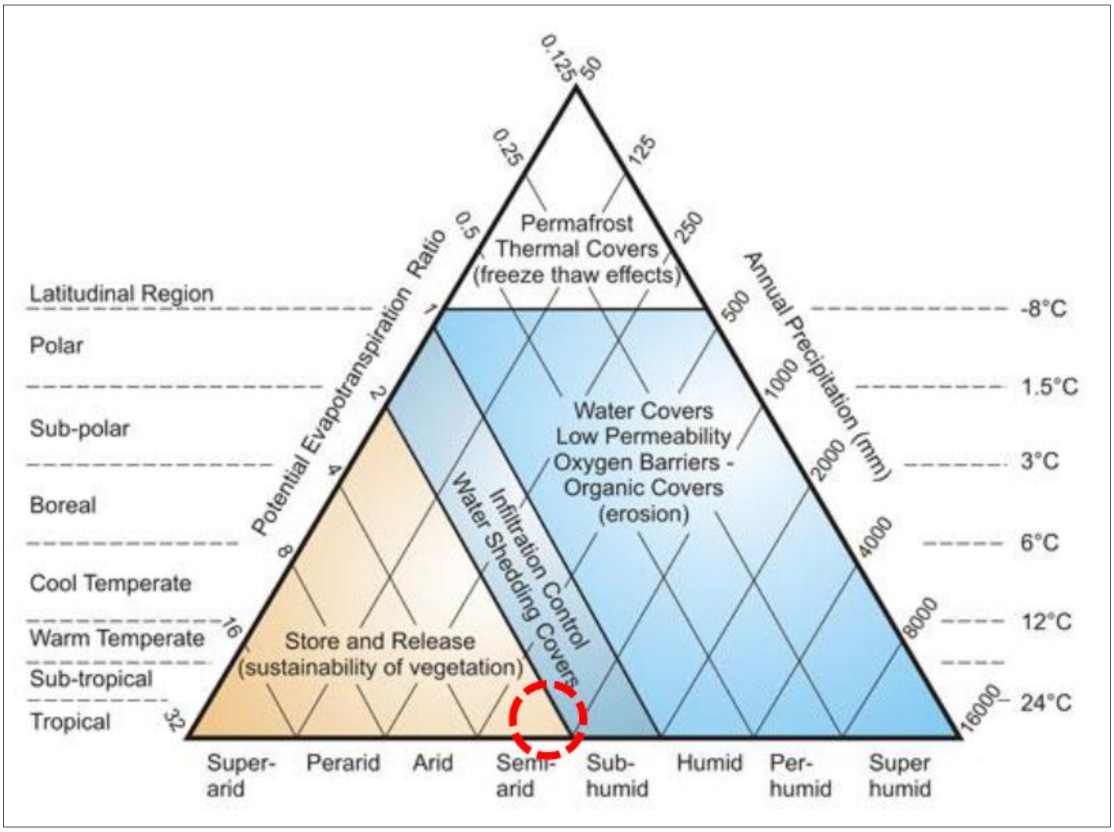


Figure 9: Cover systems and climate types (INAP 2009)

Note: the red circle area highlights the region applicable to this cover type.

The purpose of the soil cover systems implemented at Dianne Copper Mine should be to:

- sustain vegetation;
- manage run-off and resist erosion during intense storms; and
- limit the percolation of rainfall into the waste rock material, thereby limiting the transport of any acid and metalliferous drainage (AMD) developed from emplaced materials.

3.3. Materials Available for Landform Rehabilitation

3.3.1. Mined Quantities

The current mining schedule estimates that the final landforms at the closure of the Dianne Copper Project will be consistent with Table 4, below. During closure, the in pit waste rock stockpile will be filled using material from:

- spent ore on the leach pads;
- the interim waste rock stockpile; and
- reshaped drainage from the east of the pit.

The out of pit waste rock stockpile will be formed and graded from the material left over after the in pit waste rock stockpile is filled to the water line.

Table 4: Material Balance After Closure

Item	Description	Quantity	Units	Tonnage
1	**Total Material Mined**		T	**4,211,685**
2	**Less Copper Recovered in Leaching**		T	14,640
	Total Material Inventory after Mine Closure		T	4,197,045
2	**Overburden used in construction:**			
2a	Heap Leach Pads and Dams	326,187	ccm	684,992
2b	Building Pad for SX/EW Plant	60,000	ccm	126,000
2c	General Site Earthworks (ROM)	50,000	ccm	105,000
2d	Roadworks	50,000	ccm	112,500
3	**Final Stockpiles:**			
3a	In Pit Waste Rock Stockpile	1,024,906	m^3	2,063,136
3b	Out of Pit Waste Rock Stockpile Final Volume	548,500	m^3	1,104,131
	Total Material Inventory after Mine Closure		**T**	4,197,045

3.3.2. Properties of the Mined Materials

Geotechnical stability of the waste rock has been confirmed with a Slaked Durability test on a combined representative of cores from the site achieving 98.1% on the first cycle and 96.5% on the second cycle (Trilab Report No. 25090868-RSDI, Sep 2025).

Figure 10 shows the basis for determining the different spoil categories and material properties. In this case, a Category 2.0 spoil was selected based on site observations and results of slake durability testing, which indicated the material has a high resistance to slaking.

Material properties are summarised in Table 5.

Figure 10: BHP Spoil Categories (Simmons and McManus 2004)

Table 5: Adopted Material Parameters

Material Name	Colour	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Ru Value
Fresh Rock		24	Mohr-Coulomb	450	42	Water Table	Automatically Calculated	
Unsaturated WRS_Cat2.0		18	Mohr-Coulomb	30	28	None		0

Weathered Sandstone		26	Mohr-Coulomb	27	27	Water Table	Automatically Calculated	
Slightly Weathered Siltstone/ Sandstone		27	Mohr-Coulomb	38	14	Water Table	Automatically Calculated	
Saturated WRD_Cat2.0		20	Mohr-Coulomb	15	23	Water Table	Automatically Calculated	

3.3.3. Topsoil and Subsoil

Generally, topsoils used for rehabilitation will have the following characteristics, based on topsoil characteristics across the project site:

- pH range 5.5 to 9
- Salinity <1,000 us/cm EC
- Organic matter >1.5%
- Copper <270 mg/kg (per sediment monitoring requirements in the EA)

An Appropriately Qualified Person (AQP) will assess the suitability of topsoil and outline any required ameliorants prior to use in rehabilitation. Ameliorants that may be used include gypsum and/or vegetation matter.

Table 6 provides the quantity of topsoil available with Figure 11 showing the areas where topsoil is to be stripped.

Table 6: Topsoil Stripping Area

Mine Feature Name	Disturbance Area (ha)	Topsoil Stripping Area (ha)	Stripped Topsoil (m3)
Pit	4.84	1.01	2,020
Overburden Stockpile	4.74	4.70	9,400
Release Dam	1.32	0.00	0.00
Process Water Dam	1.31	1.19	2,380
PLS Pond	0.13	0.13	260
ILS Pond	0.15	0.15	300
Raffinate Pond	0.09	0.09	180
Raw Water Dam 2	0.00	0 .00	0.00
Processing Area	6.97	5.36	10,270
Water Management Dams (Sediment Dams, Clean Water Dams)	4.77	4.86	9,720
Topsoil Stockpiles	0.56	0.00	0.00
Infrastructure (including Roads)	0.93	0.17	340
Other Disturbance (including Buffer Areas	24.21	0.00	0.00
Total Stripped Topsoil		**17.66**	**35,320**

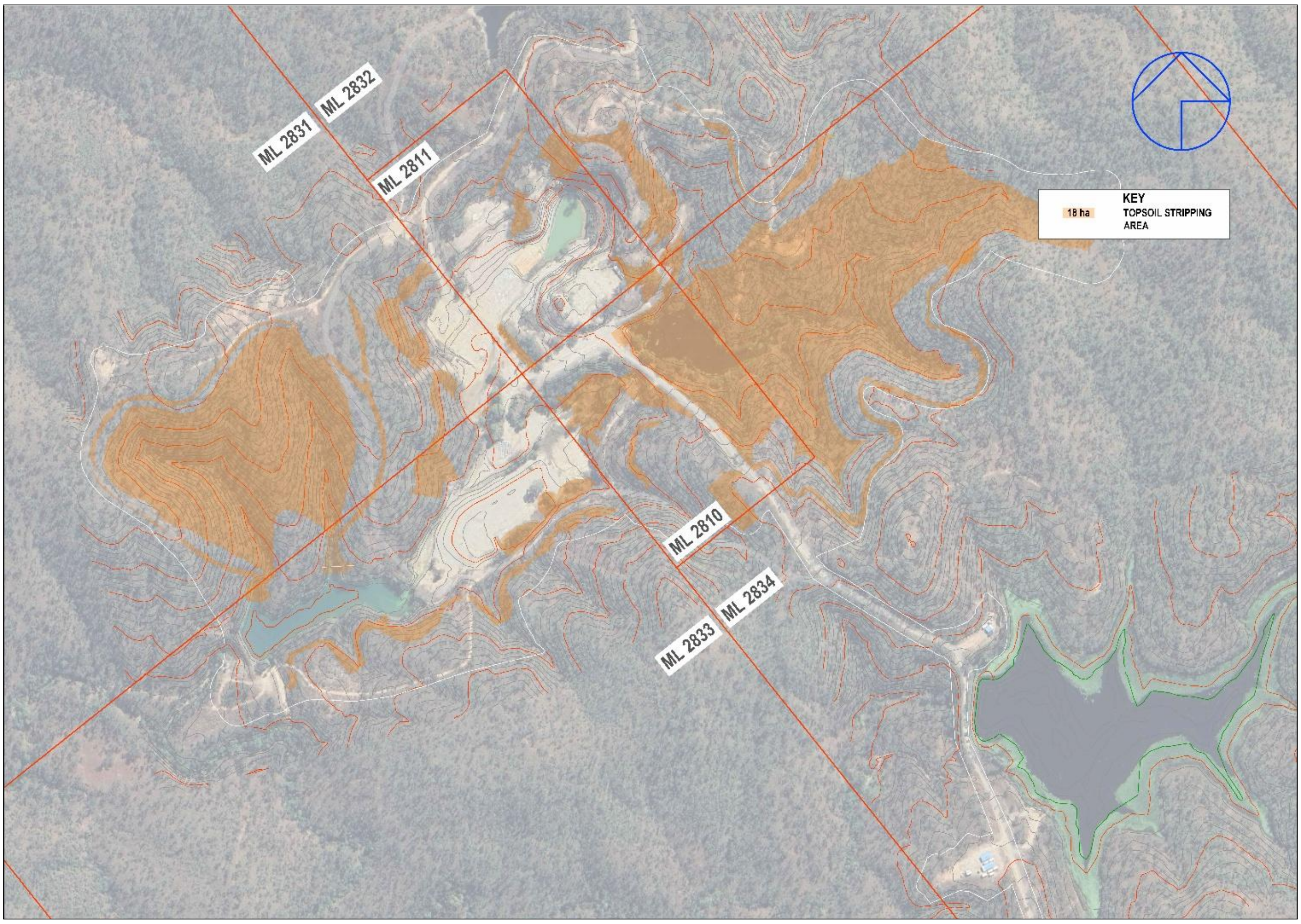


Figure 11: Topsoil Stripping Area Layout
(See also Dwg. J022.200.00-SKE-010.01-Topsoil_Stripping_Area_Layout)

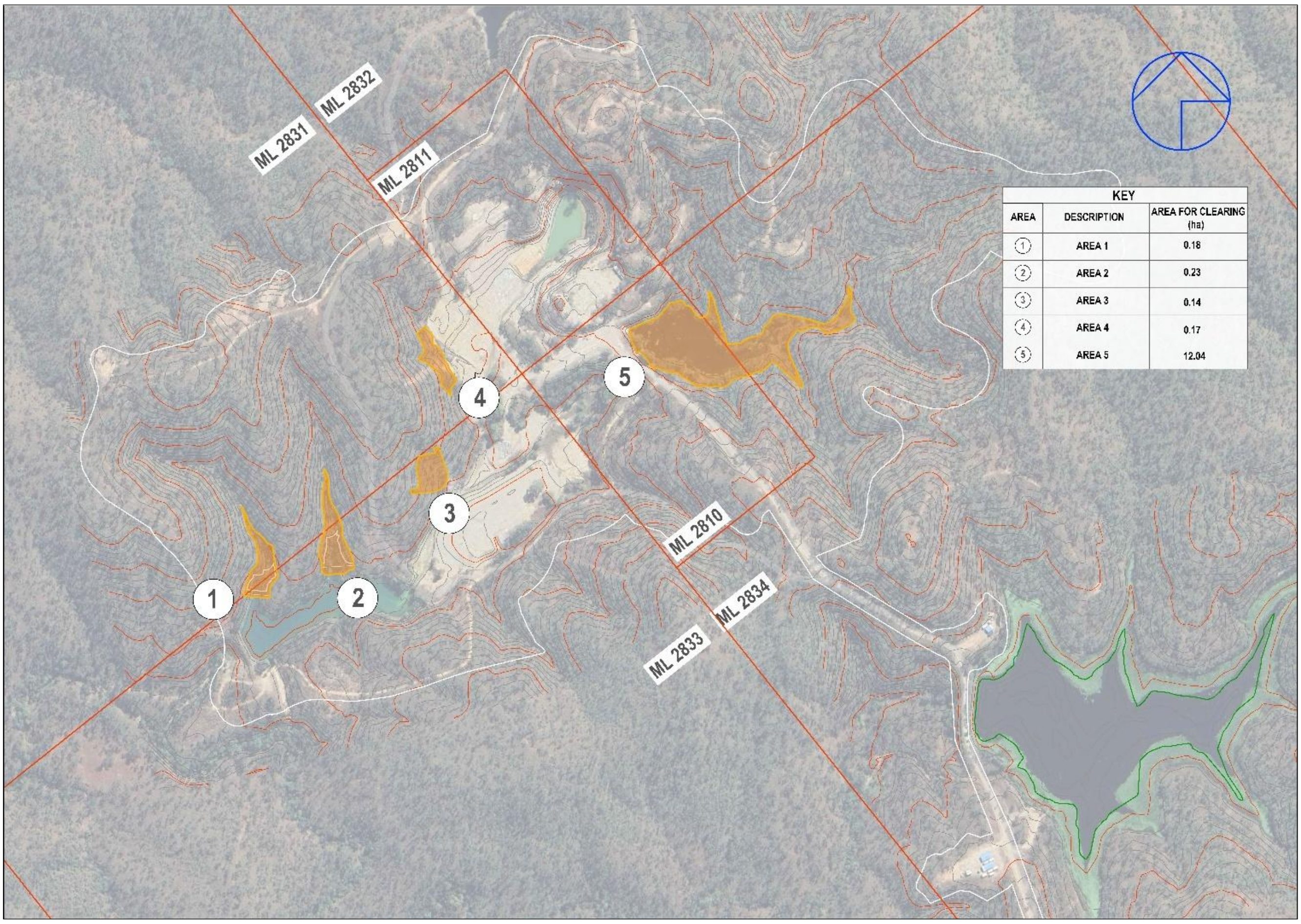


Figure 12: Subsoil Stripping Area Layout
(See also Dwg. J022.200.00-SKE-008.01-Subsoil_Stripping_Area_Layout)

***Table 7*: Subsoil Stripping Area**

Index	Section	Disturbance Area (ha)	Stripped Subsoil (m3)
1	Area 1	0.18	900
2	Area 2	0.23	1,150
3	Area 3	0.14	700
4	Area 4	0.17	850
5	Area 5	12.04	60,200
Total Stripped Clay			**63,800**

3.4. Erosion Assessments

This erosion assessment applies to the final landform and cover design only.

IECA Appendix E provides an erosion hazard evaluation approach that predicts the annual average soil loss using the Revised Universal Soil Loss Equation (RUSLE):

A = R x K x LS x P x C

Table 8: RUSLE Calculation, Definition and Assumptions

Parameter	Definition	Assumed/Adopted Value		
		Slope <=2%	2%> slope => 4%	Slope > 4%
A	Total calculated soil loss (t/ha/yr)	**0.42t/ha/y**	**0.64 t/ha/y**	**4.2 t/ha/y**
R	Rainfall erosivity factor	2575	2575	2575
K	Soil erodibility factor (Refer to Section 3.2)	0.2	0.2	0.2
LS	Slope length and gradient factor	2% and 50m = 0.34	3% and 50m = 0.52	10% & 50m = 2.04
P	Conservation practice factor	0.8	0.8	0.8
C	Ground Cover factor	0.03	0.03	0.05
IECA Erosion hazard		Very low	Very low	Very Low
Catchment size trigger for sediment basins		NA	NA	NA

With the low soil erodibility factors (R), it can be seen that the calculated annual soil loss per hectare is modest (CCE, 2025)

3.5. Settling and Subsidence Over Time

The peak ground acceleration (PGA) in the mine site is a maximum of 0.025g (10% in 50-year mean hazard). The PGA value is used in the pseudo-static stability assessment as horizontal loading.

3.6. Waste Placement Strategy

Preparation of the waste rock stockpile footprint will involve clearing and grubbing and stripping of topsoil and subsoil. The stripped area will be inspected prior to placement of fill. This will be undertaken progressively to minimise the area at risk to erosion. The eastern zone of the waste stockpile will be prepared and progressively filled before commencing to prepare the western zone.

Low-strength materials such as soils or heap leach materials will not be placed at the base of the WRD or as a continuous surface where they may act as a slip plane and significantly impact the stability. Those weak materials should be locked within high-strength material or placed in areas less critical to stability (e.g., the northern face of the WRD). Alternatively, blending low-strength material with higher-quality waste can be adopted. High-strength and permeable materials should be used on downstream faces where possible.

Generally, well-graded materials with a high percentage of coarse and angular particles and a low percentage of fines have higher shear strength than poorly graded, fine-grained materials such as soils. Additionally, saturated fine materials may be susceptible to generating excess pore pressures during dumping, resulting in undrained failure. Uniformly graded fill materials with a low clay content and rounded particles may also be susceptible to liquefaction.

Prior to the construction of the waste rock stockpile, a geotechnical engineer will undertake a detailed assessment of the foundation, including test-pitting, to confirm the assumptions in this report. They will also assess the waste blend of 'as mined' overburden spent ore from the leach pads to confirm the assumptions in this report, particularly those in Section 4.2.

4. LANDFORM DESIGN

4.1. 3D Design

4.1.1. Out of Pit Waste Rock Stockpile

The final landform will be safe and structurally stable, and in line with the surrounding area. Slopes will be a maximum of 20%, reduced to a maximum of 14% for the southern slopes, to achieve a factor of safety of 1.5 or greater.

This design is shown in Figure 13. The final landform will be structurally stable in the long term, with a FoS of more than 1.5, measured by LiDAR or similar methods, based on simulations the final landform can achieve this by 30/12/2033, in accordance with SMART principles.

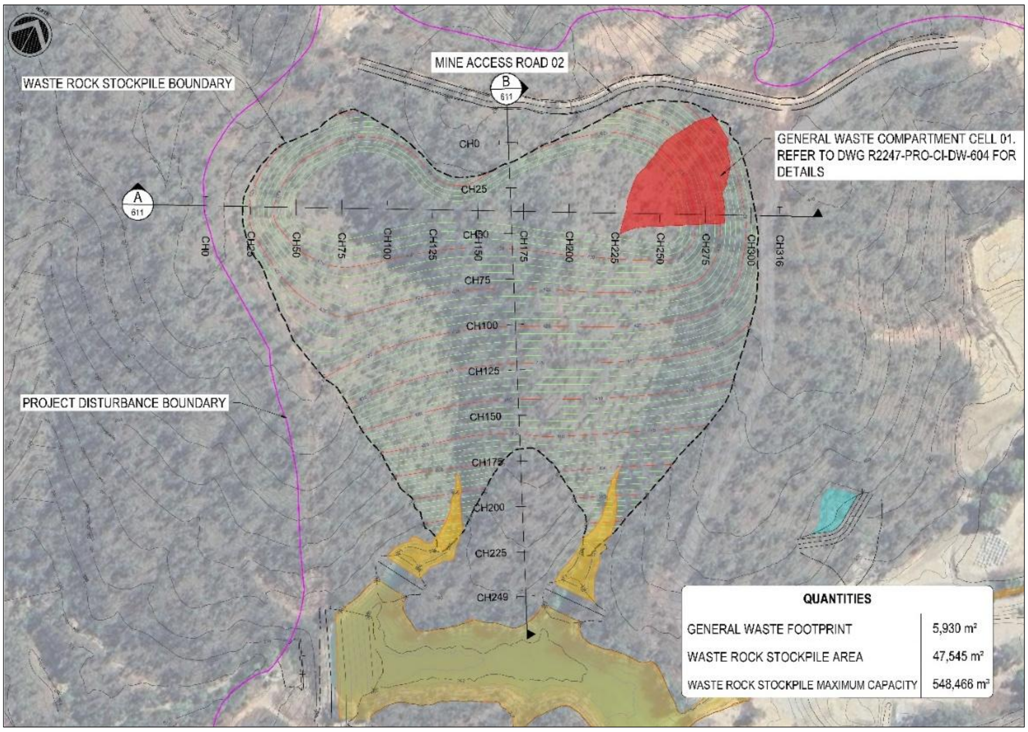


Figure 13: Final Waste Rock Stockpile Design
(See Also Dwg. J022.210.30-DWG-004.00B-Waste_Rock_Stockpile_at_Closure_-_Layout_Plan)

4.1.2. In Pit Waste Rock Stockpile

This design is shown in Figure 14.

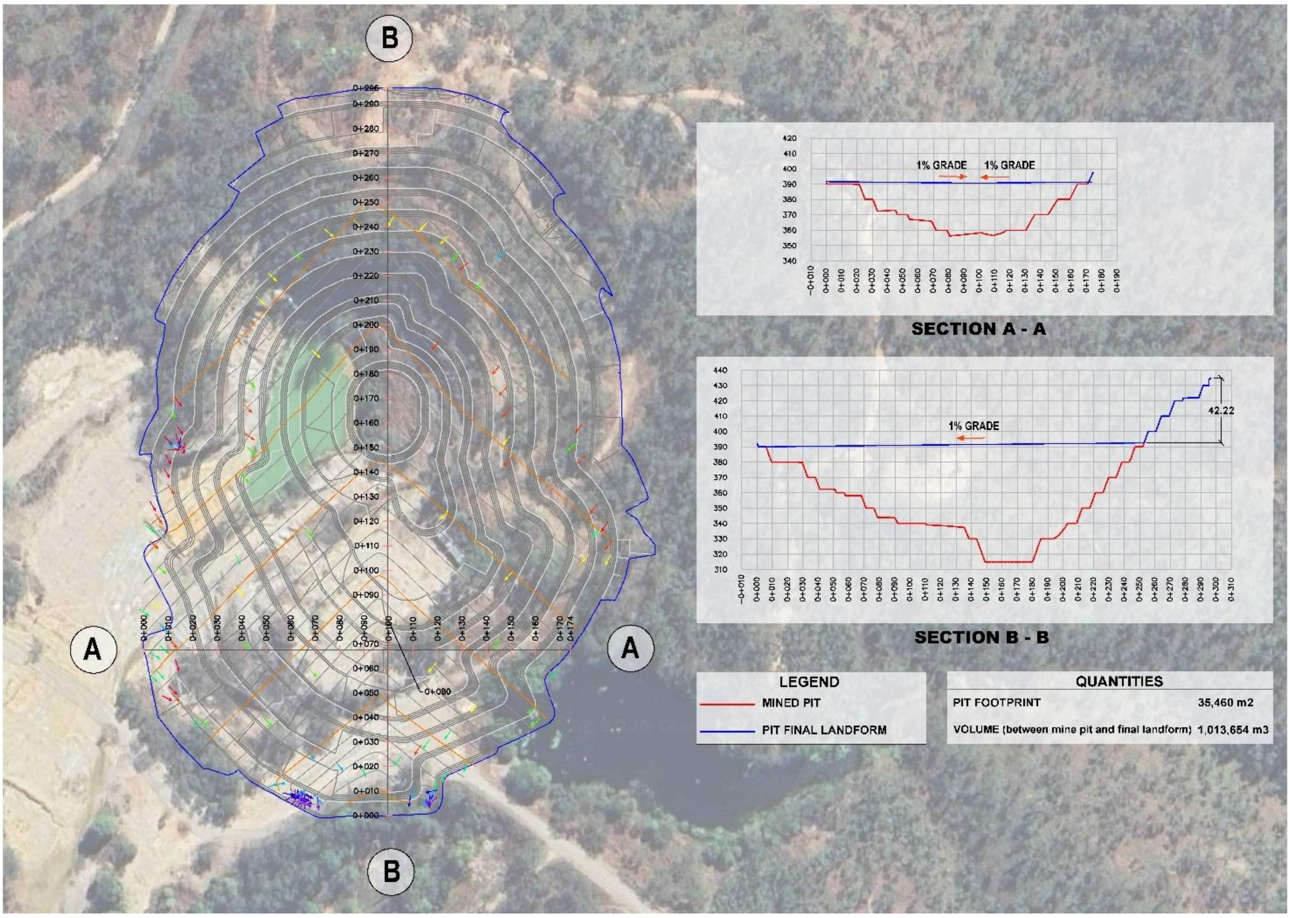


Figure 14: In Pit Waste Rock Stockpile Design
(See Also Dwg. J022.210.10-DWG-001.1.1-Pit_Closure_Design)

4.1.3. Final landform

This design is shown in Figure 15.

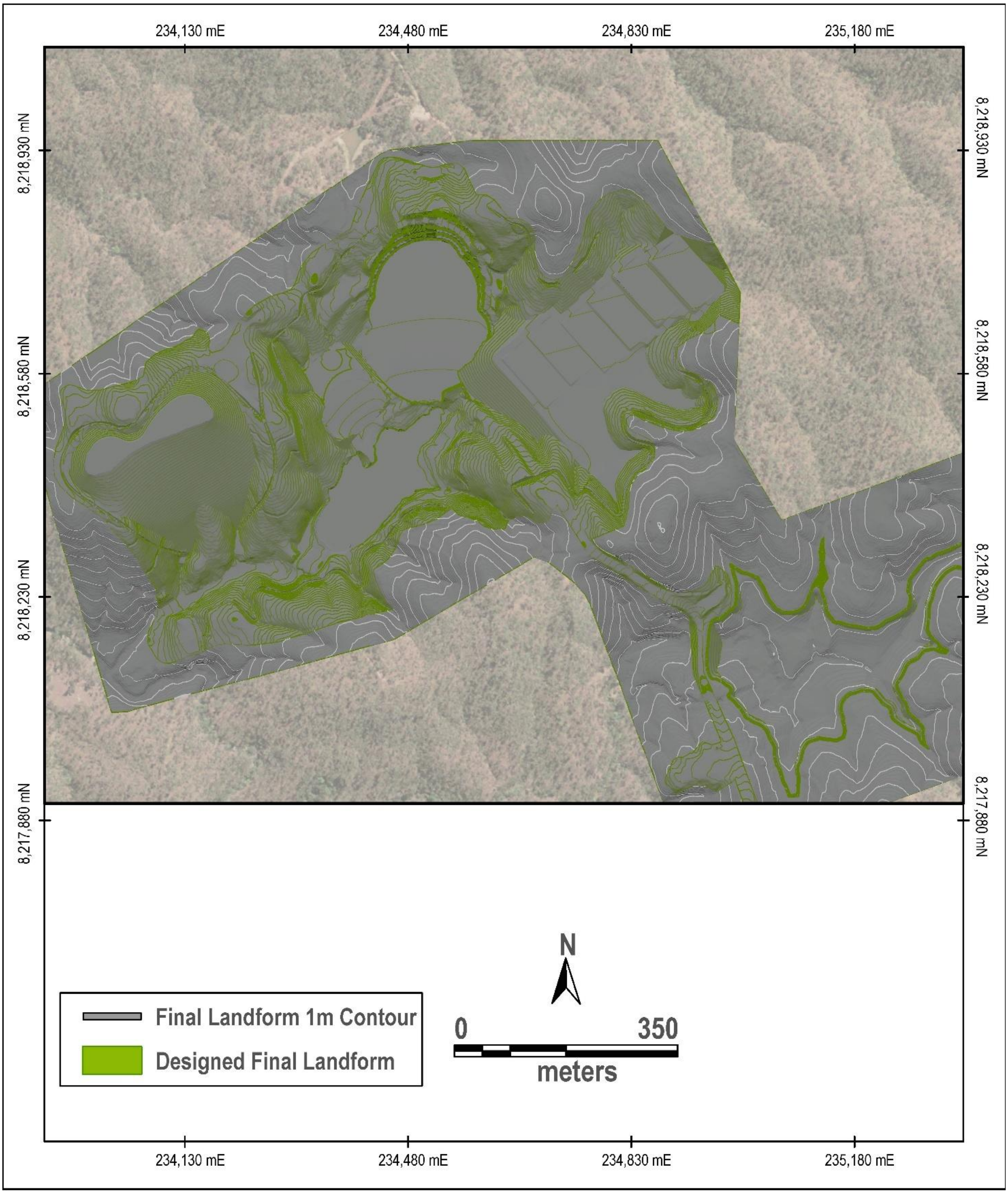


Figure 15: Final Landform Overall Layout
(See Also Dwg. J022.200.00-SKE-003.06.2-Final_Landform_Design)

4.2. Stability Modelling

Note that Section 4.2 only refers to the out of pit waste rock storage. The in pit waste rock storage is confined within the pit excavation, so stability isn't a consideration at closure. Stability of the exposed pit high wall at closure will be considered during detailed mine planning, and this report will be updated accordingly.

4.2.1. Methodology

Limit equilibrium analyses were performed to determine the overall slope stability in terms of a FoS, which is a commonly employed measure in slope stability analysis to determine the likelihood of slope failure.

The FoS is generally a measure of driving forces versus resisting forces in a system, where a FoS of 1 equates to a 50% probability that failure will occur. FoS values > 1 are indicative of a system is likely to be stable.

Analyses were made for two representative cross-sections and were carried out using industry standard 2D limit equilibrium methods in Slide2 V9.039 (2025) developed by Rocscience.

The waste rock stockpile design is shown in Figure 16.

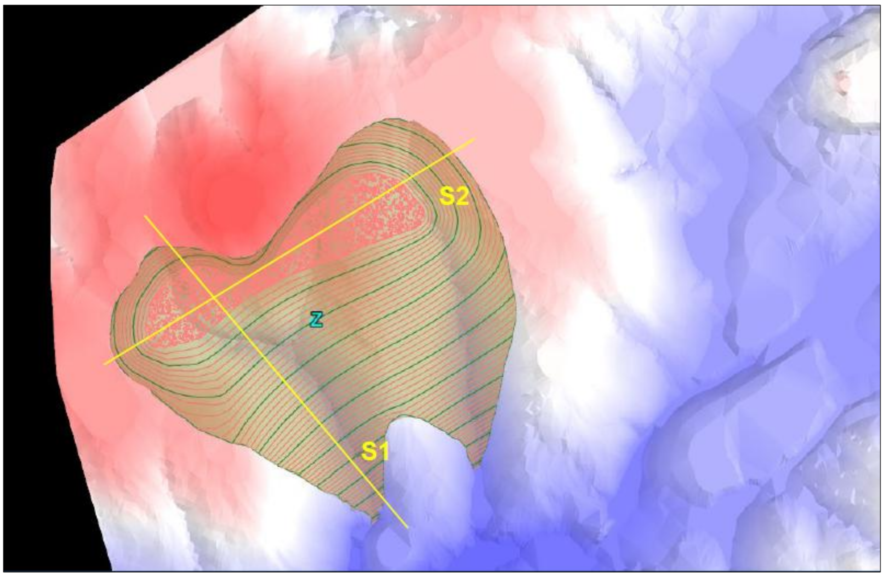


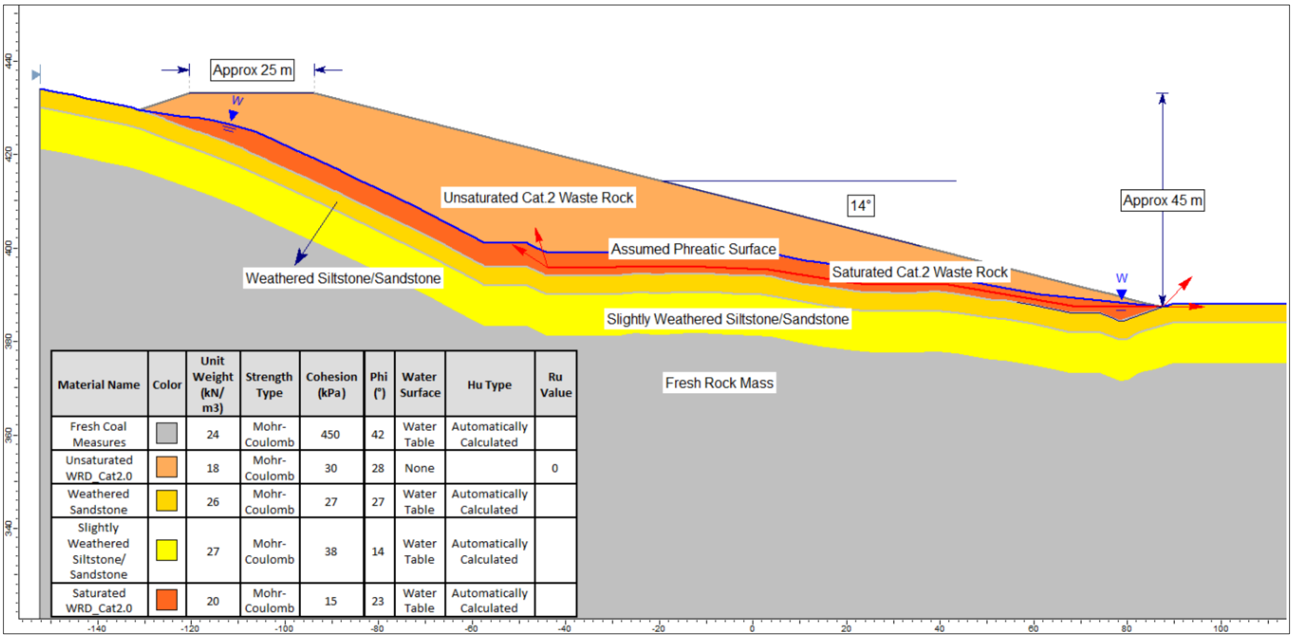
Figure 16: WRS Layout

The following methodology and assumptions were used for the assessment:

- Non-circular failure analyses using the Block Search and Auto Refine (where appropriate) algorithms and the General Limit Equilibrium method (GLE) for the slope failures.
- The FoS criterion for the assessed WRD slopes is determined as ≥ 1.3.
- A 5 m saturated basal layer is assumed.

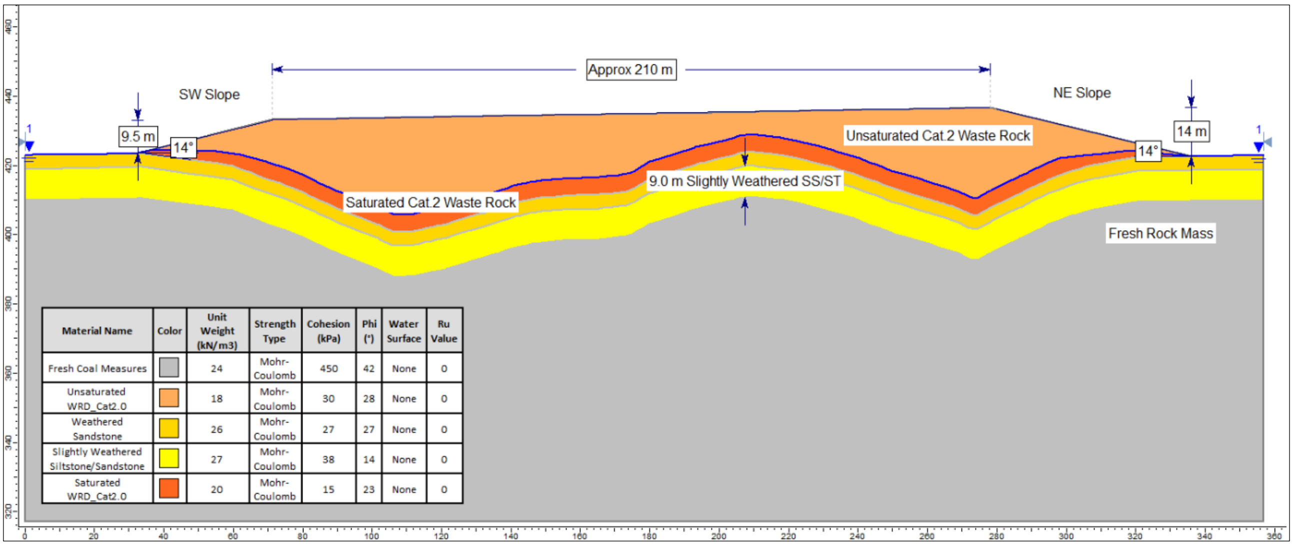
4.2.2. Slope Geometry

Figure 17 and Figure 18 show the representative section geometries.



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Ru Value
Fresh Coal Measures		24	Mohr-Coulomb	450	42	Water Table	Automatically Calculated	
Unsaturated WRD_Cat2.0		18	Mohr-Coulomb	30	28	None		0
Weathered Sandstone		26	Mohr-Coulomb	27	27	Water Table	Automatically Calculated	
Slightly Weathered Siltstone/ Sandstone		27	Mohr-Coulomb	38	14	Water Table	Automatically Calculated	
Saturated WRD_Cat2.0		20	Mohr-Coulomb	15	23	Water Table	Automatically Calculated	

Figure 17: WRS – Section 1 (Final Landform Design)



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Ru Value
Fresh Coal Measures		24	Mohr-Coulomb	450	42	None	0
Unsaturated WRD_Cat2.0		18	Mohr-Coulomb	30	28	None	0
Weathered Sandstone		26	Mohr-Coulomb	27	27	None	0
Slightly Weathered Siltstone/Sandstone		27	Mohr-Coulomb	38	14	None	0
Saturated WRD_Cat2.0		20	Mohr-Coulomb	15	23	None	0

Figure 18: WRS – Section 2 (Final Landform Design)

4.2.3. Stability Results

Limit equilibrium analyses were assessed in terms of a non-circular failure mechanism acting through the WRD and weathered rock foundation.

Based on the analyses results:

- Section 1 and Section 2 analyses indicate critical FoS values ≥ 1.3, which indicates that long-term geotechnical stability of the WRD, based on the assumptions.

The results of the limit equilibrium analyses are summarised in Table 9, and presented in Figure 19 to Figure 23 for different scenarios.

Table 9: Stability Results

Section	Failure Surface	Search Method	Material Category	WRD Height (m)	FoS
S1	Non-Circular	Block Search	2.0	45	1.60
S2 (SW)	Non-Circular	Block Search		9.5	3.56
	Circular	Auto Refine			3.64
S2 (NE)	Non-Circular	Block Search		14.0	3.38
	Circular	Auto Refine			3.49

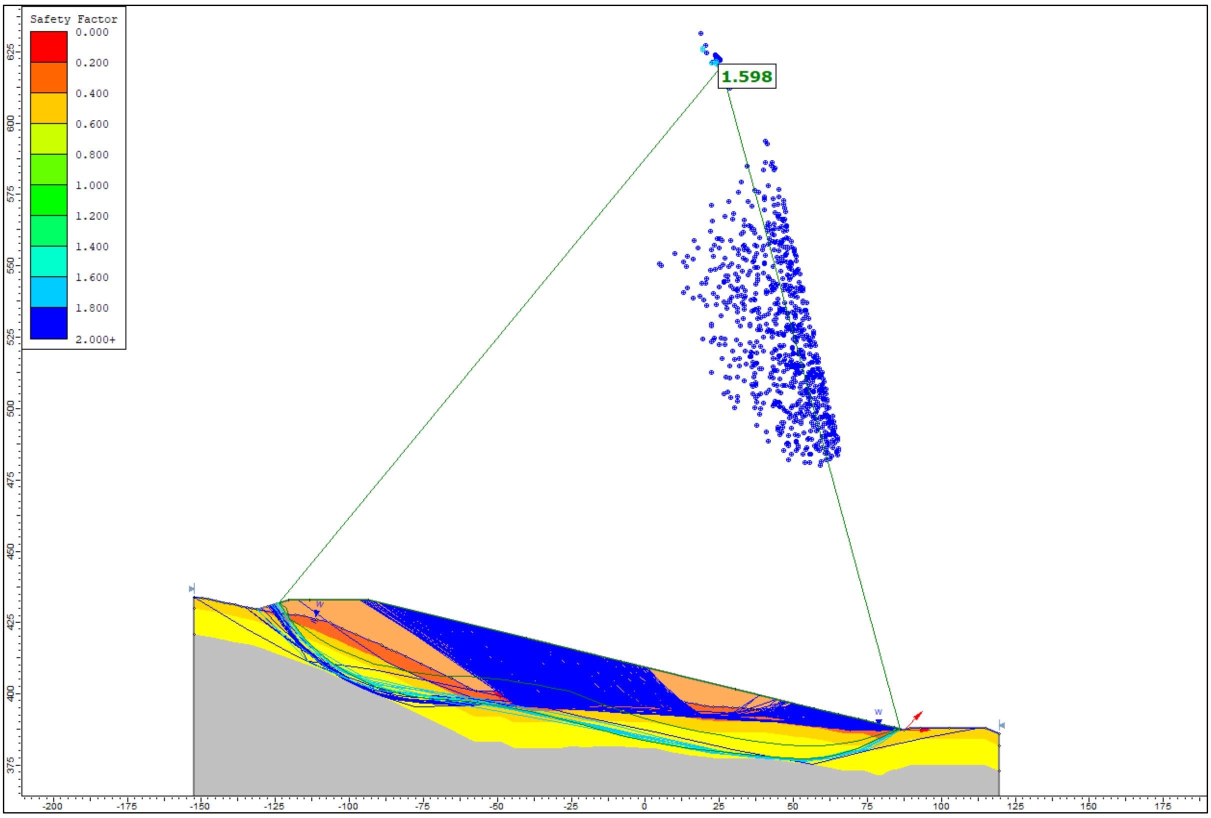


Figure 19: S1 Slope Stability Model Result – FoS = 1.60 - Block

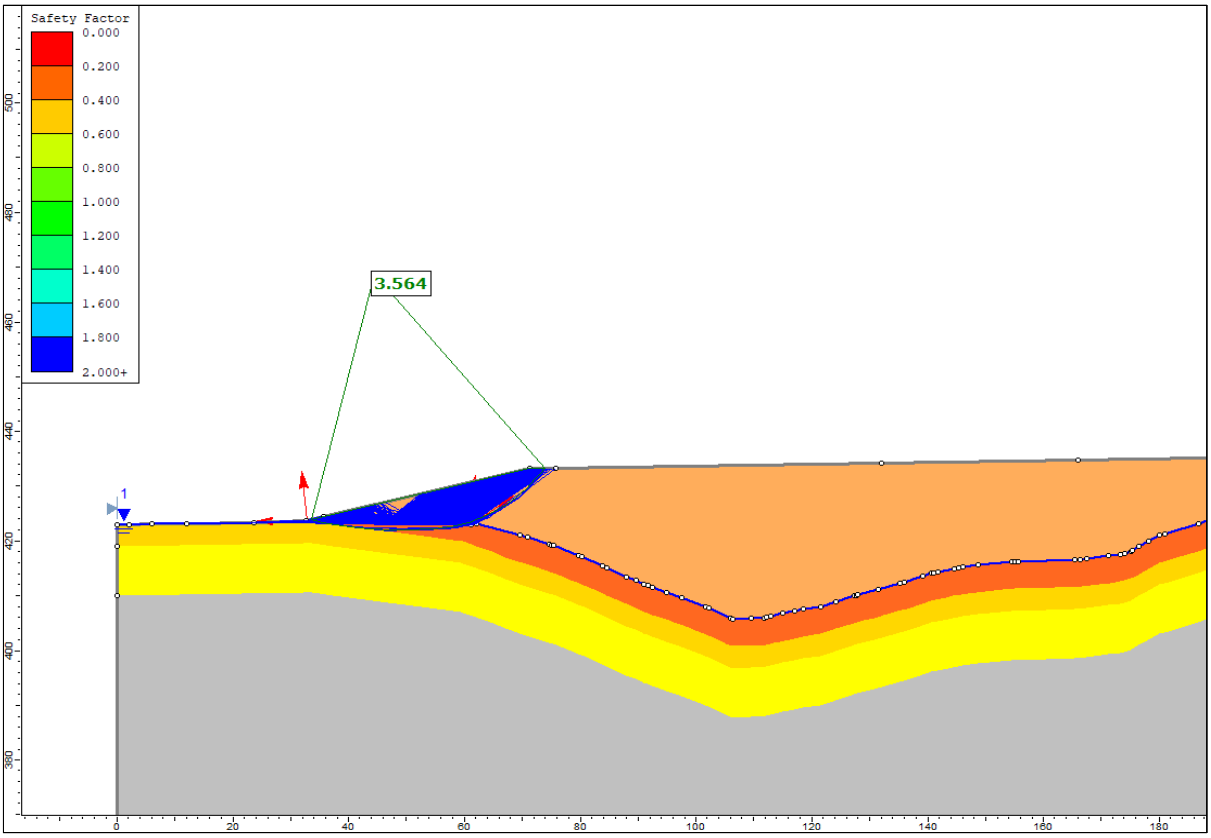


Figure 20: S2 SW Slope Stability Model Result – FoS = 3.56 - Block

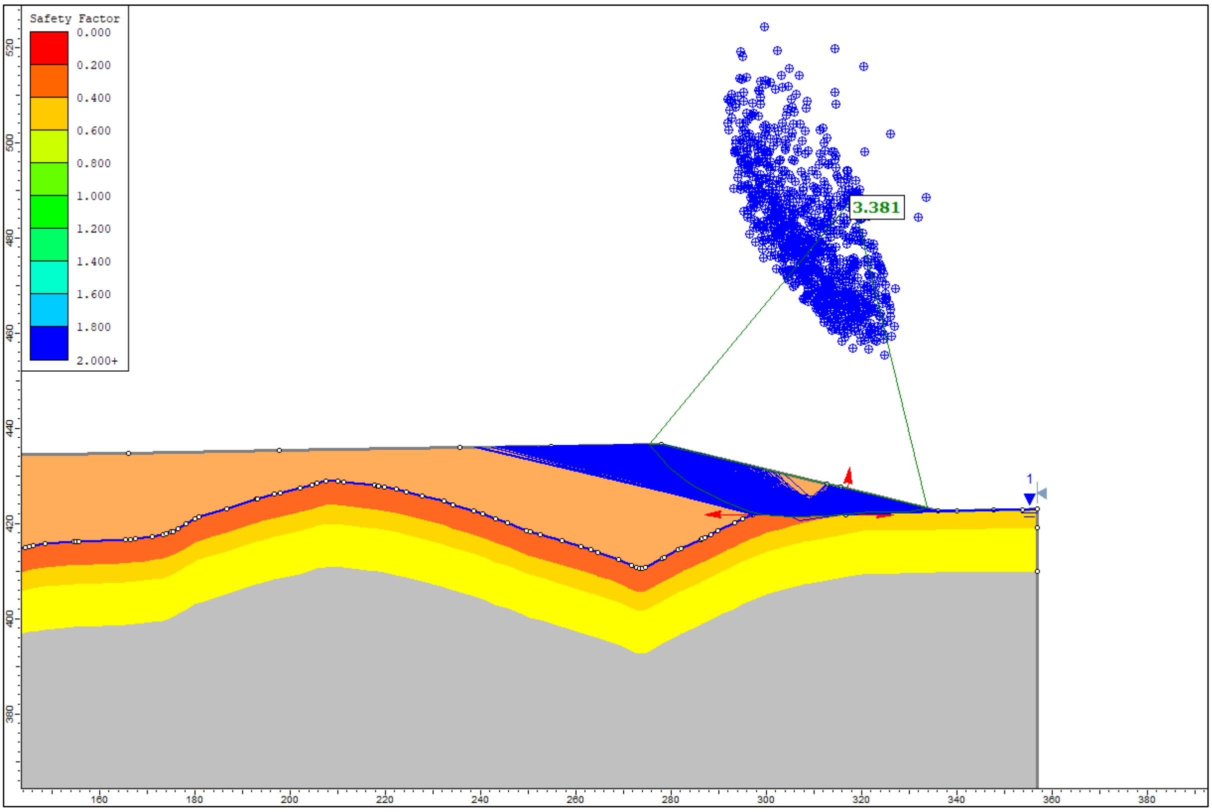


Figure 21: S2 NE Slope Stability Model Result – FoS = 3.38 - Block

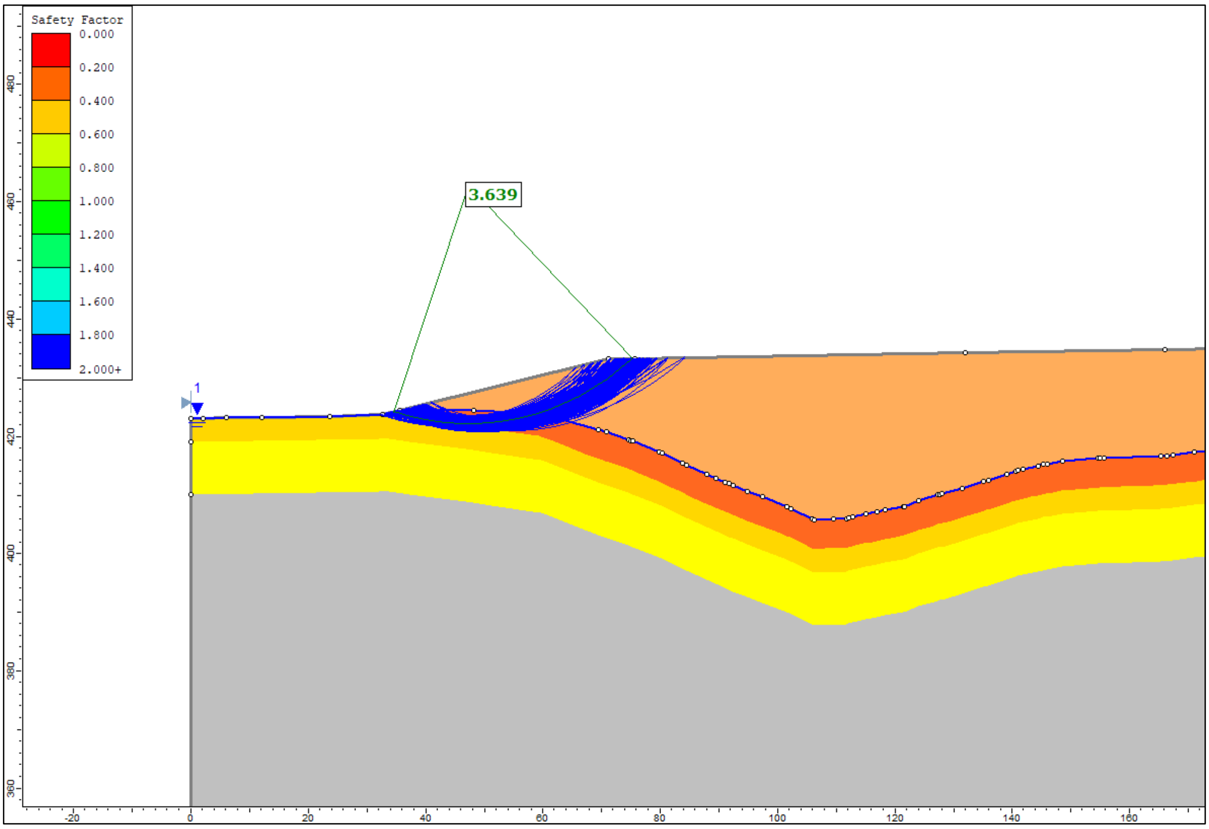


Figure 22: S2 SW Slope Stability Model Result – FoS = 3.64 – Auto Refine

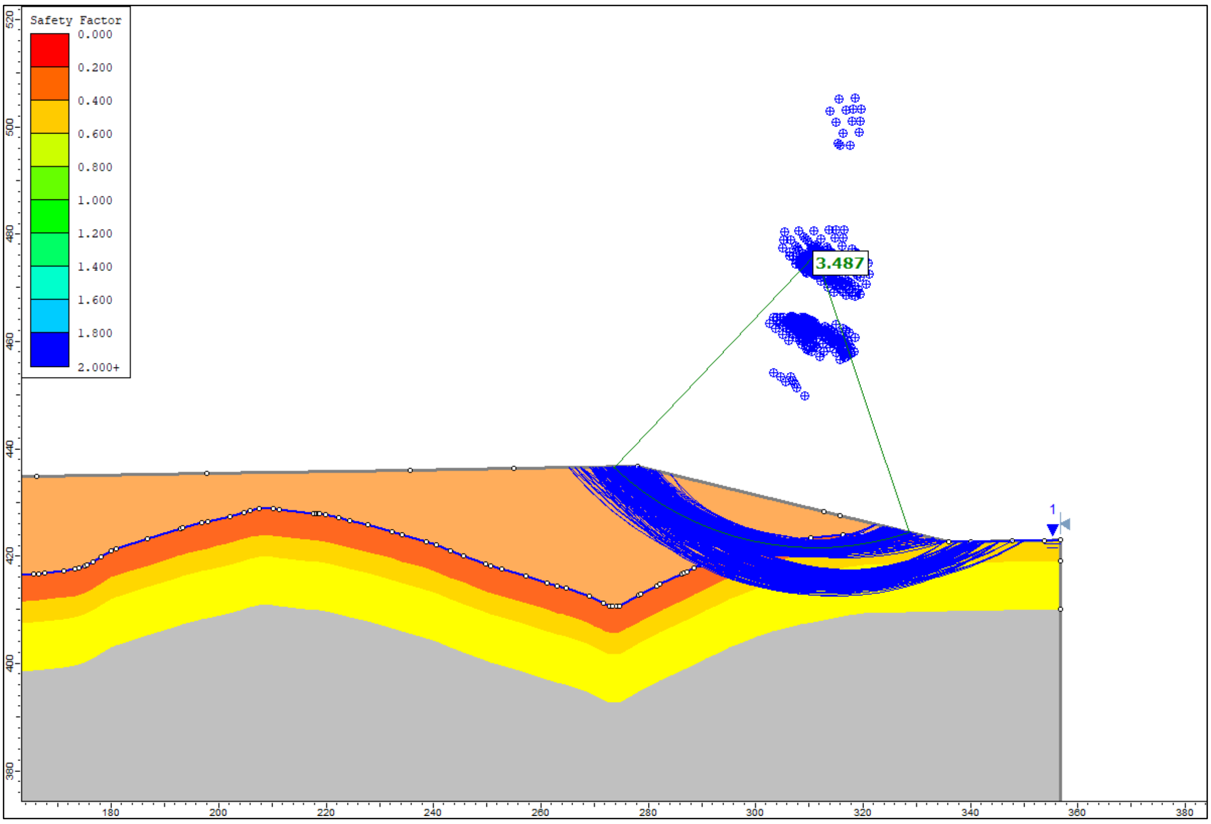


Figure 23: S2 NE Slope Stability Model Result – FoS = 3.49 – Auto Refine

The limit equilibrium analyses has determined that the out of pit waste rock stockpile design is likely to be geotechnically stable long-term, based on a Category 2.0 waste rock, and for different slope stability methods.

4.2.4. Landform Flood Stability Results

The landform was measured for stability in the event of flooding and identified locations where the 1% Annual Exceedance Probability (AEP) and 0.1% AEP flood events interact with the final landform design. Key locations of interest include locations where ponding occurs against final structures and where elevated flow velocities are predicted.

At isolated locations where peak velocities approach 4.0 m/s, a moderate risk of erosion is anticipated. However, given that the majority of the final landform is subject to very low velocities, the overall erosion risk is considered to be low under both the 1% AEP and 0.1% AEP events.

Results from Engeny (2025) indicate that the Final Landform Scenario will result in increased peak flows from the site by approximately 1 m3/s in the 1% AEP and 0.2 m3/s in the 0.1% AEP, compared to the Existing Scenario. These increases are relatively minor, compared to the natural flow rate in Gum Creek, and it is considered that the flow capacity in the Gum creek is sufficient to carry the outflow from the site under the final landform condition. The results for flood event velocity and depth are presented in Figure 24 to Figure 27.

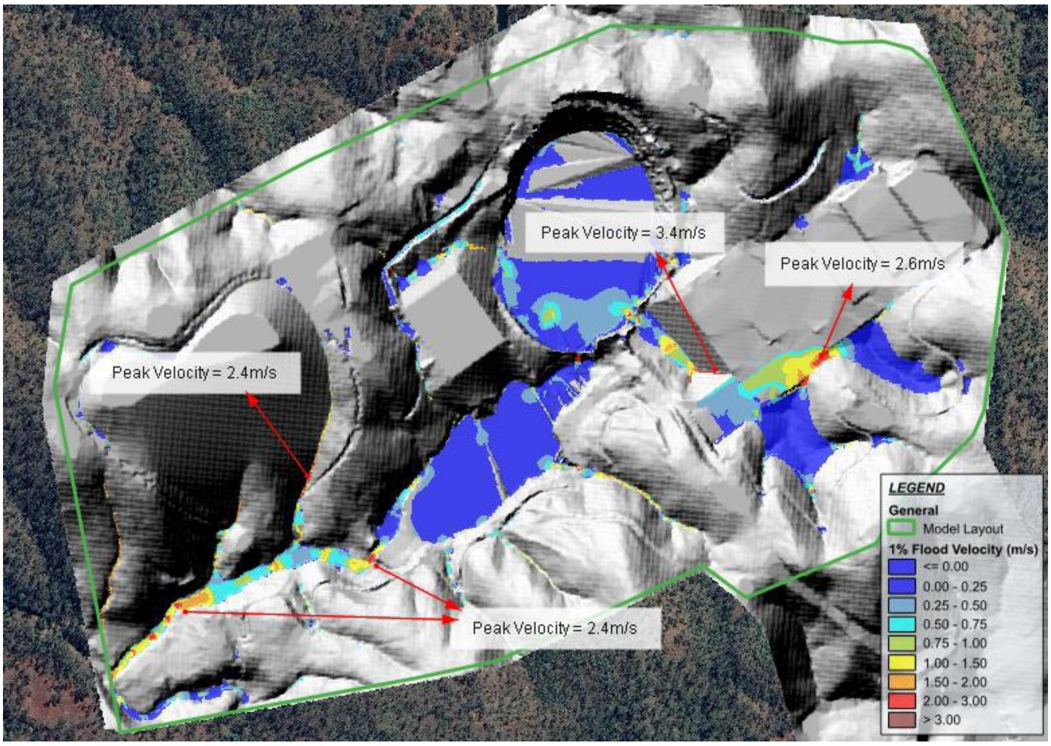


Figure 24: Peak Velocity for 1% AEP Flood

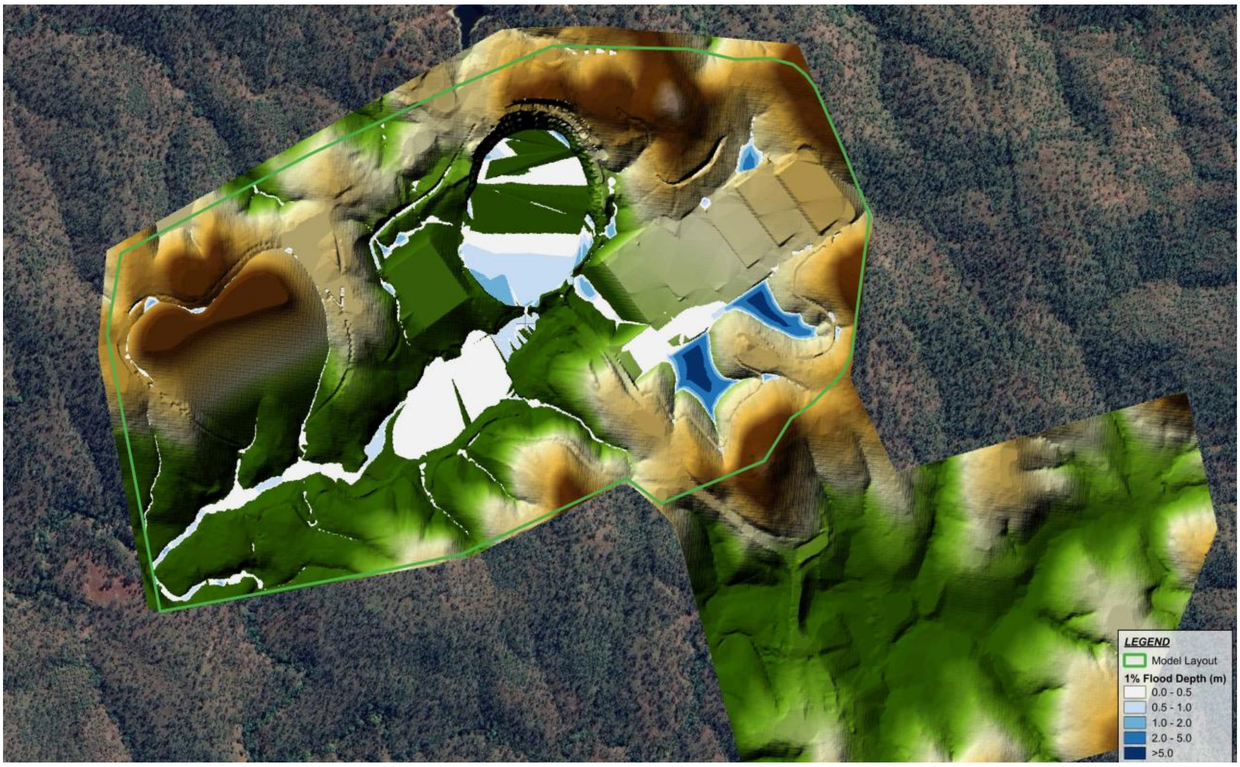


Figure 25: Depth for 1% AEP Flood

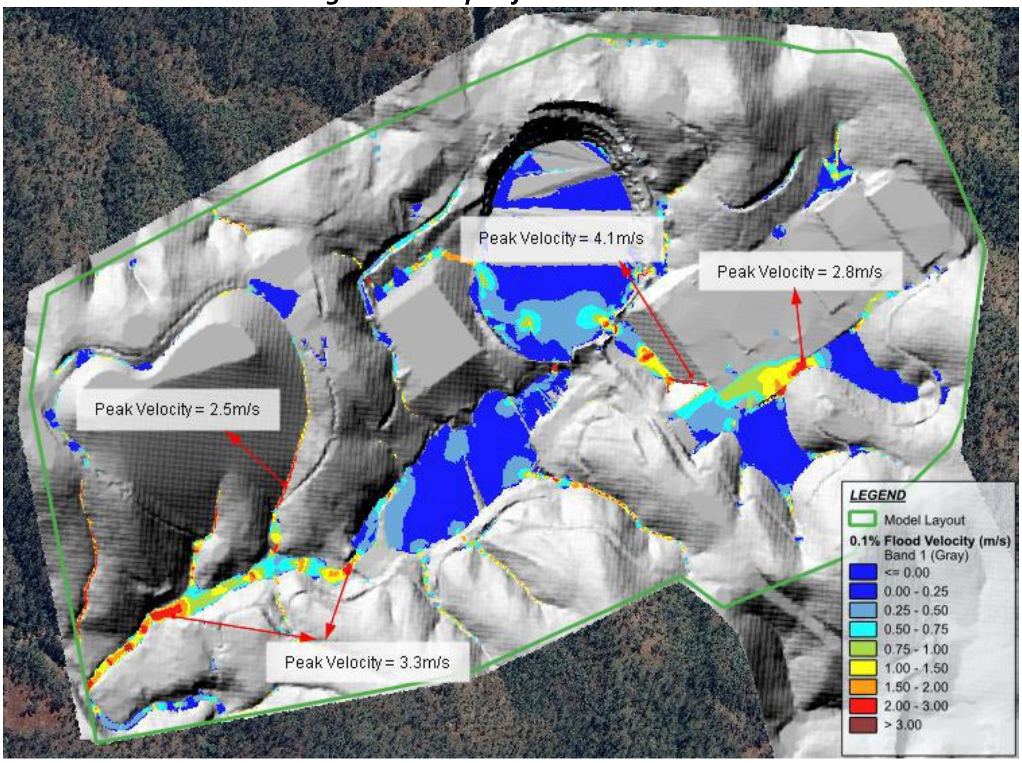


Figure 26: Peak Velocity for 0.1% AEP Flood

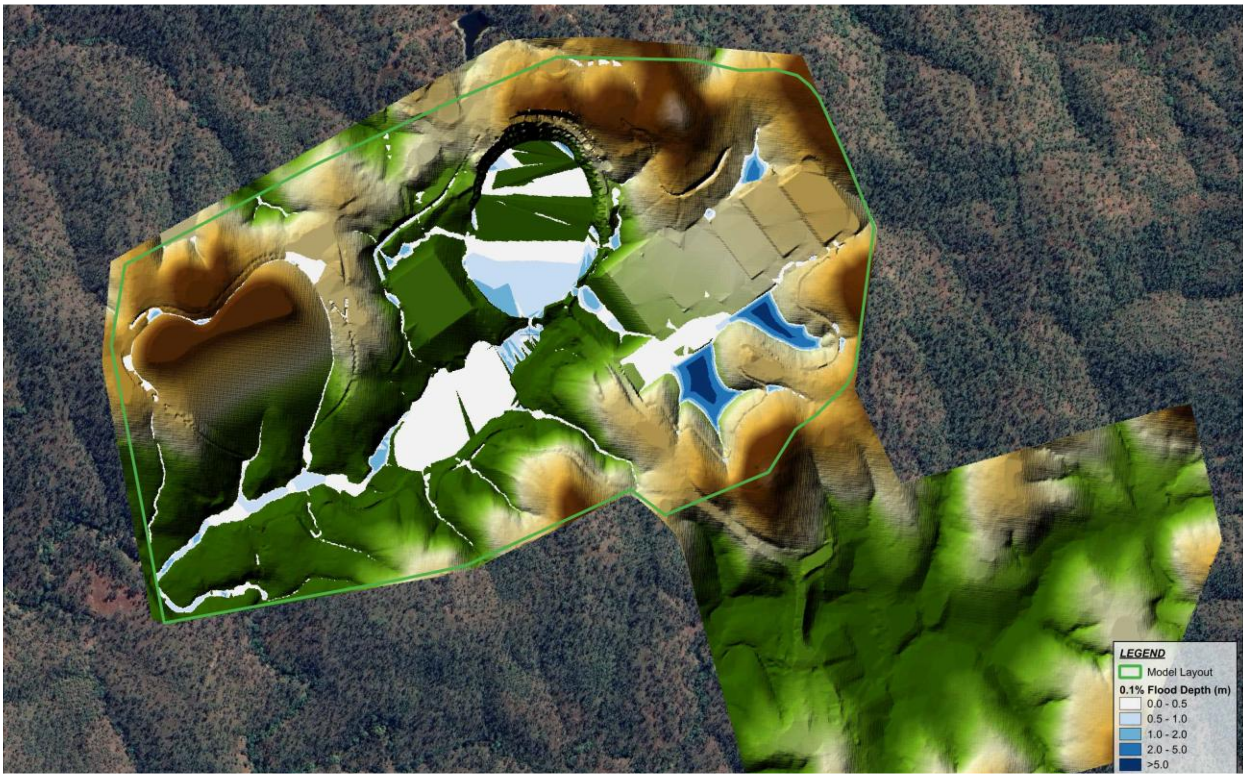


Figure** 27**: Depth for 0.1% AEP Flood

4.3. Method of Construction

4.3.1. Out of Pit Waste Rock Stockpile

The out of pit waste rock stockpile is located on the northwest corner of the project on the steep slope rising from the Release Dam and processing area. It covers two drainage channels that run downgrade on the hill, effectively making an eastern and western zone of the waste stockpile.

Prior to construction of the waste rock stockpile, a geotechnical engineer will undertake a detailed assessment of the foundation, including test-pitting, to confirm the assumptions in this report.

Preparation of the waste rock stockpile footprint will involve clearing and grubbing and stripping of topsoil and subsoil. The stripped area will be inspected prior to placement of fill. This will be undertaken progressively to minimise the area at risk of erosion. The eastern zone of the waste stockpile will be prepared and progressively filled before commencing to prepare the western zone.

During the mining process, the waste rock stockpile will be filled to greater than the final design volume, referred to as the interim waste rock stockpile. Due to the geography of the site, Mineral Projects' desire to minimise the environmental footprint of operations and the closure plan of filling the pit, the temporary nature of the interim waste rock stockpile allows for much steeper batter angles during operations. The interim waste rock stockpile design is shown in Figure 28.

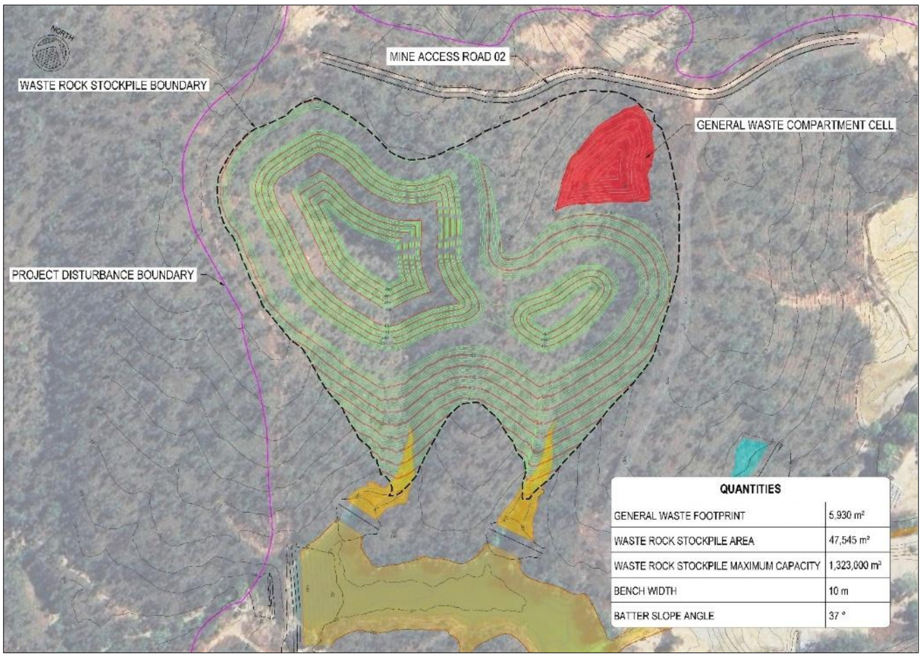


Figure 28: Interim Waste Rock Stockpile

(See Also DWG. J022.210.30-SKE-003.02-OPERATIONAL_WASTE_ROCK_STOCKPILE)

The general waste landfill cell is also contained within the eastern zone footprint of the interim waste rock stockpile (under what will be the final landform).

Once all needs for construction materials have been satisfied, NAF waste will be hauled from the pit to the waste stockpile, with the stockpile being constructed generally in a bottom-up manner (some waste will be placed top-down with the final make-up to be determined by detailed mine scheduling) for each of the two zones described above. Compaction of the waste will be achieved by dozer pushing and truck rolling during haulage. The stockpile will be visually inspected each day that waste is placed and prior to recommencement of fill placement after rainfall.

After cessation of mining, waste will be selectively relocated from the interim waste rock stockpile to the in pit waste rock stockpile so that a maximum of 548,000m3 is left at the out of pit stockpile. Any PAF that is temporarily stored at the interim waste rock stockpile will be relocated to the encapsulation zone in the in pit waste rock stockpile. The final landform of the out of pit waste rock stockpile will be chemically benign at closure.

4.3.2. In Pit Waste Rock Stockpile

To minimise the impact on the final landform, the pit will be backfilled so that it drains to the lowest point on the edge of the pit**.** This will be the largest final placement of waste at approximately 2.06 Mt. Due to the configuration of the pit, this backfilling will only begin once mining of the pit has been completed. During mining operations, some of this material will be stored temporarily in the interim out of pit waste rock stockpile.

Any PAF material identified during mining and operations will be encapsulated in the final landform within the in pit waste rock storage. The in pit waste rock storage has the capacity to store approximately 320,000m3 or 640kt with a benign (NAF) cover of 20m in all directions around the PAF encapsulation zone, as shown in Figure 29. This capacity is approximately 278% of the amount of waste that is forecast to be at risk of being PAF (230kt).

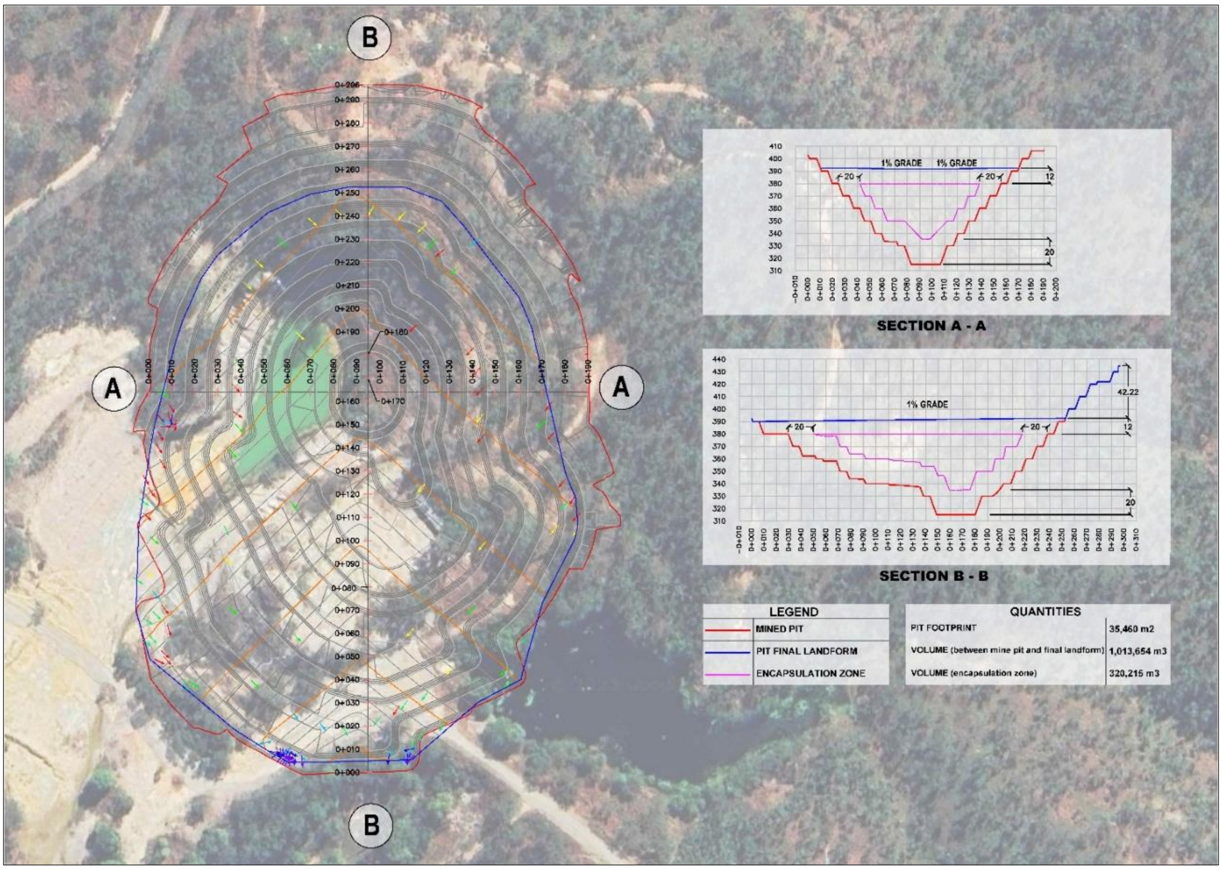


Figure 29: PAF Encapsulation Zone

(See Also DWG. J022.210.10-DWG-002.01-ENCAPSULATION_ZONE_CROSS_SECTION)

Prior to commencement of placement of PAF in the pit, the pit will be backfilled with NAF to RL335m (20m above the base of the pit). Once this benign layer is in place, placement of PAF can commence in the pit. As layers of PAF are placed in the base of the pit, the edges of fill will be raised with NAF to maintain 20m separation between the pit wall and the encapsulation zone.

Should any PAF or PAF-LC require temporary storage prior to the cessation of mining and preparation of the encapsulation zone it will be temporarily stored in the northern corner of the interim waste rock stockpile. A compacted base will be prepared and lined with Geosynthetic Clay Liner (GCL). A lined drainage path will direct overland flow from the temporary PAF storage to the landfill cell. The landfill cell has a valve for controlling stormwater before it is released into the sediment control system for the stockpile. This will enable runoff from the PAF storage to be monitored and ameliorated (if necessary) before release. With this control in place, due to the short timeframe for operations and relative geochemical stability of the rock, benign cover for the temporary PAF stockpile is not considered necessary.

The cover design and revegetation will be placed 12m above the PAF encapsulation zone, and graded at 1% to allow water shedding.

4.4. Trial Methodology

With the footprint of the waste rock stockpile being less than 5ha, and the life of mine only being five years, there is insufficient room to undertake a trial of the final landform during construction of the stockpile. Undertaking a trial after construction will delay the overall rehabilitation and consequently is not recommended.

However, this report and the Waste Rock Management Plan will be monitored and adjusted during operations to address any limitations (see Section 4.5 below).

4.5. Limitations and Assumptions of Landform Design

Table 10: Limitations and Assumptions of Landform Design

Index	Assumption	Basis for Assumption	Method of Confirming Assumption	Adjustment if Assumed Condition Changes
1	Quantity of waste rock	Modelling of the pit design, material density and expected swell factors.	The waste rock stockpile will be surveyed quarterly and compared with expected quantities based on the mining schedule. Forecast final quantity of waste (based on mining schedule and actual swell factors) will be calculated quarterly.	If quantities decrease, less material will be left in the out of pit waste rock stockpile (with a lower batter angle). If quantities increase, and more material cannot be stored in the out of pit waste rock stockpile, more material will be stored in the inpit waste rock stockpile (increasing the batter from current design of 1%).
2	Quantity of PAF	The quantity of PAF is likely to be less than the total material at risk of being PAF. However, this report and the WRMP allows for 100% of the material at risk to be PAF. Further, the design allows for 278% of it to be encapsulated.	Waste rock characterisation will be carried out in accordance with the WRMP.	The WRMP and this report will be revised and submitted to the Administering Authority if, during operations, the forecast quantity of PAF exceeds 200% of the material at risk of being PAF.
3	Geotechnical stability of waste rock	A geotechnical engineer has attended site and prepared a stability assessment. A slaked durability assessment has been made of a representative sample of waste rock.	Further slaked durability assessments will be undertaken to represent additional material types. The blended overburden and spent ore will be assessed by the geotechnical engineer when it is mined and processed.	The stability assessment will be confirmed or updated if required.
4	Geotechnical stability of the foundation	A geotechnical engineer has attended site and inspected the foundation prior to completing a stability assessment.	A more detailed assessment of the foundation will be undertaken during clearing operations (including test-pitting).	The stability assessment will be confirmed or updated if required.
5	Availability of topsoil and subsoil	A soils assessment of the site has been undertaken, including test-pitting.	Quantities will be confirmed during stripping and material properties will be confirmed by an AQP prior to placement.	Topsoil amelioration will be undertaken if required. In the event that sufficient subsoil is not available, geosynthetic liners may be used.

Index	Assumption	Basis for Assumption	Method of Confirming Assumption	Adjustment if Assumed Condition Changes
6	Suitability of revegetation species	A detailed review of the climate for the region has been undertaken, including rainfall and evaporation rates	Ongoing rehabilitation monitoring will be undertaken to ensure vegetation meets approved criteria	Management measures per the risk assessment will be put in place including reseeding and/or infill planting; weed and pest management; cattle exclusion.
7	Climate conditions	A detailed review of the climate for the region has been undertaken, including rainfall and evaporation rates	Bureau of Meteorology data in the region since the 1960's, and rainfall data since the 1900's, and a risk assessment is in place for climatic extremes, including drought and floods	Climatic extremes are already accounted for, and the Final Landform and Cover Design Report will be updated if required if climate goes outside of these extremes .

5. COVER DESIGN

5.1. Geochemical Characteristics

5.1.1. Existing Waste Rock Stockpile

A waste characterisation sampling program was completed in 2020 on the existing waste rock stockpile. A total of 46 auger drill holes were sampled across the waste rock stockpile to a maximum depth of 13 m, which provided spatially representative information for the entire stockpile. The results indicated that the waste rock material is intermittently layered with low grade waste containing presence of mineralisation consistent with the halo of 'Green Hills' mineralisation surrounding the historically mined ore body (Dianne Mining Corporation Pty Ltd, 2022). Mineralisation observed is dominated by oxide copper mineralisation (malachite, azurite, cuprite and tenorite) with sub-ordinate chalcocite. No pyrite was noted in logging.

From drill data samples in 2020, a block model including sulphur content was created, as shown in Figure 3030. For areas of the existing waste rock stockpile outside of available drill data, the average sulphur content of drill data intersecting the existing waste rock stockpile was applied. This model estimated that less than 1.5% of the material contained in this waste rock stockpile contained higher than 0.2% sulphur (within global average of <0.05% Total S). The waste stockpile is comprised of majority oxidised 'Green hills' rock-type which possibly contains minor (<5%) potentially acid forming material associated with the waste oxide supergene high-grade Main Ore lens.

Figure 30: Existing Waste Rock Stockpile Sulphur Content Representation

Further reconciliation of the stockpiled material with the deposit void has identified the stockpile as containing economic concentrations of copper mineralisation. Therefore, the current development plan proposes to move and treat the existing waste rock stockpile through the leach pads. Therefore, additional test work has been undertaken to understand the PAF attributes of the residual leached material.

More detailed characterisation information is provided within Annexure 1 of the Waste Rock Management Plan, Geochemical Characterisation of the Existing Waste Rock Stockpile.

5.1.2. Mined Ore

After leaching, key AMD risks from ore will be:

- residual leaching solution, which could be a source of problematic drainage if not adequately neutralised; and
- loadings of sulphur and readily leachable metals and metalloids, as well as sulphides that may have not oxidised completely over the course of residence time at the heap leach pad.

As the ore on the leach pads will be flushed with fresh water to remove residual acidity and neutralised prior to removal from the heap leach facilities, leached ore is not anticipated to be a source of adverse drainage water quality for either surface water or groundwater.

A spent ore geochemical sampling and test work characterisation program specific to the proposed Dianne Copper mine was undertaken between 2022 and 2025 on ore residues from large-scale representative column leach testwork completed in early 2025.

Modelling indicates that 95% of the ore is oxide ore. The waste sampling and characterisation program on oxide ore heap leach residue suggests this will be geochemically benign (i.e. NAF) in terms of acid forming characteristics.

The remaining 5% of mined ore (or 3% of total mined quantities) is secondary sulphide ore. Although no PAF has been identified within the secondary sulphide ore in the planned pit shell, there is a risk that the sulphides in this ore will not sufficiently oxidise during residence time on the leach pads, so it has been classified as at risk of being PAF.

Modelling indicates that ore with a risk of being PAF makes up 3% of total tonnes mined and is at the bottom of the pit, as shown in Figure 31.

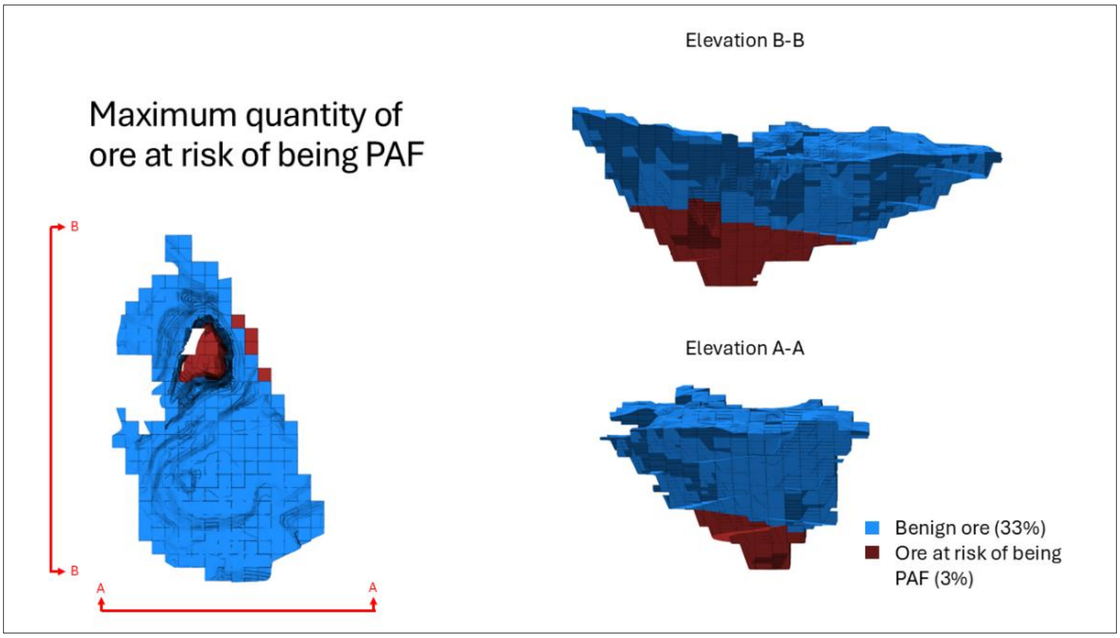


Figure 31: Modelling of Ore at Risk of Being PAF

Note: Percentages in Figure 31 are expressed as percentages of total mined quantities.

Any leached ore identified as PAF or PAF-LC will be transferred directly to the encapsulation zone within the in pit waste stockpile or held temporarily in the interim waste stockpile and then transferred to the encapsulation zone in accordance with Section 5.7 of this waste rock management plan.

More detailed characterisation information is provided within Annexure 2 of the Waste Rock Management Plan, Geochemical Characterisation of the Pit.

5.1.3. Mined Overburden

Mined overburden will consist of a range of rock types. This includes unmineralised waste rock units as well as material from the mineralised zones that is below the copper cut-off grades.

A comprehensive waste rock characterisation program has been completed to validate and improve confidence in the quantity and geochemical characteristics of the waste materials and provide a basis for scheduling any PAF materials and more geochemically benign materials that will be mined. This program sampled a range of unmineralized (<0.05% Cu) to weakly (<0.35% Cu) mineralised samples collected across the three weathering zones within the pit within the Eastern Domain, Western Domain and Internal Greenhills Domain. All samples tested as NAF materials, and based on deposit geology and test work completed, the majority of mined overburden materials are expected to be geochemically benign.

Although the waste characterisation program has not identified any PAF materials reporting directly to the waste rock stockpile, a review of the geology has identified thin discrete quantities of overburden with elevated sulphur (>0.2% S) within the Transitional Zone in a thin marginal either side of the main ore lens. These zones are not associated with the visible presence of sulphides. Modelled estimates as shown in Figure 32 indicate that this overburden could constitute a max of 2% of the total material tonnage of material and is located at the bottom of the pit, as shown in Figure 32. This means that exposure of this identified material that is at risk of being PAF or PAF-LC can be readily managed via identification, segregation and placement in the encapsulation zone.

Static sulphur levels will continue to be used as a screening method for identification, segregation and tracking of PAF and NAF materials.

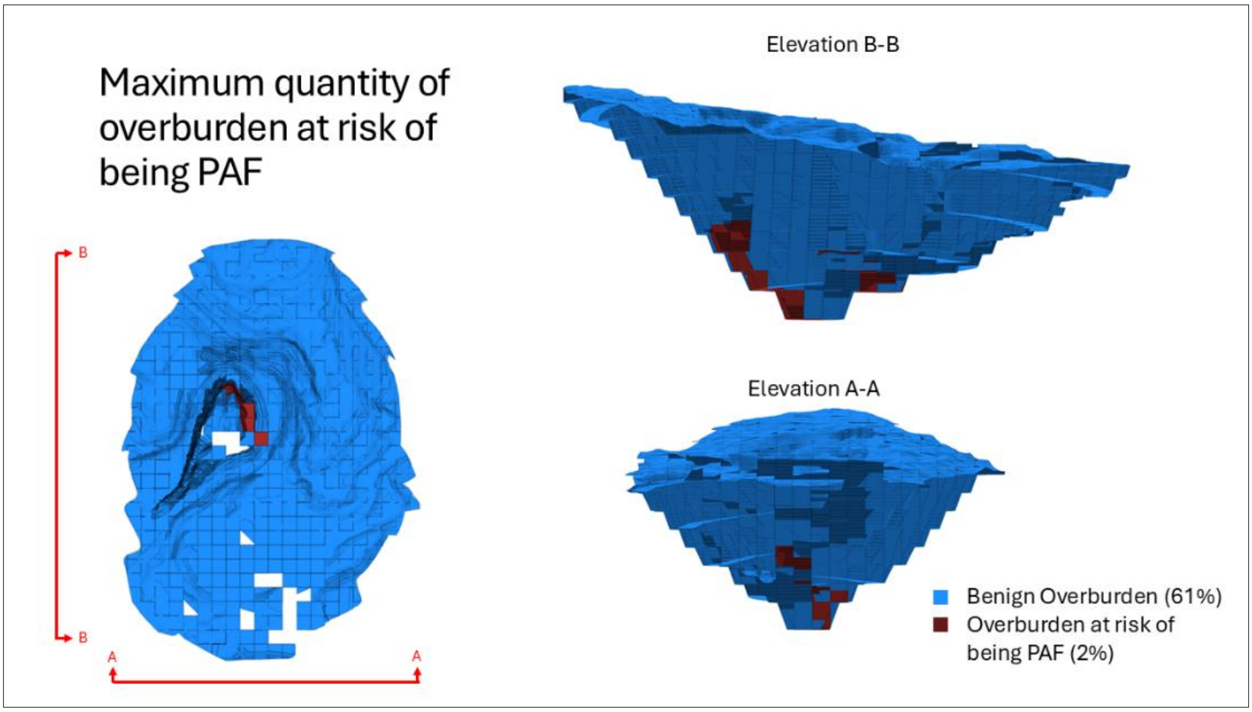


Figure 32: Modelling of Overburden at Risk of Being PAF

Note: Percentages in Figure 32 are expressed as percentages of total mined quantities.

More detailed characterisation information is provided within Annexure 2 of the Waste Rock Management, Geochemical Characterisation of the Pit.

5.1.4. Summary

Geochemical characterisation of the Dianne Copper Project has identified has indicated that 95% of the total quantity mined (within all three streams of the existing waste, and ore and waste from the pit) is chemically benign.

However, 235kt out of the 4,211kt total mined quantity, has the risk of being potentially acid-forming (PAF). This material (ore and overburden) is located at the lowest depths of the pit, at the end of the mine schedule, as shown in Figure 33.

Conservatively, the planning for the Dianne Copper Project has identified 100% of the mined material at risk of being PAF as possibly PAF, despite no PAF being identified within samples of the mined overburden or ore from the pit. Furthermore, as demonstrated in Figure 29, a worst-case scenario allows for 278% of this quantity of PAF (or 640kt in total) to be stored within the Encapsulation Zone. This cover design report and the WRMP will be revised in the event that forecast total PAF reaches 470kt or 200% of the forecast quantity at risk of being PAF, and well before the limit of containment designed within this plan.

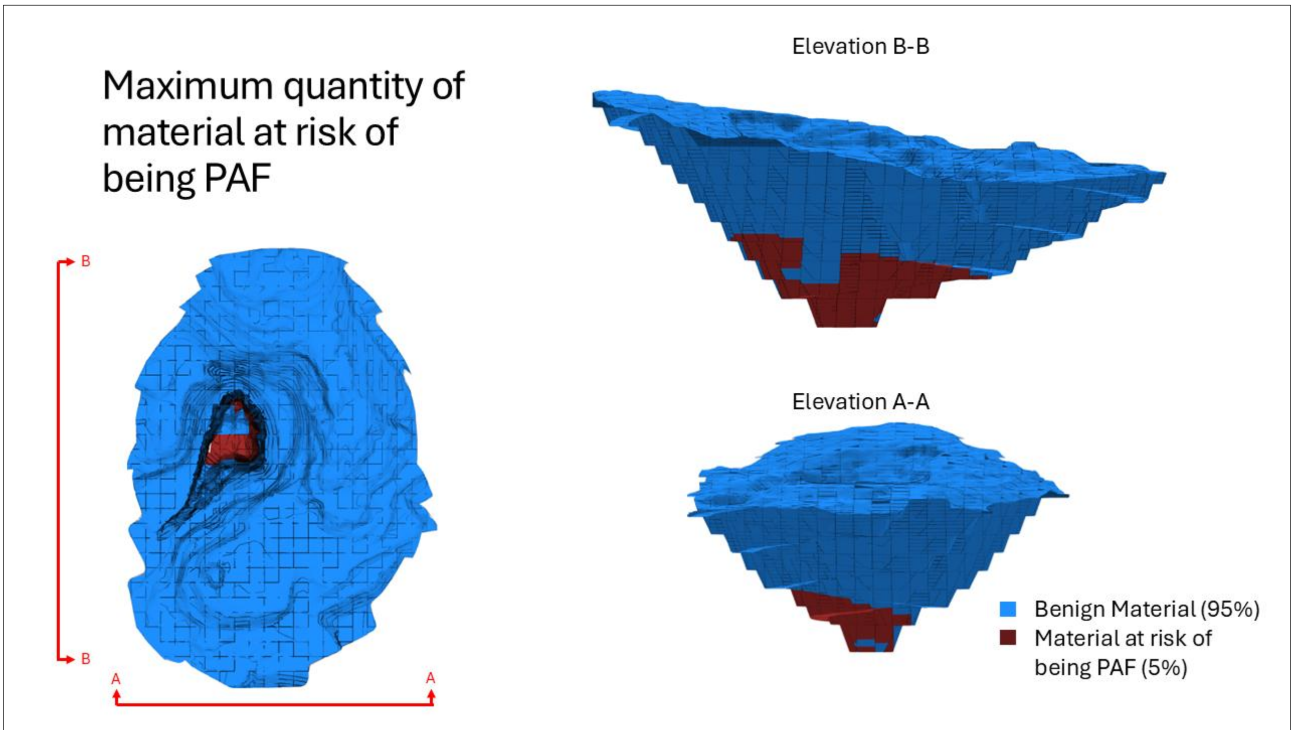


Figure 33: Total Material at Risk of Being PAF

Note: Percentages in Figure 33 are expressed as percentages of total mined quantities.

5.2. Material being Covered

The PAF encapsulation zone is shown in Figure 29.

The current mine schedule, in conjunction with the waste characterisation testwork, estimates that at least 97% of the overburden (95% of total mined quantities) that will be mined from the pit is from the unmineralised zone and is classified as NAF. This unmineralised waste rock will provide sufficient NAF material for use in construction and to encapsulate any potential minor volumes of PAF material in the waste rock storage areas, should that be identified through the ongoing geochemical sampling programs.

Any PAF identified during mining and operations will be encapsulated in the final landform within the in pit waste rock storage. The in pit waste rock storage has the capacity to store approximately 320,000m3 or 640kt with a benign (NAF) cover of 20m in all directions from the PAF encapsulation zone. This capacity is approximately 278% of the amount of waste that is forecast to be at risk of being PAF (230kt).

No PAF will be placed below the groundwater table.

Prior to commencement of placement of PAF in the pit, the pit will be backfilled with NAF to RL335m (20m above the base of the pit). Once this benign layer is in place, placement of PAF can commence in the pit. As layers of PAF are placed in the base of the pit, the edges of fill will be raised with NAF to maintain 20m separation between the pit wall and the encapsulation zone.

Should any PAF or PAF-LC require temporary storage prior to the cessation of mining and preparation of the encapsulation zone it will be temporarily stored in the northern corner of the interim waste rock stockpile. A compacted base will be prepared and lined with Geosynthetic Clay Liner (GCL). A lined drainage path will direct overland flow from the temporary PAF storage to the landfill cell. The landfill cell has a valve for controlling stormwater before it is released into the sediment control system for the stockpile. This will enable runoff from the PAF storage to be monitored and ameliorated (if necessary) before release. With this control in place, due to the short timeframe for operations and relative geochemical stability of the rock, benign cover for the temporary PAF stockpile is not considered necessary.

5.3. Criteria for Discharge

The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (the Policy) is a framework within the Environmental Protection Act 1994 with the aim of protecting waters and wetlands in Queensland while also promoting ecological sustainable development. Environmental values and Water Quality Objectives (WQOs) have been formalised under the Policy for specific catchments and basins within Queensland. The Healthy waters for Queensland: Environmental values, management goals and water quality objectives fact sheet (Department of Environment and Science, 2022) defines environmental values as 'the qualities that make water suitable for supporting aquatic ecosystems and human uses', while WQOs are defined as 'the quantitative measures or narrative statements established to protect the EVs of waters'. WQOs are developed based on the findings from scientific studies as well as existing water quality guidelines, such as the Queensland Water Quality Guidelines (Department of Heritage and Environment Protection, 2009) and the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia, 2018).

The DCM is located within the Bonny Glen pastoral lease, with cattle grazing undertaken outside of the DCM mining lease areas. Cattle grazing is widely undertaken throughout the greater region and is considered to be the dominant land use. Alluvial gold mining is also undertaken in some areas of Gum Creek and historically across the region. Surface water environmental values in the vicinity of the DCM are considered to be (C&R Consulting, 2021A):

- Aquatic ecology.
- Stock drinking water.
- Drinking water.
- Cultural.
- Industrial use.

At this point in time, WQOs relevant to the DCM study area (i.e., Palmer River sub-basin or Gum Creek) have not been defined under the Policy. Table 11 provides the current water quality objectives for release of mine affected water.

Table 11: Current Water Quality Objective for Release of Mine-Affected Water

Parameter	Units	Water Quality
pH	-	Lower limit - 6.0 or 20th percentile of the reference site concentration, whichever is lower. Upper Limit - 8.0 or 80th percentile of the reference site concentration, whichever is higher.
Electrical Conductivity (EC)	µS/cm	25002 or 20 times the 80th percentile of reference site concentration, whichever is higher.
Dissolved Oxygen (DO)	% saturation	For interpretational purposes only
Total Suspended Solids (TSS)	mg/L	20 times the 80th percentile of reference site concentration
Sulfate	mg/L	154007 or 20 times the 80th percentile of reference site Concentration, whichever is higher
Fluoride	mg/L	20 times the 80th percentile of reference site concentration
Major Anions	mg/L	20 times the 80th percentile of reference site concentration
Aluminium	mg/L	1.13 or 20 times the 80th percentile of reference site concentration, whichever is higher
Arsenic	mg/L	0.263 or 20 times the 80th percentile of reference site concentration, whichever is higher
Boron	mg/L	7.43 or 20 times the 80th percentile of reference site concentration, whichever is higher
Cadmium	mg/L	0.0043 or 20 times the 80th percentile of reference site concentration, whichever is higher
Chromium5	mg/L	0.023 or 20 times the 80th percentile of reference site concentration, whichever is higher
Copper	mg/L	0.0283 or 20 times the 80th percentile of reference site concentration, whichever is higher
Lead	mg/L	0.0683 or 20 times the 80th percentile of reference site concentration, whichever is higher
Manganese	mg/L	383 or 20 times the 80th percentile of reference site concentration, whichever is higher
Mercury (inorganic)	mg/L	0.00123 or 20 times the 80th percentile of reference site concentration4, whichever is higher
Nickel	mg/L	0.223 or 20 times the 80th percentile of reference site concentration, whichever is higher
Selenium (total)	mg/L	0.13 or 20 times the 80th percentile of reference site concentration, whichever is higher
Silver	mg/L	0.0013 or 20 times the 80th percentile of reference site concentration, whichever is higher
Zinc	mg/L	0.163 or 20 times the 80th percentile of reference site concentration, whichever is higher
Total Petroleum Hydrocarbons	-	No detectable film or odour

5.4. Cover System Modelling

Environmental Geochemistry International (EGI) completed a conceptual cover system options assessment for the waste storage landforms planned for the Dianne Copper Mine which is outlined in this report (Environmental Geochemistry International, 2024). The intent of this conceptual cover system options assessment was to complete the following key tasks:

- Selection of appropriate cover type(s) for the climate regime prevalent at Dianne Copper Mine considering the site-specific climate classification, rainfall and evaporation.
- Conceptual development of three cover system layering options using reference material properties.

- 1D numerical modelling of the conceptual cover systems to assess performance.
- Preparation of a technical memorandum to document methods and key findings of the conceptual cover system and the preferred option.

5.4.1. Cover System Concepts

Considering the general objectives of the cover system and uncertainty of available materials, the focus of the preliminary modelling has been on three variations of a store and release cover over waste rock:

- Cover #1: Store and Release.
- Cover #2: Store and Release with Vegetation.
- Cover #3: Store and Release with Infiltration Barrier Layer.

The conceptual layering of these variations at closure is presented in Figure 34.

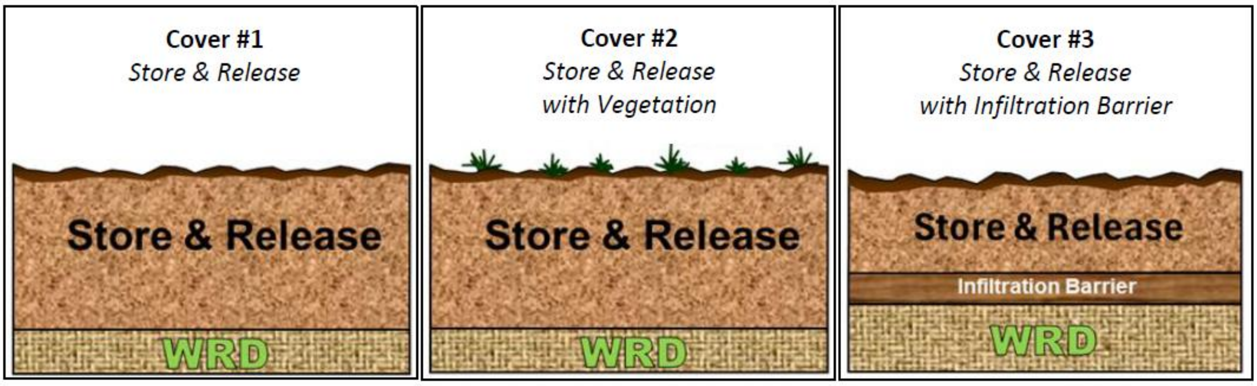


Figure 34: Closure Conceptual Layering for Modelled Store and Release Cover Variations

5.4.2. Modelled Climate Data

A SILO patch-point grid dataset between January 1971 and October 2024 was used to estimate average daily rainfall, evaporation, maximum temperature, and relative humidity. These conditions are shown in Table 12 and Figure 35. Based on the long-term data, a simulation period of five years was selected including:

- Three years of median rainfall and evaporation data resulting in development of a soil moisture condition likely to be representative of the long-term average soil moisture condition.
- One year of 'wet' rainfall data including a 5% annual exceedance probability (AEP) rainfall event to simulate cover performance under extremely wet conditions where a wetting front would be expected to move downwards towards the waste material.
- One year of 'dry' rainfall including 25th percentile rainfall to simulate cover performance under conditions where evaporation exceeds rainfall and the cover would be expected to 'release' moisture to the atmosphere.

Table 12: Simulated Climate Conditions for the Five-Year Modelling Period

Simulation Period (years)	Climate Type	Selected Year for Data	Rainfall (mm)	Evaporation (mm)
3	Median Rain	1997	957.2	1911.9
1	Wet (5% AEP)	1976	1457.8	1882.6
1	Dry (25 percentile Rain)	1993	683.1	2047.0

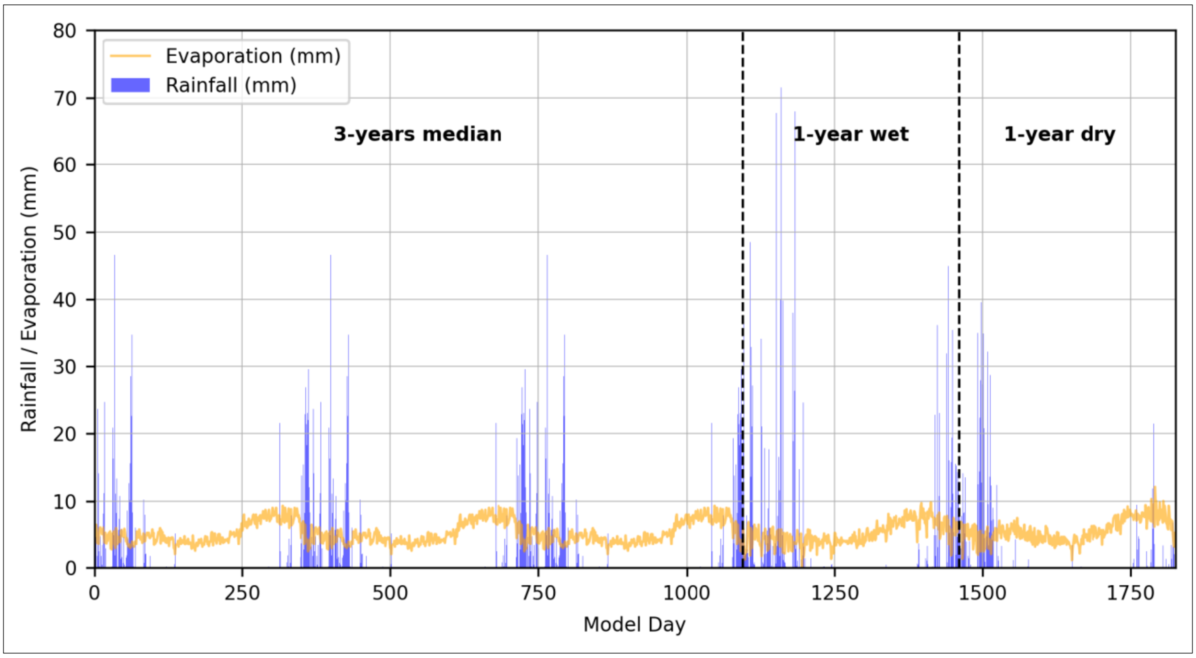


Figure 35: Modelled Climate Data

5.4.3. Model Selection

SoilCover is a 1D, finite element soil-atmosphere flux model that predicts the evaporative flux from saturated and unsaturated soil surfaces based on atmospheric conditions, vegetative cover, soil properties and antecedent soil conditions. It is an EXCEL VBA-driven product that uses input climate data (including precipitation, evaporation, relative humidity and temperature) to predict field responses from an in-place cover system on daily timesteps. Field responses refer to conditions that develop within the cover, including:

- changes in water content;
- changes in degree of saturation;
- changes in soil temperature;
- actual evaporation-transpiration from the cover;
- runoff; and
- water flow through the cover.

It should be noted that numerical modelling requires field validation, as discussed by Fredlund and Wilson (2006), to be confidently relied on for detailed design work. The authors state that case histories with sufficient field measurements are important as they provide confidence that the theories are being applied correctly in engineering design. In the absence of the validation process, it is possible for engineering design to develop a false confidence or become too optimistic in its predictions.

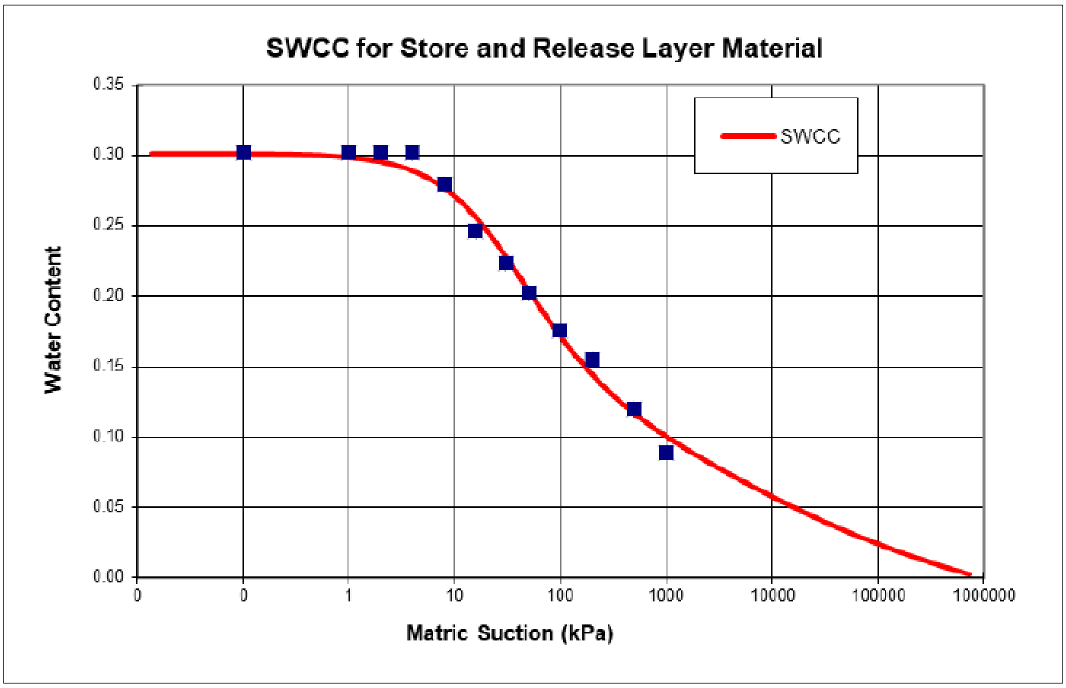
Due to limited site-specific information, SoilCover modelling was conducted using reference material properties. The input parameters for numerical modelling included the following:

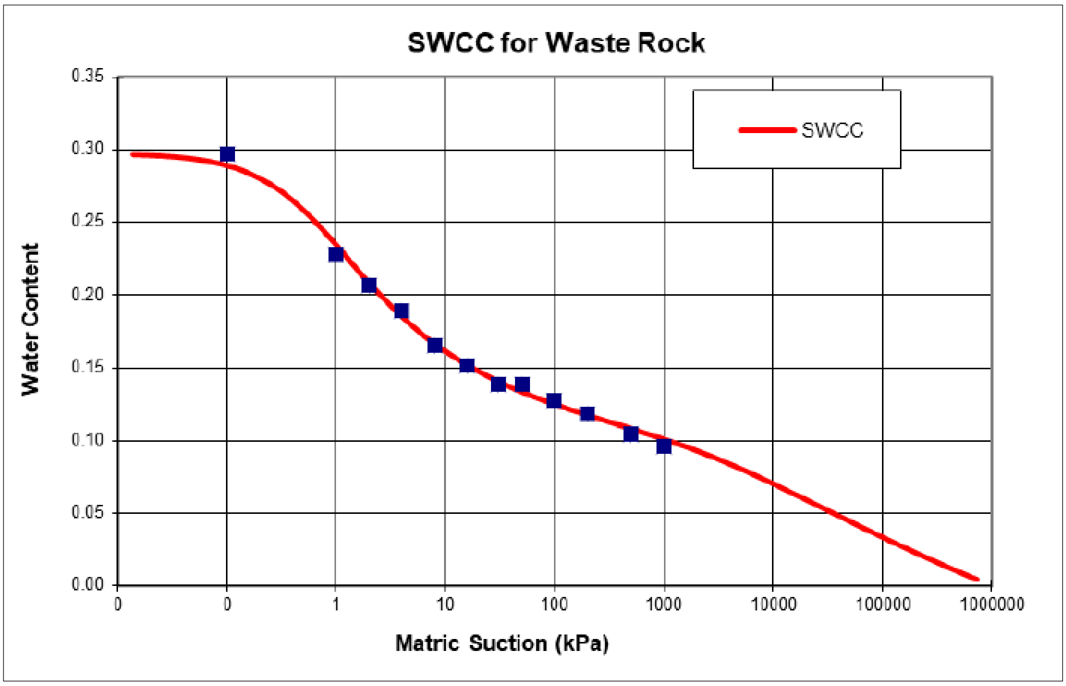
- The input porosity for the store and release the input porosity were typical values indicated in Morris and Johnson (1967).
- Soil water characteristic curves (SWCCs) for each of the cover materials were prepared using the SoilCover software's capability based on the particle size analysis for similar reference materials. Waste rock is considered highly variable material between sites and also within the same site, and therefore

the SWCC was sourced from EGi's internal database for the purpose of modelling. The SWCC curves are presented in Figure 36.

- The saturated hydraulic conductivity (Ksat) for the store and release cover material was set to 1 x 10-6 m/s based on field permeability tests for similar reference materials. For other materials, Ksat were used based on the typical values in Domenico and Schwartz (1990). Hydraulic conductivity functions for different materials are shown in Figure 37.
- Waste rock material was assumed to be dry at approximately 5% volumetric water content. Other cover materials were assumed to be placed at approximately 30% of the saturated moisture content.
- The model was run for five years with a daily timestep using the median annual precipitation and evaporation data applied for each year.
- The total depth of the store-and-release layer was modelled as 2 m for all cover options, while the infiltration model was modelled as 0.5 m for option #3.

For the infiltration analysis, it is assumed that the vegetation will have a growing season extended over most of the year and that, over time, a quality ground cover will establish. SoilCover's vegetation algorithm requires a Leaf area index (LAI) function which is an indication of how much radiation energy is intercepted by plant surface area versus ground surface area, shown in Figure 38. In addition, it was assumed the vegetation had a root depth of 2m. Model parameters are identified in Table 13.





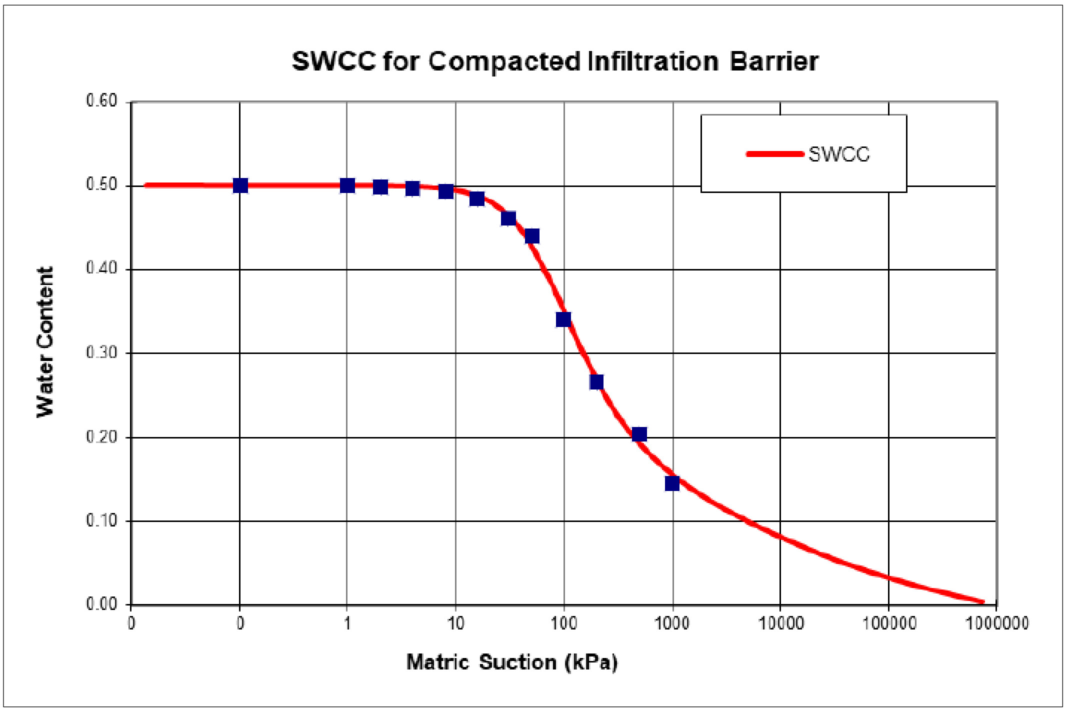


Figure 36: Soil Water Characteristics Curves (SWCC) Considered for Different Materials Used

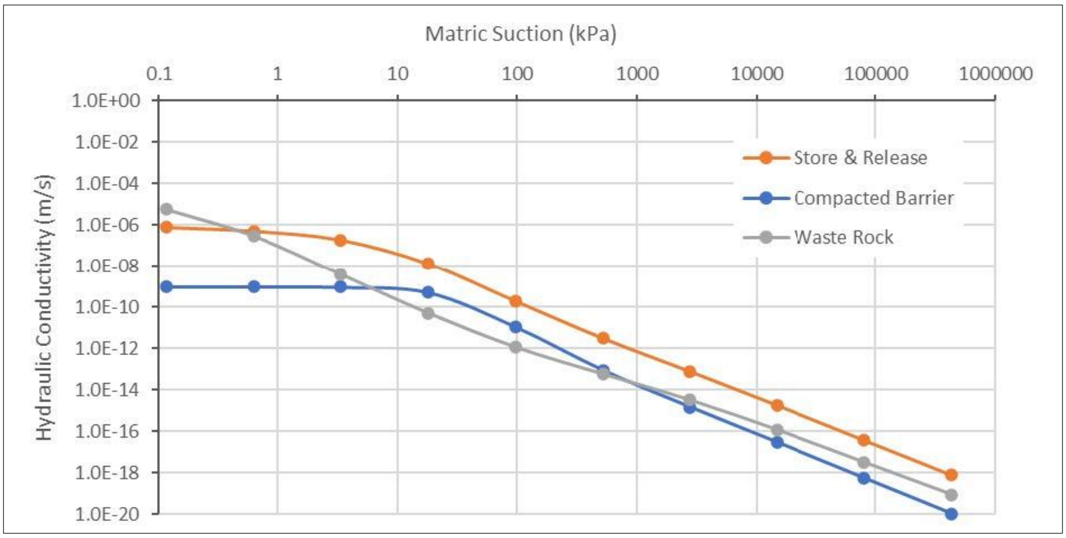


***Figure** 37: Hydraulic Conductivity Function for Different Materials*

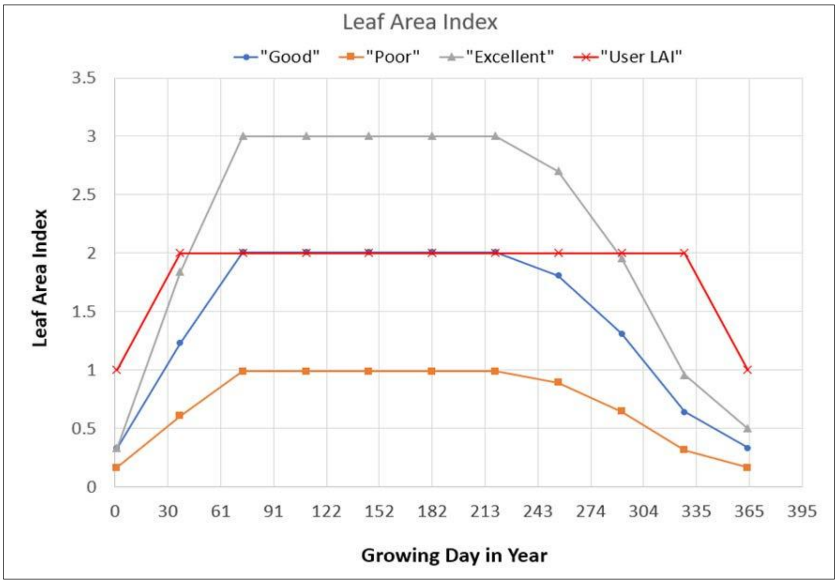


Figure 38: Leaf Area Index (LAI) Function Used for Vegetation

Table 13: Model Inputs for Different Materials

Cover/Waste Material	Saturated Hydraulic Conductivity K_{sat} (m/s)	Porosity or Saturated Water Content
Saprolite (silty sand) for store-and-release layer	1.0×10^{-6}	0.30
Clay for compacted infiltration barrier	1.0×10^{-9}	0.50
Waste rock	2.0×10^{-5}	0.29

5.4.4. Modelling Performance of Design Concepts

The cumulative flux comparison for all three modelled scenarios demonstrates the effectiveness of different cover systems (Figure 39 to Figure 41). These figures have data labels for flux values end of the final year of the five-year simulation. An average of the yearly flux for the final three years of each simulation (including one median, one wet, and one dry year) was used to estimate long-term repeating performance. Excluding the first two years from the flux calculation allows for uncertainties within the initial conditions to be smoothed. The seepage flux into the WRD decreased with increasing cover layer complexity as summarised in Table 14 and shown in Figure 39, Figure 40, and Figure 41.

Table 14: Seepage Flux into the WRD in Modelled Cover Systems

Cover/Waste Material	Total Seepage (5-year)	Annual Seepage (years 3 to 5)	Percentage of Total Rainfall as Seepage
Cover #1 - Store-and-release only	1189.5 mm	155.5 mm	23.7%
Cover #2 - Store-and-release with vegetation	747.0 mm	109.1 mm	14.9%
Cover #3 - Store-and-release with vegetation and infiltration barrier	39.5 mm	6.7 mm	0.0%

When compared to the total modelled precipitation, the results showed almost 25% of precipitation seeping into the WRD profile under the store-and-release cover only scenario, while seepage was reduced to 15% with the addition of vegetation. The addition of an infiltration barrier layer almost entirely eliminated seepage into the WRD.

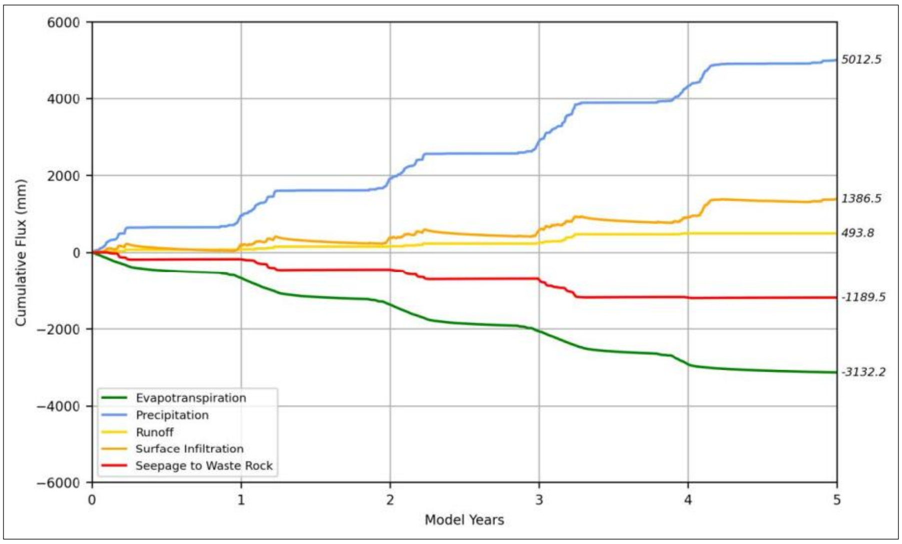


Figure 39: Net Cumulative Flux Comparison for Cover #1 (Store-and-release only)

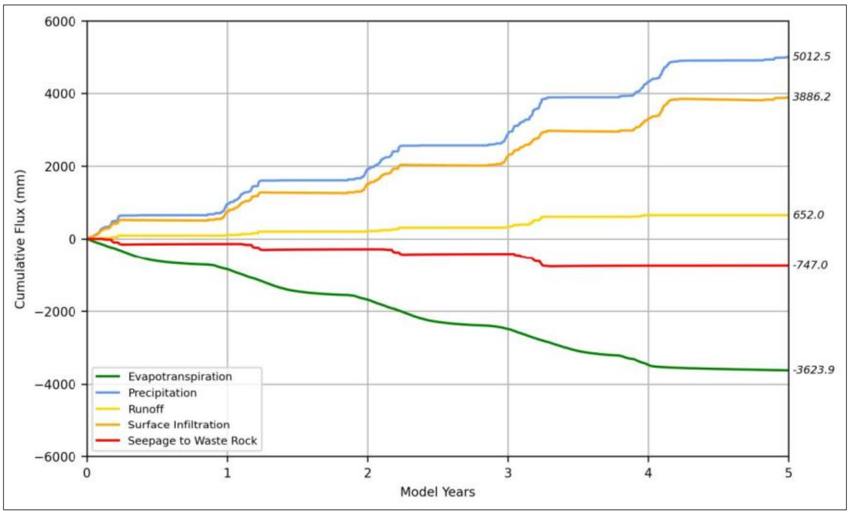


Figure 40: Net Cumulative Flux Comparison for Cover #2 (Store-and-release with vegetation)

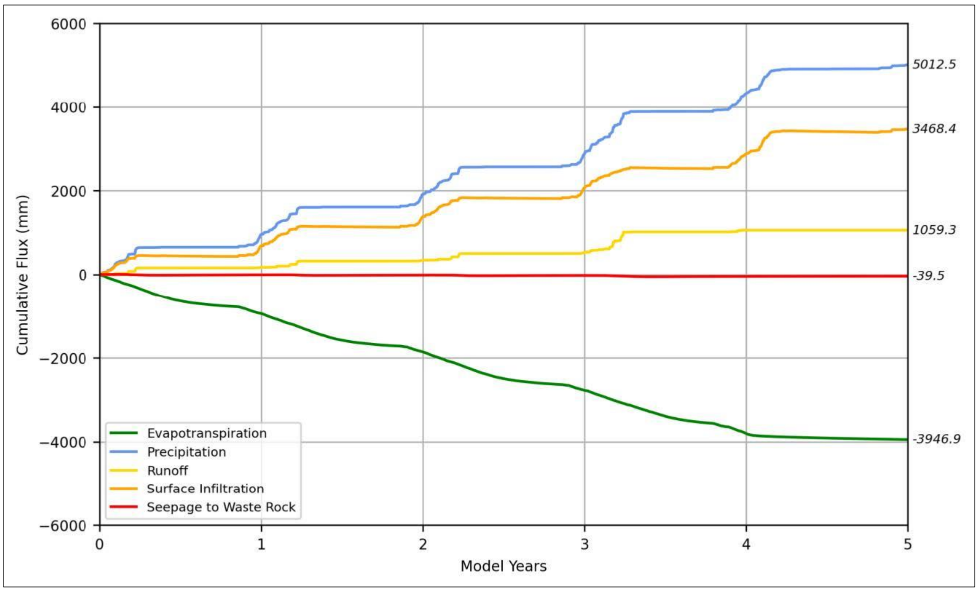


Figure 41: Net Cumulative Flux Comparison for Cover #3 (Store-and-release with vegetation and infiltration barrier)

5.4.5. Application Considerations

Selection of the most feasible cover option largely depends on the following considerations:

- Identification of suitable available materials
- Ease of construction with a preference for simple methods of emplacement
- Suitability of topsoil in terms of structural stability and growth media suitability
- Erosion characteristics of the waste rock / topsoil mulch layer
- Alignment with mine planning to minimise double handling of materials
- Transpiration properties of the vegetation in the rehabilitation layer
- Costs and effort pertaining to construction of the cover system.

The cover modelling shows that placement of a 2 m store-and-release cover using typical silty sand type material is predicted to reduce infiltration into the waste rock to 109.1 mm/yr (approximately 15 % of annual rainfall) as long as there is good vegetation established in the growth horizon (Cover #2). Much greater security can be achieved with a compacted infiltration barrier layer at the base of the store and release layer, which would help control high intensity and high duration rainfall events, and also account for the current uncertainty around re-vegetation effectiveness (Cover #3).

It has been found that for the purpose of an infiltration limiting cover at the Dianne Copper Mine over the modelled rainfall conditions for the tested concepts that:

- At this location, a store-and-release cover is recommended as a suitable cover option and is aligned with international best-practice guidelines (INAP 2009).
- Vegetation was found to be effective at enhancing the performance of the cover over the modelled period and aligns with the post mining land use objectives (revegetation with native plants).
- The store-and-release cover with an infiltration barrier (option #3) was the most effective at preventing water ingress into the underlying waste rock.
- A final mine waste landform cover design will seek to minimise the following:

- Convective oxidation of AMD waste rock and generation of high AMD loads through placement in short lifts.
- Rainfall infiltration through waste rock piles with AMD potential to limit transport of AMD products into downgradient receptors through construction of an infiltration control cover system.
- Capillary rise of salinity and/or metals and metalloids from the waste rock into rehabilitation growth horizons.
- Erosion of the cover layer leading to partial failure of infiltration control and associated sediment loadings to the surrounding environment.
- Geotechnical instability of the outer embankment materials.

- Improved estimates of both saturated hydraulic conductivity and soil moisture content of available material.
- Detailed calibration of seepage models and confirmation of design parameters (e.g., thickness, target compaction) for the store and release layer.

Following these investigations, the seepage model applied in this study will be calibrated to the estimated parameter values, including 20m benign waste rock cover and the concept design presented in this report confirmed or updated if required.

5.5. Method of Construction

The cover system will be placed on top of the final landforms of the waste rock stockpile and the backfilled pit void. The sites will be compacted and re graded precisely, measured by machine guidance on bulldozers, to achieve the specified final landform requirements of between 20 and 14 degree slopes on the waste rock stockpile, and 1 degree on the in pit waste rock stockpile.

The two metre store and release layer will be placed directly on top of the final landform, spread and graded using similar methods. A minimum of 0.2m of topsoil will cap the landforms, ensuring a growth medium with sufficient nutrients and structure to support plant life.

Quality assurance measures will be implemented throughout construction, including compaction testing and layer thickness verifications.

5.6. Suitable Vegetation

Rehabilitation species will include native grasses, cover crops for stabilisation, pasture grasses and native shrubs and trees. Revegetation species will align with those in the surrounding properties and include fauna habitat and other associated ecosystem services. Key flora species will be sourced from the Northern Queensland region (including Tropical Pasture Seeds Australia, Atherton, and Nutrien Ag Solutions, Tolga) and will include, where available:

- A mix of pasture species and native species present in RE 9.11.3a, 9.11.3b, 9.11.25 and 9.11.26a, and RE 9.3.14a in riparian areas including:
  - Eucalyptus and/or Corymbia open woodlands native tree, sub story and shrub species (including Melaleuca, Acacia and Petalostigma spp.);
  - Native grasses (including Heteropogan spp., mnesithea rottboellioides, themeda triandra, and Aristida spp.); and
  - Pasture species (including ryegrass, Rhodes grass and bluegrass).
- The seed mix specified will be revised for the PMLU native ecosystem areas (i.e. overburden stockpile, heap leach pads, and pit) to remove deep-rooting (>1.5 m) tree species and pasture species.

Seed will be direct seeded at a minimum application rate of 8 kg/ha. Direct seeding will occur at the commencement of the wet season following rainfall and prior to additional rainfall, where possible.

6. MONITORING, QUALITY ASSESSMENT AND QUALITY CONTROL MEASURES

Rehabilitation monitoring when filling the in pit waste rock stockpile includes:

- Survey of landform (e.g. LiDAR) to confirm pit is backfilled.
- Documentation of assessment of suitably qualified person that landform is geotechnically stable.

Rehabilitation of the waste rock stockpile includes:

- Survey of landform (e.g. LiDAR) to confirm that the overburden stockpile has been shaped per Final Closure and Landform Design.
- Documentation of assessment of suitably qualified person that landform is has a FOS of 1.5 or greater.
- Documentation of assessment of suitably qualified person that the cover system, per the Final Closure and Landform Design, has been installed.
- Documentation of ripping.
- Documentation of topsoil placement, including testing results to confirm suitability criteria have been met.

Maintenance will be undertaken where monitoring identifies any issues with rehabilitation where milestone criteria are not being met. Maintenance may be required due to milestone activities not achieving desired outcomes, or from natural disasters and other climate conditions, such as fire.

7. CERTIFICATION

Projectick certifies that this FL&CDR is feasible and meets the intent of the relevant approved EA conditions and DETSI Guideline: Progressive rehabilitation and closure plans (ESR/2019/4964). The qualifications of the personnel suitably qualified to certify this WRMP are provided below.

7.1. Suitably Qualified Persons – Dr Bryce Healy

Dr Bryce Healy MAIG is listed as the suitably qualified person for this plan and has substantially written components related to geology and waste and ore geochemical characterisation relevant to this FL&CDR. Bryce is an experienced project manager having led multi-disciplinary teams at project stages from early exploration, through feasibility and project development. This plan has been completed in conjunction with expert recommendations from content experts in adjacent disciplines, including geotechnical, hydrogeological, landform evolution modelling, environmental, and operational execution. The expert recommendations and opinions are utilised with reliance on their validity and appropriateness for the basis of the WRMP.

Bryce's experience relevant to the FL&CDR at Dianne mine, covers 23 years in geological and geochemical investigation and he has been the lead geologist for the Dianne project for 3 years.

7.2. Suitably Qualified Persons – Rob McCahill

Rob McCahill MAUSIMM is also signatory to this WRMP as founder and Managing Director of Projectick. Rob has 26 years of experience in the design, planning and construction of mines and quarries throughout most mainland Australian states and pacific nations, with most of that experience being in northern Queensland. Rob has verified that expert content in adjacent disciplines, including geotechnical, hydrogeological, landform evolution modelling, environmental, and operational execution has been incorporated into the FL&CDR. Projectick is providing project management, mine scheduling and civil engineering services to Mineral Projects for the project.

8. REFERENCES

Blackrock Mining Solutions (2025) Waste Rock Dump Geotechnical Stability Analysis, September 2025

BoM (2021) Climate Data Online. http://www.bom.gov.au/climate/data/

Capital Consulting Engineering (2025) Erosion and Sediment Control Plan

C&R Consulting (2025) Dianne Recommencement Project Soil Assessment

C&R Consulting (2021) Receiving Environment Monitoring Program (REMP): Design Document

Department of Environment and Science (2021) Environmental Authority EPML00881213.

Dianne Mining Corporation Pty Ltd (2016) Dianne Copper Mine Plan of Operations 2016 – 2019.

Dianne Mining Corporation Pty Ltd (2022) Dianne Copper Mine Progressive Rehabilitation and Closure Plan

Dianne Mining Corporation Pty Ltd (2024) Dianne Copper Mine Progressive Rehabilitation and Closure Plan

Dianne Mining Corporation Pty Ltd (2025) Dianne Copper Mine Progressive Rehabilitation and Closure Plan

Domenico, P. A., & Schwartz, F. W. (1990). Physical and Chemical Hydrogeology.

Engeny (2025) Dianne Copper Mine Water Management Plan

Environmental Geochemistry International (2024a) Conceptual Cover System Options

Environmental Geochemistry International (2024b) Mine Waste Management Planning Review

Gagen, Bagnall, O'Kane, Barritt, Dunlop and Purtill (2022) Best Practice Principles for Mine Waste Cover Systems and Mineral Mine Rehabilitation in Queensland

Geosciences Australia (2024) 2023 National Seismic Hazard Assessment for Australia

Goodman RE (1980) Introduction to Rock Mechanics, John Wiley & Sons, New York

Hawley M and Cunning J (ed) (2017) Guidelines for Mine Waste Dump and Stockpile Design, CSIRO Publishing & CRC Press

International Network for Acid Prevention (INAP), 2009. The Global Acid Rock Drainage Guide. Available at http://www.gardguide.com.

Morris, D.A. & Johnson, A.I., 1967. Summary of Hydrologic and Physical Properties of Rock and Soil Materials, as Analysed by the Hydrologic Laboratory of the US Geological Survey. USGS. Washington DC.

Office of the Queensland Mine Rehabilitation Commissioner, Mine waste cover system trials - a literature review: Technical Paper 1 (2025)

Office of the Queensland Mine Rehabilitation Commissioner, Mine waste cover system trials – a comparative review of case studies: Technical Paper 2 (2025)

Office of the Queensland Mine Rehabilitation Commissioner, Mine waste cover system trials – a leading practice approach for field-scale trials in Queensland: Technical Paper 3 (2025)

Projectick (2025) Dianne Copper Mine Final Landform and Cover Design Report

Queensland Government, Environmental Protection Regulation (2019)

Queensland Government, Statutory Guideline, Progressive Rehabilitation and Closure Plans (2024)

Trilab (2025) Slaked Durability Report No. 25090868-RSDI

MEC (2024), Dianne Copper Mine – Final Landform & Cover Design.

Engeny (2025), Water Management RFI Response.

C&R Consulting (2025), Hydrogeology RFI response.

projectick

creativity | rigour | confidence

Annexure A - Waste Rock Stockpile Geotechnical Stability Analysis

BLACKROCK MINING SOLUTIONS

TECHNICAL MEMORANDUM

To:	Revolver Resources Pty Ltd
Attention:	Pat Williams; Rob McCahill
Prepared By:	Ty Grantham (Principal Consultant)
Reviewed By:	-
Date:	01 October 2025
Memo Ref:	BMS-P24039C-PJT-DCM-M-3-V1.0
Subject:	Dianne Copper Mine – Waste Rock Dump Geotechnical Stability Analysis

1 INTRODUCTION AND OBJECTIVES

This memorandum presents the results of a geotechnical stability analysis for the proposed waste rock dump (WRD) for the Dianne Copper Mine (Dianne) carried out by Blackrock Mining Solutions (Blackrock), at the request of Revolver Resources Pty Ltd (Revolver).

The aim of the assessment was to assess the geotechnical stability of the proposed WRD final landform design.

This assessment follows on from the analysis completed by MEC in 2024. Additional analysis on geotechnical stability of the final landform has been completed including:

- **Potentially higher shear materials that could report to the WRD**. Sensitivity analyses were performed to assess a range of materials reporting to the WRD.
- **Appropriate search method for dumped materials on a sloped foundation**. Only the block search method is appropriate for the down slope orientation.
- **Phreatic conditions within the WRD**. A 5 m thick saturated basal layer was incorporated into the model.

1.1 Limitations

The geotechnical assessment does not consider future erosional or geomorphological processes that may affect geotechnical stability. Therefore, we would recommend further assessment be carried out if any significant change to the final landform occurs in the future due to erosional or geomorphological processes.

Additionally, it is suggested that a reasonable period for predictable long-term performance of the final landform is between 60 – 200 years (Simmons et al, 2024).

2 FACTOR OF SAFETY JUSTIFICATION

Factor of safety (FoS) is a key criterion which is dependent on the risk posed by the landform on the surrounding receptors. Typically, final landforms close to critical infrastructure or areas where human interactions occur require more rigorous design to minimise associated geotechnical risks.

Given the location of the Dianne site, the consequence of geotechnical instability in terms of human harm, environmental harm or property damage post mining is negligible, in accordance with the consequence assessment process outlined in the Guidelines for Assessment of Geotechnically Safe and Stable Post-Mining Landforms (2024).

In this case, a design acceptance criterion of FoS ≥ 1.3 is accepted as the critical minimum for long-term stability.

3 SLOPE STABILITY ANALYSIS

Limit equilibrium analyses were performed to determine the overall slope stability in terms of a Factor of Safety (FoS), which is a commonly employed measure in slope stability analysis to determine the likelihood of slope failure.

The FoS is generally a measure of driving forces versus resisting forces in a system, where a FoS of 1 equates to a 50% probability that failure will occur. FoS values > 1 are indicative of a system is likely to be stable.

Analyses were made for two representative cross-sections and were carried out using industry standard 2D limit equilibrium methods in Slide2 V9.039 (2025) developed by Rocscience.

The WRD design layout was provided by Revolver and selected section locations are shown in Figure 3-1.

The following methodology and assumptions were used for the assessment:

- Non-circular failure analyses using the Block Search and Auto Refine (where appropriate) algorithms and the General Limit Equilibrium method (GLE) for the slope failures.
- The FoS criterion for the assessed WRD slopes is determined as ≥ 1.3.
- A 5 m saturated basal layer is assumed.

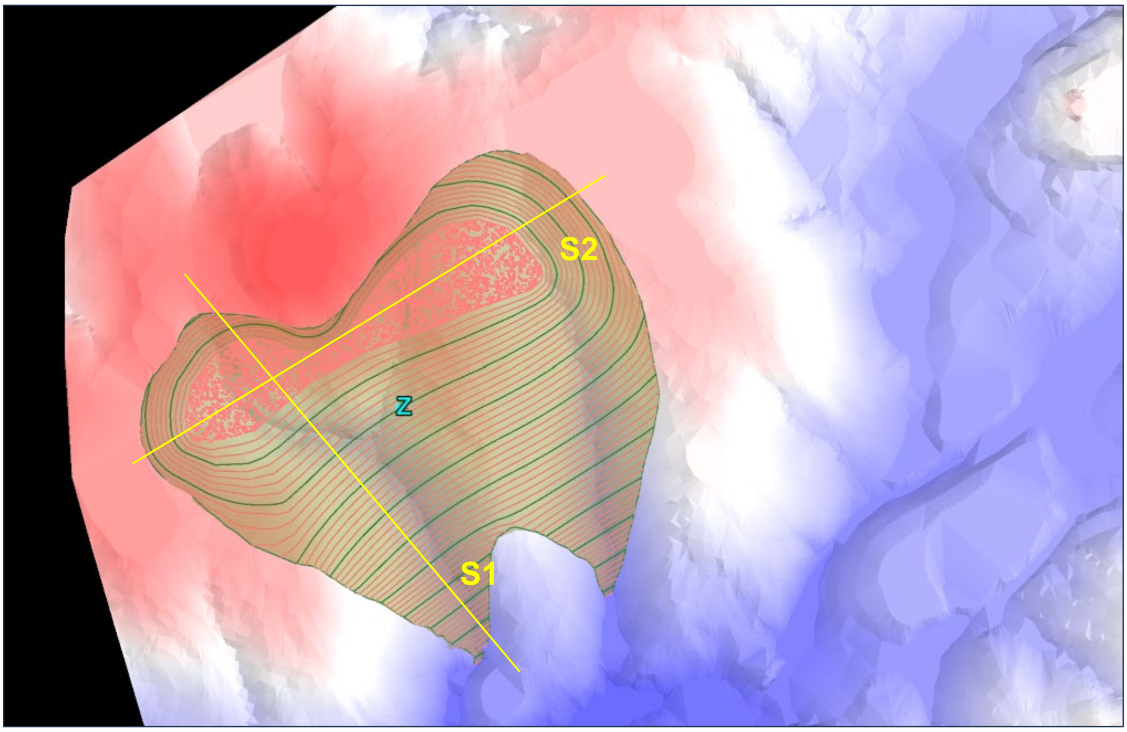


Figure 3-1: WRD Design Layout and Representative Sections

3.1 Material Properties

The current assessment is based on the same Mohr-Coulomb shear strength parameters and material types specified in the MEC (2024) report. Sensitivity analyses were also conducted on different waste rock categories following the strength framework suggested by Simmons & McManus (2004).

Figure 3-2 shows the basis for determining the different spoil categories and material properties. In this case, a Category 2.0 spoil was selected based on site observations and results of slake durability testing, which indicated the material has a high resistance to slaking.

Material properties are summarised in Table 3-1.

Figure 3-2: BHP Spoil Categories (Simmons and McManus 2004)

Table 3-1: WRD & Foundation Mohr-Coulomb Shear Strength Parameters

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Ru Value
Fresh Coal Measures		24	Mohr-Coulomb	450	42	Water Table	Automatically Calculated	
Unsaturated WRD_Cat2.0		18	Mohr-Coulomb	30	28	None		0
Weathered Sandstone		26	Mohr-Coulomb	27	27	Water Table	Automatically Calculated	
Slightly Weathered Siltstone/ Sandstone		27	Mohr-Coulomb	38	14	Water Table	Automatically Calculated	
Saturated WRD_Cat2.0		20	Mohr-Coulomb	15	23	Water Table	Automatically Calculated	

3.2 Slope Geometry

Figure 3-3 to Figure 3-4 show the representative section geometries as provided by Revolver.

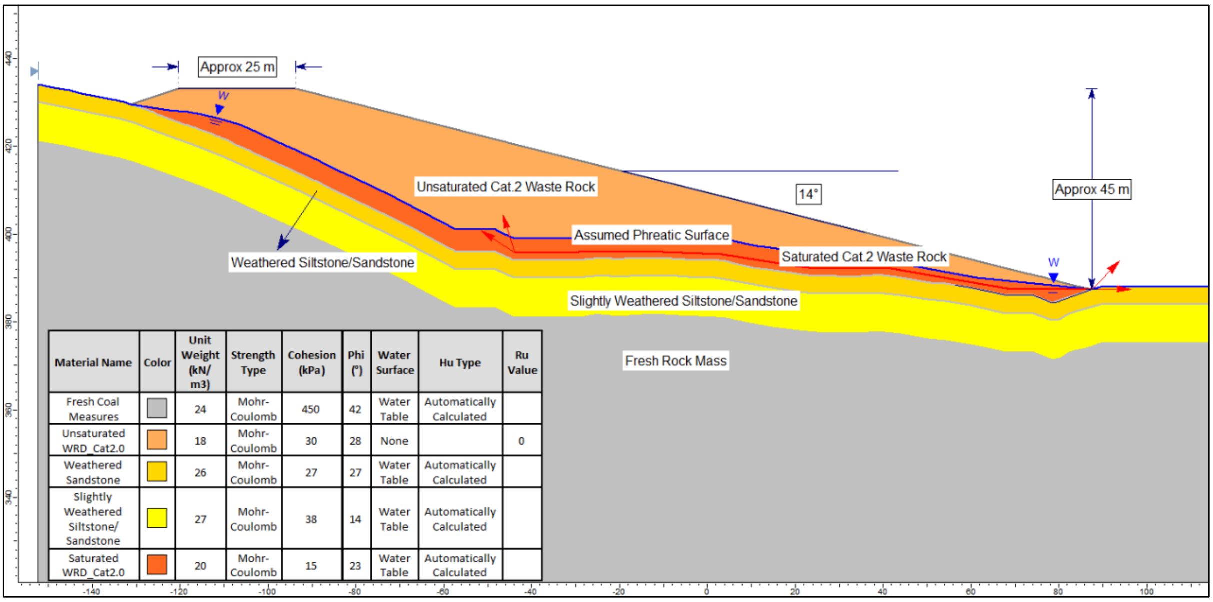


Figure 3-3: WRD - Section 1 (Final Landform Design)

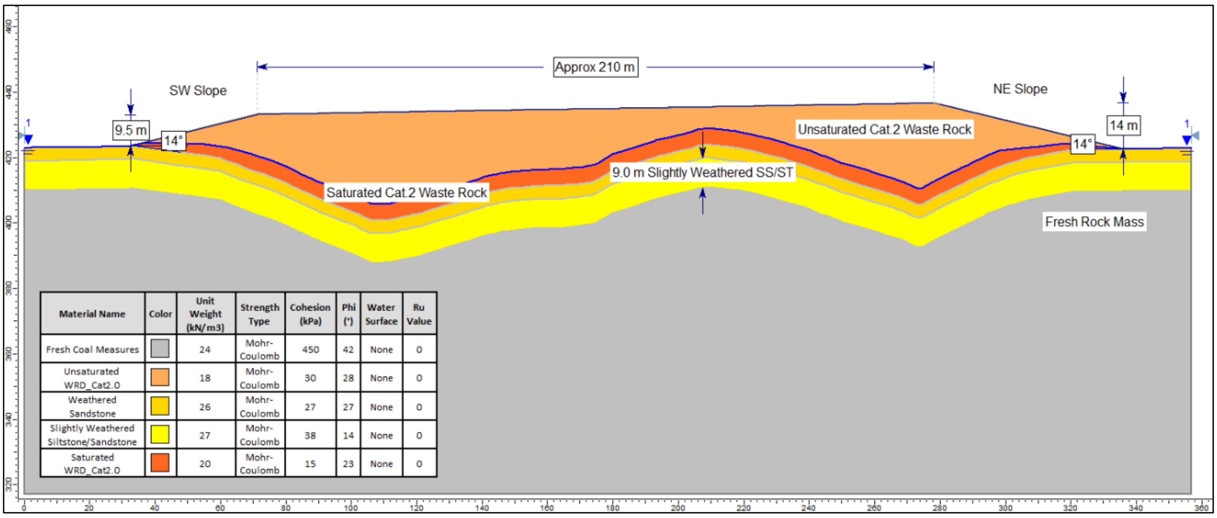


Figure 3-4: WRD - Section 2 (Final Landform Design)

3.3 Limit Equilibrium Analysis and Results

Limit equilibrium analyses were assessed in terms of a non-circular failure mechanism acting through the WRD and weathered rock foundation.

Based on the analyses results:

- Section 1 and Section 2 analyses indicate critical FoS values ≥ 1.3, which indicates that long-term geotechnical stability of the WRD, based on the assumptions.

The results of the limit equilibrium analyses are summarised in Table 3-2, and presented in Figure 3-5 to Figure 3-9 for different analyses scenarios.

Table 3-2: WRD Stability Analysis Results – Final Landform Design

Section	Failure Surface	Search Method	Material Category	WRD Height (m)	FoS
S1	Non-Circular	Block Search		45	**1.60**
S2 (SW)	Non-Circular	Block Search		9.5	**3.56**
	Circular	Auto Refine	2.0		**3.64**
S2 (NE)	Non-Circular	Block Search		14.0	**3.38**
	Circular	Auto Refine			**3.49**

GLE/Morgenstern-Price FoS reported; red FoS < 1; orange FoS <1.3; green FoS ≥ 1.3

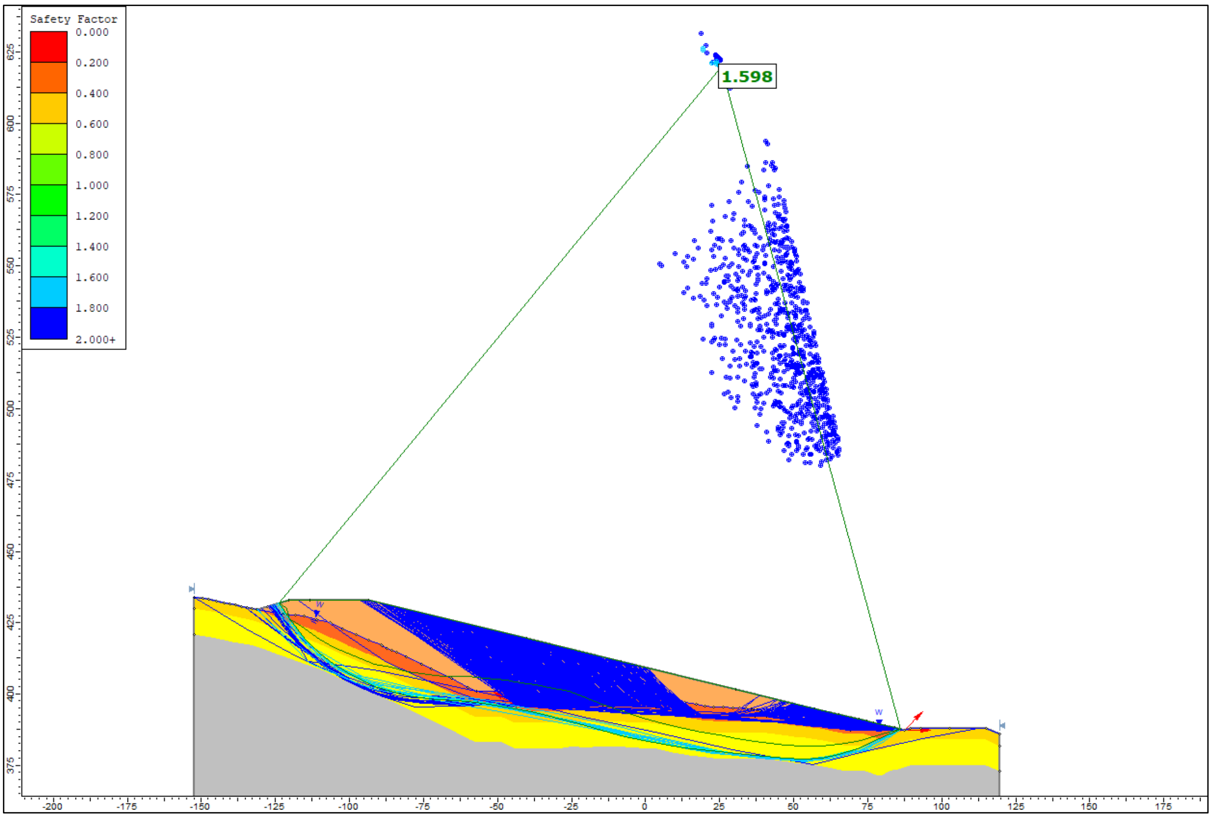


Figure 3-5: S1 Slope Stability Model Result – FoS = 1.60 - Block

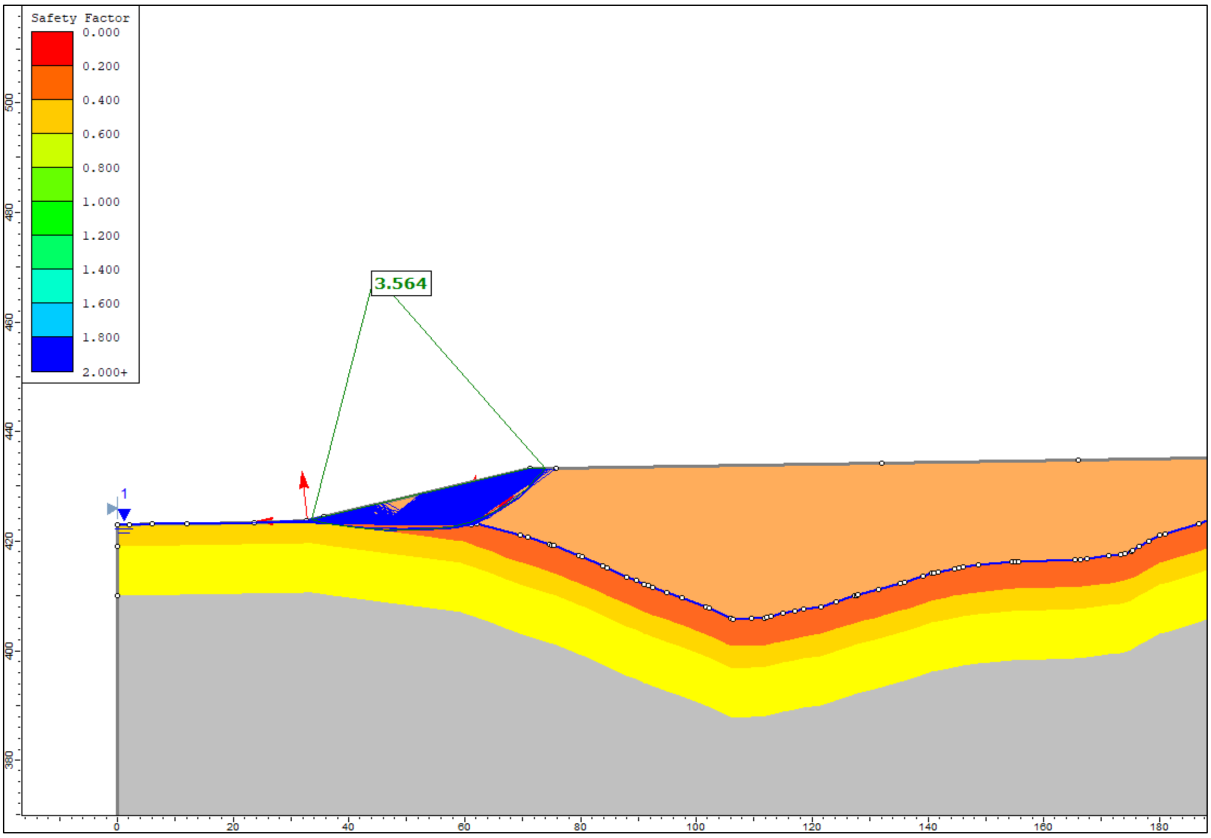


Figure 3-6: S2 SW Slope Stability Model Result – FoS = 3.56 - Block

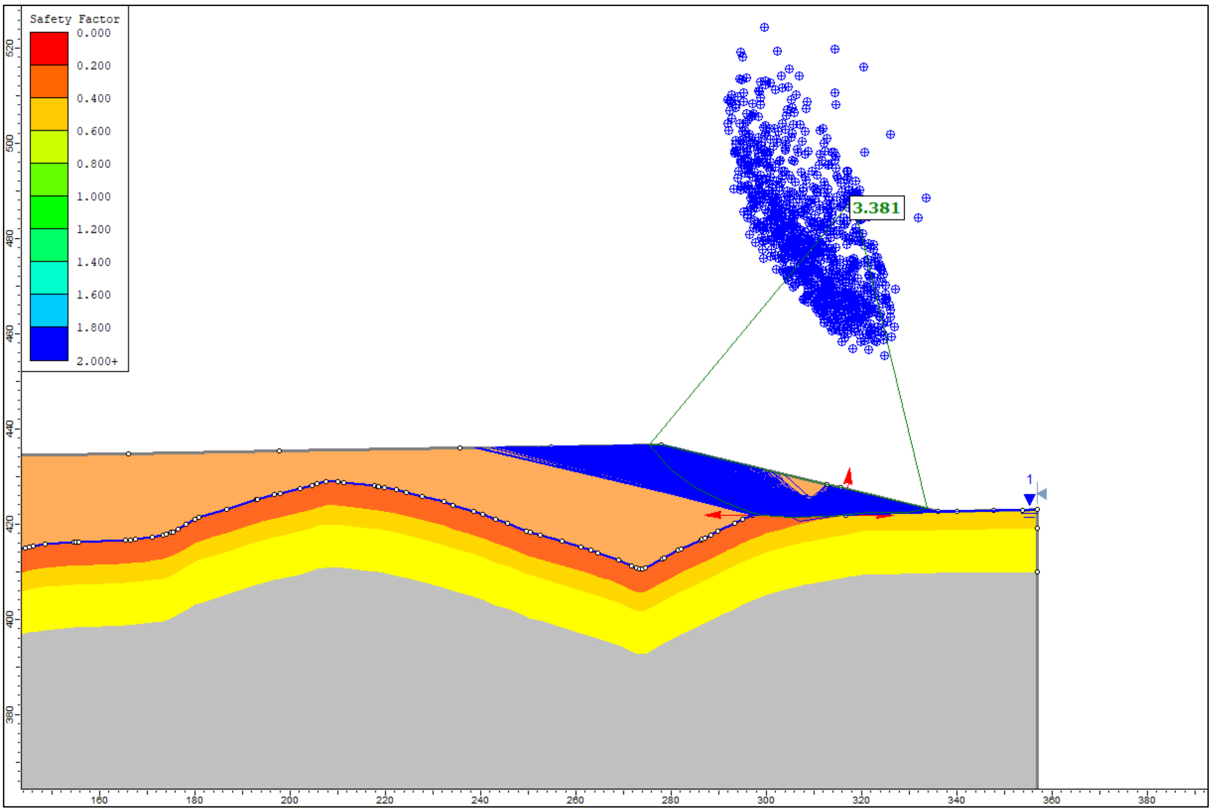


Figure 3-7: S2 NE Slope Stability Model Result – FoS = 3.38 - Block

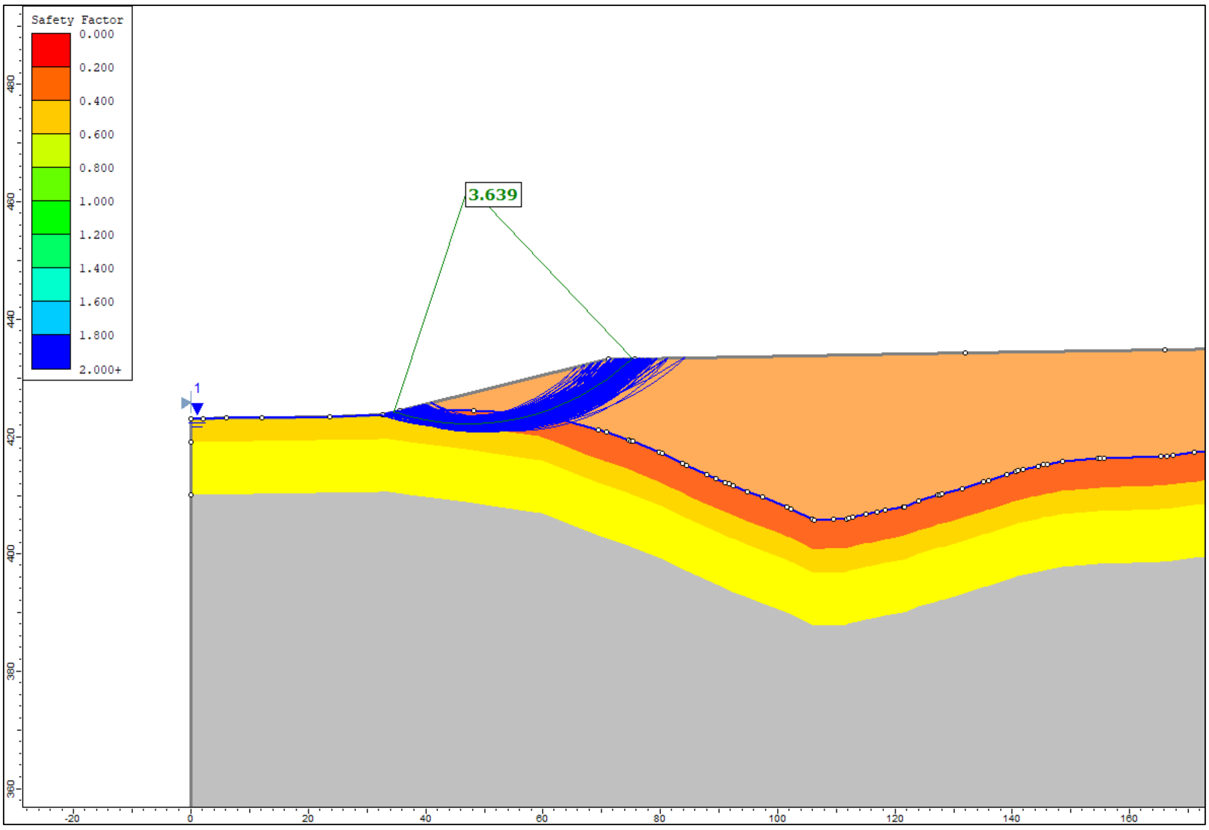


Figure 3-8: S2 SW Slope Stability Model Result – FoS = 3.64 – Auto Refine

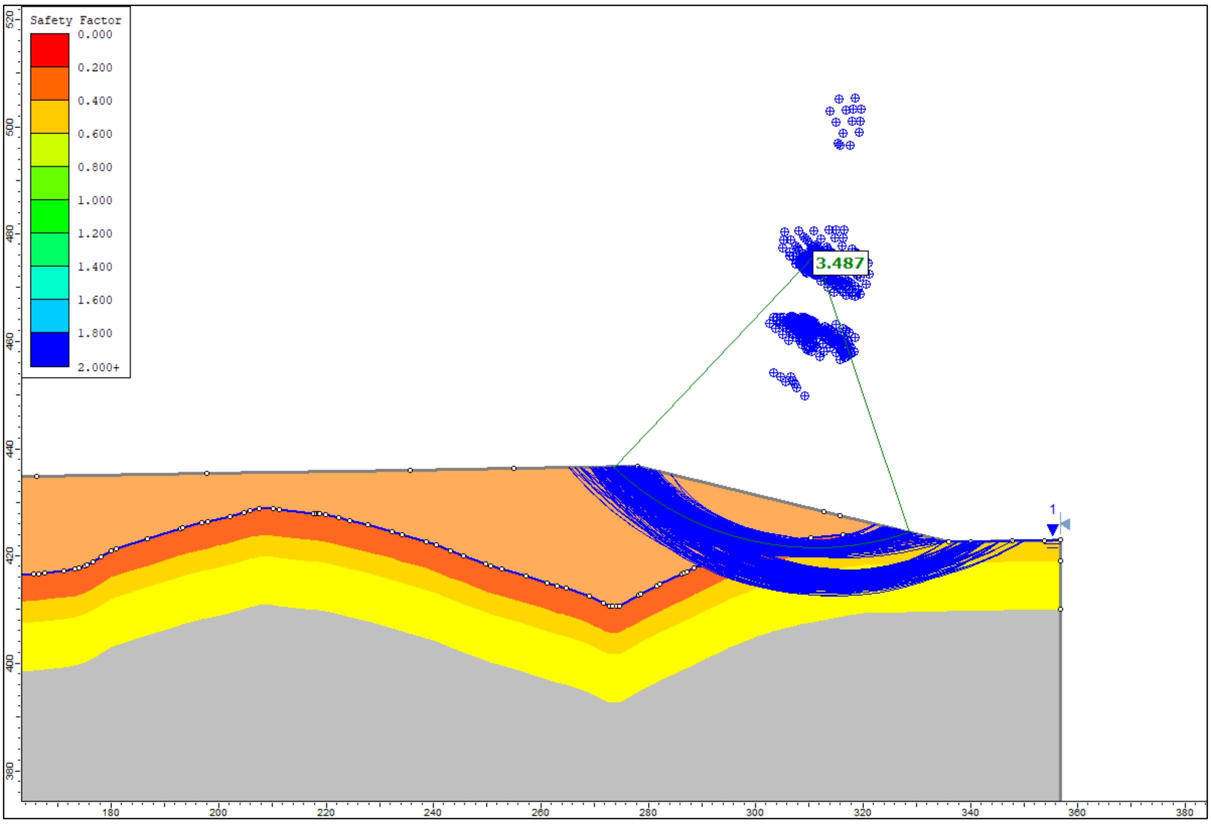


Figure 3-9: S2 NE Slope Stability Model Result – FoS = 3.49 – Auto Refine

4 CONCLUSIONS

Based on the assumptions, it can be concluded from the limit equilibrium analyses that:

- Final landform WRD design is likely to be long-term geotechnically, based on a Category 2.0 waste rock, and for different slope stability methods.

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REFERENCES

MEC (2024). "Dianne Copper Mine – Final Landform & Cover Design". Report No. MEC270003.

Simmons, J & McManus, D (2004). "Shear Strength Framework for Design of Dumped Spoil Slopes for Open Pit Coal Mines". Proceedings - Advances in Geotechnical Engineering. Skempton Conference, London, Volume 2, pp 981-991.