17.2 Appendix 2. Tailcon (2025a). TSF3 Detailed Design Report

02-Oct-2025

ROX Resources Limited

Youanmi Gold Project

TSF3 Design Report

Rev.3

[redacted]

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[redacted]

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List of Abbreviations

Abbreviations	Definition
AEP	Annual exceedance probability
AHD	Australian Height Datum
ANCOLD	The Australian National Committee on Large Dams
ARI	Average recurrence interval
ARR	Australian Rainfall and Runoff
BGL	Below ground level
BoM	Bureau of Meteorology
CoP	Code of practice
CPTu	Piezocone Penetration Test with pore pressure measurement
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety (Government of Western Australia)
DMPE	Department of Mines, Petroleum and Exploration (Formerly DEMIRS)
DFCC	Dam failure consequence category
DMP	Former name of DMIRS
DSA	Design storage allowance – an available volume provided in a dam before the onset of a wet season (1 November for Queensland) each year in order to prevent a discharge from that dam up to a specific annual exceedance probability (AEP).
DSCC	Dam spill consequence category
DWER	Department of Water and Environmental Regulation (Government of Western Australia)
ESS	Extreme storm storage – a storm storage allowance determined in accordance with the design criteria.
FoS	Factor of safety
GDA	Geocentric Datum of Australia
GSI	Geotechnical site investigation
ha	Hectare (1 ha = 10,000 m^2)
hr	Hour
IDD	In-situ dry density
IPCC	Intergovernmental Panel on Climate Change
LoM	Life of mine
LTD	Long-term drained
m	Metre
mm	Millimetre
MB	Monitoring borehole
MCE	Maximum credible earthquake
MGA	Map grid of Australia
MMDD	Modified maximum dry density
NAF	Non-acid forming
NOAA	National Oceanic and Atmospheric Administration
NSHA	National Seismic Hazard Assessment

Abbreviations	Definition
OBE	Operating basis earthquake
OMC	Optimum moisture content
PGA	Peak ground acceleration
PMF	Probable maximum flood
PSD	Particle size distribution
RL m	Reduced level in meters above AHD (mAHD)
RoR	Rate of rise
ROX	Rox Resources Limited
SEE	Safety evaluation earthquake
SG	Specific gravity
SMDD	Standard maximum dry density
SSP	Shared Socioeconomic Pathway
STU	Short-term undrained
tpa	Tons per annum
TPC / TailCon	TailCon Projects Consulting
TSF	Tailings storage facility
UUTX	Unconsolidated undrained triaxial test
WRD	Waste rock dump
yr	Year
YGP	Youanmi Gold Project

Executive Summary

In March 2025, ROX engaged TailCon Projects to progress the Youanmi Gold Project (YGP) Tailings Storage Facility (TSF) design report, with an emphasis on safe, sustainable tailings management over the Life of Mine (LoM)

The processing facility is designed to treat 1 Mtpa of ore over a 10-year LoM, using a flowsheet comprising crushing, grinding (P80 of 75 µm), sulphide flotation, ultra-fine grinding, thickening, Carbon-In-Leach (CIL) processing, and cyanide destruction via an air/SO_2 circuit prior to tailings deposition. Geochemical investigations confirm that all tailings and waste rock are Non-Acid Forming (NAF).

TSF3 is located within the existing project area, selected based on geotechnical suitability, storage requirements, proximity to the processing plant, and integration with the LoM plan. The facility has been designed with staged construction, integrated water management, and strategic siting to align with ongoing operational needs.

The proposed TSF3 includes a starter dam followed by five upstream raises, providing a total tailings storage capacity of 10.7 million tons. A summary of the storage capacity is provided in Table 0-1 below.

Table 0-1: Summary of TSF3 storage capacity

Stage	Lift RL (m)	Crest Width (m)	Lift Height (m)	Capacity (m^3)	Capacity (t)	Storage Life (Years)
Stater	462	12	8	1,492,590	2,164,256	2.16
Stage 1	465	8	3	1,281,499	1,858,174	1.86
Stage 2	468	8	3	1,307,488	1,895,858	1.90
Stage 3	471	8	3	1,165,705	1,690,272	1.69
Stage 4	474	8	3	1,112,294	1,612,826	1.61
Stage 5	477	8	3	1,044,182	1,514,064	1.51

The TSF3 has been designed in general accordance with the Department of Mines, Petroleum and Exploration (DMPE) guidelines, and the Australian National Committee on Large Dams (ANCOLD) guidelines. Based on these standards, the facility is classified as a ‘Category 1’ dam under DMPE, a ‘High C’ consequence category under ANCOLD.

The facility incorporates a centrally located rock ring structure designed to capture clean decant water, which will be abstracted to a designated return water dam. To promote effective tailings consolidation and maintain slope stability, the decant pond must be kept as small as practicable and located no closer than 100 metres from the embankments.

To support seepage control and maintain a well-drained facility, the design includes a seepage collection drain system equipped with a subsoil drain such as MegaFlow drainage system. Additionally, a cut-off trench is provided along the entire length of the embankment upstream toe, with a seepage interception drain installed along the east and south flanks to prevent lateral seepage outside the facility footprint. The existing waste rock dump slope located to the southwest corner will also be lined with a low permeability fill as the facility is raised. Additionally, a network of strategically placed Vibrating Wire Piezometers (VWPs) has been integrated into the design to monitor the development of the phreatic surface. These instruments will provide data for performance monitoring and inform the Trigger Action Response Plan (TARP).

Slope stability assessment confirms that both the starter dam and final elevation (Stage 5) meet the required Factors of Safety (FoS) under static and seismic conditions in accordance with ANCOLD guidelines. However, stability performance is dependent on the evolving geotechnical characteristics of the deposited tailings. As the facility progresses, in-situ investigations—such as Cone Penetration Testing with pore pressure measurement (CPTu) and laboratory testing of tailings samples—will be undertaken following the completion of the starter dam. These investigations will inform future design updates and refine the stability assessment for subsequent upstream rises. Further details on the TSF3 design and supporting analyses are provided in the main body of this report and drawings in Appendix A.

1 Design Considerations

1.1 Introduction

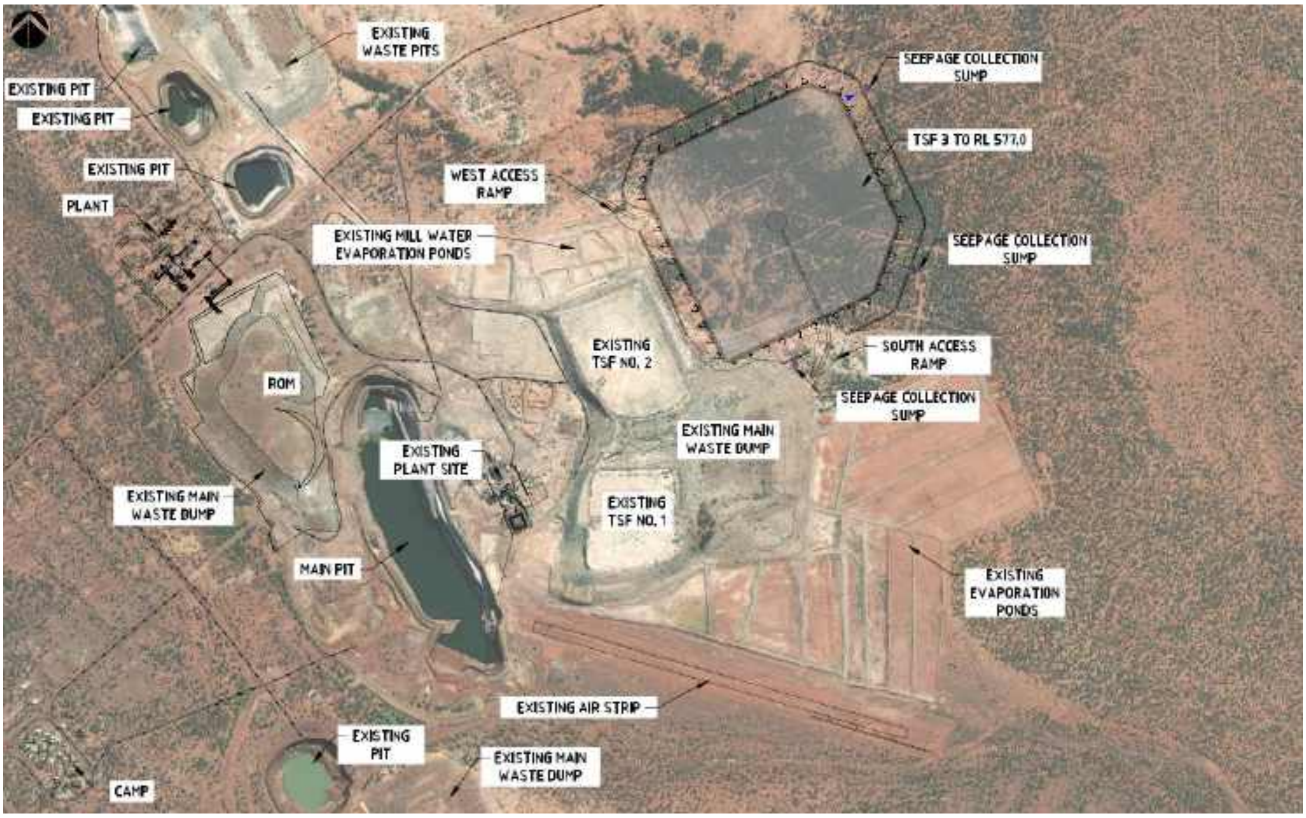
In March 2025, ROX engaged TailCon Projects to advance the TSF design report to an execution-level design, focusing on a safe and sustainable tailings management strategy for the Youanmi Gold Project (YGP).

The processing plant is designed for 1 Mtpa throughput over a 10-year Life of Mine (LoM). The flowsheet includes crushing, grinding (P_{80} 75 µm), sulphide flotation, ultra-fine grinding, thickening, Carbon-In-Leach (CIL) processing, and cyanide destruction via an air/SO_2 circuit prior to tailings deposition. Geochemical testing confirms all tailings and waste rock are Non-Acid Forming (NAF).

Tailings Storage Facility 3 (TSF3) will be located within the existing project area and has been sited based on storage requirements, geotechnical conditions, proximity to the plant, and alignment with the LoM plan. The design includes staged construction, integrated water management, and strategic placement to support future operations. Figure 1-1 illustrates the proposed TSF3 and associated infrastructure.

The proposed TSF3 consists of a starter dam and five subsequent upstream raises providing a life of mine tailing's storage capacity of 10.7 million tons. Detailed design assessments, configurations and staged storage capacities are presented in Section 2.

Figure 1-1: Youanmi mine site



1.2 Purpose and Scope

This Design Report presents the design and construction details for the proposed Tailings Storage Facility 3 (TSF3), developed to safely contain the Life of Mine (LoM) tailings from the Youanmi processing plant. The design has been undertaken in general accordance with applicable regulatory and industry standards, including the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS), and the Australian National Committee on Large Dams (ANCOLD) guidelines.

The report outlines the geotechnical, hydrological, and operational considerations informing the TSF3 design and provides the basis for its staged construction, water management strategy, and long-term performance.

1.3 Tenure and Site Conditions

1.3.1 Topography

The project area identified in the Pre-Feasibility Study (PFS) is a brownfield site characterized by significant surface disturbance. The natural topography is predominantly flat, with typical grades ranging from 2% to 3%. Since the project's inception in 1987, mining infrastructure has been developed, altering the landscape. Elevations within the proposed area vary from RL417 m to RL491 m, with the ground generally sloping to the southeast. The grades are steeper around the existing pits, TSF’s and waste dumps, but remain relatively flat elsewhere. This design will locate the facility in the same area, with a slightly larger footprint to accommodate increased throughput. It will be independent of TSF2, allowing for potential future re-mining of TSF2.

1.3.2 Geology

The Youanmi Gold Deposit is located in the central part of the Youanmi Greenstone Belt, in the Southern Cross Province of the Archaean Yilgarn Craton in Western Australia. The greenstone belt is about 80km long and 25km wide and incorporates the Youanmi Shear Zone, a major crustal-scale structure trending NE and most likely a source of hydrothermal fluids throughout the region.

The Mine Area geology consists of a north-to-north-northwest trending greenstone succession comprising strongly magnetic tholeiitic basalt, sheared basalt, banded iron formation, and mafic schist. The greenstone succession is bounded to the east by an adamellite batholith called the Youanmi Granite.

1.3.3 Climate and Rainfall

The site is in a region with a Köppen climate classification of Grassland, hot (summer drought). Daily historic hydrological data were obtained from the Scientific Information for Landowners (SILO) database for use in deriving the baselineclimatology and the Bureau of Metrology (BoM). The SILO data is based on the available climatic records around the site area at the grid of (118.85°E, 28.60°S). The closest weather station to the site is Sandstone (012072).

The average annual rainfall for the project area is 283.0 mm/yr. The average yearly pan and lake evaporation are 2,776 mm/yr and 1,788 mm/yr, respectively. Table 1-1 and Table 1-2 summarize the rainfall and evaporation data.

Table 1-1: Rainfall and Evaporation Conditions

Month	Average Precipitation(mm)	Pan Evaporation (mm)	Lake Evaporation (mm)	Pan Factor
Jan	27.9	402	225	0.56
Feb	37.2	322	193	0.60
Mar	33.7	288	189	0.66
Apr	17.6	188	135	0.72
May	18.0	125	92	0.74

Month	Average Precipitation(mm)	Pan Evaporation (mm)	Lake Evaporation (mm)	Pan Factor
Jun	22.1	86	64	0.75
Jul	21.7	90	67	0.75
Aug	13.8	122	90	0.74
Sep	6.7	180	130	0.72
Oct	7.8	265	180	0.68
Nov	12.2	322	200	0.62
Dec	12.4	384	222	0.58
Total/Annual	**283.2**	**2,776**	**1,788**	**0.64**

Table 1-2: Annual Exceedance Probability (AEP) Storm Events for YGP (BoM, 2016)

Duration (hours)	100-year ARI (mm)
24	156
72	205

1.3.4 Climate Change

Climate change factors were applied to total design rainfall depths in accordance with Australian Rainfall and Runoff (ARR) v4.2 (Chapter 6.4.1). The adjustment is based on a temperature-dependent scaling method using two key parameters:

- α (rate of change): A value of 8 was selected, representing a medium-range estimate for rainfall durations ≥24 hours.
- ΔT (global mean surface temperature projection): A value of +1.2 °C was adopted for the 2021–2040 period, consistent with Intergovernmental Panel on Climate Change (IPCC) projections under all but the most extreme scenarios and within the LoM.

The climate change multiplier was calculated in Table 1-3 as 1.097, then the total rainfall depths for long-duration events after applying this factor are compared in Table 1-6.

Table 1-3: Annual Exceedance Probability (AEP) Storm Events for YGP (BoM, 2016)

Item	Value	Remark
α	8 %/°C	Medium estimate of rate of change for rainfall durations ≥24 hours
ΔT	+1.2 °C	ΔT (2021–2040) vs 1961–1990 baseline under selected SSP(s)
Climate Change Multiplier	1.097	(1+ α/100) ^ ΔT=1.08^1.2

Table 1-4: Annual Exceedance Probability (AEP) Storm Events for YGP (BoM, 2016)

Duration (hours)	100-year ARI (mm)	100-year ARI under climate change (mm)
24	156	171
72	205	225

Additionally, National Oceanic and Atmospheric Administration (NOAA) data cited in ARR v4.2 shows the 1951-2020 (covering later temporal range of ARR dataset) mean temperature is ~0.2 °C warmer than the 1961-1990 baseline, suggesting the climate factor may be slightly overstated. While adjusting ΔT from 1.2 °C to 1.0 °C yields a lower multiplier of 1.08, the full value of 1.097 was ultimately adopted to support a more conservative design outcome.

1.3.5 Hydrology

The proposed TSF3 is a paddock-style impoundment located within the Youanmi project area. The local catchment experiences episodic rainfall, with surface water flow typically occurring during short, intense storm events. A small ephemeral creek, which only flows during rainfall events, currently crosses the TSF basin.

To prevent external water from entering the facility, this minor floodwater flow path will be re-directed around the north-eastern side of the TSF. The diversion works will be completed during the initial construction and topsoil stripping phase, prior to any tailing's deposition. This will ensure the facility remains isolated from catchment runoff and external floodwater.

The TSF will operate with a minimal decant pond, and internal water will be managed via a central rock ring decant system, directing water to a return water dam. The design also includes a seepage collection drain to manage phreatic surface development and support effective tailings consolidation. Additionally, a cutoff trench with seepage interception drain is also included to minimise lateral seepage outside the facility footprint.

1.3.6 Seismicity

Peak ground accelerations were interpolated from the updated seismic hazard mapspublished by Geoscience Australia, 2018. The interpolation indicates peak ground acceleration (PGA) values for a range of return periods, summarized in Table 1-5.

Table 1-5: Peak Ground acceleration Values for YGP (Geoscience Australia, 2018)

Return Period	PGA Value
1:475 AEP	0.0147 g.
1:1,000 AEP	0.0246 g
1:2,475 AEP	0.0457 g
1:10,000 AEP	0.12 g

1.4 Tailing Properties

1.4.1 General

Two 10L bucket dry tailings representative of the YGP tailings were provided to the E-precision laboratory for testing. The samples were prepared at 45% solids content using normal tap water.

1.4.2 Particle Size Distribution and Atterberg Limits

A sample of the YGP tailings was sent to E-precision laboratory for testing. Particle Size Distribution (PSD) and Atterberg Limits are summarized in Figure 1-2 and Figure 1-3, respectively.

The result indicates that the YGP tailings are sandy silt with trace clay with a plasticity index (PI) of 11.2 %. The tailings exhibit a linear shrinkage of 5.4 % and a shrinkage limit of 19.4%.

Figure 1-2: YGP Tailings Particle Size Distribution

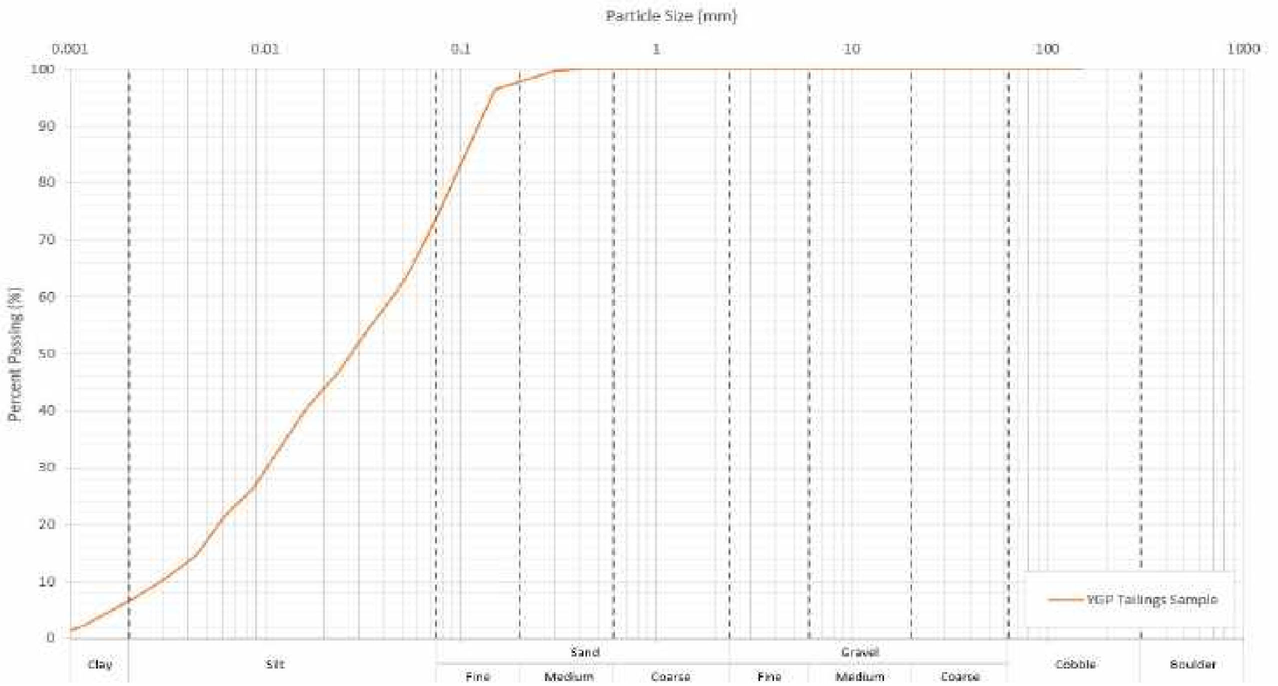
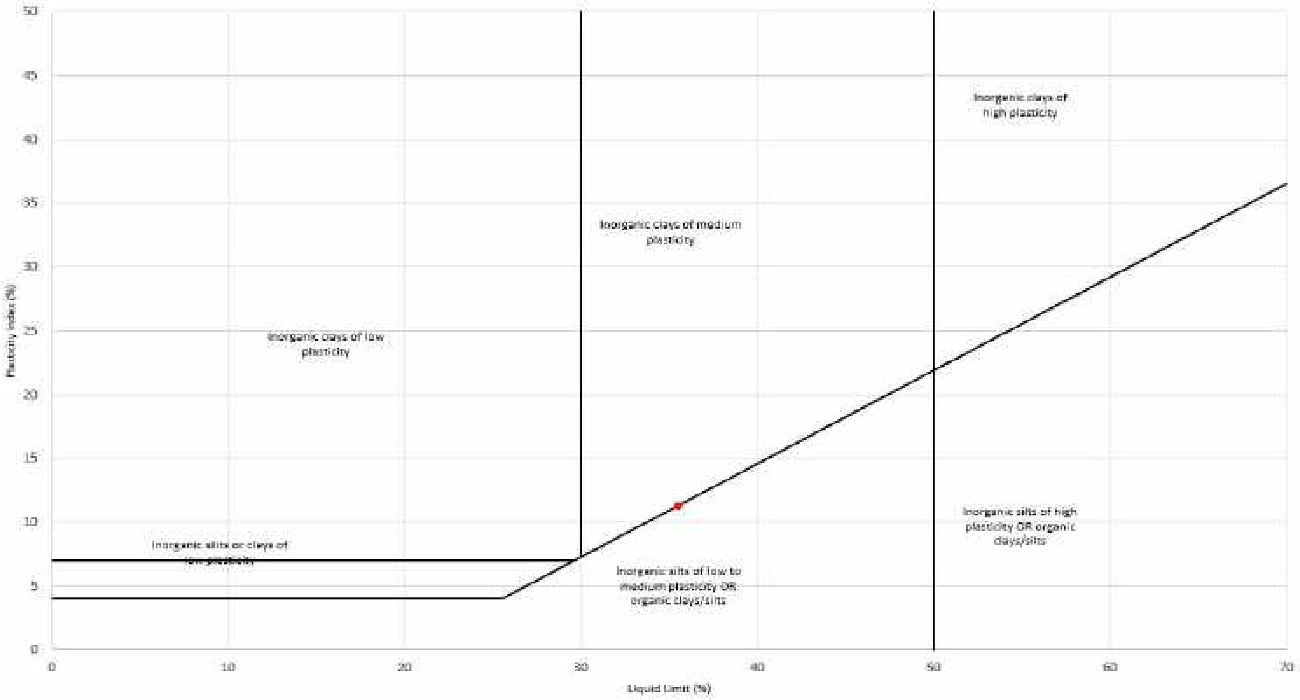


Figure 1-3: YGP Tailings Atterberg Limits



Detailed lab test results are presented in Appendix D.

1.4.3 Settlement Test

The objective of the settling test is to monitor the tailings settlement and the development of clear supernatant water under undrained and drained conditions.

In the undrained settling test, free water is measured on top of the tailings sample where supernatant water develops. By monitoring the supernatant water, the percentage of water recovered with respect to the initial volume of water in the slurry can be determined. This measure provides an indication of how much water will be available for recovery and the speed at which this water is released.

The objective of the drained settling test is to monitor the tailings settlement and the development of clear supernatant water under drained conditions. In the drained settling test, water was removed through the base of the test cylinder and measured on top of the tailings where supernatant water was developed. By monitoring the underdrainage and supernatant, the percentage of water recovered with respect to the initial volume of water in the slurry can be determined. This measure provides an indication of how much water will be available for recovery and the speed at which this water is released.

A summary of the drained and undrained settlement test results is provided in Table 1-6 below. Laboratory test results are presented in Appendix D.

Table 1-6: Summary of YGP tailing settlement test result

Test Type	Solids Content (% w/w)	Settled Dry Density (t/m^3)	Supernatant Water (%)	Underdrainage Water (%)
Undrained	45	1.15	57	-
Drained	45	1.40	35	31

The settling test result indicates rapid settlement where a peak settled dry density of 1.15 t/m^3 and 1.40 t/m^3 for drained and undrained tests are achieved in 100 minutes and 200 minutes, respectively.

The TSF is expected to perform predominantly as a drained system. Supernatant water will report to the decant location, while underdrainage will collect at the base of the facility. TSF3 is designed with an underdrainage collection system and a cut-off trench incorporating a seepage interception drain, directing seepage to a sump for recycling.

Based on laboratory test results, the facility is expected to recover approximately 35% of slurry water via the decant rock ring and around 31% through the underdrainage system, with tailings achieving a peak settled dry density of about 1.40 t/m^3. In practice, these proportions may vary. With effective deposition management, a greater proportion of water is likely to report to the decant pond, reducing underdrainage recovery.

In the reality of operations, the density of tailings and supernatant water will be driven by deposition strategy, beach formation and segregation of tailings. An optimal deposition strategy can ensure uniform beach formation, maximize decant water through a rock ring structure and hence well consolidated tailings over time.

1.4.4 Air Drying Test

An air-drying test is carried out on a tailings slurry sample to determine the effect of natural drying on the tailings after initial settlement and removal of supernatant water, thereby simulating conditions expected following sub-aerial deposition. Continuous monitoring of the weight and volume of the specimen is carried out to quantify the relationship between dry density, moisture content, volumetric change, and the degree of saturation of the tailings.

The result indicates that peak dry density can be achieved after approximately 7 days, refer to Appendix D for results. It should be noted that the air-drying results do not account for summer/winter cycles and are conducted at 60° C for the duration of the test.

The results must be interpreted with consideration given to day and night cycles and seasonal temperature fluctuations. It is important to note that this assumes that tailings are allowed to dry in cycles by means of multipoint spigotting.

1.4.5 Tailings Geochemical

Geochemical analyses of the tailing's solids were completed by JT Metallurgical Services in March 2024. The testing indicated that the tailings had a low level of enrichment, with chromium being slightly enriched, molybdenum moderately enriched, and antimony highly enriched. The tailing solids have a low total sulphur content (predominantly as sulphide), with some acid neutralizing capacity, and therefore are expected to be non-acid-forming (NAF). Further geochemical testing of in-situ tailings is recommended during early-stage operations of the facility.

1.4.6 Geotechnical Investigations

A geotechnical site investigation consisting of three boreholes and twenty-two test pits across the proposed TSF3 footprint was completed in May of 2025. The geotechnical findings were summarized in a report and are attached as Appendix C.

1.5 Sub-surface Geotechnical Condition

Based on the recent comprehensive geotechnical site investigation (TailCon, 2025), the proposed TSF3 sub-surface profile is as follows:

- 0.1–0.3 m – Topsoil
  Top layer comprising brown, slightly moist, sandy and gravelly silt/clay with roots. The topsoil is typically firm to stiff and of low plasticity.
- 0.3– (0.8 to 11.9) m – Colluvium / Ferricrete (Wiluna Hardpan)
  Underlying the topsoil is a zone of colluvium and or the Wiluna Hardpan, consisting of sandy, gravelly, and occasionally cobbly silt/clay. Material is commonly red brown to orange, brown in color, with variable degrees of cementation. Consistency is stiff to very stiff, with strength ranging from hard to very hard. This unit generally extends to refusal depths between 0.6 m and 1.2 m in most test pits.
- > (0.8 to 12) m – Weathered Bedrock
  The nature of the underlying rock varies laterally across the site:
  - In the western portion (adjacent to TSF2), the bedrock is typically highly weathered granite, occasionally encountered as early as 0.8 m depth.
  - Moving eastward, a Ferricrete hardpan transitions into silcrete before reaching residual basalt, as observed in BH03 (Ferricrete to 2.65 m, Silcrete to 11.9 m, then Basalt from 12 m to EOH).
  - Notably, BH02 reportedly encountered a thick sequence of decomposed bedrock extending to 30 m, with SPT N-values indicating the material is stiff to very stiff to hard.

1.6 Retaining Structure

The proposed TSF3 embankment structure comprises two distinct material zones, a cut-off trench, and an upstream seepage collection drain, as illustrated in Figure 1-4.

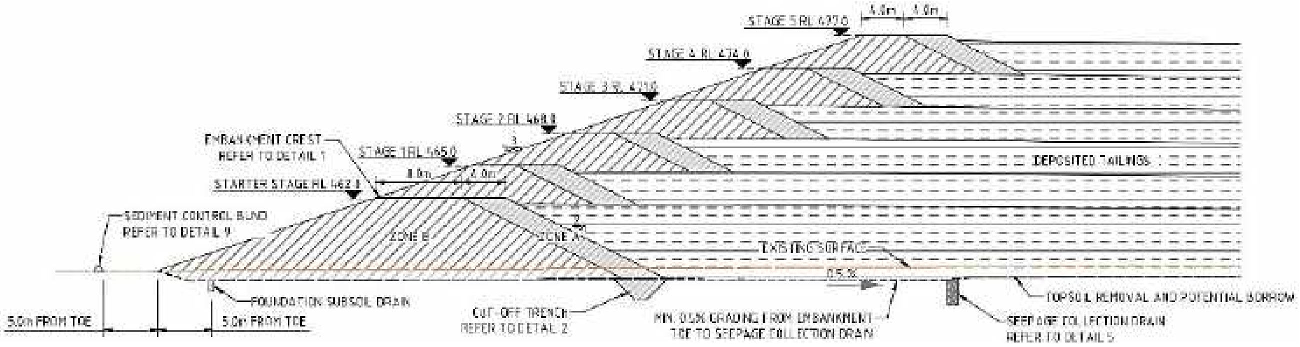
- Zone A will function as a low-permeability clay liner, compacted to 98% of the Standard Maximum Dry Density (SMDD). Zone A material is to be sourced from the facility basin or from a dedicated borrow pit, subject to laboratory testing.
- Zone B will be constructed using mine waste material, expected to consist of sandy and gravelly clay with cobbles, compacted to 95% SMDD. Zone B material is to be sourced from

the mine waste dump adjacent to the facility or from the Bunker Dump, subject to laboratory testing.

Material properties will be confirmed prior to construction, following laboratory testing on representative samples.

The starter embankment will have a maximum height of approximately 6.7 m, while the final raise to RL 477.0 m will reach a total height of approximately 21.7 m above natural ground level.

Figure 1-4: YGP TSF3 proposed Retaining Structure



2 Facility Design

2.1 Design Codes, Standards, and Guidelines

The design and management of the proposed TSF3 are guided by the following key documents:

- DMPE Code of Practice (Formerly DEMIRS)– Tailings Storage Facilities in Western Australia (2013): Outlines regulatory requirements and best practices specific to the design, operation, and closure of TSFs within Western Australia.
- ANCOLD Guidelines on Tailings Dams – Planning, Design, Construction, Operation and Closure (Revision 1, July 2019): Provides comprehensive guidance on the lifecycle of tailings dams, incorporating updates to align with current design loadings and international best practices.

2.2 Basis of Design

2.2.1 Environmental Considerations

The design of the proposed TSF3 has considered the following environmental aspects:

- Perimeter embankments are to be designed for full containment of tailing solids during its operational phase and post closure.
- The facility has been designed, as far as practicable, to ensure that surface water encountering deposited tailings remains fully contained within the facility boundaries.
- During both construction and operation, appropriate controls will be implemented to manage dust emissions, ensuring they do not adversely impact environmental values or the health, well-being, and amenity of surrounding communities. Dust control measures will also be designed to comply with occupational exposure limits for site personnel.
- The selected location of the facility presents a low risk to downstream environments, as it is situated at a considerable distance from key environmental receptors.
- A program of instrumentation and monitoring will be implemented to track phreatic surface and groundwater levels, enabling timely identification and implementation of any necessary remedial actions.

2.2.2 Design Criteria

The TSF3 design criteria is summarized in Table 2-1 below.

Table 2-1: TSF3 Design Criteria

Design Parameter	Design Input	Reference
Consequence Category		
DMPE	Category 1	DEMIRS (2015), now DMPE
ANCOLD	High C (Dam failure)	ANCOLD (2019)
Tailings Production		
Average Tailings Throughput	1 Mt/pa	ROX
Expected Storage	10 Mt	TailCon (2025)
Tailings Properties		
Slurry Solids Concentration	45% solids by mass	ROX
Particle Size Distribution	Passing 0.15 mm: 96.5% Passing 75 µm: 74.1%	TailCon (2025)
Atterberg Limits	Plastic Index: 11.2%	TailCon (2025)

Design Parameter	Design Input	Reference
	Liquid Limit: 35.5% Plastic Limit: 23.4%	
Specific Gravity	2.8	Assumed
Average In-situ Dry Density	1.3 – 1.5 t/m^3	Assumed
Beach Slope	0.5 – 1.0%	Assumed
Tailings Permeability	1.5 x 10^{-6} m/s	TailCon (2025)
Geochemistry	NAF	JT Metallurgical Services (2024)
Stability of External Slopes		
Factors of Safety (FoS)	Static (Drained): 1.5 Static (Undrained): 1.3 Post-seismic: 1.0 to 1.2	ANCOLD (2019)
Operating Base Earthquake (OBE)	1:475 AEP	ANCOLD (2019)
Safety Evaluation Earthquake (SEE)	1:2,000 AEP	ANCOLD (2019)
Post Closure Earthquake	Maximum Credible Earthquake (MCE)	ANCOLD (2019)
Construction Material		
Material Source	Mine waste and low permeable borrow	-
Geochemistry	Benign	-
Geometry		
Final Embankment Crest Elevation	RL 477.0 m	TailCon (2025)
Embankment Crest Width	12 m (Starter), 8m (Upstream)	TailCon (2025)
Minimum Windrows Height	The greater between 0.5 m and ½ of the trafficking wheel diameter.	TailCon (2025)
Embankment Slope Gradient	Upstream: 1V:2H Downstream: 1V:3H	TailCon (2025)
Freeboard		
Design Storm Event	1:100 AEP, 72 hr flood (225 mm)	DEMIRS (2015), now DMPE
Required Minimum Freeboard	0.5 m	DEMIRS (2015), now DMPE
Additional Freeboard	0.5 m	TailCon (2025)
Total Freeboard	1.0 m	-

2.3 Design Overview and Capacity

2.3.1 Design Overview

The proposed TSF3 has been designed to safely contain approximately 10.7 million tonnes of tailings over the life of mine, based on an assumed dry density of 1.45 t/m^3. The facility will be developed in stages, commencing with the construction of a starter embankment to RL 462.0 m. This initial stage provides a storage capacity of approximately 2.16 Mt, which is sufficient to support the first two years of tailings deposition.

The starter dam will cover an area of approximately 42.9 hectares, offering ample surface area to promote efficient tailings deposition. This optimized geometry supports improved tailings consolidation, which is critical for achieving long-term geotechnical stability.

Refer to Figure 2-1 for the plan view and Figure 2-2 for the cross-sectional view of the proposed starter embankment.

Figure 2-1: Proposed TSF3 Starter Dam – Plan View

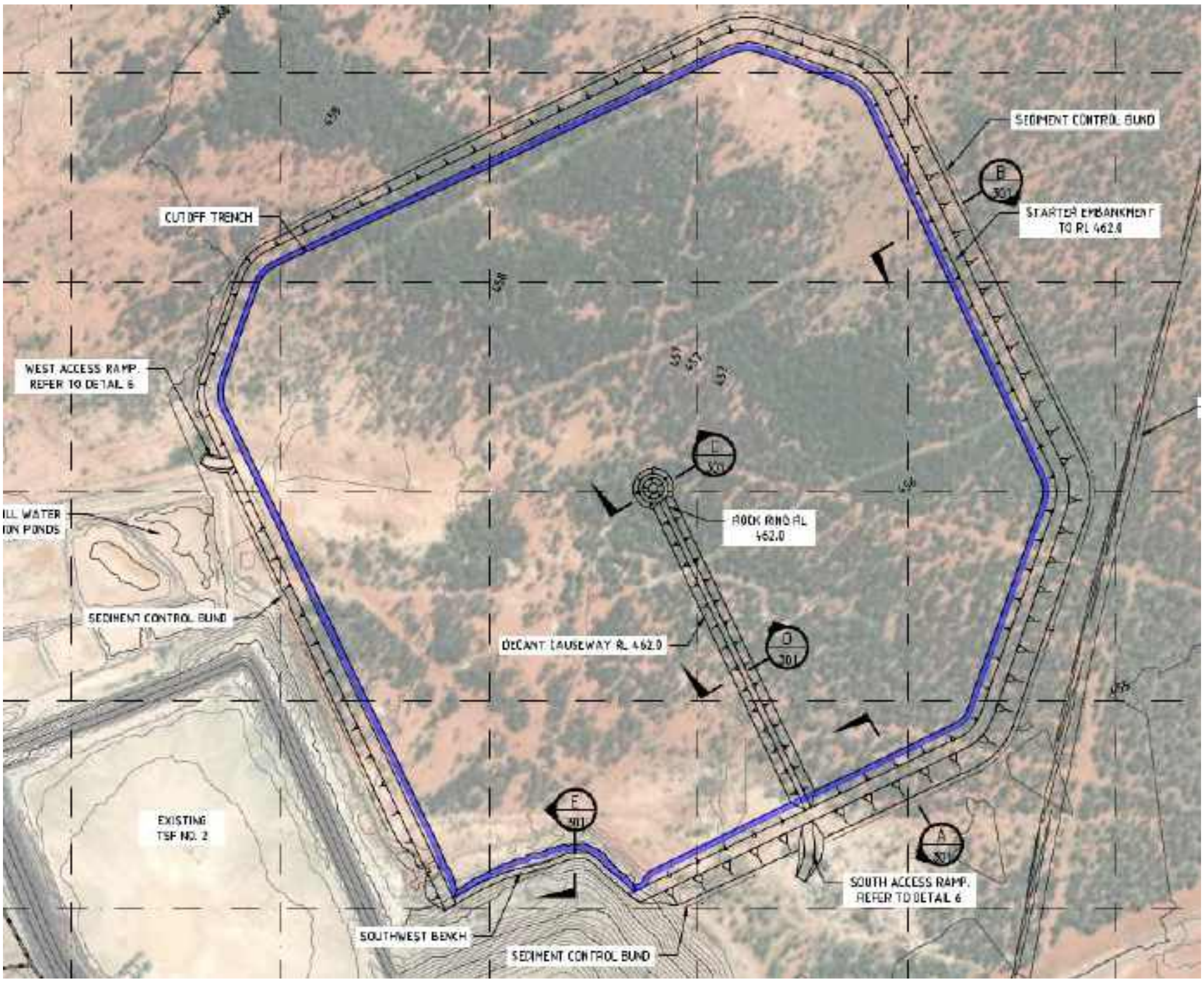
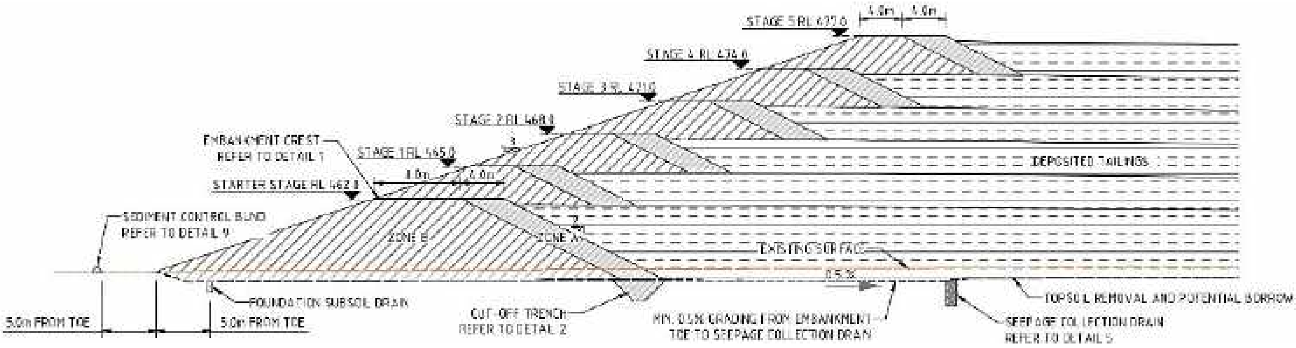


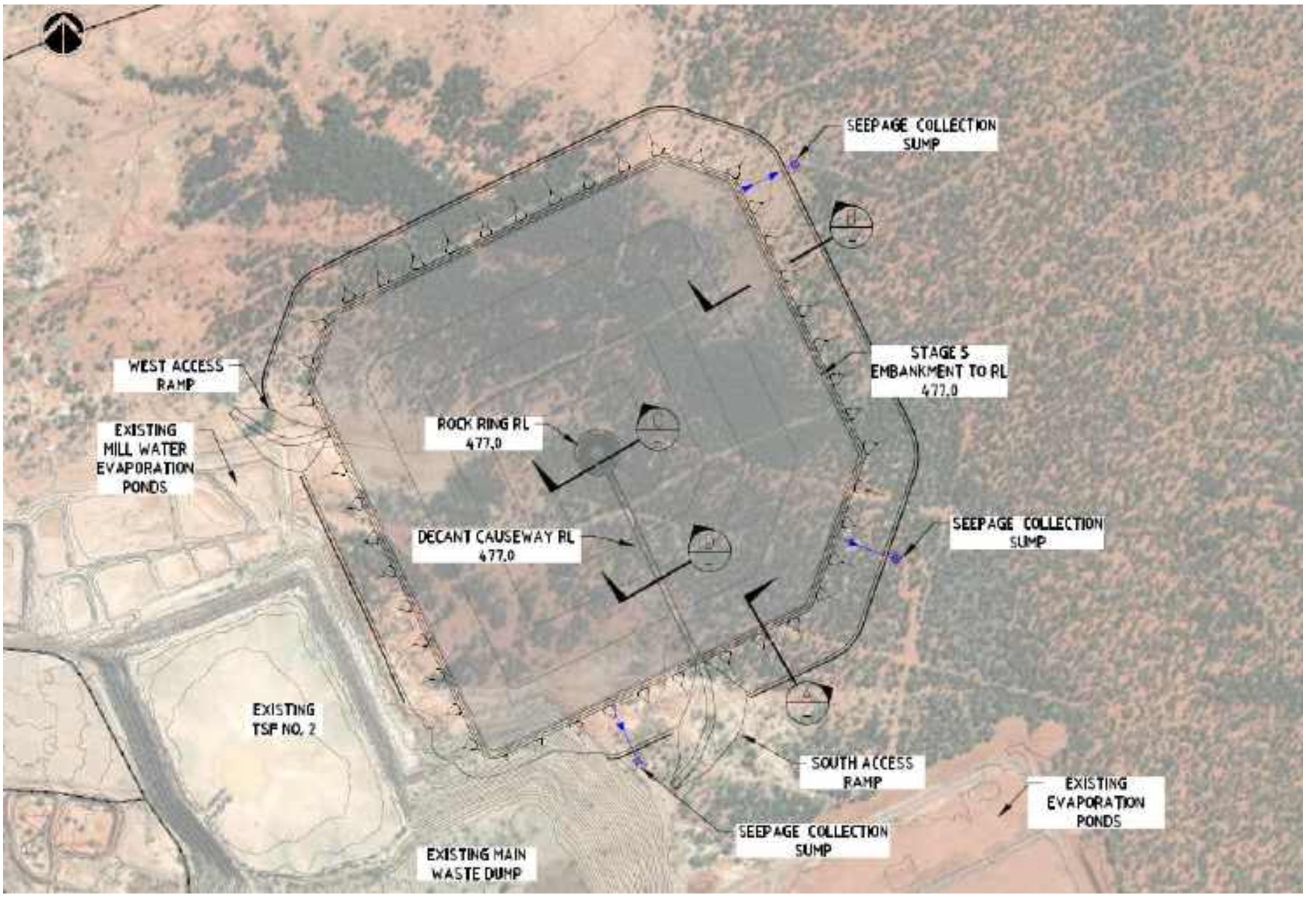
Figure 2-2: Proposed TSF3 – Section View



To meet ongoing tailings storage requirements, the facility will be raised using upstream construction in 3-meter increments, increasing the crest level from RL 462.0 m to RL 477.0 m. These five staged lifts will collectively provide an additional storage capacity of approximately 8.57 million tons, supporting the current life-of-mine tailings production.

The final configuration of the facility is illustrated in Figure 2-3 (plan view) and Figure 2-2 (section view). A detailed breakdown of stage-by-stage storage capacity is provided in Table 2-2 below.

Figure 2-3: Proposed TSF3 Stage 5 – Plan View



To allow for pore pressure dissipation, and the effectively control of seepage and the phreatic level, a perimeter seepage collection drain has been included. This drain comprises of graded sand and selected clean mine waste rock, with a subsoil drain such as MegaFlow drain included within a seepage trench that is graded to collection sumps located strategically around the facility. Any seepage water will be pumped from this sump onto the facility using solar powered pumps.

Additionally, a cut-off trench is provided along the entire length of the embankment upstream toe, with a seepage interception drain installed along the east and south flanks to prevent lateral seepage outside the facility footprint. The slope of the existing waste rock dump located in the southwest corner will also be lined with low permeability fill as the facility is raised.

To efficiently manage decant water, the design includes a rock ring and decant causeway, as shown in Figure 2-3. The rock ring will be constructed using clean waste rock, allowing for the effective collection of segregated water from the tailings beach. Collected water will be pumped to the return water facility for reuse in processing operations.

Access to the rock ring will be provided via the decant causeway, which will be progressively extended as the facility is raised. For additional design details and construction specifications, refer to Appendix A.

2.3.2 Capacity

A summary of the proposed TSF3 storage capacity for each subsequent raise is provided in Table 2-2 below.

Table 2-2: Summary of estimate storage capacity

Stage	Lift RL (m)	Crest Width (m)	Lift Height (m)	Capacity (m^3)	Capacity (t)	Storage Life (Years)
Stater	462	12	6.7	1,492,590	2,164,256	2.16
Stage 1	465	8	3	1,281,499	1,858,174	1.86
Stage 2	468	8	3	1,307,488	1,895,858	1.90
Stage 3	471	8	3	1,165,705	1,690,272	1.69
Stage 4	474	8	3	1,112,294	1,612,826	1.61
Stage 5	477	8	3	1,044,182	1,514,064	1.51
			TOTAL	7,403,758	10,735,449	10.74

2.4 Facility Classification

2.4.1 ANCOLD Classification

2.4.1.1 General

The ANCOLD consequence category is used to establish various design criteria, including seismic loading for embankment stability and design rainfall events for freeboard and spillway design. According to the criteria outlined in the ANCOLD Guidelines on Assessment of the Consequences of Dam Failure (ANCOLD, 2012), the factors that influence the consequence category of the TSF complex are the population at risk (PAR), as well as the ‘severity level’, which is established from potential damages and losses to the community, environment, and the operation.

2.4.1.2 Dam Failure Severity Level

In accordance with ANCOLD (2019) Guidelines, there are seven damage type categories that need to be assessed to determine the severity level/impact (Minor, Medium, Major and Catastrophic) of a potential facility failure or spill. In accordance with the Dam Severity Level impact assessment (ANCOLD 2012), the proposed facility can be classified as a ‘Medium’ severity Table 2-3 summarises the dam failure severity level, with the assessed rating highlighted in grey.

Table 2-3: ANCOLD Dam Severity level Rating System

Damage Type	Minor	Medium	Major	Catastrophic
Infrastructure (dam, houses, commerce, farms, community)	<\$10M	\$10M-\$100M	\$100M-\$1B	>\$1B
Business importance	Some restrictions	Significant impacts	Severe to crippling	Business dissolution, bankruptcy
Public health	<100 people affected	100-1000 people affected	<1000 people affected for more than one month	>10,000 people affected for over one year
Social dislocation	<100 person or <20 business months	100-1000 person months or 20-2000 business months	>1000 person months or >200 business months	>10,000 person months or numerous business failures
Impact Area	<1 km^2	< 5 km^2	< 20 km^2	> 20 km^2
Impact Duration	< 1 (wet) year	< 5 years	< 20 years	> 20 years

Damage Type	Minor	Medium	Major	Catastrophic
Impact on natural environment	Damage limited to items of low conservation value (e.g. degraded or cleared land, ephemeral streams, non-endangered flora and fauna). Remediation possible.	Significant effects on rural land and local flora & fauna. Limited effects on: Item(s) of local & state natural heritage. Native flora and fauna within forestry, aquatic and conservation reserves, or recognised habitat corridors, wetlands or fish breeding areas	Extensive rural effects. Significant effects on river system and areas A & B. Limited effects on: Item(s) of National or World natural heritage. Native flora and fauna within national parks, recognised wilderness areas, RAMSAR wetlands and nationally protected aquatic reserves. Remediation difficult.	Extensively affects areas A & B. Significantly affects areas C & D. Remediation involves significantly altered ecosystems.

2.4.1.3 Dam Failure Consequence Category

The dam failure consequence category (DFCC) is adapted from the severity level assessment of damage and loss, combined with the Population at Risk (PAR).

Based on a dam failure severity level of 'Major' and a PAR > 1 to 10, the ANCOLD guidelines recommend the adoption of a 'High C' Dam Failure Consequence Category rating for TSF3 as demonstrated in Table 2-4 (grey).

Table 2-4: ANCOLD Recommended Dam Failure Consequence Category

Population at Risk (PAR)	Severity of Damage or Loss			
	Minor	Medium	Major	Catastrophic
<1	Very Low	Low	Significant	High C
>1 to 10	Significant (Note 2)	Significant (Note 2)	High C	High B
>10 to 100	High C	High C	High B	High A
>100 to 1000	Note 1	High B	High A	Extreme
>1000		Note 1	Extreme	Extreme

Notes:

1 – With a PAR in excess of 100, it is unlikely Damage will be minor. Similarly, with a PAR in excess of 1,000 it is unlikely Damage will be classified as Medium.

2 – Change to "High C" where there is the potential of one or more lives being lost. The potential for loss of life is determined by the characteristics of the flood area, particularly the depth and velocity of flow.

2.4.1.4 Environmental Spill Consequence Category

The Environmental Spill Consequence Category is assessed by considering the effect of spilling dam water to the downstream environment (typically through the dam spillway during a flood event). The effect of spilling water to the environment from the TSF is primarily driven by the geochemistry of the stored water.

Water spilled from TSF3 under extreme weather events will be significantly diluted and further diluted again given the downstream environment of the dam is also likely to be flooded. Therefore, the severity of impact on the natural environmental from environmental spills from TSF3 would be 'Minor'.

The PAR assigned to a dam spill from TSF3 is < 1. Therefore, the Dam Spill Consequence Category is assessed as 'Very Low' for TSF3 at this stage of the design.

2.4.2 DMPE Classification

TSF3 has been assessed in accordance with the Code of Practice (DMP 2013, Table 1), published by the former DMP, now DMPE. The assessment concluded that a 'Medium' hazard rating should be assigned to the TSF, as demonstrated in Table 2-5 (highlighted grey).

In accordance with the Code of Practice (DMP 2013, Table 2), the proposed TSF3 is classified as a “Category 1”, based on its ‘Medium’ hazard rating and an embankment height exceeding 15.0 m (20.0 m), as demonstrated in

Table 2-6 (highlighted grey).

Table 2-5: DMP CoP Hazard Rating System

Type of Impact or Damage	Hazard Rating		
	High	Medium	Low
	Extent or Severity of Impact or Damage		
Loss of human life or personal injury	Loss of life or injury is possible	Loss of life or injury is possible although not expected	No potential for loss of life or injury
Adverse human health due to direct physical impact or contamination of the environment	Long-term human exposure is possible, and permanent or prolonged adverse health effects are expected	The potential for human exposure is limited, and temporary adverse health effects are possible	No potential for human exposure
Loss of assets due to direct physical impact or contamination of the environment	Loss of numerous livestock is possible	Loss of some livestock is possible	Limited or no potential for loss of livestock
	Permanent loss of assets (e.g. commercial, industrial, agricultural and pastoral assets, public utilities and infrastructure, mine infrastructure) is possible and no economic repairs can be made	Temporary loss of assets is possible and economic repairs can be made	Limited or no potential for destruction or loss of assets
	Loss of TSF storage capacity is possible and repair is not practicable	Loss of TSF storage capacity is possible and repair is practicable	Insignificant loss of TSF storage capacity is possible
Damage to items of environmental, heritage or historical value due to direct physical impact or contamination of the environment	Permanent or prolonged damage to the natural environment (including soil, and surface and ground water resources) is possible	Temporary damage to the natural environment is possible	Limited or no potential for damage to the natural environment
	Permanent or prolonged adverse effects on flora and fauna are possible	Temporary adverse effects on flora and fauna are possible	Limited or no potential for adverse effects on flora and fauna
	Permanent damage or loss of items of heritage or historical value is possible	Temporary damage of items of heritage or historical value is possible	Limited or no potential for damage of items of heritage or historical value

Table 2-6: DMP CoP Category Rating System

Maximum Embankment or Structure Height (m)	Hazard Rating		
	High	Medium	Low
> 15.0	Category 1	Category 1	Category 1
5.0 - 15.0	Category 1	Category 2	Category 2
< 5.0	Category 1	Category 2	Category 3

2.5 Modelling and Design Assessments

2.5.1 Dam Break Assessment

2.5.1.1 General

Empirical dam breach models provide a practical approach for estimating breach parameters and outflow hydrographs based on historical dam failures. Larrauri & Lall (2018) refined the empirical framework originally proposed by Rico, Benito, & Diez-Herrero (2008), enhancing its applicability to mining tailings storage facilities (TSFs). Their method improves predictions of breach geometry, peak discharge, and downstream deposition by incorporating a more extensive dataset of tailings dam failures.

The method accounts for key factors such as dam height, stored volume, breach formation time, and material properties to estimate breach width and peak outflow. Larrauri & Lall (2018) introduced updated regression relationships that better capture the behaviour of failed TSFs, making the approach particularly useful for preliminary hazard assessments.

In this report, the Larrauri & Lall (2018) method is applied to estimate potential breach characteristics and downstream deposition patterns for TSF3.

2.5.1.2 Method and Assumptions

Larrauri & Lall (2018) refined the empirical model from Rico, Benito, & Diez-Herrero (2008) to estimate the released volume of tailings based on the total impounded volume (V_T) and run-out distance (D_{max}) using a log-log regression model. The empirical equations are as follows:

$$1. V_F = 0.354 * V_T^{1.01}$$

Where:

- *V_T = TSF3 total impounded volume (m^3); and*
- *V_F = released volume of tailings (m^3).*

$$2. D_{max} = 1.61 * (H * V_F)^{0.66}$$

Where:

- *D_{max} is the run-out distance (km)*
- *H is the dam height*

For detailed explanation of this empirical dam break methodology, reference can be made to the paper titled 'Tailings Dams Failures: Updated Statistical Model for Discharge Volume and Runout' (Larrauri & Lall, 2018).

A dam break assessment using the above methodology was completed using the commercial software Rift and based on the following assumptions:

- Tailings behave non-Newtonian.
- Breach failure surface goes across the downstream toe.
- "Sunny-day" failure scenario is appropriate for the analysis.
- Dam breach was assumed to occur at south east embankment with maximum wall height, south-east adjacent to the evaporation ponds.
- The total volume V_T is assumed to be the total contained tailings at life of mine and final TSF3 elevation. The containment tailings volume (V_T) is therefore estimated to be 6,896,551.72 m^3.

- The dam height (H) is approximately 22 m at the critical section.
- Tailing density of 1.45 t/m^3.
- Observations from (Rourke & Luppnow, 2015) on historical tailings dam breaches indicate that post-failure beach slopes tend to fall within the range of 5% to 18%. For this assessment, a slope of 5% (1V:20H) is assumed.

Based on the above assumptions and the proposed empirical method, the following is calculated.

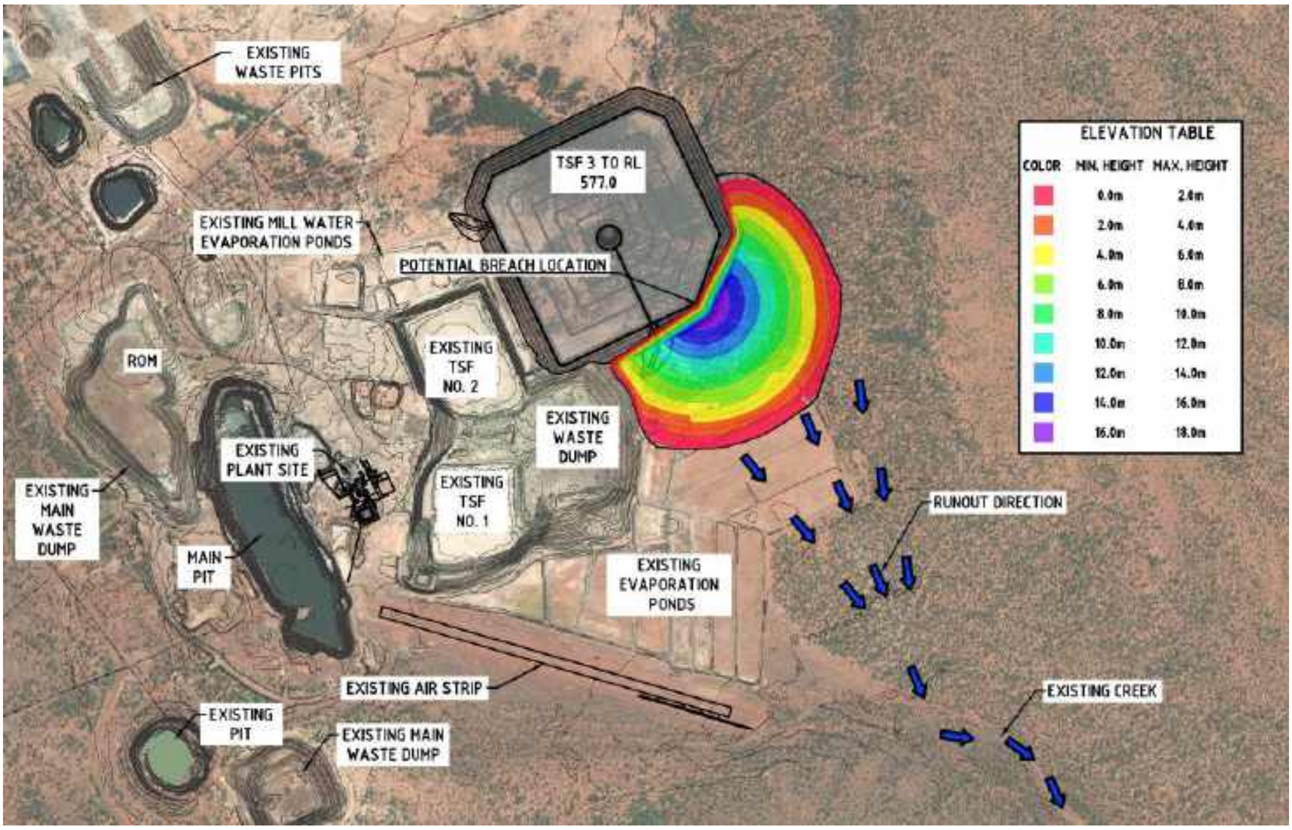
- Based on equation 1, the tailings release volume (V_F) is estimated to be 2.86 M m^3.
- Based on equation 2, the estimated run-out distance is approximately 24.8 km. Note that the run-out distance is dependent on topography and likely water run-off only.

A dam break assessment for TSF3 was conducted using Rift, and the resulting inundation map is presented in Figure 2-4. The modelled scenario considers a hypothetical breach of the embankment and simulates the downstream flow of released tailings and water.

A visual review of the inundation extent indicates that, in the unlikely event of a dam failure, the release would not impact major infrastructure, except for the existing evaporation ponds, which are located near the anticipated breach point. Flow from the breach is expected to follow the natural topography, generally moving toward the southeast creek, as shown in the inundation Figure 2-4.

Based on the modelled flow direction and assessment of Google Earth imagery, the Population at Risk (PAR) has been conservatively estimated. The PAR includes all individuals who may be directly exposed to tailings in the event of failure, assuming no evacuation or warning. For TSF3, the PAR is conservatively estimated to be greater than 1 and up to 10 people.

Figure 2-4: TSF3 Dam Break Inundation Mapping



2.5.2 Freeboard Assessment

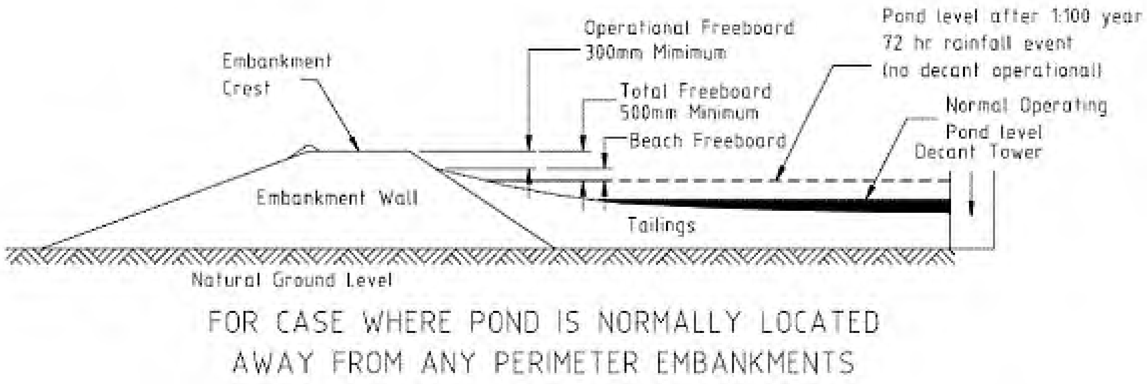
2.5.2.1 Required Freeboard

The hydraulic performance design criteria is applied to assess the freeboard requirements for TSF3 in general according to the TSF Design Report Guide (Figure A1, DMP 2015.08), published by the former DMP, now DMPE, along with the ANCOLD Guidelines on Tailings Dams (Figure 2, ANCOLD Jul-2019), as shown in Figure 2-5 and Figure 2-6, respectively.

Freeboard requirements for a TSF comprise three distinct elements, namely:

- Total freeboard – The vertical distance between the Maximum Operating (Pond) Level and the dam crest level and represents the capacity of the dam to pass an extreme storm by combination of extreme storm storage, spillway discharge path, wave freeboard and contingency freeboard to prevent overtopping of the dam.
- Operational Freeboard - This is the vertical distance between the top of the tailings (tailings beach head) and the embankment crest / spillway level. A minimum operational freeboard is normally specified to allowance for embankment deformation or tailings backflow and mounding.
- Beach Freeboard - Vertical distance between the tailings beach head and the tailings pond level after an appropriate extreme storm event. Beach freeboard is definite to control the phreatic surface level against the upstream face and thus maximize stability. This is achieved by maximizing the distance between the decant pond and the embankment.

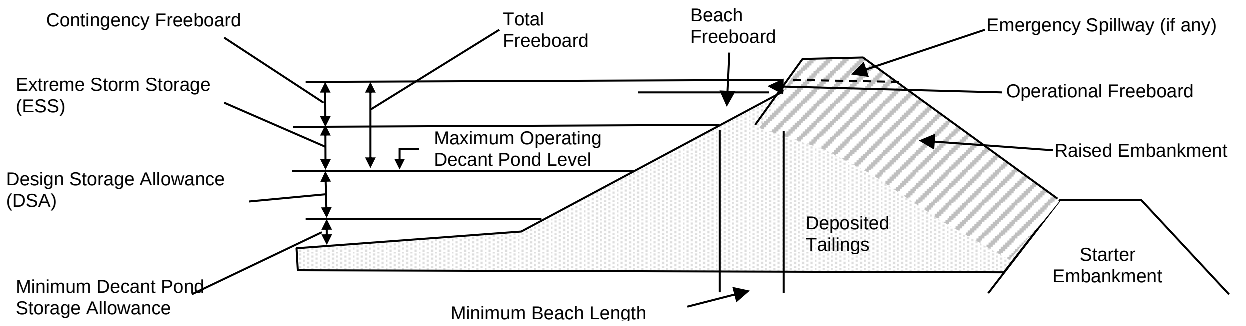
Figure 2-5: TSF Freeboard Guidance (DMP 2015, now DMPE)



The ANCOLD guidelines expresses the total freeboard as ESS plus a contingency freeboard allowance, derived from the TSF DSCC, over and above the maximum operating decant pond level, while the DMIRS guidelines require a total freeboard of 500 mm over and above the normal operating pond level plus the 1:100 AEP 72-hr rainfall event allowance. The DEMIR’s total freeboard is thus in line with the ‘contingency freeboard allowance’ defined by ANCOLD. The total adopted freeboard for TSF3 is a minimum of 0.5 m plus allowance for the 1:100 AEP 72-hr storm event. An additional 0.5m freeboard is also allowed to contain storm events greater than design.

TailCon also recommends a minimum beach length of 100 m is maintained on the facility as a conservative measure, providing for beach freeboard, to ensure embankment stability and to ensure that sufficient capacity remains for unforeseen storm event inflows.

Figure 2-6: ANCOLD TSF Freeboard Guidance (ANCOLD, 2019)



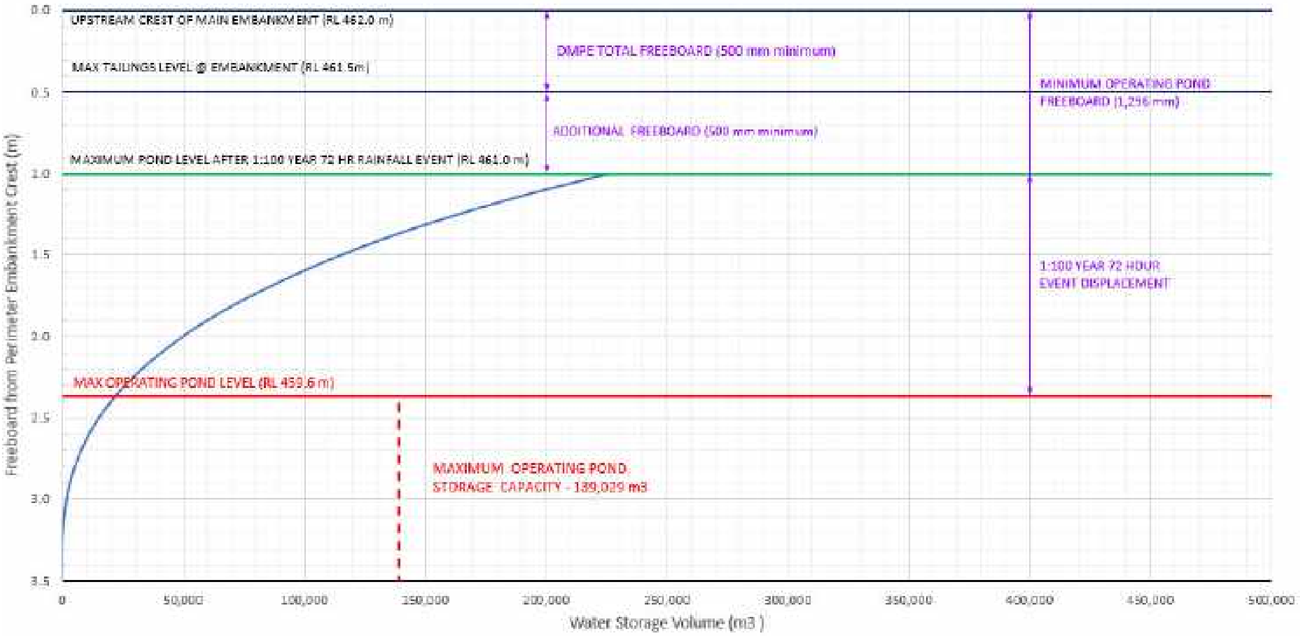
2.5.2.2 Freeboard Assessment

A freeboard assessment was completed for both the starter dam and the final stage of TSF3, in accordance with the design recommendations outlined above. The purpose of this assessment is to define safe operating pond limits that ensure the minimum required freeboard of 0.5 m is maintained under design storm conditions.

For the starter dam, the available stormwater storage capacity is approximately 225,923 m³ at the 1.0 m freeboard level. To accommodate the 1:100 AEP 72-hr design storm event, the maximum operating pond volume has been set at 139,029 m³, corresponding to an operating freeboard of 1.36 m from the embankment crest.

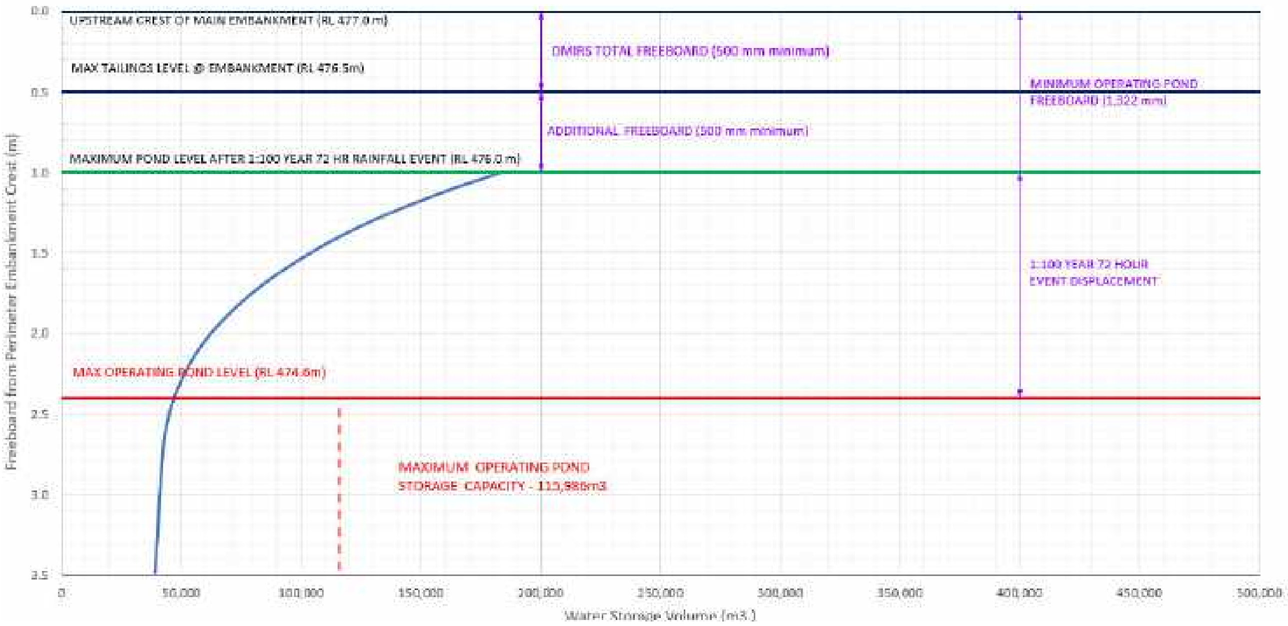
A graphical illustration of the starter dam freeboard assessment is presented in Figure 2-7.

Figure 2-7: TSF3 Starter Dam – Freeboard Assessment



For the final stage of TSF3 (Stage 5), the maximum operating pond volume is set at 115,986 m³, corresponding to an operating freeboard of 1.4 m. This configuration ensures adequate capacity to safely contain the design storm event, while still maintaining the required minimum operational freeboard of 1.0 m. A graphical representation of the Stage 5 freeboard assessment is provided in Figure 2-8.

Figure 2-8: TSF3 Final Stage – Freeboard Assessment



2.5.3 Liquefaction Assessment

2.5.3.1 Tailings

The TSF3 facility is designed to store gold tailings, which are expected to exhibit predominantly fine-grained characteristics with low to moderate plasticity. The deposition strategy will be optimized to promote consolidation and desiccation, thereby enhancing the tailings' shear strength over time. Key features of the design include a central decant system and a perimeter seepage collection/interception trench, which together aim to manage water within the facility, control the phreatic surface, and improve overall tailings density.

These design measures are intended to support progressive consolidation and promote dilative behaviour in the deposited tailings, thereby reducing their susceptibility to undrained instability. While no significant liquefaction risk is anticipated during initial operations, the long-term behaviour of the tailings will be confirmed through a Cone Penetration Test with pore pressure measurement (CPTu) following the completion of the starter dam.

The results of the CPTu testing will inform the geotechnical assessment of liquefaction potential and provide critical input for the design and construction of future upstream embankment raises, ensuring the facility remains stable under both operational and seismic loading conditions.

2.5.3.2 Foundation

An assessment of liquefaction potential was undertaken for the foundation materials beneath the proposed TSF3 embankment. The evaluation was based on in-situ testing and logging data from geotechnical investigations, which indicate that the underlying materials are characteristically very stiff to hard, with high SPT N-values and minimal occurrence of loose or saturated sandy layers.

The nature of the subsurface strata — comprising cemented colluvium, ferricrete and silcrete hardpan, weathered granite, and decomposed or fresh rock — is such that the soils exhibit high resistance to shear deformation under both static and dynamic loading. Furthermore, the absence of contractive, loose, saturated granular soils in the foundation profile significantly limits the potential for liquefaction.

Based on these conditions, the foundation materials at the TSF3 site are assessed to have a very low likelihood of liquefaction, and therefore, liquefaction is not expected to pose a risk to the stability or performance of the TSF3 embankment under design seismic loading conditions.

2.5.4 Seepage Assessment

2.5.4.1 Methodology

The seepage assessment was done using the 2D slope stability software Slide2, the analysis is based on the following assumptions.

- The pond is located 100m from the embankment.
- The natural ground water elevation at RL425m (approx. 30m below the ground).
- The seepage collection drain is assumed to have zero pressure.
- The seepage interception drain along the cutoff trench is not modelled – conservative.
- Material hydraulic parameters as per Table 2-7.

2.5.4.2 Seepage Result

Based on the assumptions and boundary conditions adopted, the seepage modelling indicates the following:

- The seepage collection drain is effective in significantly reducing lateral seepage through the embankments and beyond the facility footprint.
- The combination of low-permeability Zone A material and the cut-off trench provides additional control, further limiting seepage through and beneath the embankments.
- The modelled seepage through the embankments is minimal, at approximately 0.0004 m^3/day.

Overall, the modelling results demonstrate that the seepage collection drain effectively manages phreatic surface development. Any residual seepage is expected to be intercepted and directed beneath the embankment into the collection sumps for controlled transfer. Detailed seepage results are provided in Appendix B.

2.5.5 Stability Assessment

2.5.5.1 Methodology

Geotechnical slope stability assessments have been undertaken to assess the FoS of the proposed embankment configuration for TSF3. The approach adopted to assess slope stability as part of this report comprised of the following:

- The FoS of the perimeter embankment were estimated through limit-equilibrium calculations, using effective strength parameters and/or undrained strength parameters, depending on the embankment and foundation characteristics. The Morgenstern-Price calculation method was adopted for circular and non-circular failure modes.
- The stability of the perimeter slopes was checked under drained, undrained and post-seismic loading conditions.
- Slope stability was completed for the critical cross-section located south section of the TSF, as presented in Figure 2-2 and Figure 2-3.

2.5.5.2 Material Strength Properties

Based on preliminary findings from the GSI and experience on similar projects, the material strength properties estimated are summarised in Table 2-7. For post seismic slope stability assessment, a 20% strength reduction factor is applied and presented in Table 2-9.

Table 2-7: Geotechnical design parameters –TSF3 Operating conditions

Material	Bulk unit weight (kN/m3)	Drained shear strength properties		Undrained shear strength properties		Hydraulic conductivity coefficient, k (m/s)
		ϕ' (°)	c' (kPa)	$S_u$min (kPa)	Su/σv′	
Tailings	18	30	0	-	0.3	$1.0x10^{-6}$ to $1.0x10^{-7}$
Zone A (Compacted Clay)	20	32	10	-	-	$1x10^{-8}$
Zone B (Compacted Mine Waste)	19	30	10	-	-	$1x10^{-6}$
Wiluna Hardpan (Ferricrete)	20	35	50	-	-	$1x10^{-7}$ to $1X10^{-8}$
Granite Bedrock (HW)	22	40	100	-	-	$1x10^{-8}$
Basalt Bedrock (XW/HW)	22	38	100	-	-	$1x10^{-8}$

Table 2-8: Geotechnical design parameters –TSF3 Post Seismic

Material	Bulk unit weight (kN/m3)	Drained shear strength properties		Undrained shear strength properties	
		ϕ' (°)	c' (kPa)	Su/σv′	$S_u$min (kPa)
Tailings	18	24.8	-	0.24	-
Zone A (Compacted Clay)	20	26.6	8	-	-
Zone B (Compacted Mine Waste)	19	24.8	8	-	-
Wiluna Hardpan (Ferricrete)	20	29.3	40	-	-
Granite Bedrock (HW)	22	33.9	80	-	-
Basalt Bedrock (XW/HW)	22	32.0	80	-	-

2.5.5.3 Stability Results

Slope stability results for the critical cross-section based on the estimated strength parameters and assumptions are summarized in Table 2-9 below.

Table 2-9: TSF3 Slope Stability Results

Loading Condition	Required FoS	Sarter Dam FoS	Final Stage FoS
Long-term Drained	1.50	3.47	2.16
Short-term Undrained	1.50	3.45	1.52
Post-Seismic	1.1-1.2	2.76	1.23

The slope stability analysis confirms that the starter dam meets or exceeds the minimum Factors of Safety (FoS) recommended by ANCOLD under all applicable loading conditions, including static and seismic scenarios.

For the Stage 5 (final) embankment, the analysis indicates that the required minimum Factor of Safety (FoS) is achieved under both static and seismic drained conditions. However, the overall stability remains sensitive to the tailing's strength parameters. These parameters should ideally be confirmed through site-specific investigations, such as CPTu testing of the deposited tailings. A comprehensive review of stability performance will be undertaken upon completion of the starter dam deposition, and adjustments to future stages will be made as necessary based on updated strength data and observational performance.

2.5.6 Erosion and Sediment Control

Potential erosion risks associated with TSF3 may include the following:

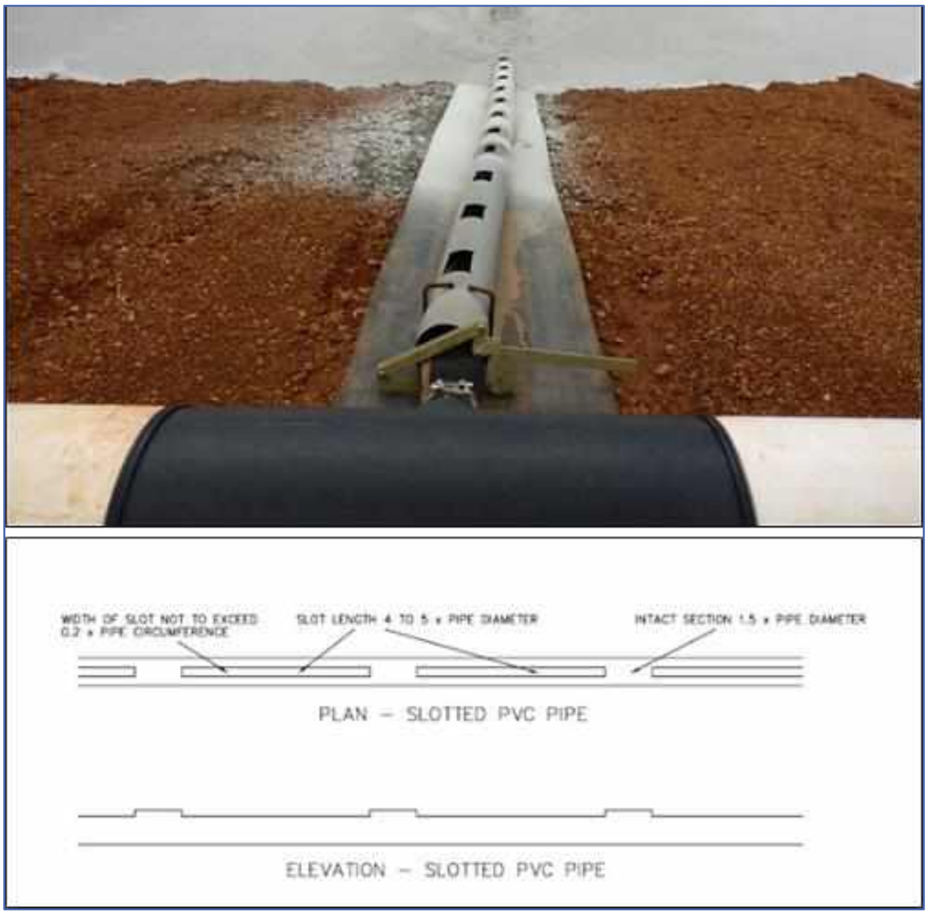
- Surface erosion as rain runoff causes the fine-grained component of the TSF embankment fill material to wash-off.
- Internal erosion involving migration of fine-grained tailings soil particles along the seepage flow path.

Due to the fine-grained nature of the tailings or the use of local clay borrow material, which may be dispersive, when used as the embankment construction material, there is a risk of initial piping erosion forming as a result of surface runoff. If not adequately controlled, this erosion could lead to undercutting of the embankment body, ultimately leading towards loss of tailings containment. The following preventative measures must be put in place to mitigate this risk:

- *Capping of the TSF embankment crest with 150 mm wearing course, and when required, downstream slope face with a minimum 300 mm thick erosion resistance soil layer that is envisaged to comprise mine waste material.
- Tailings slurry deposited via sub-aerial deposition techniques must be undertaken utilizing slotted PVC conductor pipes laid on erosion protection mats (i.e. old conveyor belts, HDPE liner), refer illustration in Figure 2-9, to ensure that discharged tailings slurry are directed onto the tailings beach with minimal potential for erosion of adjacent TSF embankment slope.

Note*: Where mine waste is used for construction of the embankment, no capping may be required.

Figure 2-9: Typical conductor pipe details and erosion protection



- The tailings perimeter spigot line includes two manifolds for feed from the plant one on the West wall and one on the East. This piping arrangement will allow for the facility to be divided into 4 sections, and allow for periods where piping is removed to allow for construction while normal deposition continues.

For the downstream slope of the embankment, if required and where space permits, a nominal 1 m high earth bund should be constructed approximately 5 m from the embankment toe. This bund will serve as a sediment control measure to confine any sediment resulting from potential erosion of the downstream slope.

2.5.7 Water Balance Model

An annualized static water balance has been completed for the proposed TSF3 starter dam based on the following assumptions:

- Rainfall and evaporation data as per Table 1-1
- Average monthly tailings production of 83,333 tons
- Slurry solids content of 45% by mass
- Pan factor of 0.6.
- Tailings specific gravity of 2.8
- Tailings dry density of 1.45 t/m^3
- No upstream catchment area
- Negligible seepage loss

The water balance indicates that the facility will be net water positive and that a minimum pumping capacity of 80 t/hour is required to maintain the maximum operational pond to less than 139,029 m^3, as per Figure 2-7. A summary of the water balance sheet is presented in Appendix E.

2.6 Additional Design Considerations

2.6.1 Tailings Surface

Prior to the commencement of deposition at any stage, the finished surface of the tailings and or borrow areas in the impoundment (when tailings is used as part of the embankment construction) must be checked, re-graded and trenching provided, when necessary, to ensure that water release from deposited tailings can is directed towards the decant and that the decant pond is located centrally and at least 100 m away from the embankments.

2.6.2 Tailings Delivery System

The tailings delivery pipeline is to be bunded within a corridor or trench to protect the surrounding environment from any spill or leakage. The delivery line is a single line from the plant, split to the two manifolds, one on the West wall and one on the East. Tailings are to be deposited from a perimeter ring pipeline located on the embankment crest equipped with spigots at 25m spacing. The tailings delivery system design is excluded from this design. The design, pipeline specifications and pumping requirements should thus be checked by a qualified mechanical designer.

2.6.3 Tailings Deposition/Discharge

The tailings deposition planning is to be undertaken to ensure that tailings are placed in thin layers to minimize the RoR and in turn facilitate tailings consolidation. Tailings are to be placed in such a manner as to ensure the formation of a uniform tailings beach with a 1.0% fall towards the decent rock ring. The primary focus is managing the deposition sequence in a manner that orients the supernatant pond towards the decant pump and away from the embankments.

2.6.4 Water Management

The facility is designed to operate with a minimal decant pond throughout all stages of its life, in alignment with best practice tailings management and water stewardship principles. A centrally located rock ring decant structure has been incorporated to facilitate effective segregation of supernatant water from tailings and ensure efficient abstraction toward a designated return water dam.

The decant system is engineered to rapidly remove process water from the facility, supporting ongoing tailings consolidation and maintaining a low phreatic surface within the impoundment. The facility is not intended to function as a water storage structure, and under no circumstances should the volume of water stored exceed the maximum allowable operational pond defined in the operating strategy.

This approach promotes embankment stability, minimizes free water cover over tailings, and ensures compliance with regulatory and design requirements for water management in tailings storage facilities.

2.7 Monitoring Instrumentation

2.7.1 Piezometer

To monitor the development of the phreatic surface throughout the life of the facility, the installation of Vibrating Wire Piezometers (VWPs) is recommended as part of the LoM (Life-of-Mine) monitoring strategy. These instruments will be installed at strategic locations identified as critical for tracking phreatic surface development and assessing the performance of the tailing's storage facility under both operational and post-closure scenarios.

The proposed VWP layout includes instruments strategically positioned to capture variations in pore water pressures within key zones of the embankment and foundation. Tentatively, VWP sensors will be installed along five (5) transect lines across the embankments, with each transect comprising eight (8) sensors. The locations of the transect lines are illustrated in Figure 2-10, and the typical sensor placements along each transect are shown in Figure 2-11, which present the plan view and cross-sectional arrangement of the recommended VWPs, respectively. It should be noted that both the transect lines and sensor locations are preliminary and may be subject to change based on site conditions or further design considerations. Further details can be found in the drawings in Appendix A.

Figure 2-10: TSF3 Instrumentation Layout

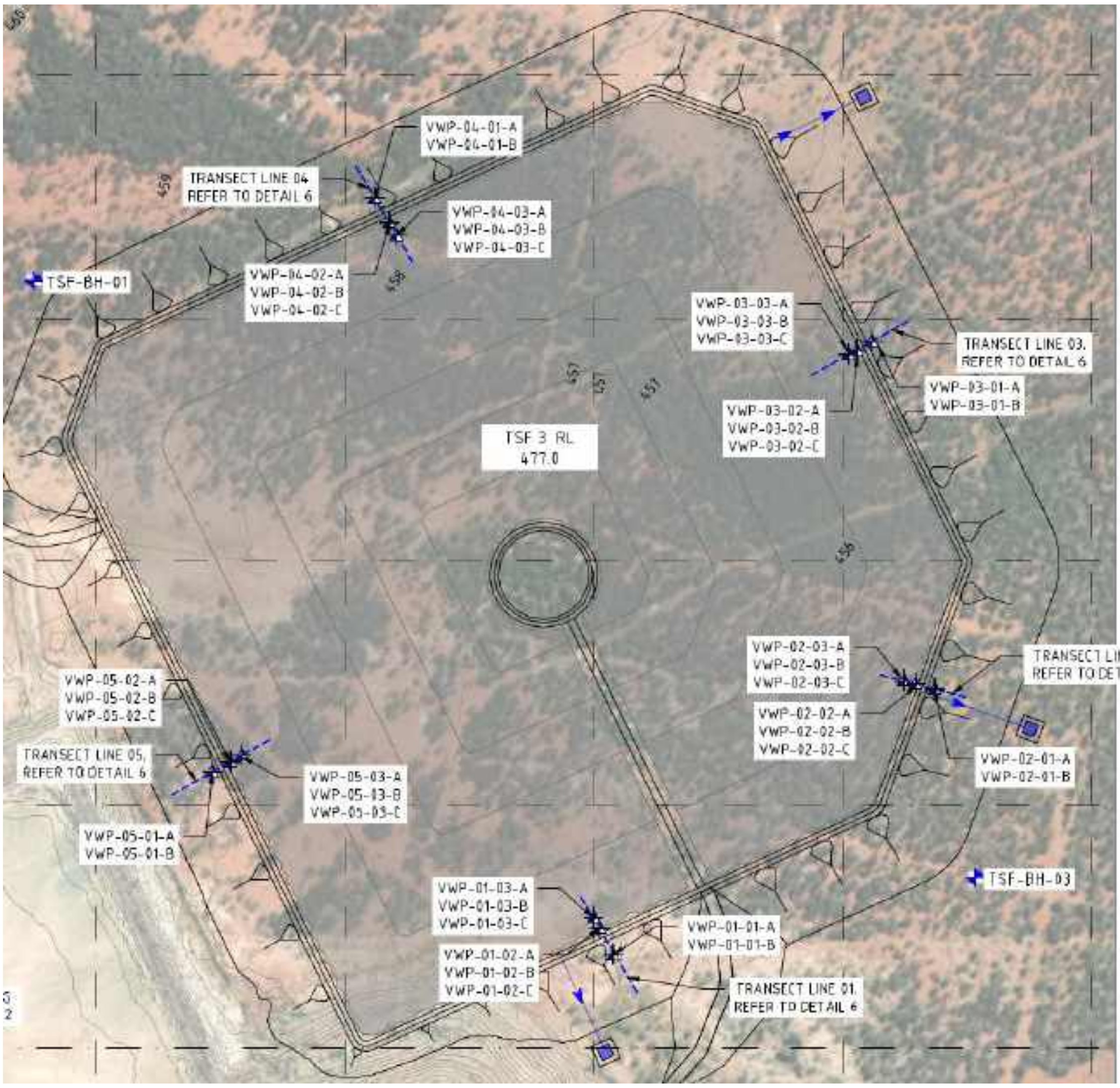
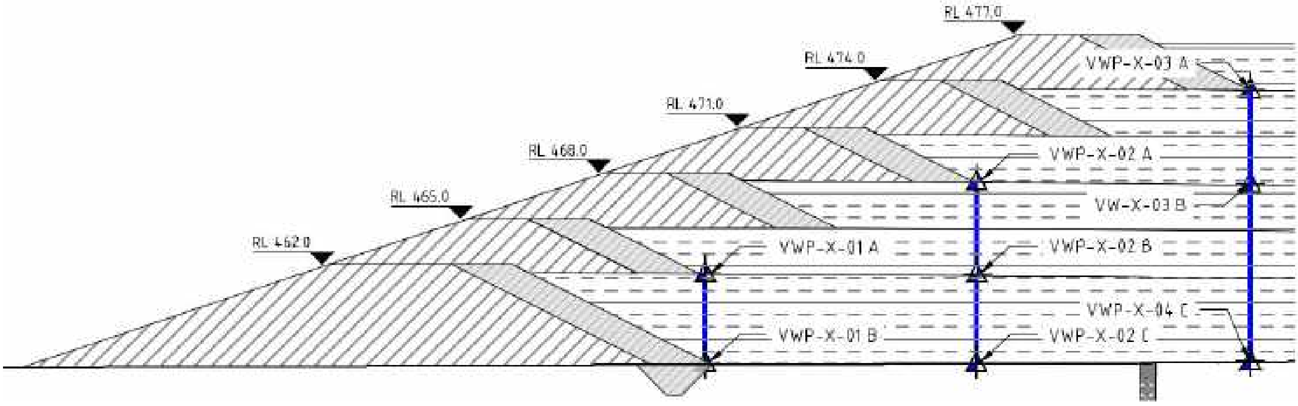


Figure 2-11: TSF3 Instrumentation – Typical Section View



2.8 Construction

2.8.1 Anticipated Schedule

Construction of the TSF3 is currently in planning and is likely to begin in Q4 of 2026.

2.8.2 Bill of Quantities

As part of this design, preliminary bill of quantities (BoQ) for major components of the facility to final stage has been estimated. A summary of the BoQ is presented in Table 2-10 below. Zone A material is to be sourced from the facility basin or from a dedicated borrow pit, subject to laboratory testing. Zone B material is to be sourced from the adjacent mine waste stockpile or the Bunker Dump, subject to laboratory testing. A more detailed BoQ with approximated cost is attached in Appendix F.

Table 2-10: TSF3 Estimated BoQ

Stage	Zone A (m^3)	Zone B (m^3)	TOTAL (m^3)
Starter	42,613	225,257	267,870
Stage 1	33,522	91,034	124,556
Stage 2	33,315	95,336	128,651
Stage 3	3,832	99,115	102,947
Stage 4	33,165	96,032	129,197
Stage 5	32,259	93,662	125,921
TOTAL (m^3)	178,706	700,436	879,142

A summary of the excavation volumes for cut-off trench, seepage collection drain and soil stripping are summarized in Table 2-11.

Table 2-11: TSF3 Estimated BoQ

Structure	Cut-Off Trench	Seepage Drain	Topsoil (0.3m)	0.7m Borrow Strip*
Excavation Vol. m^3	13,375	11,073	150,297	350,700

Note*: The 0.7m soil strip is included as an option to locally borrow Zone A material

2.9 Quality Assurance

Earthworks specification will be included in the scope of work for construction. The scope of work will include a construction quality assurance (CQA) plan and requirements for on-site third-party quality assurance (QA) monitoring. A construction completion report will be prepared by a Competent Person (typically the design engineer) following substantial completion of the TSF construction, in line with the requirements of the DMIRS CoP (DMP, 2013). The proposed facility is to be constructed and compacted in maximum lifts of 300mm to 98% and 95% SMDD for Zone A and Zone B, respectively.

3 Operational Requirements

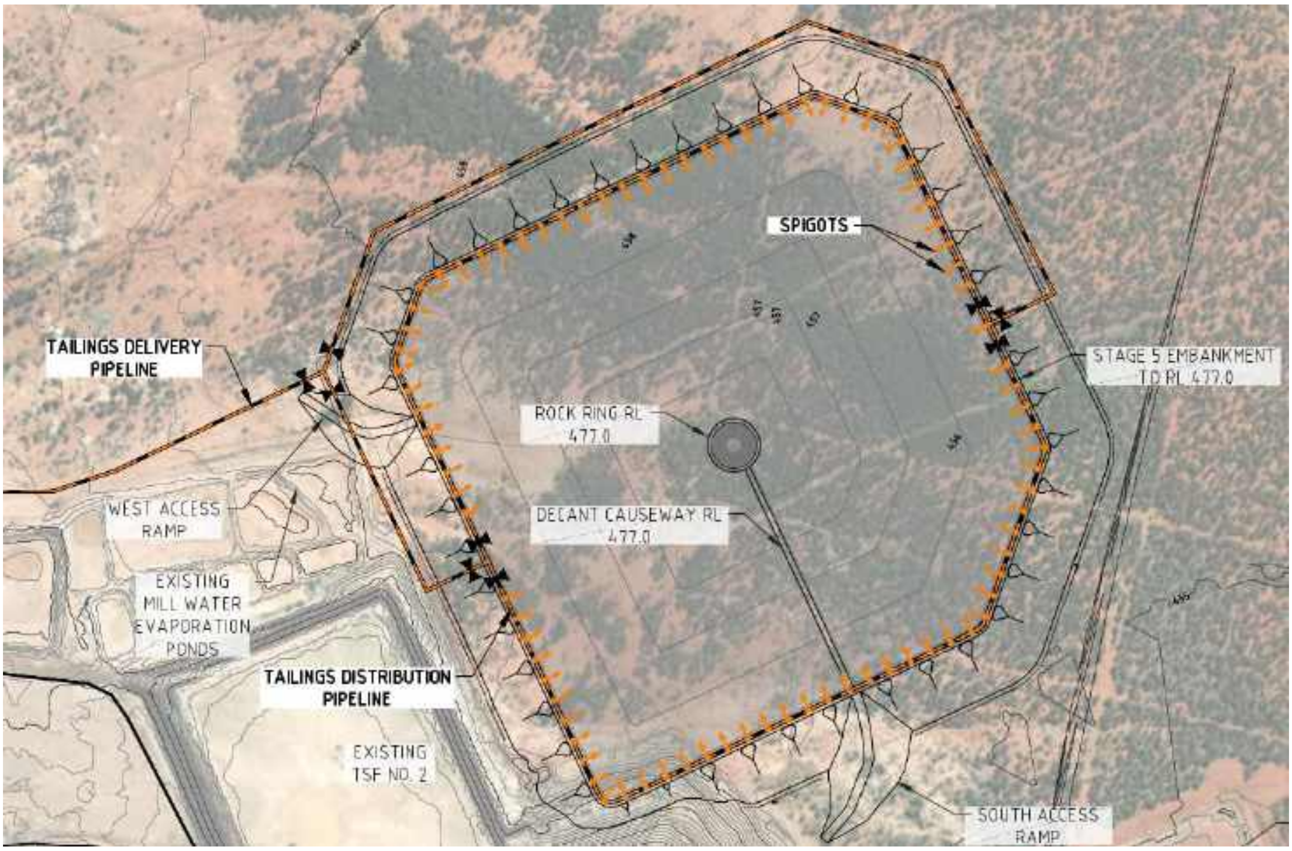
3.1 General

An Operations, Maintenance and Surveillance Manual (OMSM) will be prepared prior to the operations of the TSF3 in accordance with DMPE guideline.

3.2 Tailings Deposition

Tailings are to be deposited via a perimeter ring pipeline located on the embankment crest, equipped with spigots spaced at nominal intervals of approximately 25m. The tailings delivery system consists of a single pipeline from the plant, which splits into two legs along the embankment toe to enable transfer to either the West or East manifold. Two Manifolds, one on the West and one on the East, allow for tailings delivery to be split in 4 deposition zones along the distribution pipeline around the facility perimeter at the crest. This arrangement supports construction sequencing while maintaining continuous tailings deposition. Refer to Figure 3-1 for the tailings pipeline layout concept.

Figure 3-1: Tailings Pipeline Layout Concept



Tailings will be deposited in a sub-aerial manner using a network of spigots, spaced at approximately 25 metres along the perimeter of the facility. Deposition will occur in thin, controlled layers up to 300 mm thick, which facilitates desiccation, promotes consolidation, and improves tailings density over time.

Each spigot will be fitted with an independent control valve to regulate discharge, allowing for targeted deposition and beach formation. The deposition sequence will involve rotating discharge between spigots in a controlled manner, systematically progressing around the embankment to ensure uniform beach development, maintain positive drainage toward the central decant, and minimise ponding against the perimeter.

This method enhances operational control, improves tailings drying conditions, and supports long-term geotechnical performance. Additional details regarding spigot operation, sequencing, and monitoring will be provided in the Operations, Maintenance, and Surveillance Manual (OMSM).

3.3 Water Management

The proposed TSF3 is impounded, and no upstream catchment is applicable. Facility surface water management is critical to operational safety and stability. Freeboard assessment and water balance has been completed to ensure that the facility surface water is maintained to design limits, refer to Section 2.5.2 and 2.5.6 for more details.

Operationally, the decant pond should be always kept to a minimum and at least 100m away from the embankments.

3.4 Seepage Management

3.4.1 General

The TSF design incorporates several features and operational controls to minimise seepage and manage pore water pressures. These include:

Design features:

- A cut-off trench beneath the embankment.
- Natural foundation floor of low permeability.
- A seepage intercept trench located within the facility basin, along with a sub-soil installed in the starter embankment foundation near the downstream toe.
- A central decant system for water removal.

Operational controls:

- Sub-aerial tailings deposition in thin layers to promote drying and reduce dust.
- Maintaining a small, central decant pond away from embankments.
- Monitoring of pore pressure within the tailings.
- Groundwater level and quality monitoring downstream of the TSF.

3.4.2 Design Features

3.4.2.1 Cut-off Trench

A cut-off trench beneath the starter dam is designed and will act as a barrier to seepage through the foundation and beneath the embankment. This will minimize the risk of seepage impact on the environment outside the facility footprint.

3.4.2.2 Seepage Collection Drain

A seepage collection drain has been incorporated into the design to allow for TSF basin seepage to preferentially flow into the highly permeable trench and discharge into designated sumps for recycling. Additionally, a foundation sub-soil drain has been included beneath the starter embankment foundation near the downstream toe to further capture and control potential seepage. Refer to the drawings in Appendix A for details. These will help minimize the risk of lateral seepage into the surrounding environment.

3.4.2.3 Impoundment Floor

A hardpan layer is present immediately beneath the facility. The foundation materials are expected to exhibit low permeability, particularly at depth. With the seepage interception trench in place, seepage water is anticipated to preferentially migrate into the trench and subsequently report to the collection sump for recycling.

The groundwater table in the area is hypersaline, with no downstream freshwater receptors or vegetation identified. Furthermore, as the tailings are classified as non-acid forming (NAF), any limited seepage that may migrate deeper into the foundation is not expected to result in adverse environmental impacts.

3.4.2.4 Decant System

A central rock ring decant system has been incorporated as part of the design to allow for fast and efficient drainage of the deposited tailings ensuring a well consolidated facility with reduced risk of seepage.

The decant rock ring shall be constructed with the following specifications:

- Crest width of 4 m minimum, including safety berms to allow for light vehicle (LV) access and maintenance.
- Constructed in an upstream fashion with upstream and downstream slopes of 1V:1H.
- Traffic compacted mine waste rock with sufficiently low fines.

The decant system will be raised as required to facilitate access to the decant pond. A photographic example of a decant rock ring is presented in Figure 3-2 below.

Figure 3-2: Typical rock ring decant arrangement

3.4.3 Operational Controls

3.4.3.1 Sub-aerial Deposition

Tailings will be deposited in thin layers to encourage evaporation and reduce the permeability of the tailings mass. Given the site's semi-arid climate, evaporation generally exceeds rainfall, resulting in lower water recovery during summer and increased recovery during cooler months.

3.4.3.2 Decant Pond Management

To minimise embankment seepage, a small decant pond will be maintained—targeting no more than 10% of the cell area and located centrally. A minimum 100 m beach length will be maintained between the pond and the embankment. Keeping the pond small in both depth and area helps reduce seepage driven by hydraulic head.

3.4.3.3 Phreatic Surface Monitoring

A series of VWPs have been incorporated into the design to monitor the phreatic surface development at key areas, refer to Section 3.8 for details.

3.4.3.4 Groundwater Monitoring

Two standpipe piezometers have been constructed (TSF-BH-01 and TSF-BH-03) to allow for monitoring of seepage and or groundwater beyond the facility embankments. Refer to Section 2.7.1 for details.

3.5 Erosion and Sediment Control

Erosion mitigation features are described in Section 2.5.6. A sediment interception bund is provided around the facility toe. The sediment interception bund should be inspected on a regular basis and following heavy rainfall events for signs of excessive erosion and repairs is to be made accordingly.

Sub-aerial tailings deposition on thin lifts across the entire tailings beach will ensure the tailings surface is kept sufficiently moist to prevent excessive wind erosion and dusting of the tailings surface.

3.6 Monitoring Instrumentation

3.6.1 General

Monitoring instrumentation consisting of VWPs and standpipe piezometers have been incorporated as part of the design, refer to Figure 2-10 and

Figure 2-11. The VWPs are recommended to be plugged into live monitoring data louds services for implementation into a Trigger Action Response Plan (TARP).

3.6.2 TARP

Upon installation of the VWPs and during operation of the facility, a Trigger Action Response Plan (TARP) is to be developed. The purpose of the TARP will be to monitor and alert when phreatic surface develops and rises beyond expectations and hence impacts slope stability. A multi-level TARP system corresponding to FoS < 1.5, <1.30 and <1.0 is to be developed during early operations of the facility using live VWP data. A conceptual example of a TARP for TSF phreatic surface and slope stability monitoring is presented in Table 3-1 below.

Table 3-1: TSF TARP Model

Trigger Level	Trigger Event	Risk Level	Response
Level 1	VWP readings corresponds to embankment FOS > 1.5	Normal	None required. Continue usual weekly monitoring of phreatic levels.
Level 2	VWP readings corresponds to embankment FOS <1.5	Low Risk	Increase monitoring frequency up to twice a week.
Level 3	VWP readings corresponds to embankment FOS <1.3	Medium Risk	Increase monitoring frequency up to three times a week. Conduct a preliminary site inspection to monitor signs of seepage and cracking. Identify causes and reduce tailings deposition and increase decant pumping capacity if required.
Level 4	VWP readings corresponds to embankment FOS <1.1	High Risk	Increase monitoring frequency to once every 12-hour. Conduct a comprehensive site inspection to assess signs of seepage and cracking. Halt tailings deposition into facility and maximise decant pumping capacity. Perform more detailed engineering analyses to assess the potential

4 Closure Requirements

4.1 General

The primary objective of TSF closure is to ensure that the decommissioning of the facility is undertaken in a safe, environmentally responsible, and sustainable manner. Closure activities aim to protect human health, prevent ongoing environmental impacts, and achieve regulatory compliance, while also addressing the expectations of stakeholders and supporting the long-term stability and integrity of the site.

Key closure outcomes include establishing a TSF that is physically stable, chemically non-polluting, erosion-resistant, and capable of remaining self-sustaining without the need for ongoing active management. The closure design must also consider future land use, climate resilience, and effective integration with the surrounding landscape to ensure that residual risks are minimised in perpetuity.

4.2 Closure and Rehabilitation of TSF3

Closure and rehabilitation for TSF3 is expected to be planned and formulated post approval and during operation.

5 References

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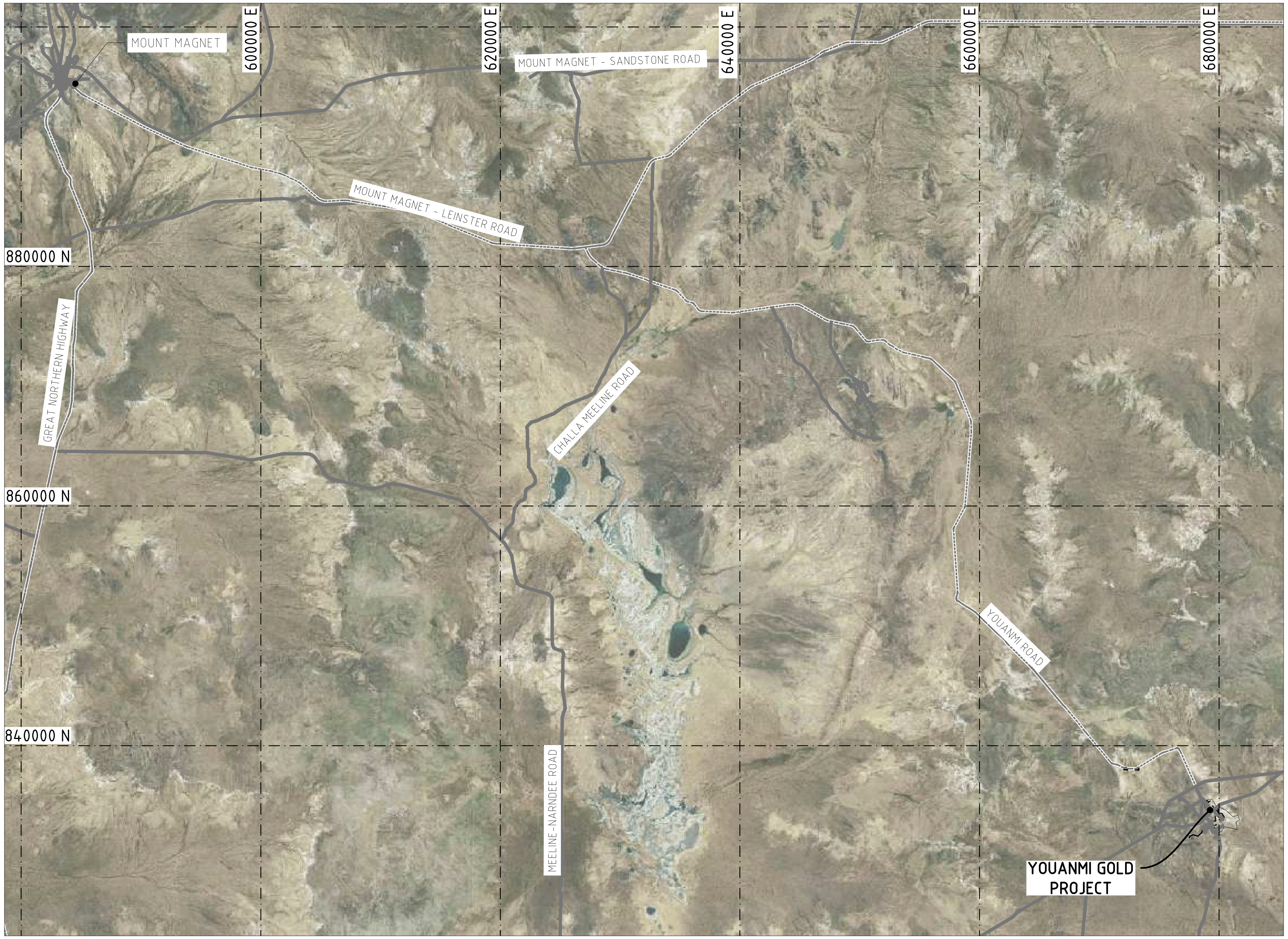
Appendix A Design Drawings

YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY



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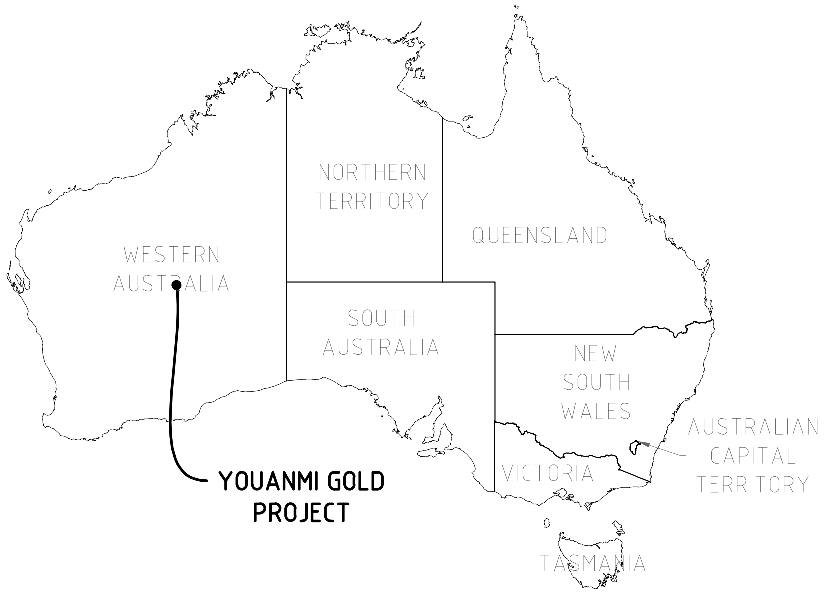
160-01-3139C-DG101	TSF 3 EMBANKMENT RAISE TO RL 462.0 LAYOUT PLAN
160-01-3139C-DG102	TSF 3 UNDERDRAINAGE LAYOUT PLAN
160-01-3139C-DG201	TSF 3 EMBANKMENT RAISE TO RL 477.0 LAYOUT PLAN
160-01-3139C-DG301	TSF 3 EMBANKMENT RAISE CROSS SECTIONS
160-01-3139C-DG305	TSF 3 EMBANKMENT RAISE TYPICAL DETAILS
160-01-3139C-DG401	TSF 3 EMBANKMENT INSTRUMENTATION AND MONITORING BORES



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ENGINEER MS
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DATE

HORIZONTAL DATUM GDA94/MGA ZONE 50
VERTICAL DATUM

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PROJECT
YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
TSF 3 RAISE TO RL 477m
EMBANKMENT RAISE
SITE LOCATION AND DRAWING INDEX

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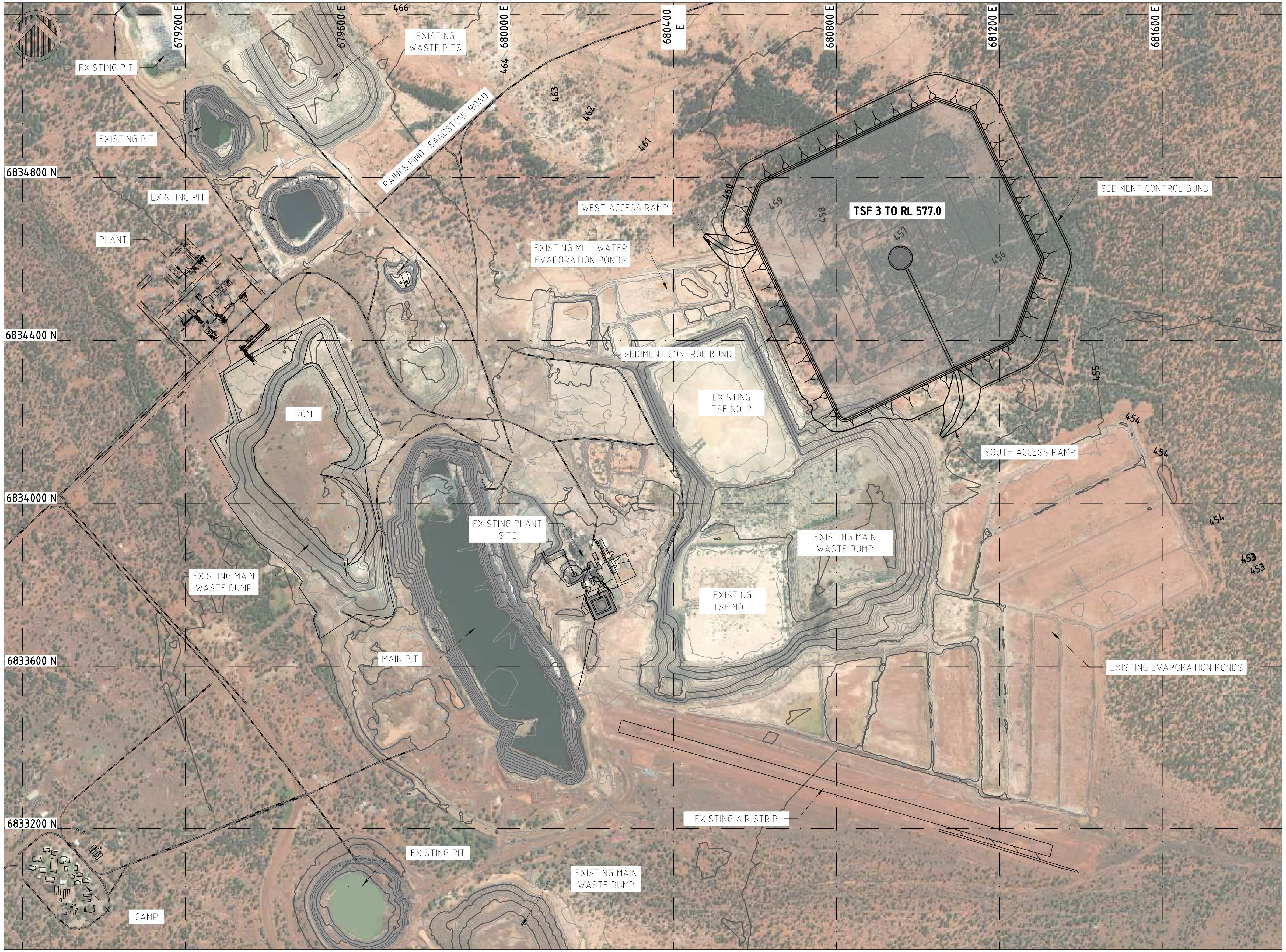

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YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
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EMBANKMENT RAISE
SITE LAYOUT PLAN

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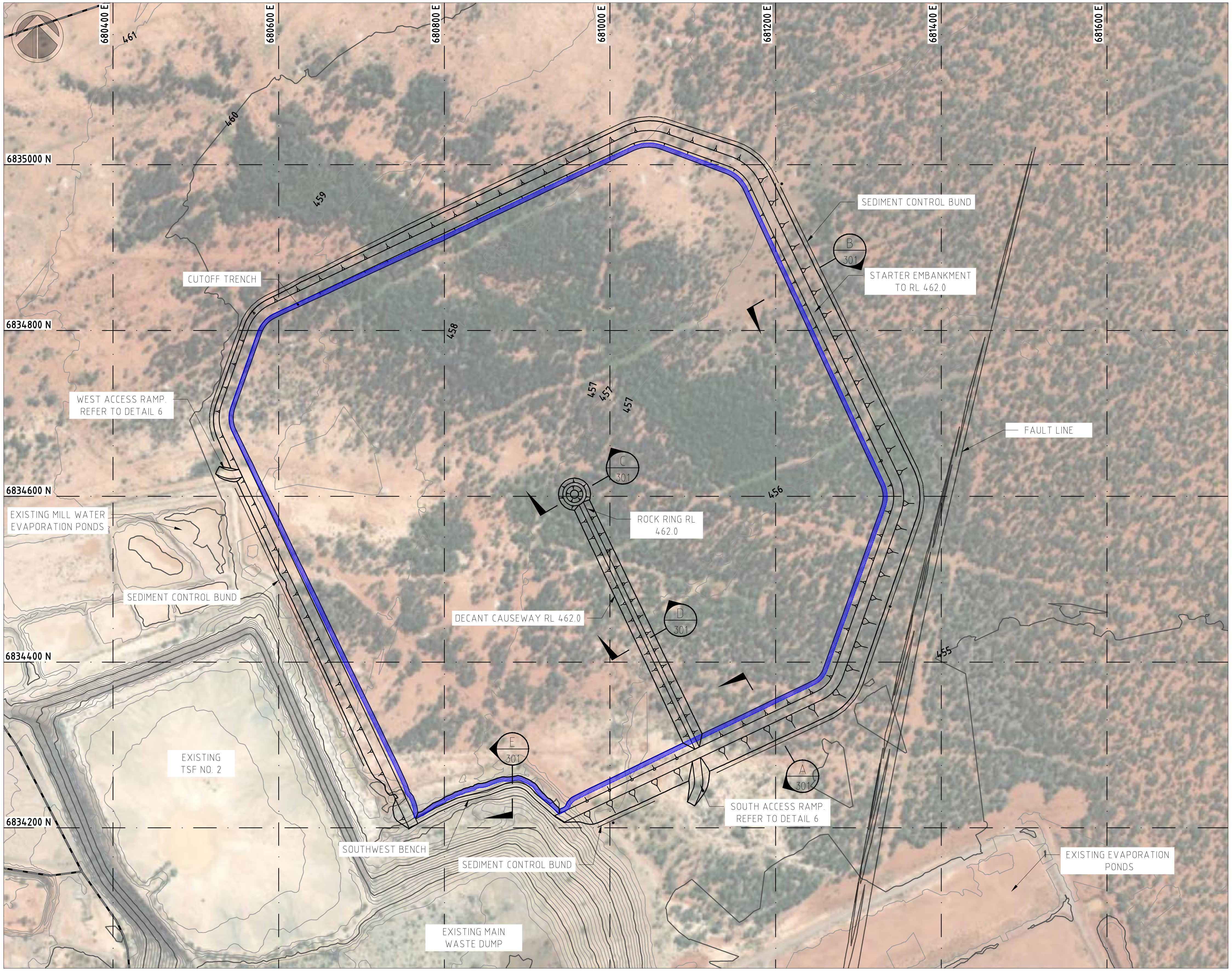

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1. ALL DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE NOTED

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YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
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EMBANKMENT RAISE
SITE LAYOUT PLAN

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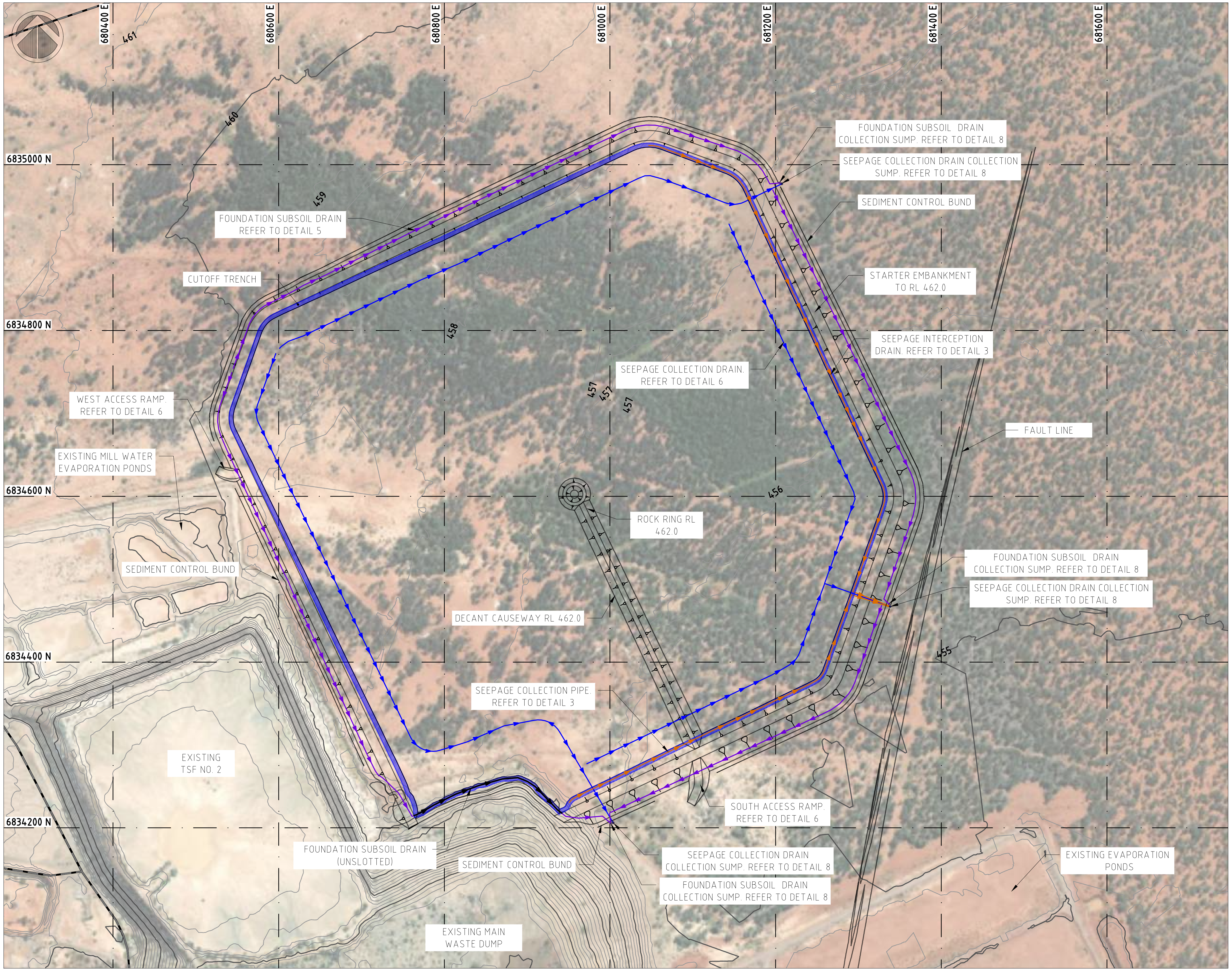

SITE LAYOUT

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LEGEND:

→→	SEEPAGE COLLECTION DRAIN
→→	SEEPAGE INTERCEPTION DRAIN
→→	FOUNDATION SUBSOIL DRAIN (SLOTTED)
→→	FOUNDATION SUBSOIL DRAIN (UNSLOTTED)

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GDA94/MGA ZONE 50
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YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
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UNDERDRAINAGE
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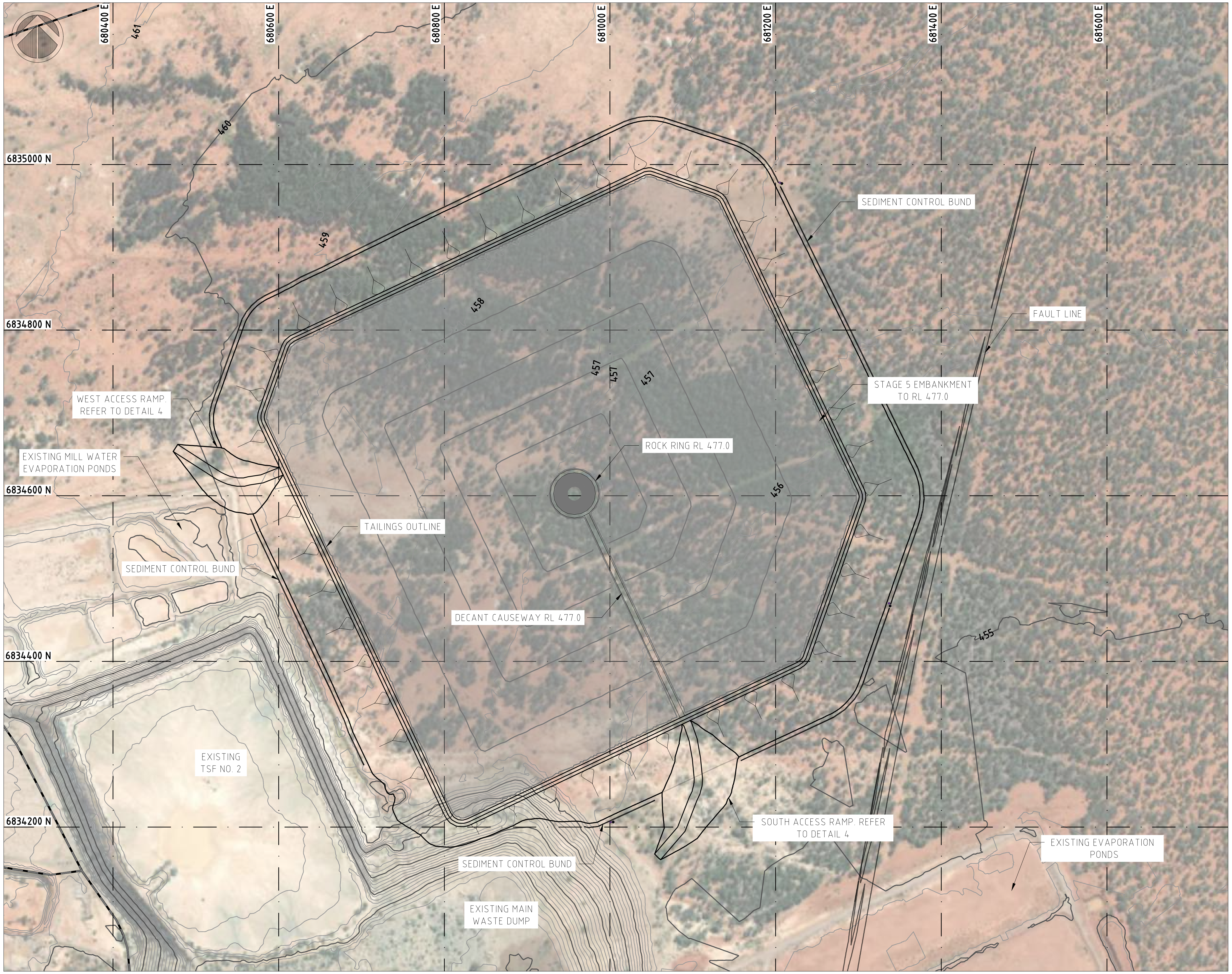

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NOTES:

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HORIZONTAL DATUM GDA94/MGA ZONE 50
VERTICAL DATUM

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ROX RESOURCES

PROJECT
YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

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EMBANKMENT RAISE
SITE LAYOUT PLAN

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DRAWING NO. 160-01-3139C-DG201

REV B

NOTES:
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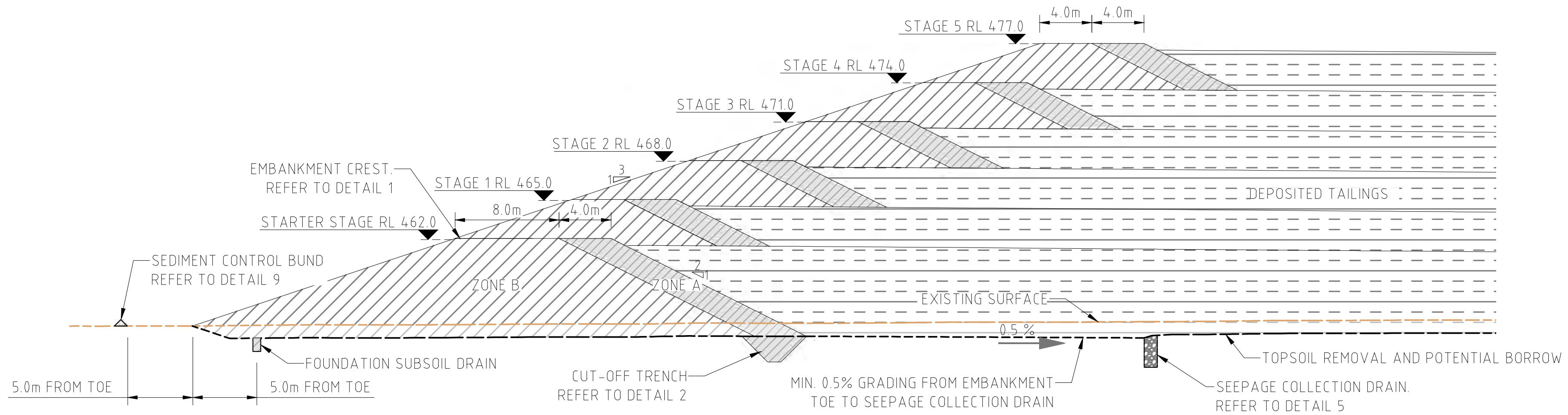
▨	ZONE B : MINE WASTE ROLLER COMPACTED MATERIAL95% SMDD
▩	ZONE C : CLEAN MINE WASTE ROCK
■	TRAFFIC COMPACTED MINE WASTE



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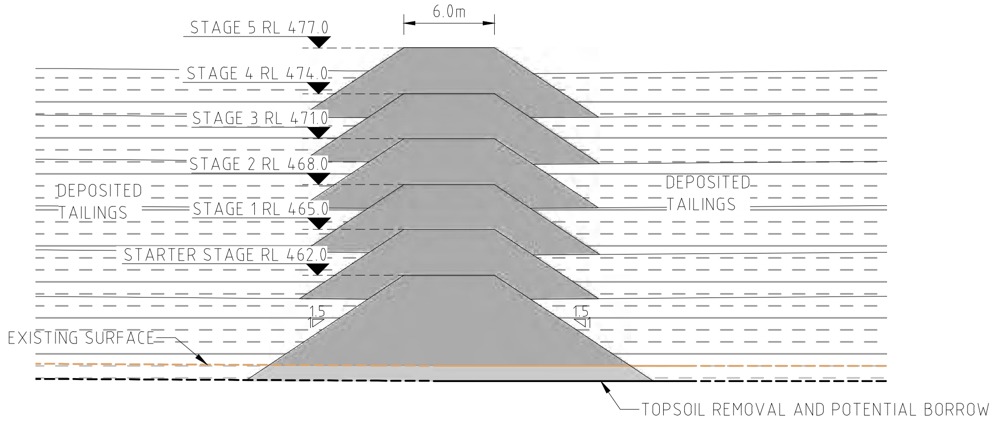

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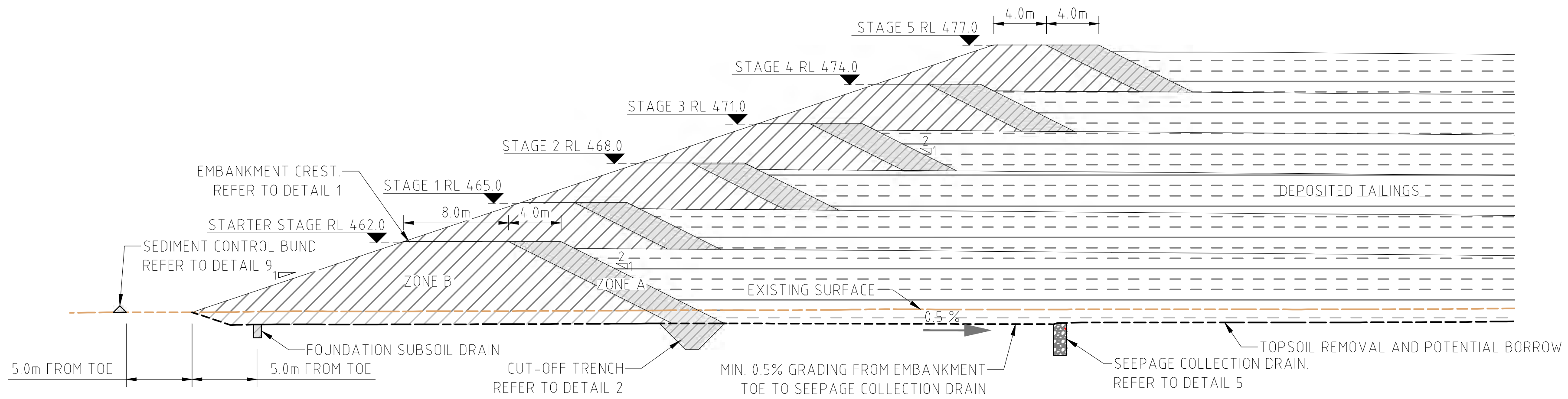

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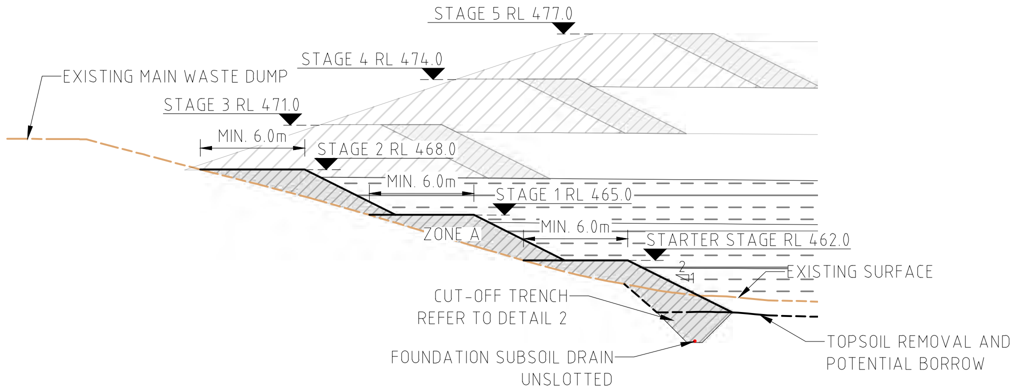

E | SOUTHWEST BENCH - TYP. SECTION
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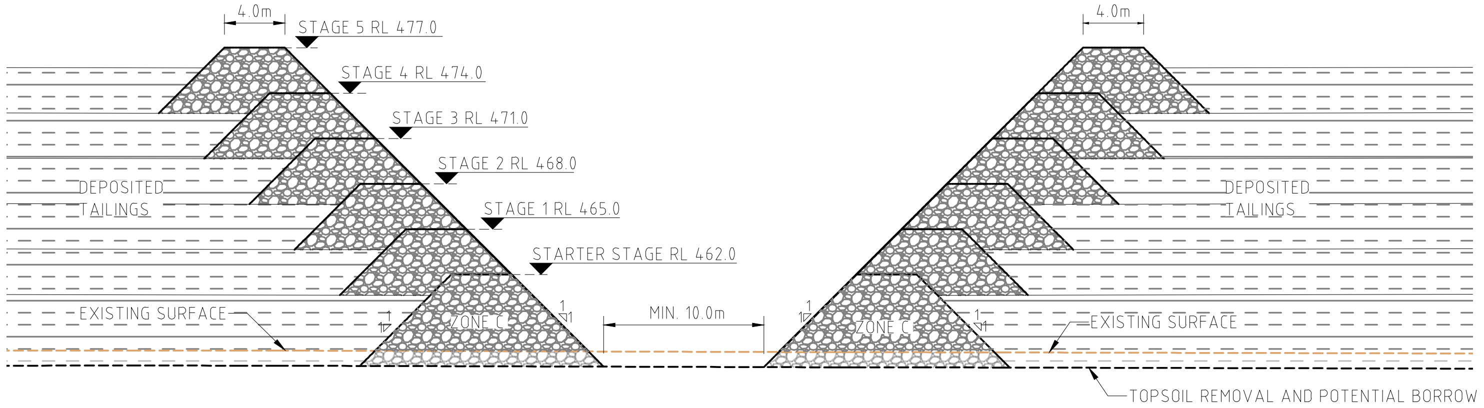

C | ROCK RING - TYP. SECTION
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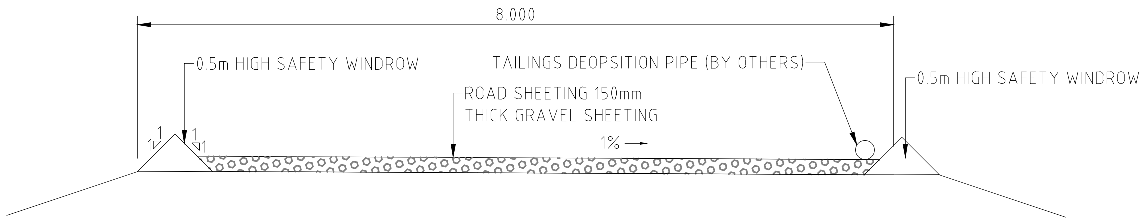

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APPROVED
RPEQ
DATE

HORIZONTAL DATUM GDA94/MGA ZONE 50
VERTICAL DATUM

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PROJECT
YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
TSF 3 RAISE TO RL 477m
EMBANKMENT RAISE
EMBANKMENT SECTIONS

ISSUE
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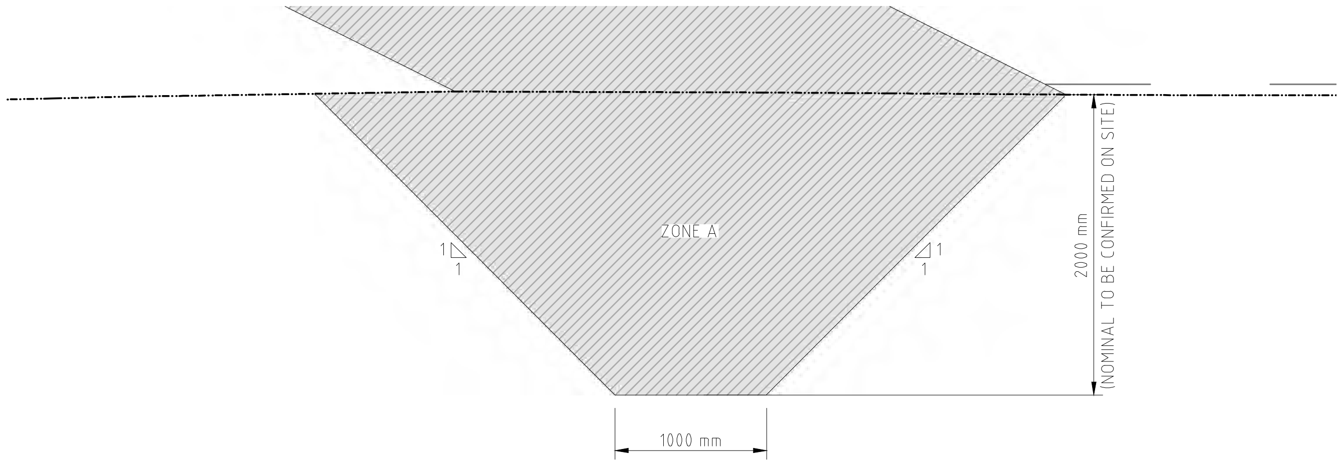

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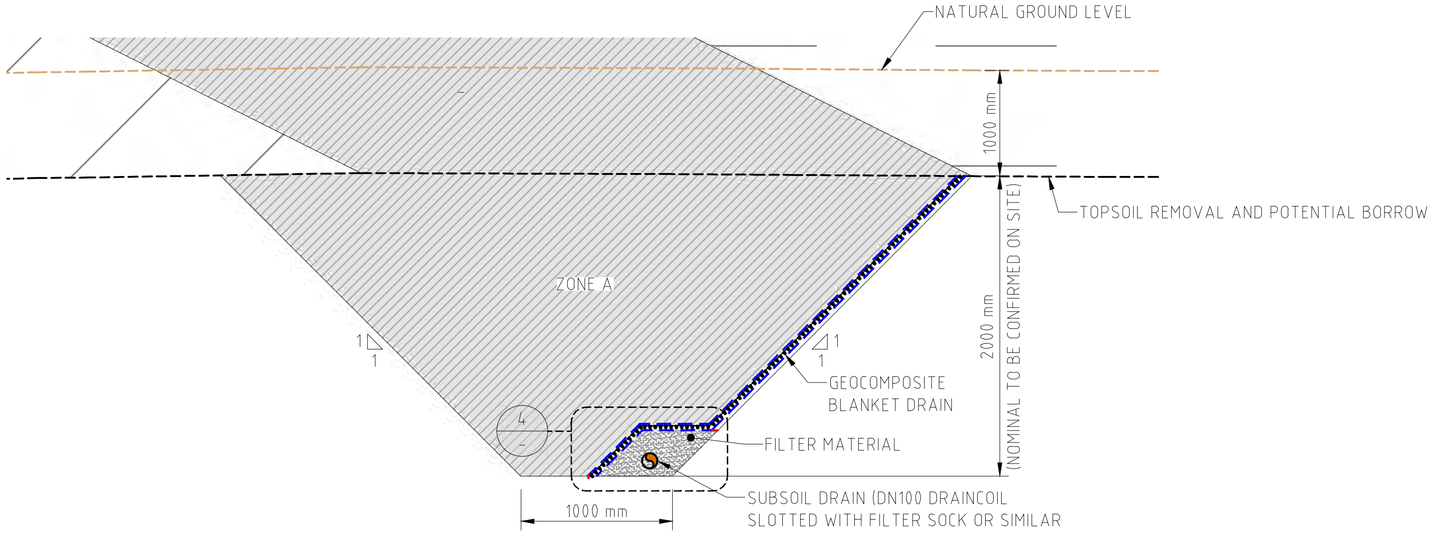

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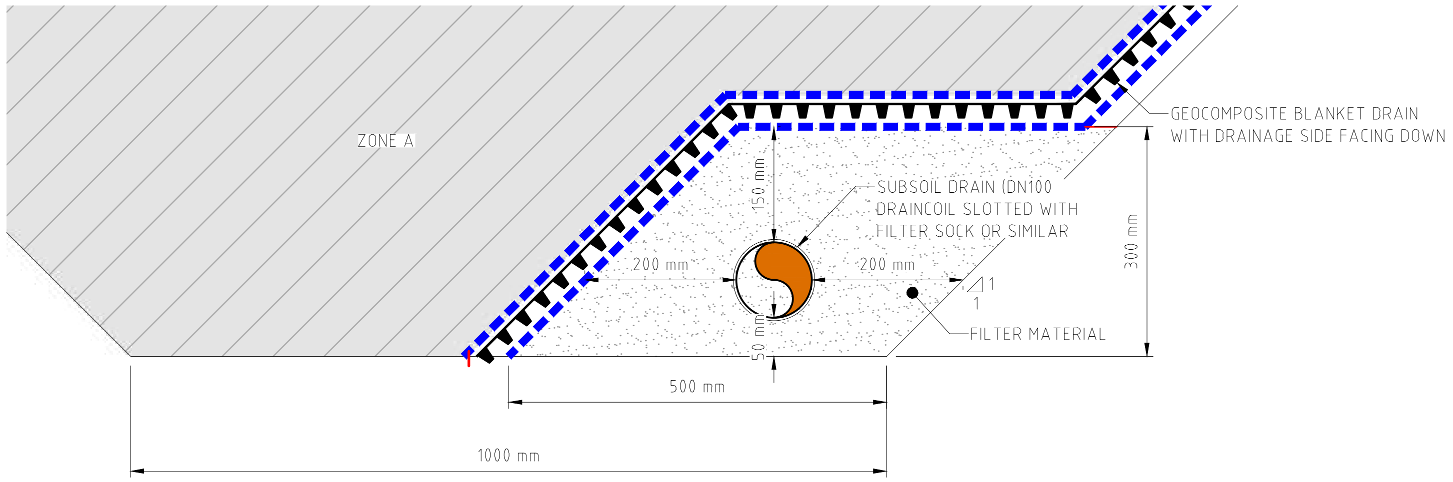

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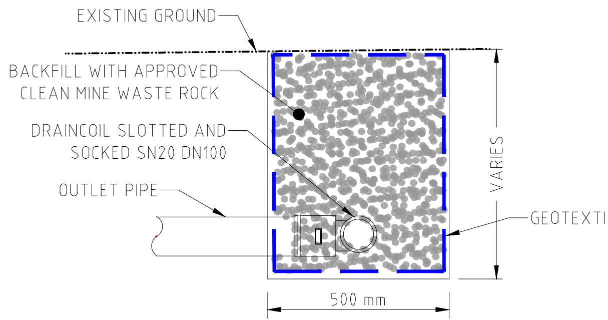

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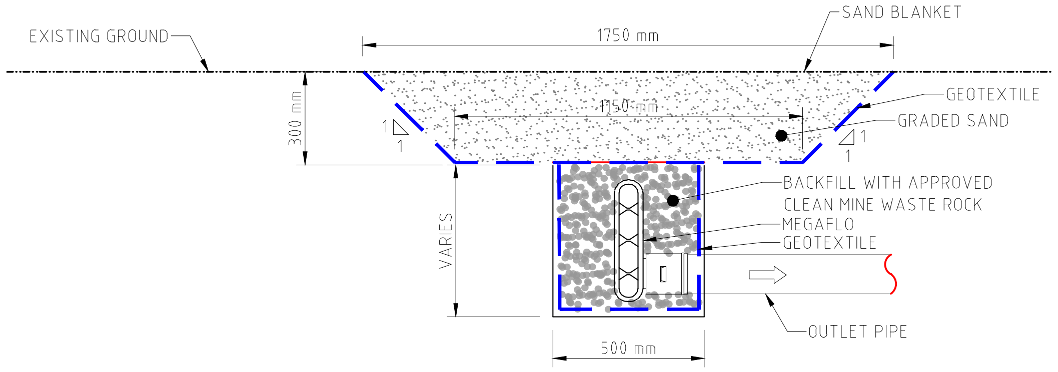
NOTES:

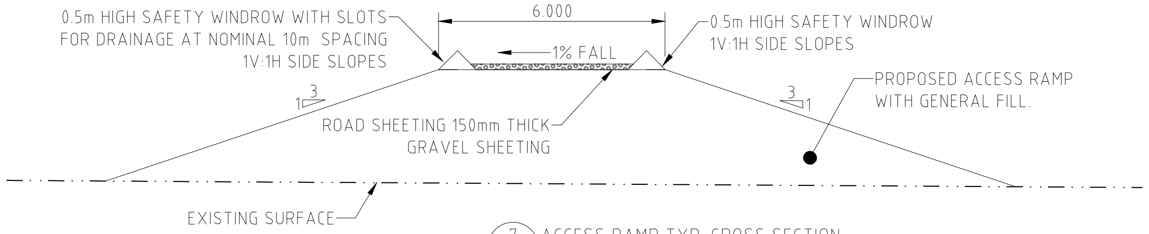
1. ALL DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE NOTED.

LEGEND:

▨	ZONE A: LOW PERMEABILITY ROLLER COMPACTED MATERIAL 98% SMDD
▨	ZONE B : MINE WASTE ROLLER COMPACTED MATERIAL95% SMDD



6 / 101 SEEPAGE COLLECTION DRAIN - TYP. DETAIL
SCALE 1:25



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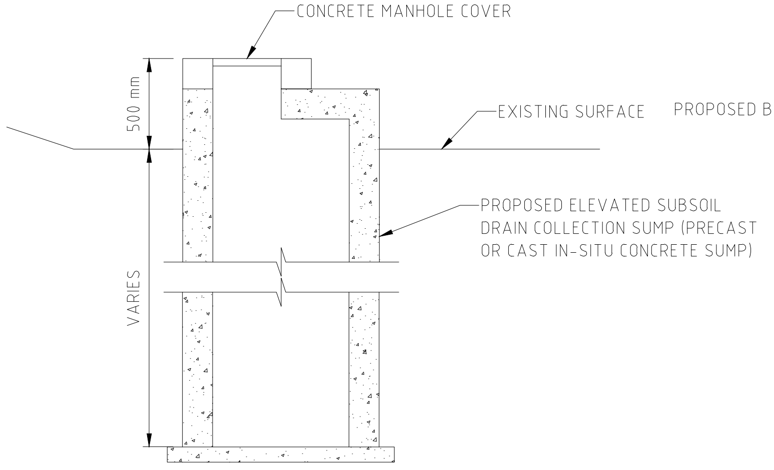

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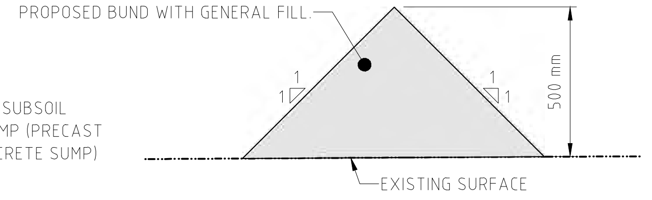

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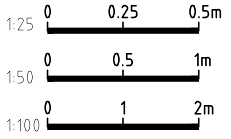

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A	ISSUED FOR REVIEW	2025.06.27	AX	MS	MS
	REVISIONS	DATE	DWN	CHK	APP

DRAWN AX
DESIGNED MS
CHECKED MS
ENGINEER MS
APPROVED
RPEQ
DATE

GDA94/MGA ZONE 50
HORIZONTAL DATUM
VERTICAL DATUM

TailCon Projects

CLIENT
ROX RESOURCES

PROJECT
YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
TSF 3 RAISE TO RL 477m
EMBANKMENT RAISE
TYPICAL DETAILS

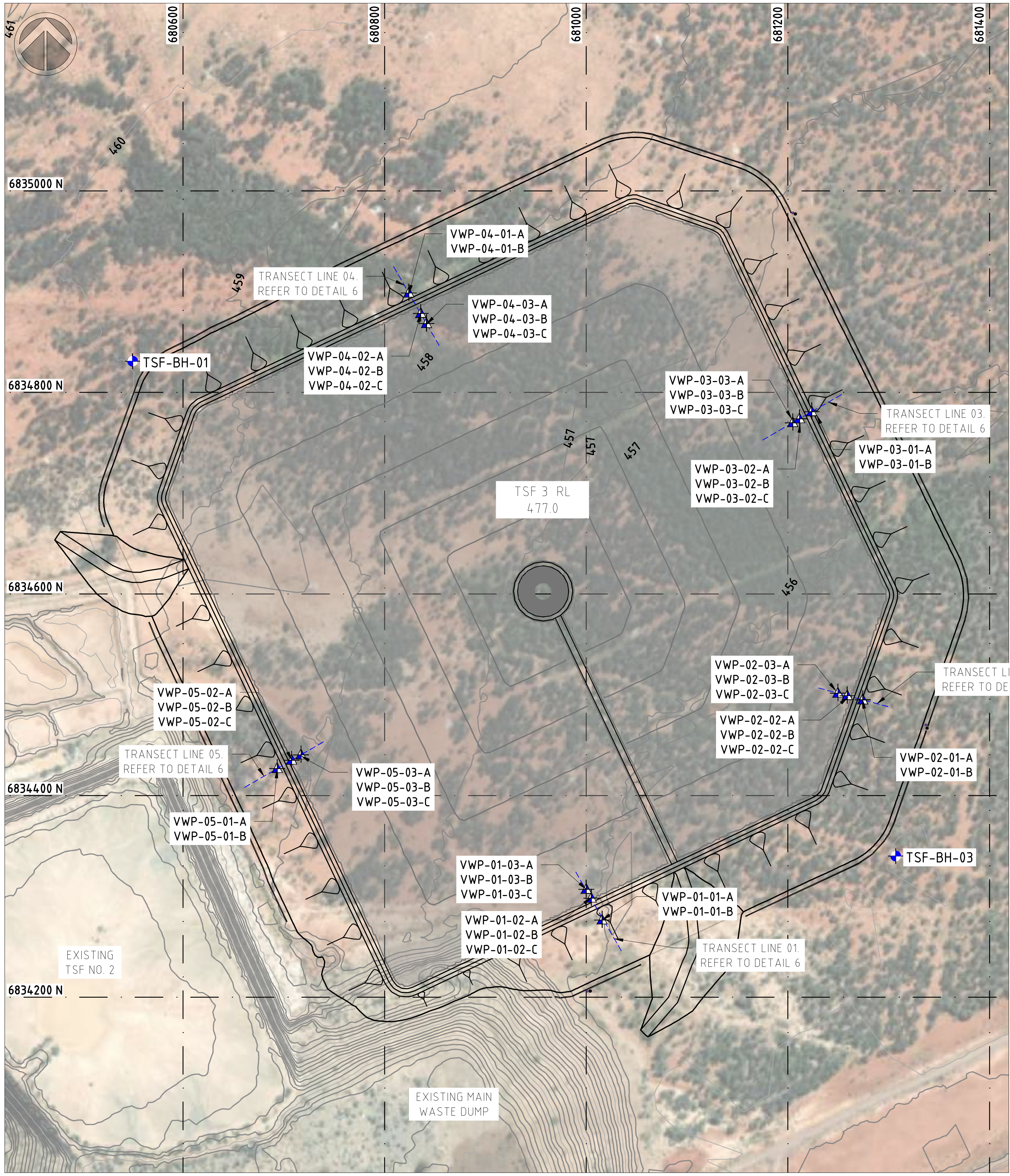
ISSUE
ISSUED FOR REVIEW

CLIENT DRAWING NO.

DRAWING NO. 160-01-3139C-DG305
REV B

QR CODE

Appendix A - page 8



SITE LAYOUT

SCALE: 1 : 5,000

BOREHOLE LOCATION		
ID	NORTH	EAST
TSF-BH-01	6,834,831.00	680,550.00
TSF-BH-03	6,834,340.00	681,307.00

NOTES:

1. ALL DIMENSIONS ARE IN METRES (m) UNLESS OTHERWISE NOTED.

LEGEND:

▨	ZONE A: LOW PERMEABILITY ROLLER COMPACTED MATERIAL 98% SMDD
▨	ZONE B : MINE WASTE ROLLER COMPACTED MATERIAL95% SMDD
▩	ZONE C : CLEAN MINE WASTE ROCK
■	TRAFFIC COMPACTED MINE WASTE
⊕	EXISTING MONITORING BOREHOLE
▲	PROPOSED VIBRATING WIRE PIEZOMETER

PROPOSED VWP	
TRANSECT LINE	PIEZOMETER ID
01	VWP-01-01-A
01	VWP-01-01-B
01	VWP-01-02-A
01	VWP-01-02-B
01	VWP-01-02-C
01	VWP-01-03-A
01	VWP-01-03-B
01	VWP-01-03-C
02	VWP-02-01-A
02	VWP-02-01-B
02	VWP-02-02-A
02	VWP-02-02-B
02	VWP-02-02-C
02	VWP-02-03-A
02	VWP-02-03-B
02	VWP-02-03-C

PROPOSED VWP	
TRANSECT LINE	PIEZOMETER ID
03	VWP-03-01-A
03	VWP-03-01-B
03	VWP-03-02-A
03	VWP-03-02-B
03	VWP-03-02-C
03	VWP-03-03-A
03	VWP-03-03-B
03	VWP-03-03-C
04	VWP-04-01-A
04	VWP-04-01-B
04	VWP-04-02-A
04	VWP-04-02-B
04	VWP-04-02-C
04	VWP-04-03-A
04	VWP-04-03-B
04	VWP-04-03-C

PROPOSED VWP	
TRANSECT LINE	PIEZOMETER ID
05	VWP-05-01-A
05	VWP-05-01-B
05	VWP-05-02-A
05	VWP-05-02-B
05	VWP-05-02-C
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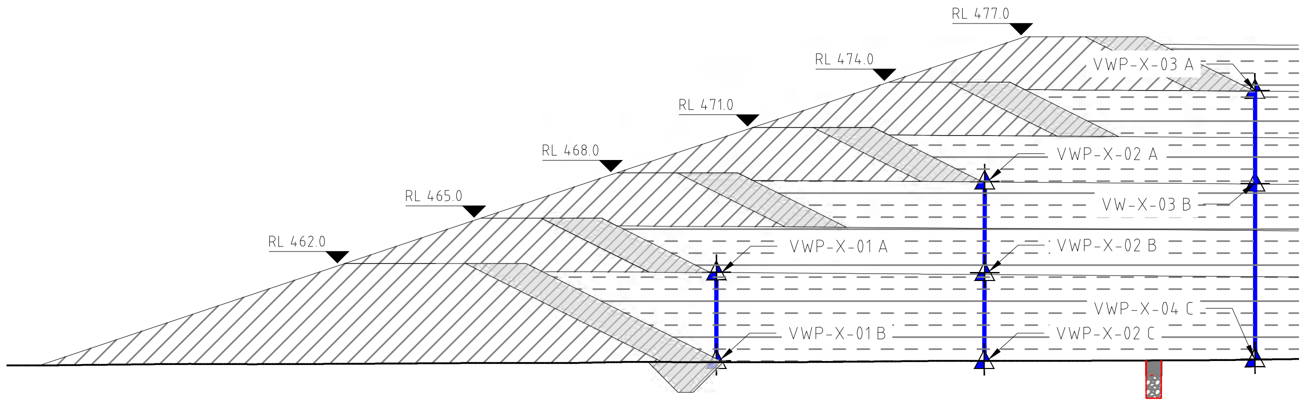
05	VWP-05-03-B
05	VWP-05-03-C



6 EMBANKMENT INSTRUMENTATION- TYPICAL DETAIL

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	REVISIONS	DATE	DWN	CHK	APP

ORIGINAL SIZE A3

DRAWN AX

DESIGNED AX

CHECKED MS

ENGINEER MS

APPROVED

RPEQ

DATE

HORIZONTAL DATUM GDA94/MGA ZONE 50

VERTICAL DATUM

TailCon Projects

CLIENT

ROX RESOURCES

PROJECT
YOUANMI GOLD PROJECT
TAILINGS STORAGE FACILITY

DRAWING TITLE
TSF 3 RAISE TO RL 477m
EMBANKMENT RAISE
SITE LAYOUT PLAN

ISSUE
ISSUED FOR REVIEW

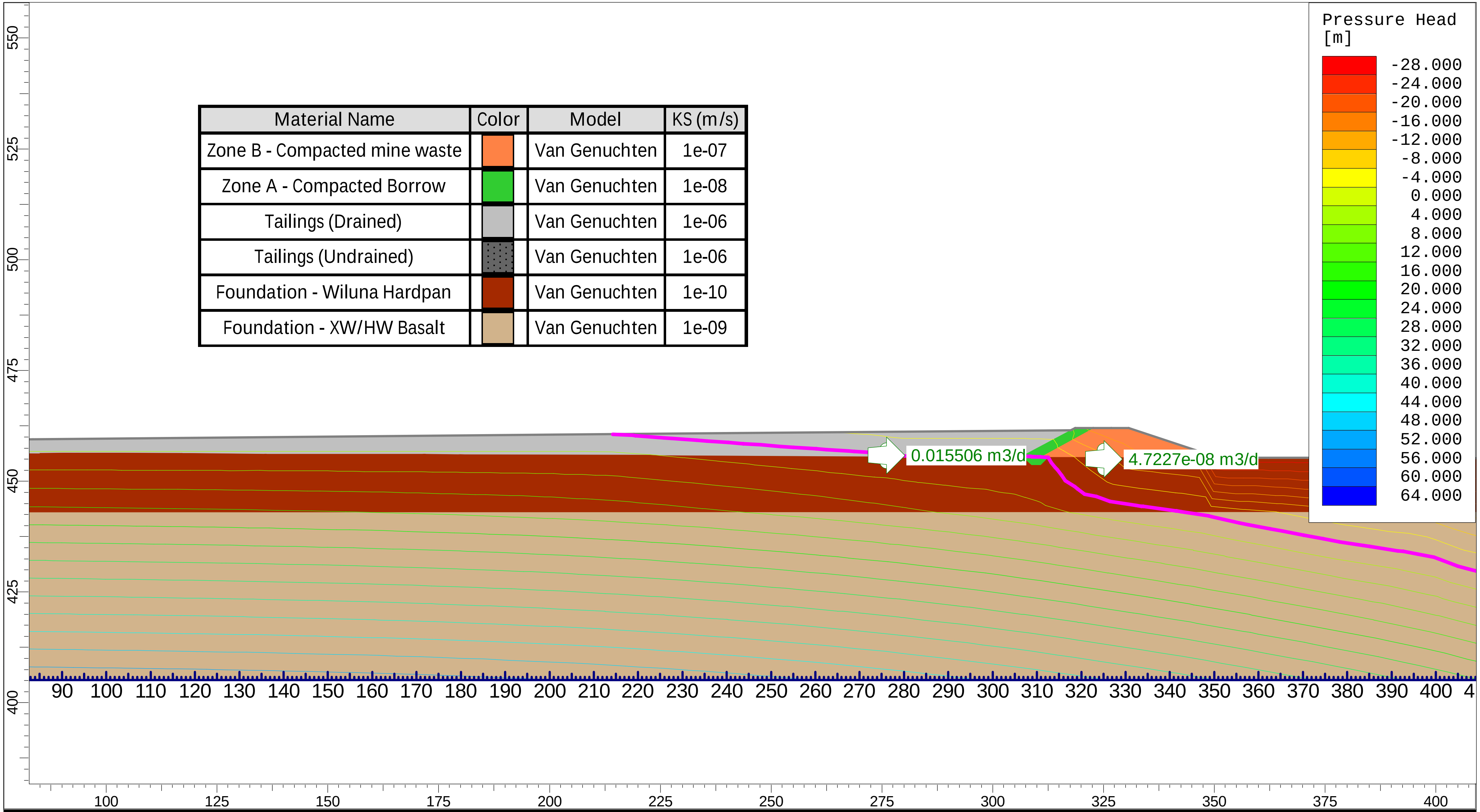
CLIENT DRAWING NO.

QR CODE

DRAWING NO. 160-01-3139C-DG401

REV B

Appendix B Seepage and Slope Stability Assessment Outputs



Material Name	Color	Model	KS (m/s)
Zone B - Compacted mine waste	🟧	Van Genuchten	1e-07
Zone A - Compacted Borrow	🟩	Van Genuchten	1e-08
Tailings (Drained)	⬜	Van Genuchten	1e-06
Tailings (Undrained)	▨	Van Genuchten	1e-06
Foundation - Wiluna Hardpan	🟥	Van Genuchten	1e-10
Foundation - XW/HW Basalt	🟫	Van Genuchten	1e-09

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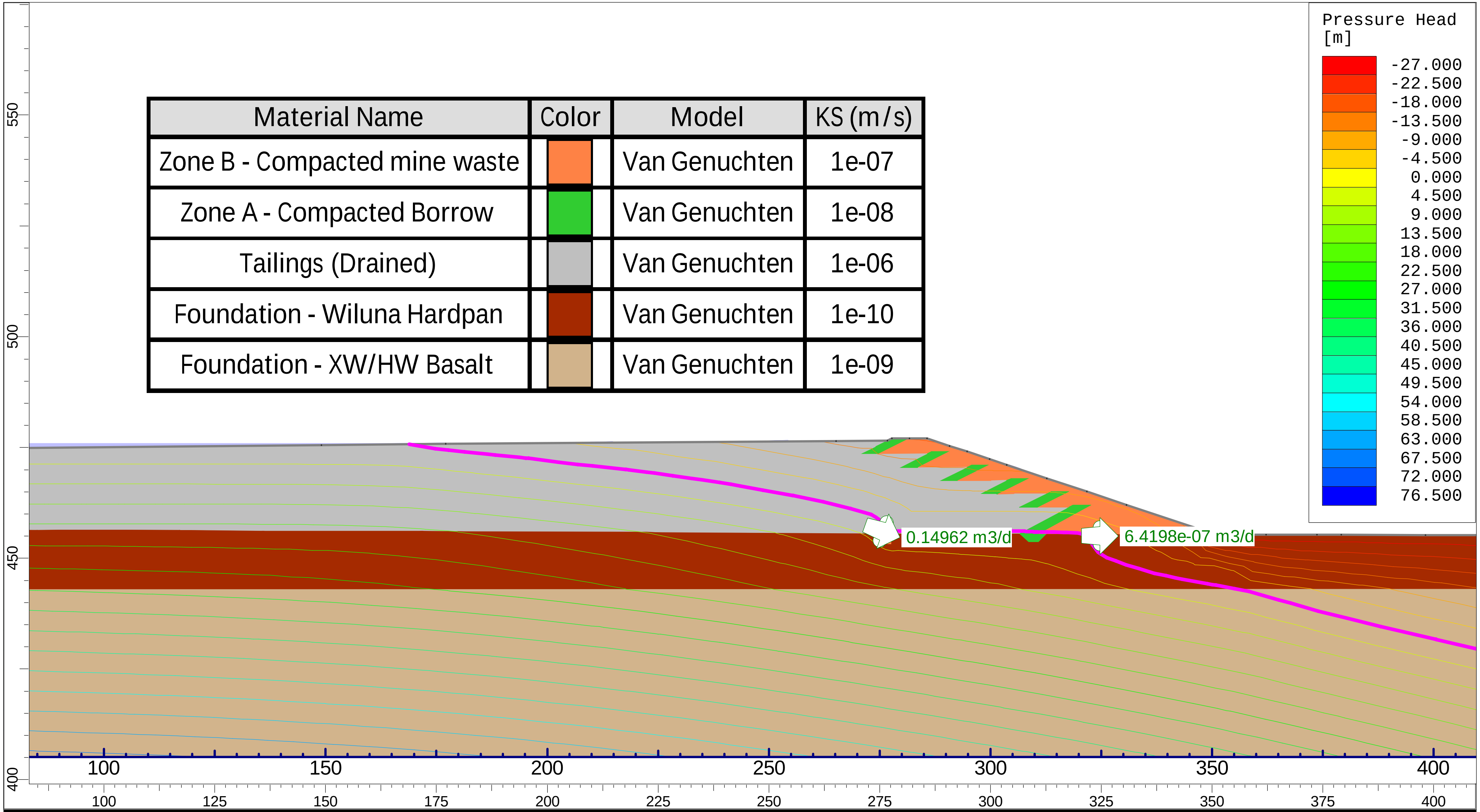
Analysis Description	TSF3 South Section-Starter Wall
Drawn By	sw
Scale	1:1200
Paper Size	A4
Scenario Name	Seepage Results
Date	24/07/2025
File Name	critical section-south embankment.sw.model.rev1.slmd



Material Name	Color	Model	KS (m/s)
Zone B - Compacted mine waste	🟧	Van Genuchten	1e-07
Zone A - Compacted Borrow	🟩	Van Genuchten	1e-08
Tailings (Drained)	⬜	Van Genuchten	1e-06
Foundation - Wiluna Hardpan	🟫	Van Genuchten	1e-10
Foundation - XW/HW Basalt	🟫	Van Genuchten	1e-09

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Project YOUANME TSF3

Analysis Description TSF3 South Section-Final Stg

Drawn By sw

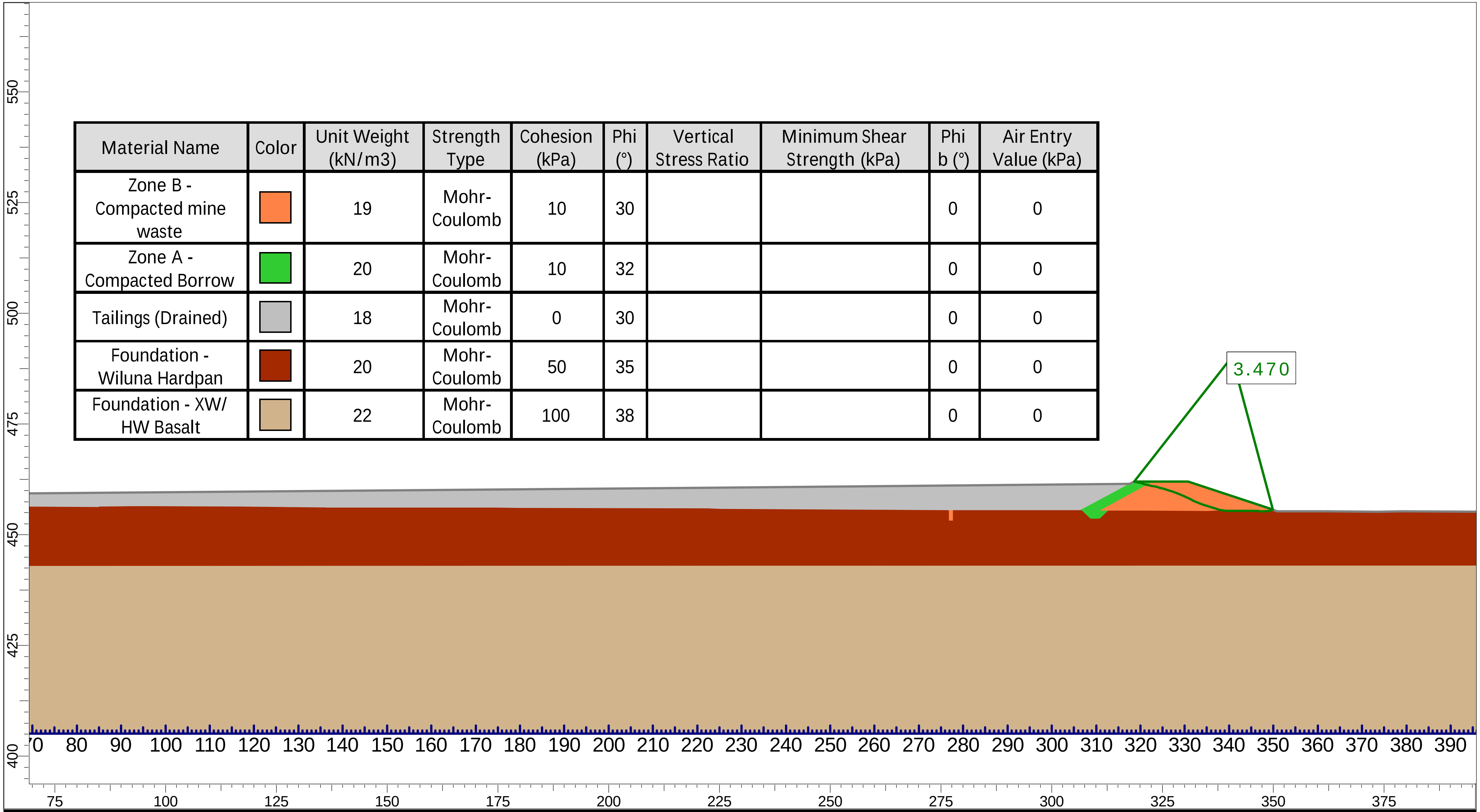
Scale 1:1200

Paper Size A4

Scenario Name Seepage Results

Date 24/07/2025

File Name critical section-south embankment.sw.model.rev1.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Vertical Stress Ratio	Minimum Shear Strength (kPa)	Phi b (°)	Air Entry Value (kPa)
Zone B - Compacted mine waste	🟧	19	Mohr-Coulomb	10	30			0	0
Zone A - Compacted Borrow	🟩	20	Mohr-Coulomb	10	32			0	0
Tailings (Drained)	⬜	18	Mohr-Coulomb	0	30			0	0
Foundation - Wiluna Hardpan	🟥	20	Mohr-Coulomb	50	35			0	0
Foundation - XW/ HW Basalt	🟫	22	Mohr-Coulomb	100	38			0	0

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Project YOUANME TSF3

Analysis Description TSF3 South Section-Starter Wall

Drawn By sw
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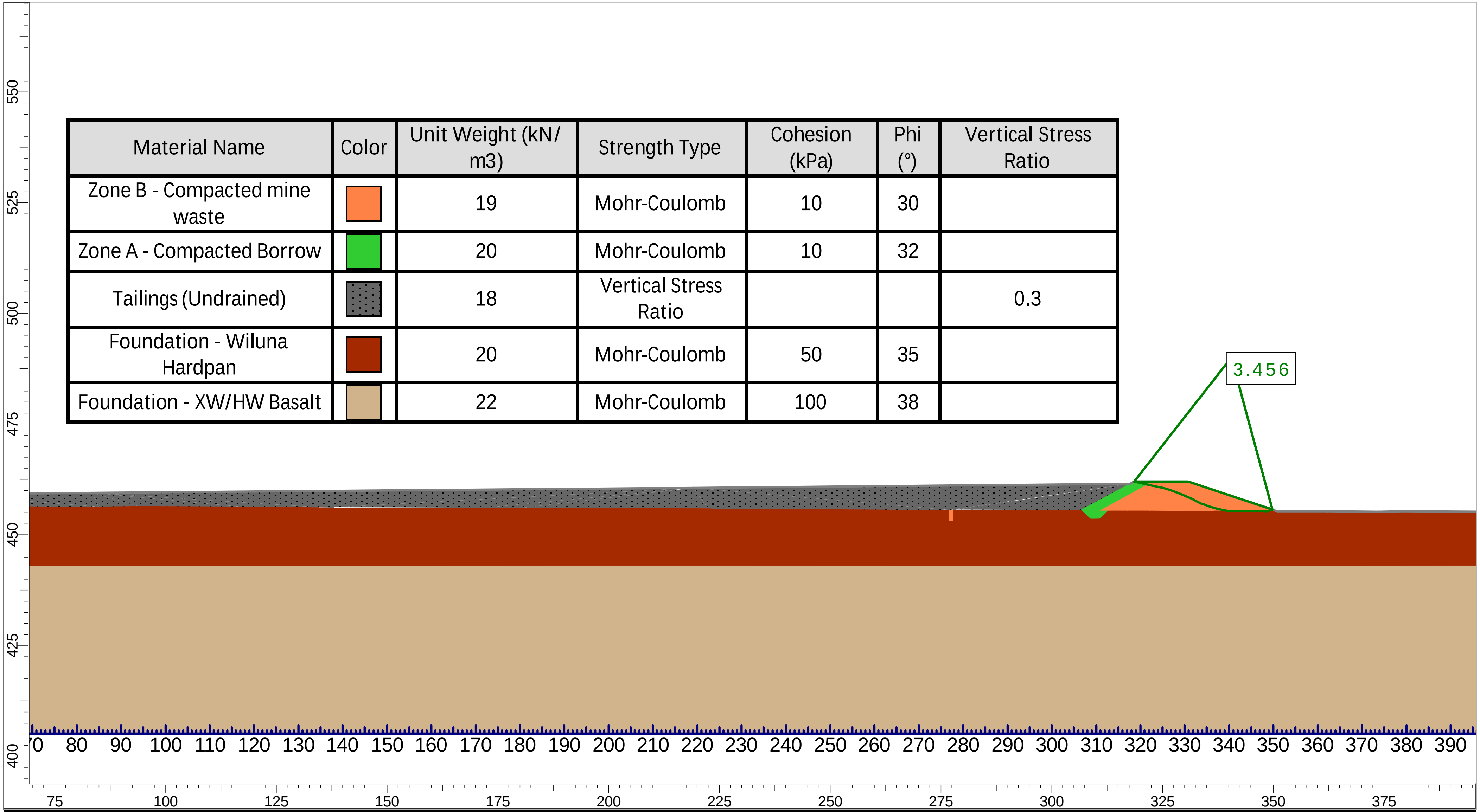
Paper Size A4
Scenario Name Long-term Drained

Date 24/07/2025
File Name critical section-south embankment.sw.model.rev1.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Vertical Stress Ratio
Zone B - Compacted mine waste	🟧	19	Mohr-Coulomb	10	30	
Zone A - Compacted Borrow	🟩	20	Mohr-Coulomb	10	32	
Tailings (Undrained)	▨	18	Vertical Stress Ratio			0.3
Foundation - Wiluna Hardpan	🟥	20	Mohr-Coulomb	50	35	
Foundation - XW/HW Basalt	🟫	22	Mohr-Coulomb	100	38	

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Project YOUANME TSF3

Analysis Description TSF3 South Section-Starter Wall

Drawn By sw

Scale 1:1200

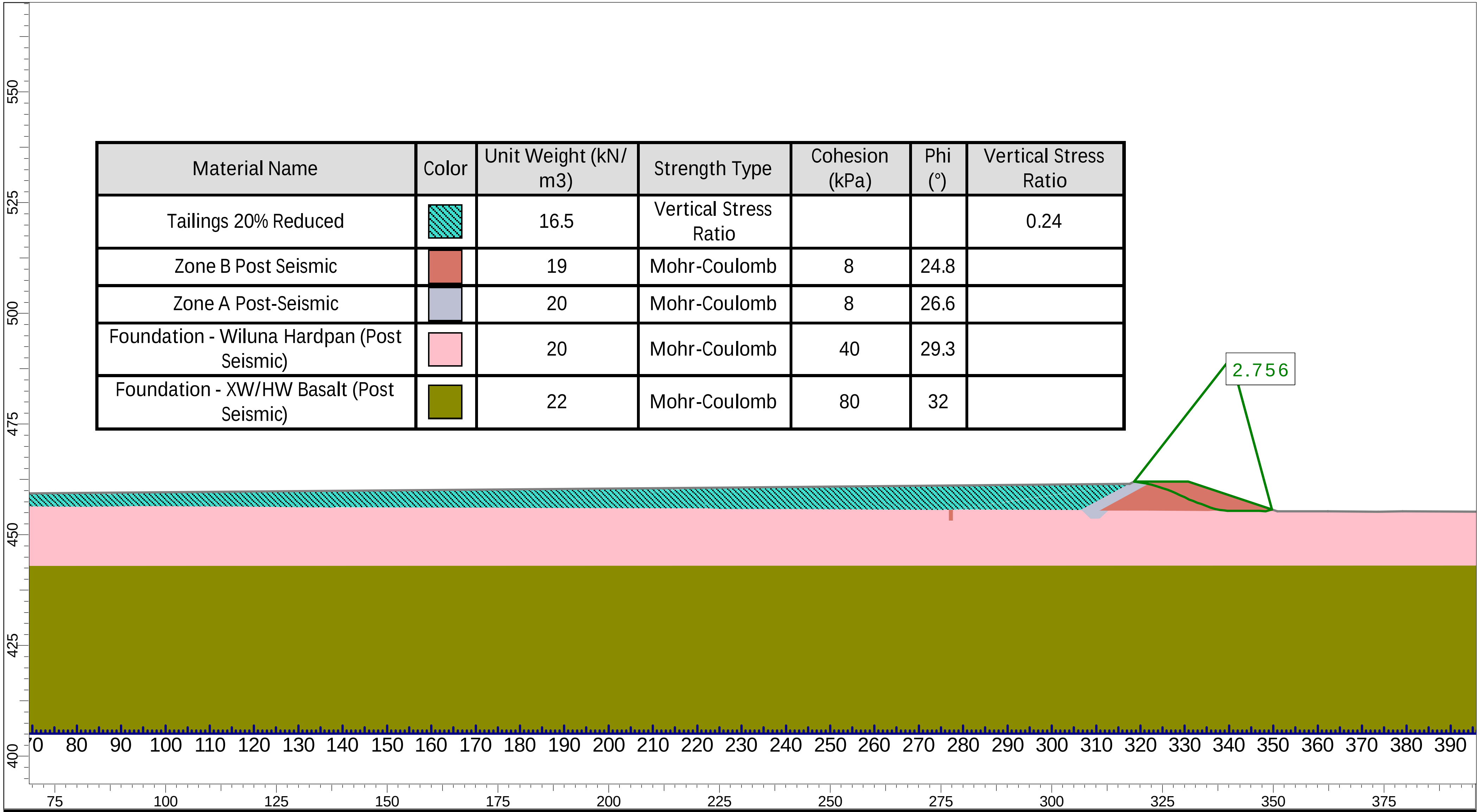
Paper Size A4

Scenario Name Short-term Undrained

Date 24/07/2025

File Name critical section-south embankment.sw.model.rev1.slmd

Material Name	Color	Unit Weight (kN/ m3)	Strength Type	Cohesion (kPa)	Phi (°)	Vertical Stress Ratio
Tailings 20% Reduced	▨	16.5	Vertical Stress Ratio			0.24
Zone B Post Seismic	🟥	19	Mohr-Coulomb	8	24.8	
Zone A Post-Seismic	⬜	20	Mohr-Coulomb	8	26.6	
Foundation - Wiluna Hardpan (Post Seismic)	🟪	20	Mohr-Coulomb	40	29.3	
Foundation - XW/HW Basalt (Post Seismic)	🟫	22	Mohr-Coulomb	80	32	



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Project YOUANME TSF3			
Analysis Description TSF3 South Section-Starter Wall			
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Date 24/07/2025		*File Name* critical section-south embankment.sw.model.rev1.slmd	

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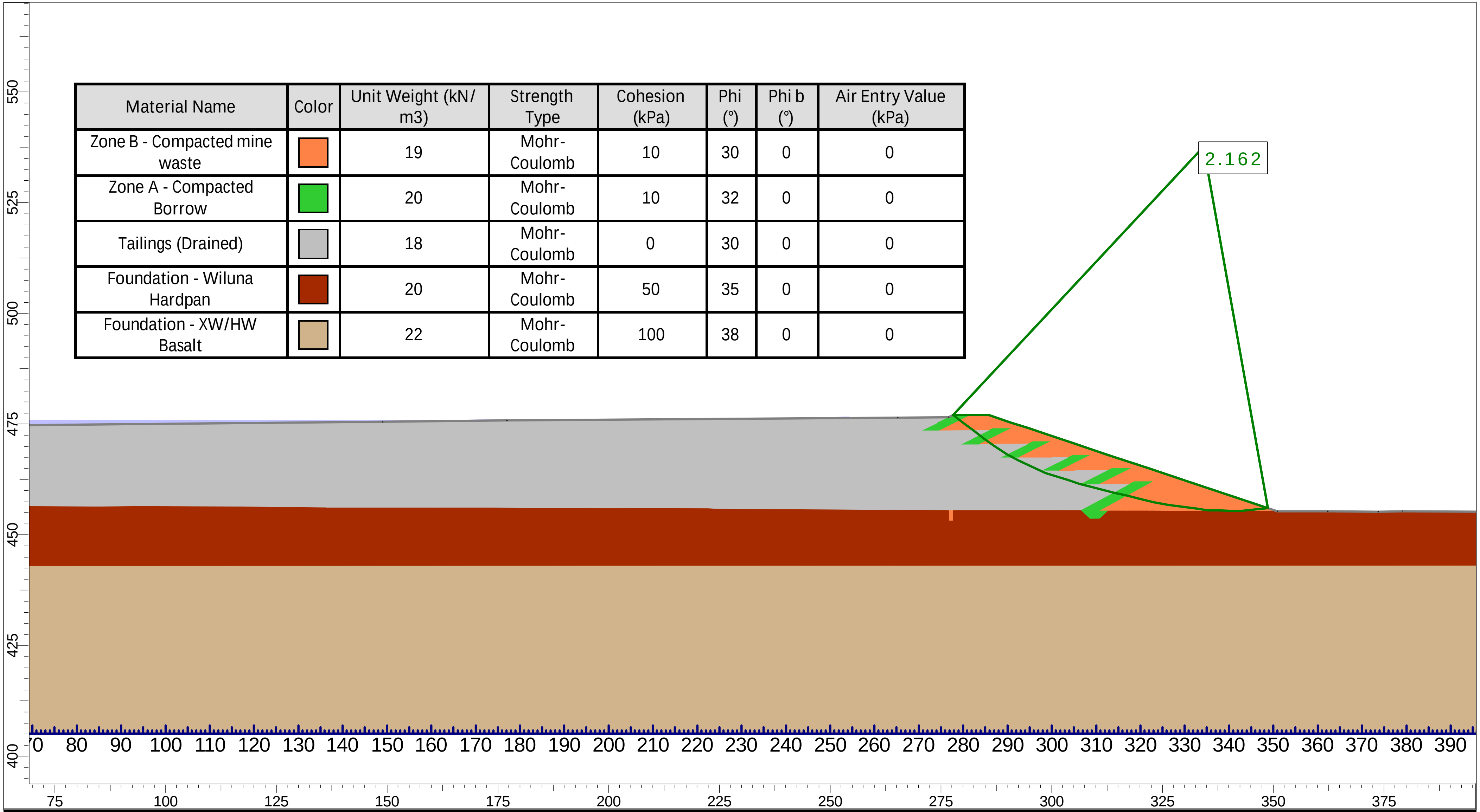

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Phi b (°)	Air Entry Value (kPa)
Zone B - Compacted mine waste	🟧	19	Mohr-Coulomb	10	30	0	0
Zone A - Compacted Borrow	🟩	20	Mohr-Coulomb	10	32	0	0
Tailings (Drained)	⬜	18	Mohr-Coulomb	0	30	0	0
Foundation - Wiluna Hardpan	🟥	20	Mohr-Coulomb	50	35	0	0
Foundation - XW/HW Basalt	🟫	22	Mohr-Coulomb	100	38	0	0

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Analysis Description	TSF3 South Section-Final Stg
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Date	24/07/2025
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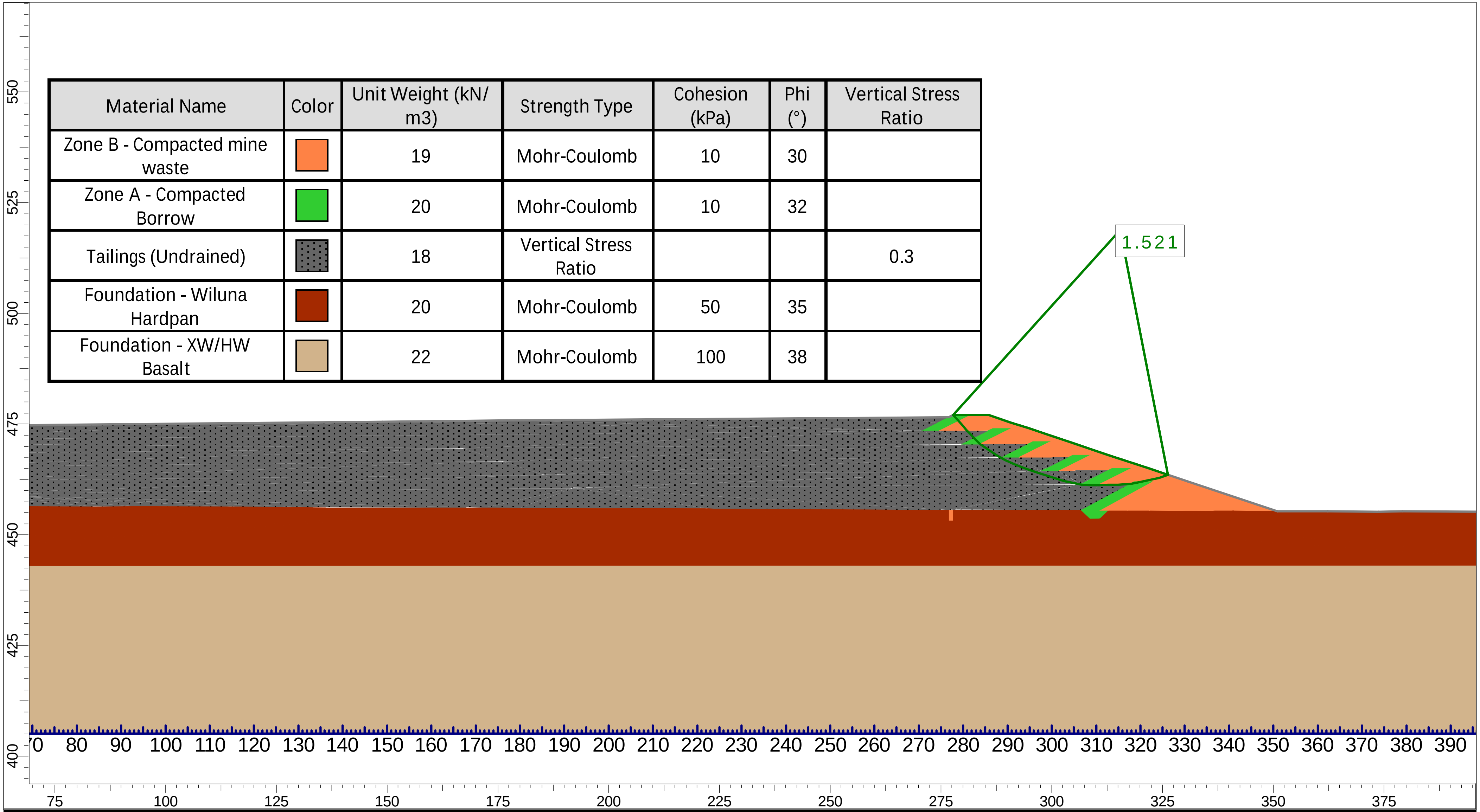

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Vertical Stress Ratio
Zone B - Compacted mine waste	🟧	19	Mohr-Coulomb	10	30	
Zone A - Compacted Borrow	🟩	20	Mohr-Coulomb	10	32	
Tailings (Undrained)	▩	18	Vertical Stress Ratio			0.3
Foundation - Wiluna Hardpan	🟥	20	Mohr-Coulomb	50	35	
Foundation - XW/HW Basalt	🟫	22	Mohr-Coulomb	100	38	

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Analysis Description	TSF3 South Section-Final Stg		
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Date	24/07/2025	*File Name*	critical section-south embankment.sw.model.rev1.slmd

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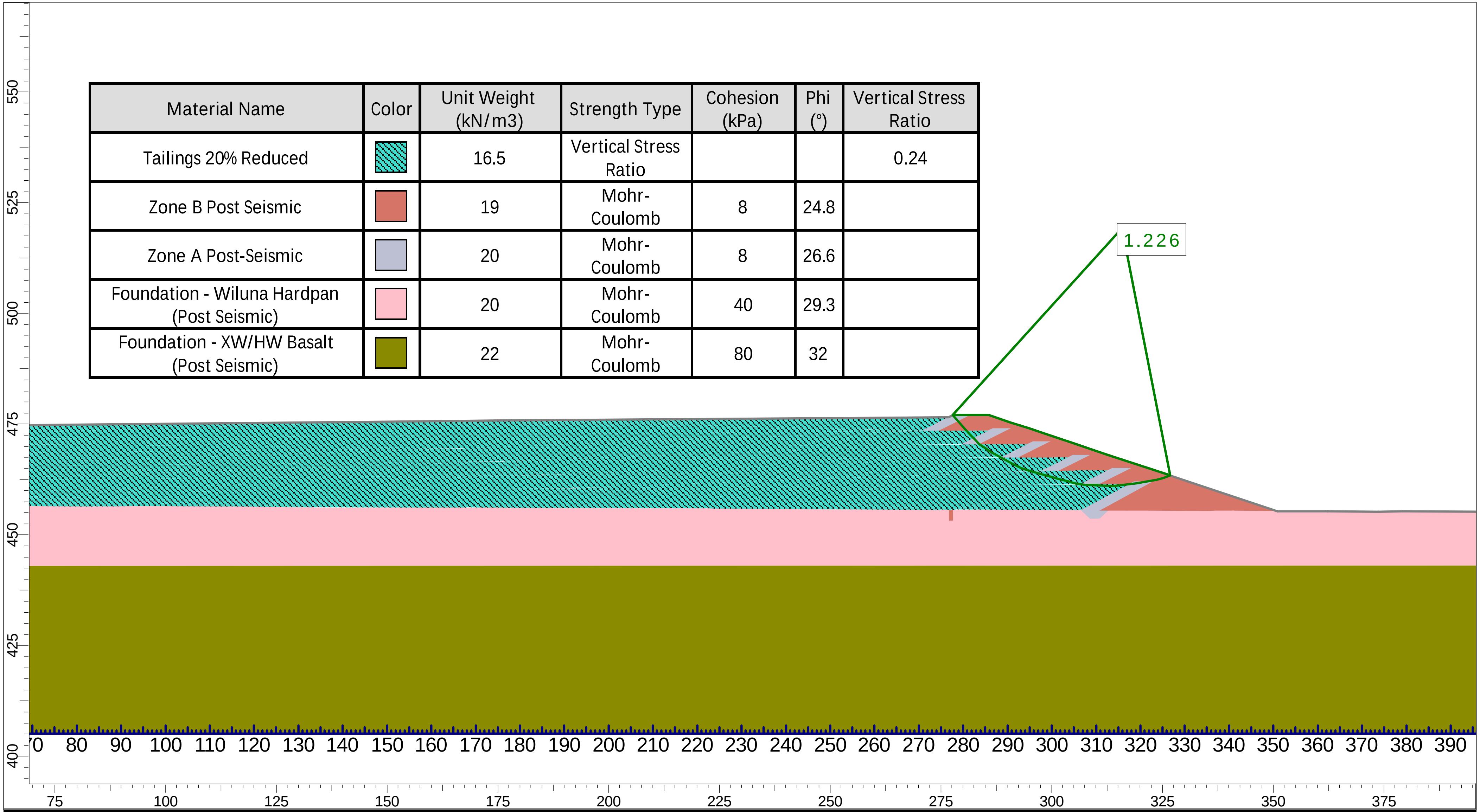

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Vertical Stress Ratio
Tailings 20% Reduced	▨	16.5	Vertical Stress Ratio			0.24
Zone B Post Seismic	■	19	Mohr-Coulomb	8	24.8	
Zone A Post-Seismic	■	20	Mohr-Coulomb	8	26.6	
Foundation - Wiluna Hardpan (Post Seismic)	■	20	Mohr-Coulomb	40	29.3	
Foundation - XW/HW Basalt (Post Seismic)	■	22	Mohr-Coulomb	80	32	

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Project	YOUANME TSF3
Analysis Description	TSF3 South Section-Final Stg
Drawn By	sw
Scale	1:1200
Paper Size	A4
Scenario Name	Post Seismic
Date	24/07/2025
File Name	critical section-south embankment.sw.model.rev1.slmd

Appendix C TSF3 Geotechnical Investigation Report

02-July-2025

ROX Resources Limited

Youanmi Gold Project

TSF3 Geotechnical Site Investigation – Factual Report

Rev.0

[redacted]

The opinions, conclusions and any recommendations in this Report are based on information supplied by ROX Resources Limited. TailCon has compared key supplied data with expected values, the accuracy of the results and conclusions in this Report are reliant on the accuracy and completeness of the supplied data. TailCon expressly disclaims responsibility for any errors or omissions in the supplied information and any consequential liability arising from commercial decisions or actions resulting from them. Opinions, conclusions, and any recommendations presented in this Report apply to the site conditions as they existed at the time of the Report writing and those reasonably foreseeable.

[redacted]

Contents

List of Tables

List of Figures

List of Abbreviations

Abbreviations	Definition
CUTX	Consolidated undrained triaxial test
GDA	Geocentric Datum of Australia
GSI	Geotechnical site investigation
m	Metre
MGA	Map grid of Australia
Mw	Moment wave magnitude
OMC	Optimum moisture content
PSD	Particle size distribution
ROX	Rox Resources Limited
SG	Specific gravity
SMDD	Standard maximum dry density
TPC / TailCon	TailCon Projects Consulting Pty Ltd
TSF	Tailings storage facility
UCS	Unconfined Compressive Strength
UUTx	Unconsolidated Undrained Triaxial Test
YGP	Youanmi Gold Project

1 Introduction

1.1 General

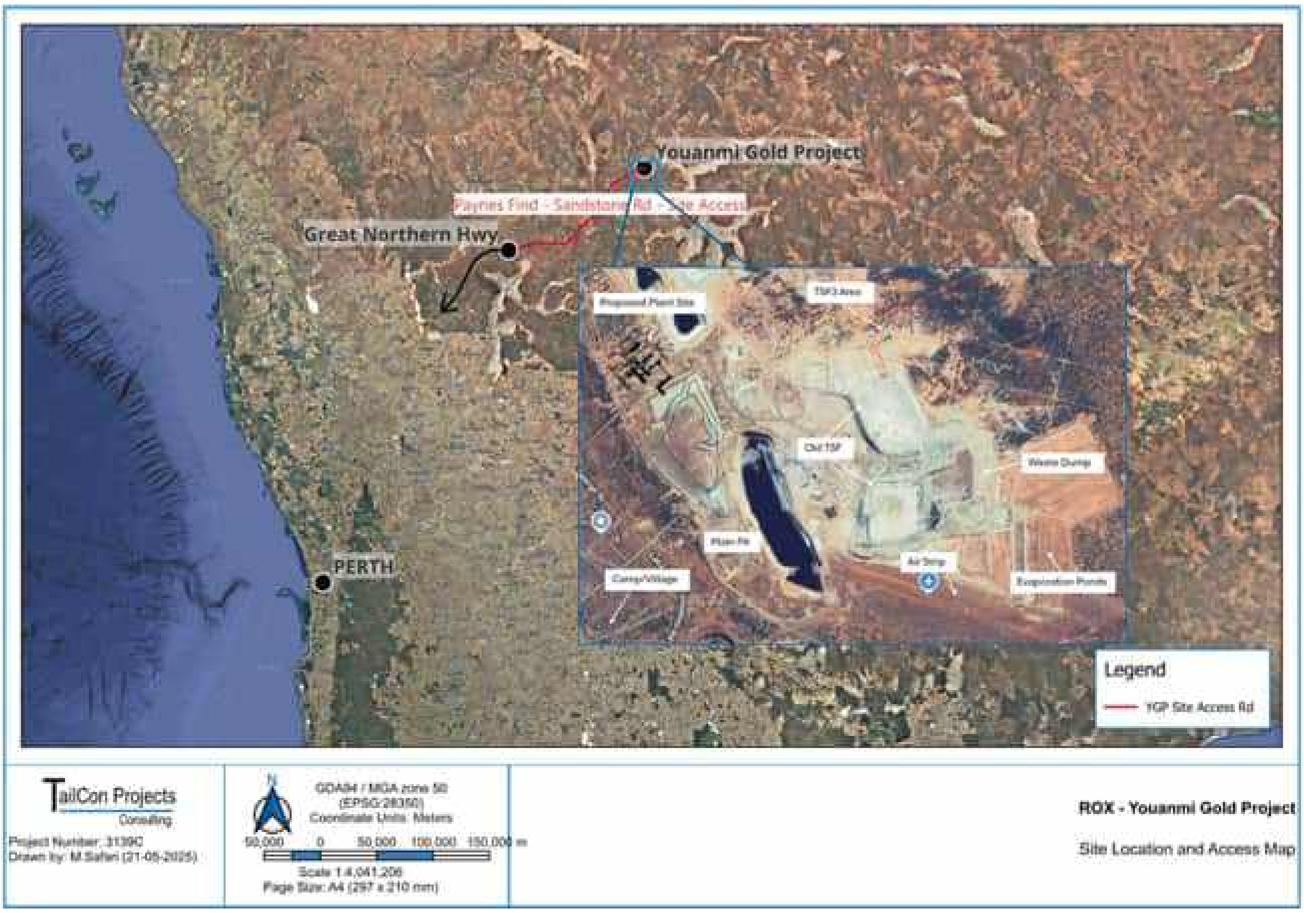
Rox Resources Limited (ROX) is advancing the development of the Youanmi Gold Project (YGP) through a detailed feasibility study. As part of this initiative, ROX has engaged TailCon Projects Consulting (TailCon) to carry out a Geotechnical Site Investigation (GSI) at the proposed Tailing Storage Facility 3 (TSF3), situated adjacent and to the north-east of existing TSF2.

This GSI report summarised factual findings and preliminary foundation geotechnical assessment.

1.2 Project Location

The YGP is situated in the Murchison region of Western Australia, approximately 480 km northeast of Perth and 82 km southwest of the town of Sandstone. The project lies within the Youanmi Greenstone Belt of the Southern Cross Province in the Archaean Yilgarn Craton. ROX holds a 100% interest in the project, encompassing 11 granted mining leases and extensive regional exploration tenures. A plan view of the site and TSF3 location is presented in Figure 1-1 below.

Figure 1-1: Project & Proposed TSF3 Location



1.3 Purpose

The proposed Geotechnical Site Investigation (GSI) for TSF3 will involve the excavation of test pits and drilling of boreholes to characterise the subsurface lithology. Selected disturbed and core samples will be collected for laboratory testing to determine key geotechnical properties. The results of the investigation will inform the TSF3 feasibility level detailed design report.

2 Geotechnical Site Investigation

2.1 General

Across the proposed TSF3 area, a total of three (3) boreholes and twenty-two (22) test pits were conducted. Details of the investigation are presented in sections below.

2.2 Borehole Summary

A total of three (3) boreholes were drilled at the proposed TSF3 area. The boreholes were strategically located to determine sub-surface lithology, with two (2) of them converted into standpipe piezometers for future groundwater monitoring.

The boreholes were drilled to a depth of 10.5 to 30.0 meters below natural ground level encountering bedrock as shallow as 1.4 meters (TSF-BH-01). To the north-east section of TSF3 area, the bedrock appears to be decomposed to greater depths as indicated by TSF-BH-02. A summary of the boreholes and SPT results are presented in Table 2-1 and

Table 2-2, respectively.

Table 2-1: Borehole Location and Summary

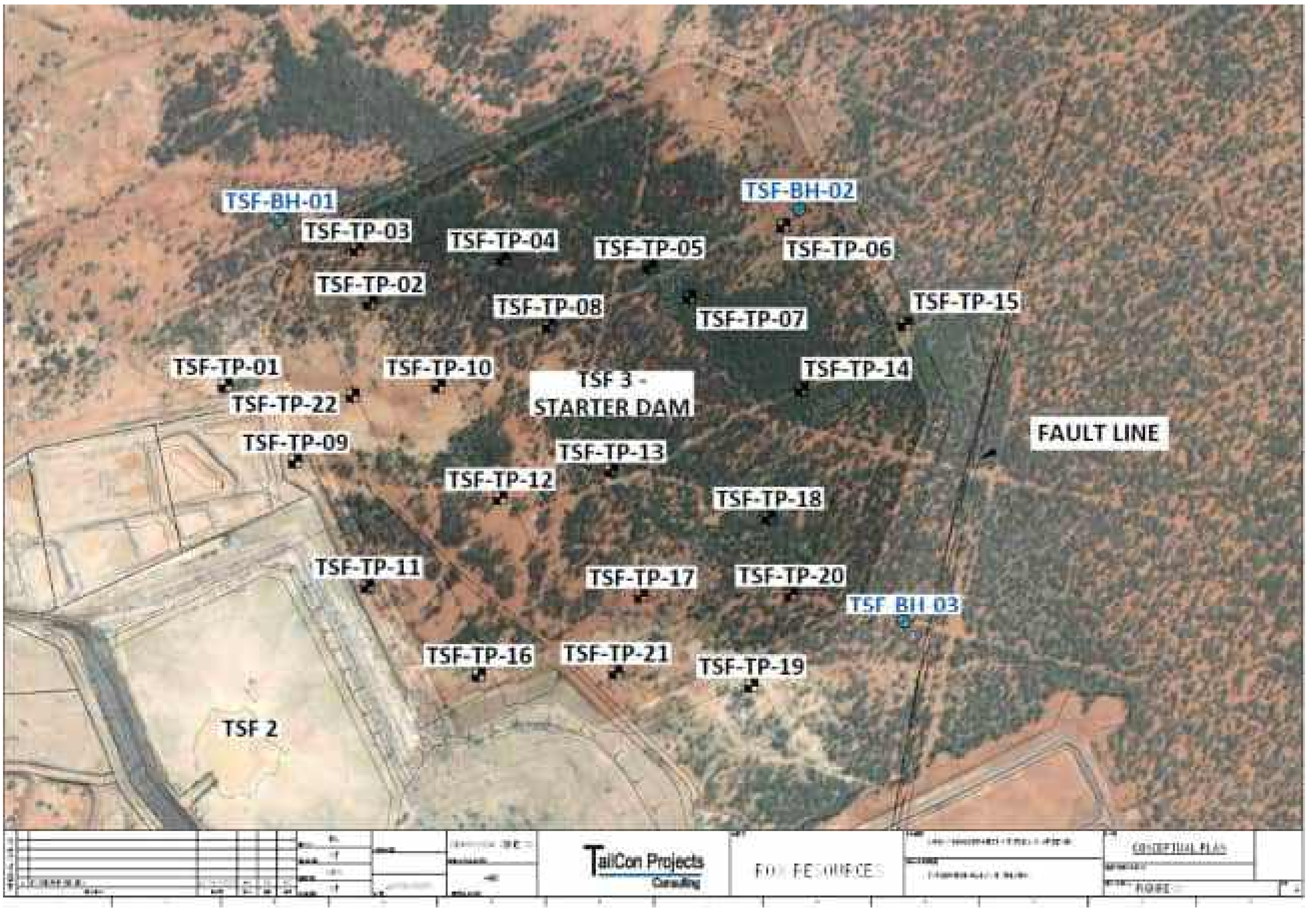
Borehole ID	GDA94 / MGA zone 50 coordinates (m)		Probed depth (m)	Wiluna Hardpan Depth (m)	Bedrock Depth (m)	Samples
	Easting	Northing				
TSF-BH-01	680550	6834831	10.5	0.3 to 1.4	1.4	6 Core Samples
TSF-BH-02	681180	6834844	30.0	0.3 to 6.4	> 30	7 Core Samples
TSF-BH-03	681307	6834340	12.0	0.3 to 11.9	11.9	7 Core Samples

Table 2-2: Plant Site SPT Result Summary

Depth (m)	Borehole SPT N Values		
	TSF-BH-01	TSF-BH-02	TSF-BH-03
7.5	-	14	-
9	-	10	-
10.5	-	12	-
12	-	12	-
13.5	-	19	-
15	-	18	-
16.5	-	21	-
18	-	23	-
19.5	-	27	-
21	-	27	-
22.5	-	28	-
24	-	29	-
25.5	-	38	-
27	-	32	-
28.5	-	41	-
30	-	38	-

Note: R = Refusal, refer to individual logs for details. Where there is no SPT reading, the material was deemed too dense for SPT testing or rock encountered.

Figure 2-1: TSF3 Borehole and Test Pit Locations



2.3 Test Pit Summary

A total of twenty-two (22) test pits were excavated to refusal across the proposed TSF3 footprint, with depths ranging from 0.2 m to 2.5 m below the natural ground surface. Subsurface conditions varied across the site. In areas adjacent to TSF2 and the southwestern portion of the proposed TSF3, a shallow colluvium layer was encountered overlying weathered granite. Toward the western side, the profile comprises a very thin colluvium layer underlain by Wiluna Hardpan (Ferricrete and or Silcrete), which transitions into basaltic bedrock at depth. The Wiluna Hardpan is notably hard and typically resulted in refusal, potentially posing challenges for basin stripping during construction.

Topsoil across the area varies in depth but is generally around 0.3 m thick and contains widespread tree cover with shallow root systems. This material is unsuitable for construction and will be stripped and stockpiled. The colluvium and lateritic layers, subject to confirming their suitability through laboratory testing, may be reused in embankment construction. A summary of all test pit logs, including disturbed bulk samples collected for laboratory analysis, is provided in Table 2-3.

Table 2-3: Test Pit Location and Summary

Test Pit ID	GDA94 / MGA zone 50 coordinates (m)		Excavated depth (m)	Sample depth (m) (Bulk Disturbed 20kg)
	Easting	Northing		
TSF-TP-01	680485	6834630	2.4	0.6-2.4
TSF-TP-02	680660	6834730	0.7	-
TSF-TP-03	680644	6834795	0.7	-

Test Pit ID	GDA94 / MGA zone 50 coordinates (m)		Excavated depth (m)	Sample depth (m) (Bulk Disturbed 20kg)
	Easting	Northing		
TSF-TP-04	680821	6834783	0.9	0.3-0.9
TSF-TP-05	680999	6834774	0.9	-
TSF-TP-06	681161	6834824	0.2	-
TSF-TP-07	681047	6834737	1.0	0.3-1.0
TSF-TP-08	680877	6834703	0.6	-
TSF-TP-09	680569	6834538	2.5	-
TSF-TP-10	680743	6834629	2.5	-
TSF-TP-11	680657	6834386	2.5	0.3-1.0
TSF-TP-12	680818	6834493	2.4	-
TSF-TP-13	680952	6834527	0.8	-
TSF-TP-14	681183	6834625	0.8	0.3-0.8
TSF-TP-15	681308	6834705	0.7	-
TSF-TP-16	680792	6834276	0.8	-
TSF-TP-17	680989	6834374	1.0	-
TSF-TP-18	681143	6834470	0.8	-
TSF-TP-19	681122	6834263	0.8	0.3-0.7
TSF-TP-20	681170	6834376	0.8	-
TSF-TP-21	680958	6834279	0.2	-
TSF-TP-22	680639	6834618	1.6	-

3 Factual Findings

3.1 General

This section of the report summarises the key findings based on the initial information gathered during the geotechnical site investigation (GSI). This report is required to be updated upon the completion of laboratory testing on samples collected during the investigation.

3.2 Foundation Lithology

Based on the observations from the three (3) boreholes and twenty-two (22) test pits across the proposed TSF3 footprint, the encountered foundation lithology is approximately as follows:

- **0.1–0.3 m – Topsoil**
  Top layer comprising brown, slightly moist, sandy and gravelly silt/clay with roots. The topsoil is typically firm to stiff and of low plasticity.
- **0.3– (0.8 to 11.9) m – Colluvium / Ferricrete**
  Underlying the topsoil is a zone of colluvium and or the Wiluna Hardpan, consisting of sandy, gravelly, and occasionally cobbly silt/clay. Material is commonly red brown to orange, brown in colour, with variable degrees of cementation. Consistency is stiff to very stiff, with strength ranging from hard to very hard. This unit generally extends to refusal depths between 0.6 m and 1.2 m in most test pits.
- **> (0.8 to 12) m – Weathered Bedrock**
  The nature of the underlying rock varies laterally across the site:
    - In the western portion (adjacent to TSF2), the bedrock is typically highly weathered granite, occasionally encountered as early as 0.8 m depth.
    - Moving eastward, a Ferricrete hardpan transitions into silcrete before reaching residual basalt, as observed in BH03 (Ferricrete to 2.65 m, Silcrete to 11.9 m, then Basalt from 12 m to EOH).
    - Notably, BH02 reportedly encountered a thick sequence of decomposed bedrock extending to 30 m, with SPT N-values indicating the material is stiff to very stiff to hard.

3.3 Laboratory Testing

To supplement the GSI and determine key material properties, the following laboratory testing on selected samples at a minimum is proposed to be completed at a NATA accredited laboratory:

- Particle Size Distribution (PSD) with hydrometer
- Atterberg Limits
- Unconfined Compressive Strength (UCS)
- Triaxial Permeability Test
- Standard Maximum Dry Density (SMDD) and Optimum Moisture Content (OMC)
- Falling Head Permeability Test
- Specific Gravity (SG)
- Emerson Class
- Direct Simple Shear Test (DSS)
- Unconsolidated Undrained Triaxial Test (UUTx)
- Consolidated Undrained Triaxial Test (CUTx)

4 References

- Standards Australia (2017), AS 1726:2017 Geotechnical Site Investigations. Sydney: Standards Australia.

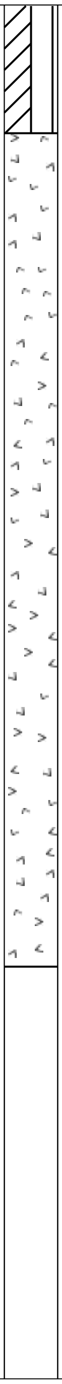
Appendix A TSF3 Borehole Logs

TEST HOLE LOG: TSF-BH-01

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680550
Northing (m): 6834833
Elevation:
[redacted]
Reviewed By: Wai
Investigation Date: 2025-05-31

Ground Surface at (m)

DEPTH (M)	SYMBOL / GRAPHIC LOG	LITHOLOGIC/MATERIAL DESCRIPTION
0 – 1.4 m		LATERITE Sandy CLAY, Low to medium plasticity, stiff to very stiff, trace organic roots, red brown
1.4 – 10.5 m		BEDROCK GRANITE, Highly weathered, low to medium strength, white speckled grey
10.5 m		End of Test Hole at 10.5 (m)

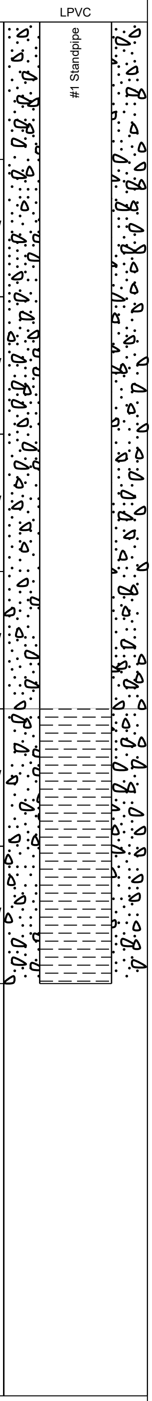


SAMPLES NO.	SYMBOLS	MOISTURE	DEPTH (M)	RECOVERY (%)
	C	DD	2.4 - 2.65	
	C	DD	3.85 - 4	
	C	DD	5.45 - 5.6	
	C	DD	7 - 7.15	
	C	DD	8.5 - 9	
	C	DD	9.7 - 10	

DRILL RUN INFO

RQD RMU (%)	TMR (%)	STRENGTH	WEATHERING
	100		
	100	LS	HW
	100	LS	HW
	100	VLS	HW
	100	VLS	HW
	100	LS	HW
	100	VLS	HW

PIEZOMETER



Notes:

TEST HOLE LOG: TSF-BH-02

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681179
Northing (m): 6834842
Elevation:
[redacted]
Reviewed By: Wai
Investigation Date: 2025-05-29

ELEVATION	DEPTH (M) / GROUNDWATER	SYMBOL / GRAPHIC LOG	SOIL CLASSIFICATION	LITHOLOGIC/MATERIAL DESCRIPTION	COMMENTS	SAMPLES			STANDARD PENETRATION TEST (SPT)	DRILL RUN INFO			
						SYMBOLS	MOISTURE	DEPTH (M)		RQD RMU (%)	TCR (%)	STRENGTH	WEATHERING
				Ground Surface at (m)									
	0			WILUNA HARDPAN FERRICRETE, Very low to low strength, red mottled red brown									
	1					C	DD	1.1 - 1.4					
	2												
	3												
	4					C	DD	4 - 4.3					
	5					C	DD	5 - 5.15					
	6			6.4 m									D
	7			SAPROLITE SILT, low plasticity, Very stiff to hard, yellow green		C	DD	7.15 - 7.4	14				
	8												D
	9								10				
	10												D
	11								12				D
	12								12				
	13												D
	14								19				D
	15												

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Notes:

TEST HOLE LOG: TSF-BH-02

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681179
Northing (m): 6834842
Elevation:
[redacted]
Reviewed By: Wai
Investigation Date: 2025-05-29

ELEVATION	DEPTH (M) / GROUNDWATER	SYMBOL / GRAPHIC LOG	SOIL CLASSIFICATION	LITHOLOGIC/MATERIAL DESCRIPTION	COMMENTS	SAMPLES			STANDARD PENETRATION TEST (SPT)	DRILL RUN INFO			
						SYMBOLS	MOISTURE	DEPTH (M)		RQD RMU (%)	TCR (%)	STRENGTH	WEATHERING
	15	▨							18				
		▨											D
	16	▨											
		▨							21				
	17	▨											D
	18	▨							23				
		▨											D
	19	▨											
		▨							27				
	20	▨											D
	21	▨							27				
		▨				C	DD	21.55 - 21.75					D
	22	▨											
		▨							28				
	23	▨											D
	24	▨							29				
		▨				C	DD	24.5 - 25					D
	25	▨											
		▨							38				
	26	▨											D
	27	▨							32				
		▨				C	DD	27.6 - 27.85					D
	28	▨											
		▨							41				
	29	▨											D
	30	▨		30 m									

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Notes:

TEST HOLE LOG: TSF-BH-02

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681179
Northing (m): 6834842
Elevation:
[redacted]
Reviewed By: Wai
Investigation Date: 2025-05-29

ELEVATION	DEPTH (M) / GROUNDWATER	SYMBOL / GRAPHIC LOG	SOIL CLASSIFICATION	LITHOLOGIC/MATERIAL DESCRIPTION	COMMENTS	SAMPLES			STANDARD PENETRATION TEST (SPT)	DRILL RUN INFO			
						SYMBOLS	MOISTURE	DEPTH (M)		RQD RMU (%)	TCR (%)	STRENGTH	WEATHERING
	30			End of Test Hole at 30 (m)					38				
	31												
	32												
	33												
	34												
	35												
	36												
	37												
	38												
	39												
	40												
	41												
	42												
	43												
	44												
	45												

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Notes:

TEST HOLE LOG: TSF-BH-03

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681307
Northing (m): 6834339
Elevation:
[redacted]
Reviewed By: Wai
Investigation Date: 2025-05-30

Ground Surface at (m)

DEPTH (M) / GROUNDWATER	LITHOLOGIC/MATERIAL DESCRIPTION
0 – 0.3 m	TOPSOIL Clayey SAND, low plasticity, fine to medium grained, red brown
0.3 – 2.65 m	WILUNA HARDPAN FERRICRETE, Very low to low strength, with some quartzite gravels and trave pisolites, red brown
2.65 – 11.9 m	WILUNA HARDPAN SILCRETE, Low to medium strength, with some ironstone gravels, yellow white mottled red brown
11.9 – 12 m	BEDROCK BASALT (Residual Soils), SILT, low plasticity, very stiff to hard, yellow green mottled red brown

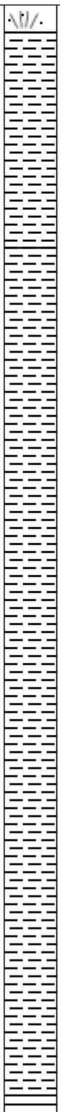
End of Test Hole at 12 (m)

SAMPLES

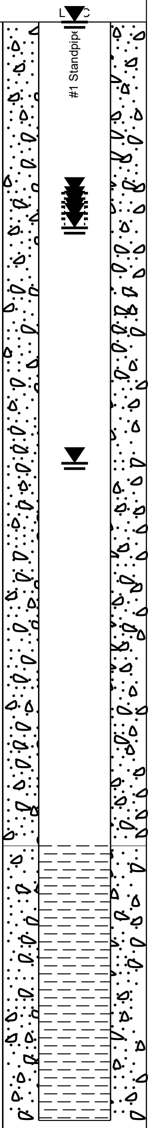
NO.	SYMBOLS	MOISTURE	DEPTH (M)	RECOVERY (%)
	C	DD	1.2 - 1.3	
	C	DD	2.45 - 2.65	
	C	DD	4.55 - 5	
	C	DD	6 - 6.2	
	C	DD	8 - 8.2	
	C	DD	10.6 - 10.8	
	C		11.8 - 11.95	

DRILL RUN INFO

RQD RMU (%)	TMR (%)	STRENGTH	WEATHERING
	100		
	100		
	100		
	100		
	100		
	100		
	100		
	100		



PIEZOMETER



Notes:

Appendix B TSF3 Borehole Photos

Plate 1: TSF-BH-01 BOX 1 (0.0-3.0m)

Plate 2: TSF-BH-01 BOX 2 (3.0-6.0m)

Plate 3: TSF-BH-01 BOX 3 (6.0-9.0m)

Plate 4: TSF-BH-01 BOX 4 (9.0-12.0m)

Plate 5: TSF-BH-01 Standpipe Installation

Plate 6: TSF-BH-02 BOX 1 (0.0-3.0m)

Plate 7: TSF-BH-02 BOX 2 (3.0-6.0m)

Plate 8: TSF-BH-02 BOX 3 (6.0-9.0m)

Plate 9: TSF-BH-02 BOX 4 (9.0-12.0m)

Plate 10: TSF-BH-02 BOX 5 (12.0-15.0m)

Plate 11: TSF-BH-02 BOX 6 (15.0-18.0m)

Plate 12: TSF-BH-02 BOX 7 (18.0-21.0m)

Plate 13: TSF-BH-02 BOX 8 (21.0-24.0m)

Plate 14: TSF-BH-02 BOX 9 (24.0-27.0m)

Plate 15: TSF-BH-02 BOX 10 (27.0-30.0m)

Plate 16: TSF-BH-03 BOX 1 (0.0-3.0m)

Plate 17: TSF-BH-03 BOX 2 (3.0-6.0m)

Plate 18: TSF-BH-03 BOX 3 (6.0-9.0m)

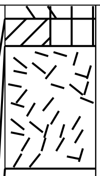
Plate 19: TSF-BH-03 BOX 4 (9.0-12.0m)

Plate 20: TSF-BH-03 Standpipe Installation

Appendix C TSF3 Test Pit Logs

TEST PIT LOG: TSF-TP-01

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680486
Northing (m): 6834630
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff, minor roots 0.2 m					
1	**Colluvium** Silt/Clay, Sandy & Gravelly, with cobbles, low plasticity, orange/brown, dry,stiff to very stiff, moderate cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.6 m		D	DD	0.6 - 2.4	
2						Refusal, VLS/LS Granite
3	**Bedrock** Cobbles & Boulders, clayey, sandy & gravelly, low plasticity, white/cream, VLS/LS 2.4 m					
4						
5	End of Test Hole at 2.4 (m)					
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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Notes:

TEST PIT LOG: TSF-TP-02

Project: YGP GSI
Project No.: 160-01-3139C

Site Address:
Client: ROX Resources Limited

CRS: UTM Zone 50 J
Easting (m): 680486
Northing (m): 6834630
Elevation:

[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff, minor roots 0.15 m	▨				
1						Refusal, Ferricrite HARD
2	Ferricrite Rock Silt/Clay, Sandy, Gravelly & Cobbly with Boulder, low plasticity, orange/brown & Cream, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.7 m	▥				
3						
4	End of Test Hole at 0.7 (m)					
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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Notes:

TEST PIT LOG: **TSF-TP-03**

Project: YGP GSI

Project No.: 160-01-3139C

Site Address:

Client: ROX Resources Limited

CRS: UTM Zone 50 J

Easting (m): 680644

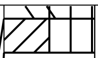
Northing (m): 6834795

Elevation:

[redacted]

Reviewed By: WK

Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff, few roots 0.2 m					Refusal, Ferricrite HARD
1 2 3	Ferricrite Rock Silt/Clay, Sandy & Gravelly with cobbles, low plasticity, orange/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.7 m					
4	End of Test Hole at 0.3 (m)					
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20						

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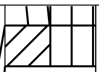
Notes:

TEST PIT LOG: TSF-TP-04

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680821
Northing (m): 6834783
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0 1	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff, many roots 0.3 m		D	DM	0.3 - 0.9	Colluvium (0.3 to 0.6m) Refusal, Ferricrite HARD
2 3	Ferricrite Silt/Clay, Sandy & Gravelly with cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are finr to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.9 m					
	End of Test Hole at 0.9 (m)					
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

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Notes:

TEST PIT LOG: TSF-TP-05

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680999
Northing (m): 6834774
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0 1	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff, many roots 0.3 m					Colluvium (0.3 to 0.6m) Refusal, Ferricrite HARD
2 3	Ferricrite Silt/Clay, Sandy & Gravelly with cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are finr to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.9 m					
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	End of Test Hole at 0.9 (m)					

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Notes:

TEST PIT LOG: TSF-TP-06

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681161
Northing (m): 6834824
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff 0.1 m					Refusal, Ferricrite HARD
0.1	**Ferricrite** Silt/Clay, Sandy & Gravelly with cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.2 m					
	End of Test Hole at 0.2 (m)					

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Notes:

TEST PIT LOG: TSF-TP-07

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681047
Northing (m): 6834737
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.3 m	▨	D	DM	0.3 - 1	
1	Colluvium/Ferricrite Silt/Clay, Sandy with gravel & cobbles, low plasticity, red/brown, slighly moist, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 1 m					Refusal, Ferricrite HARD. Small creek area
	End of Test Hole at 1 (m)					

Notes:

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TEST PIT LOG: TSF-TP-08

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680877
Northing (m): 6834703
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0.3 m	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots					Refusal, HW Granite
0.6 m	Colluvium/Granite Silt/Clay, with sand & gravel trace cobbles, low plasticity, red/brown & white/cream, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular.					
	End of Test Hole at 0.6 (m)					

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Notes:

TEST PIT LOG: TSF-TP-09

Project: YGP GSI

Project No.: 160-01-3139C

Site Address:

Client: ROX Resources Limited

CRS: UTM Zone 50 J

Easting (m): 680569

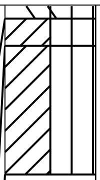
Northing (m): 6834538

Elevation:

[redacted]

Reviewed By: WK

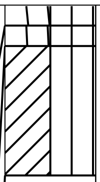
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0 1	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm 0.2 m					
2 3	**Colluvium** Silt/Clay, sandy & gravelly with cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.6 m					Refusal, HW Granite
4 5	**Granite/Ferricrite** Silt/Clay, sandy, gravelly, cobbly with boulders, low plasticity, red-rown & white/cream, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 2.5 m					
6	End of Test Hole at 2.5 (m)					
7 8 9 10 11 12 13 14 15 16 17 18 19 20						

Notes:

TEST PIT LOG: TSF-TP-10

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680743
Northing (m): 6834629
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0 1	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm 0.3 m					
2 3	**Colluvium** Silt/Clay, sandy & gravelly with cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.6 m					Refusal, HW Granite
4 5	**Granite** Silt/Clay, sandy, gravelly, cobbly with boulders, low plasticity, white/cream, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 2.5 m					
6	End of Test Hole at 2.5 (m)					
7 8 9 10 11 12 13 14 15 16 17 18 19 20						

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Notes:

TEST PIT LOG: TSF-TP-11

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680656
Northing (m): 6834385
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm 0.3 m		D	DM	0.3 - 1	
	Colluvium Silt/Clay, sandy & gravelly with cobbles, low plasticity, red/brown, slightly moist, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 1 m					Refusal, HW Granite
	Granite Silt/Clay, sandy with gravel cobbles and boulders, low plasticity, white/cream & grey, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 2.5 m					
	End of Test Hole at 2.5 (m)					

TailCon Projects
Consulting

Notes:

TEST PIT LOG: TSF-TP-12

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680818
Northing (m): 6834493
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm 0.3 m	▨				
	Colluvium/Ferricrite Silt/Clay, sandy & gravelly with cobbles, low plasticity, red/brown, slightly moist, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 1 m	▨				
	HW/XW Granite Silt/Clay, sandy with gravel cobbles and boulders, low plasticity, white/cream & grey, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 2.4 m					Refusal, HW Granite
	End of Test Hole at 2.4 (m)					

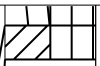
Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

TailCon Projects Consulting

Notes:

TEST PIT LOG: TSF-TP-13

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680952
Northing (m): 6834527
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.3 m					
1						Refusal, Ferricrite
	Colluvium/Ferricrite Silt/Clay, sandy & gravelly with cobbles, low plasticity, red/brown, slightly moist, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.8 m					
2						
3						
4	End of Test Hole at 0.8 (m)					
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

TailCon Projects Consulting

Notes:

TEST PIT LOG: TSF-TP-14

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681183
Northing (m): 6834625
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

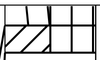
Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.3 m		D	DM	0.3 - 0.8	Refusal, Ferricrite
	Colluvium/Ferricrite Silt/Clay, sandy & gravelly, trace cobbles, low plasticity, red/brown, slightly moist, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.8 m					
	End of Test Hole at 0.8 (m)					

TailCon Projects
Consulting

Notes:

TEST PIT LOG: TSF-TP-15

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681308
Northing (m): 6834705
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.3 m					
1						Refusal, Ferricrite
2	**Colluvium/Ferricrite** Silt/Clay, sandy & gravelly, with cobbles, low plasticity, red/brown, slightly moist, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.7 m					
3						
4	End of Test Hole at 0.7 (m)					
5						
6						
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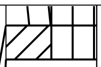
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

TailCon Projects Consulting

Notes:

TEST PIT LOG: TSF-TP-16

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680792
Northing (m): 6834276
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples		Depth (m)	Additional Observations
			Symbols	Moisture		
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, few roots 0.3 m					Refusal, Ferricrite overlying Granite
	Colluvium/Ferricrite Silt/Clay, sandy & gravelly, with cobbles, low plasticity, red/brown, slightly moist, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.8 m					
	End of Test Hole at 0.8 (m)					

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

TailCon Projects Consulting

Notes:

TEST PIT LOG: TSF-TP-17

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680989
Northing (m): 6834376
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples Symbols	 Moisture	 Depth (m)	Additional Observations
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, few roots 0.3 m					
1	Colluvium Silt/Clay, sandy with gravel, trace cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.7 m					Refusal, Ferricrite (Transition point from granite to basalt)
2						
3	Ferricrite Silt/Clay, sandy, gravelly, cobbly with boulders, low plasticity, red/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 1 m					
4						
5						
6	End of Test Hole at 1 (m)					
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

TailCon Projects
Consulting

Notes:

TEST PIT LOG: TSF-TP-18

Project: YGP GSI

Project No.: 160-01-3139C

Site Address:

Client: ROX Resources Limited

CRS: UTM Zone 50 J

Easting (m): 681144

Northing (m): 6834470

Elevation:

[redacted]

Reviewed By: WK

Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	**TOPSOIL** Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots — 0.3 m					Refusal, Ferricrite
	Colluvium Silt/Clay, sandy with gravel, trace cobbles, low plasticity, red/brown, dry, hard, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. — 0.6 m					
	Ferricrite Silt/Clay, sandy, gravelly, cobbly with boulders, low plasticity, red/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. — 0.8 m					
	End of Test Hole at 0.8 (m)					

Depth scale: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

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Notes:

TEST PIT LOG: TSF-TP-19

Project: YGP GSI

Project No.: 160-01-3139C

Site Address:

Client: ROX Resources Limited

CRS: UTM Zone 50 J

Easting (m): 681122

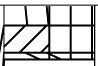
Northing (m): 6834262

Elevation:

[redacted]

Reviewed By: WK

Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0 1	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.3 m		D	DM	0.3 - 0.7	Refusal, Ferricrite
2 3	Colluvium Silt/Clay, sandy with gravel, trace cobbles, low plasticity, orange/brown, dry, very stiff, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.7 m					
4 5	Ferricrite Silt/Clay, sandy, gravelly, cobbly with boulders, low plasticity, red/brown, dry, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.8 m					
6	End of Test Hole at 0.8 (m)					
7 8 9 10 11 12 13 14 15 16 17 18 19 20						

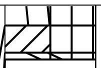
TailCon Projects
Consulting

Notes:

TEST PIT LOG: TSF-TP-20

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 681170
Northing (m): 6834376
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Ground Surface at (m)

Depth	Material Description	Graphic	Samples: Symbols	Samples: Moisture	Samples: Depth (m)	Additional Observations
0 1	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.3 m					Refusal, Ferricrite
2 3	Colluvium Silt/Clay, sandy with gravel, trace cobbles, low plasticity, orange/brown, slightly moist, very stiff, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.7 m					
4 5	Ferricrite Silt/Clay, sandy, gravelly, cobbly trace boulders, low plasticity, red/brown, slighly moist, hard, strong cementation, sand particles are medium to coarse angular/sub-angular, gravel particles are medium to coarse angular/sub-angular. 0.8 m					
6	End of Test Hole at 0.8 (m)					
7 8 9 10 11 12 13 14 15 16 17 18 19 20						

TailCon Projects Consulting

Notes:

RSLog / Test Pit Logs MS / tailcon-projects-consulting / admin / June 28, 2025 02:05 AM

TEST PIT LOG: TSF-TP-21

Project: YGP GSI
Project No.: 160-01-3139C
Site Address:
Client: ROX Resources Limited
CRS: UTM Zone 50 J
Easting (m): 680958
Northing (m): 6834279
Elevation:
[redacted]
Reviewed By: WK
Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, firm, many roots 0.2 m					Refusal, Ferricrite/Granite
	End of Test Hole at 0.2 (m)					
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
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12						
13						
14						
15						
16						
17						
18						
19						
20						

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Notes:

TEST PIT LOG: TSF-TP-22

Project: YGP GSI

Project No.: 160-01-3139C

Site Address:

Client: ROX Resources Limited

CRS: UTM Zone 50 J

Easting (m): 680639

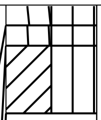
Northing (m): 6834618

Elevation:

[redacted]

Reviewed By: WK

Investigation Date: 2025-06-05

Depth	Material Description	Graphic	Samples			Additional Observations
			Symbols	Moisture	Depth (m)	
	Ground Surface at (m)					
0 1	TOPSOIL Silt/Clay, Sandy & Gravelly, Low Plasticity, Brown,Sligtly moist, stiff, some roots 0.3 m					
2 3	Colluvium Silt/Clay, Sandy & Gravelly, with cobbles, low plasticity, orange/brown, slighltly moist, stiff to very stiff, strong cementation, sand particles are fine to coarse angular/sub-angular, gravel particles are fine to coarse angular/sub-angular. 0.6 m					Terminated, VLS/LS Granite
4 5	XW/HW Granite Silt/Clay, Gravelly Cobbly Boulderly with sand, low plasticity, organe-brown & White/ceam, slighly moist, hard 1.6 m					
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	End of Test Hole at 1.6 (m)					

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Notes:

Appendix D TSF3 Test Pit Photos

Plate 1: TSF-TP-01 -Test Location

Plate 2: TSF-TP-01 – Excavated to refusal

Plate 3: TSF-TP-01 – Excavation Wall

Plate 4: TSF-TP-01 – Test Pit arisings

Plate 5: TSF-TP-01 - Test pit arisings

Plate 6: TSF-TP-01 - Granite rock HW/DW

Plate 7: TSF-TP-02 – Test Pit location

Plate 8: TSF-TP-02 – Excavation to refusal

Plate 9: TSF-TP02 - Test Pit wall

Plate 10: TSF-TP02 - Test Pit wall

Plate 11: TSF-TP02 - Test Pit arising

Plate 12: TSF-TP02 - Test Pit arising

Plate 13: TSF-TP03 - Test Pit location

Plate 14: TSF-TP03 - Excavation to refusal

Plate 15: TSF-TP03 - Test Pit arising

Plate 16: TSF-TP03 – Arisings

Plate 17: TSF-TP04 - Test Pit location

Plate 18: TSF-TP04 – Excavation to refusal

Plate 19: TSF-TP04 – Test Pit wall

Plate 20: TSF-TP04 – Test Pit arisings

Plate 21: TSF-TP04 – Test Pit arisings

Plate 22: TSF-TP04 – Test Pit sample

Plate 23: TSF-TP05 – Test Pit location

Plate 24: TSF-TP05 – Excavation to refusal

Plate 25: TSF-TP05 – Test Pit wall

Plate 26: TSF-TP05 – Test Pit arisings

Plate 27: TSF-TP05 – Arisings

Plate 28: TSF-TP06 – Test Pit location

Plate 29: TSF-TP06 – Excavation to refusal

Plate 30: TSF-TP06 – Test Pit arisings

Plate 31: TSF-TP07 – Test Pit location

Plate 32: TSF-TP07 – Excavation to refusal

Plate 33: TSF-TP07 – Test Pit wall

Plate 34: TSF-TP07 – Test Pit arisings

Plate 35: TSF-TP07 – Test Pit sample

Plate 36: TSF-TP08 – Test Pit location

Plate 37: TSF-TP08 – Excavation to refusal

Plate 38: TSF-TP08 – Test Pit wall

Plate 39: TSF-TP08 – Test Pit arisings

Plate 40: TSF-TP09 – Test Pit location

Plate 41: TSF-TP09 – Excavation

Plate 42: TSF-TP09 – Excavation to refusal

Plate 43: TSF-TP09 – Test Pit raisings

Plate 44: TSF-TP09 – Arisings

Plate 45: TSF-TP10 – Test Pit Location

Plate 46: TSF-TP10 – Excavation to refusal

Plate 47: TSF-TP10 – Test Pit wall

Plate 48: TSF-TP10 – Test Pit Arisings

Plate 49: TSF-TP10 – Granite arising

Plate 50: TSF-TP10 – Test Pit sample

Plate 51: TSF-TP11 – Test Pit location

Plate 52: TSF-TP11 – Excavation to refusal

Plate 53: TSF-TP11 – Test Pit wall

Plate 54: TSF-TP11 – Test Pit arisings

Plate 55: TSF-TP11 – Test Pit sample

Plate 56: TSF-TP12 – Test Pit location

Plate 57: TSF-TP12 – Excavation to refusal

Plate 58: TSF-TP12 – Test Pit wall

Plate 59: TSF-TP12 – Test Pit arisings

Plate 60: TSF-TP12 – Granite rock

Plate 61: TSF-TP13 – Test Pit Location

Plate 62: TSF-TP13 – Excavation to refusal

Plate 63: TSF-TP13 – Test Pit Wall

Plate 64: TSF-TP14 – Test Pit location

Plate 65: TSF-TP14 – Excavation to refusal

Plate 66: TSF-TP14 – Test Pit wall

Plate 67: TSF-TP14 – Test Pit arisings

Plate 68: TSF-TP14 – Test Pit sample

Plate 69: TSF-TP15 – Test Pit location

Plate 70: TSF-TP15 – Test Pit location

Plate 71: TSF-TP15 – Test Pit arisings

Plate 72: TSF-TP15 – Test Pit arisings

Plate 73: TSF-TP16 – Test Pit location

Plate 74: TSF-TP16 – Excavation to refusal

Plate 75: TSF-TP16 – Excavation to refusal

Plate 76: TSF-TP16 – Test Pit arisings

Plate 77: TSF-TP17 – Test Pit location

Plate 78: TSF-TP17 – Excavation to refusal

Plate 79: TSF-TP17 – Test Pit wall

Plate 80: TSF-TP17 – Test Pit arisings

Plate 81: TSF-TP18 – Test Pit location

Plate 82: TSF-TP18 – Excavation to refusal

Plate 83: TSF-TP18 – Test Pit wall

Plate 84: TSF-TP18 – Test Pit arisings

Plate 85: TSF-TP19 – Test Pit location

Plate 86: TSF-TP19 – Excavation to refusal

Plate 87: TSF-TP19 – Test Pit wall

Plate 88: TSF-TP19 – Test Pit arisings

Plate 89: TSF-TP19 – Adjacent standpipe piezometer (TSF-BH03)

Plate 90: TSF-TP19 – Test Pit sample

Plate 91: TSF-TP20 – Test Pit Location

Plate 92: TSF-TP20 – Excavation to refusal

Plate 93: TSF-TP20 – Test Pit wall

Plate 94: TSF-TP20 – Test Pit arisings

Plate 95: TSF-TP21 – Test Pit location

Plate 96: TSF-TP21 – Excavation to refusal

Plate 97: TSF-TP21 – Excavation surface (Ferricirite rock)

Plate 98: TSF-TP22 – Test Pit Location

Plate 99: TSF-TP22 – Excavation to refusal

Plate 100: TSF-TP22 – Test Pit wall

Plate 101: TSF-TP22 – Test Pit arisings

Plate 102: TSF-TP22 – Granite rock

Appendix D Tailings Laboratory Test Results

Perth
16 Gympie Way, Willetton
WA 6155

[redacted]

E-Precision Laboratory

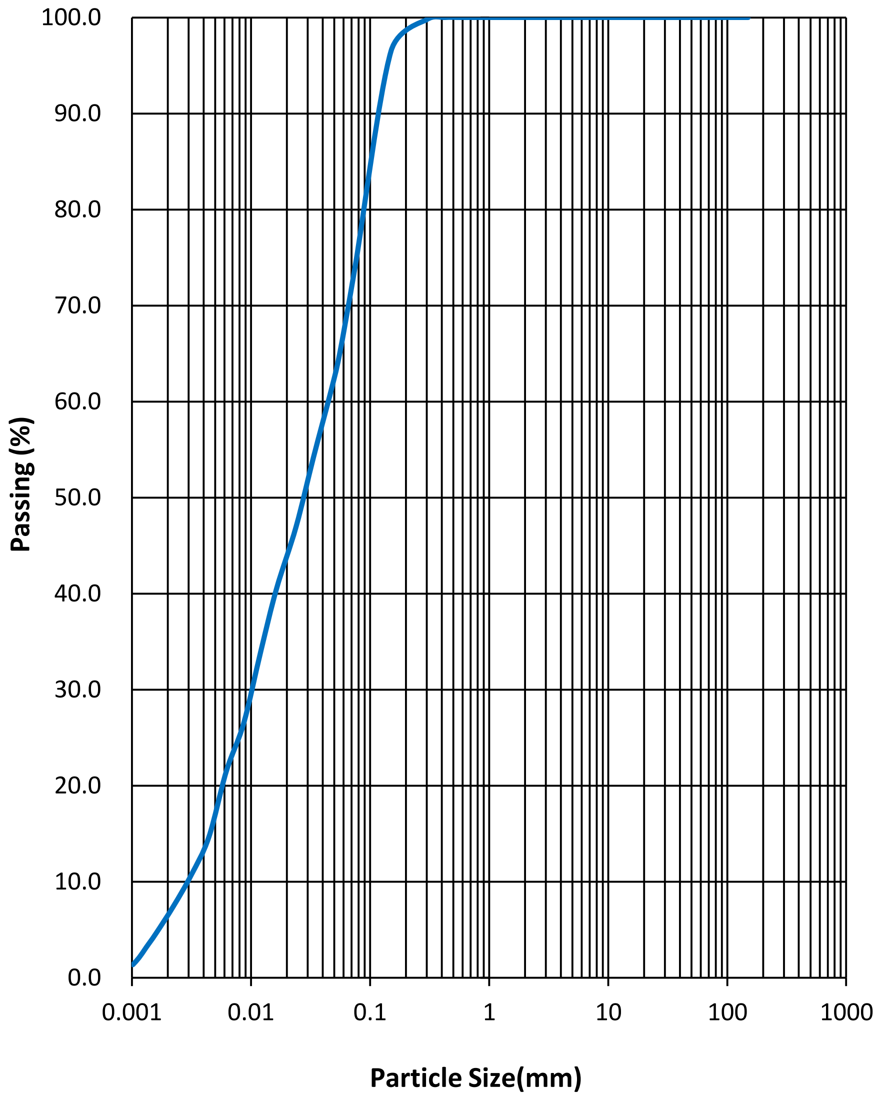
PARTICLE SIZE DISTRIBUTION TEST REPORT

Test Method: AS 1289 3.5.1 3.6.3

Client:	Tailcon	Date Tested:	08/05/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample No:	A26414	Depth (m):	-
Lab ID:	A26414_PSD	Room Temperature at Test:	19°C
Tested by:	Sunny	2.36mm Particle Density (t/m³):	2.775
Checked by:	Phil	Moisture Content (%):	-

Sieve Size (mm)	**Passing %**
150	100.0
75	100.0
53	100.0
37.5	100.0
26.5	100.0
19	100.0
9.5	100.0
4.75	100.0
2.36	100.0
1.18	100.0
0.6	100.0
0.425	100.0
0.3	99.8
0.15	96.5
0.075	74.1
0.05546	65.0
0.04671	61.0
0.03344	54.2
0.02394	47.0
0.01639	40.5
0.01211	34.1
0.00868	26.5
0.00620	21.5
0.00443	14.7
0.00315	10.7
0.00224	7.5
0.00159	4.6
0.00132	3.2
0.00115	2.1
0.00102	1.4

PSD Graph



Notes:
Stored and Tested the Sample as received
Samples supplied by the Client

Aut [redacted]

Perth
16 Gympie Way, Willetton
WA 6155
Ph: (08) 9418 8742
[redacted]

E-Precision Laboratory

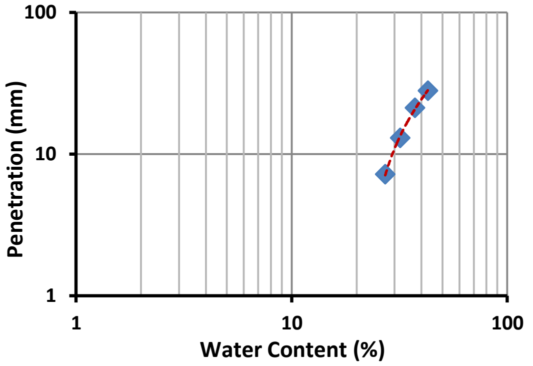
ATTERBERG LIMITS TEST REPORT

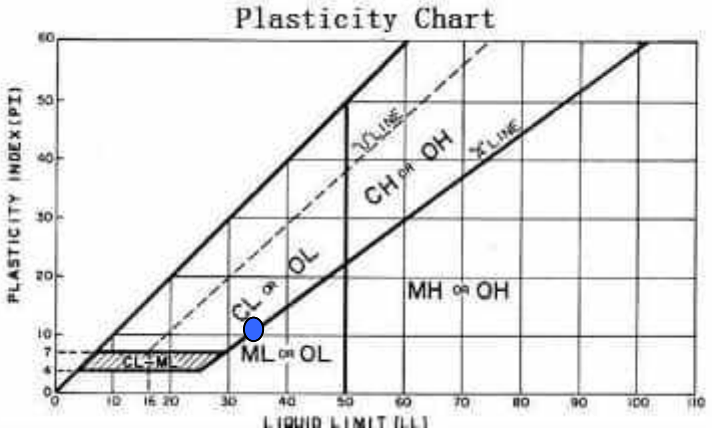
Test Method: AS1289.2.1.1 3.1.1 3.2.1 3.4.1

Client:	Tailcon	Date Tested:	10/06/2025
Project:	Youanmi Gold Project 2025	Lab:	EPLAB
Sample No:	A26414	Job Number:	TAILCON
Lab ID:	A26414_ATT		
Depth (m):	-	Room Temperature at Test:	20°C
Tested by:	Raymond	Sample Description:	-
Moisture Content (%):	-	Wet Density (t/m³):	-
		Dry Density (t/m³):	-

Liquid Limit (%):	34.54
Plastic Limit (%):	23.37
Plasticity Index (%):	11.16
Liquidity Index (%):	-
Shrinkage Limit (%):	19.43
Linear Shrinkage(%):	5.36

Results Chart





Notes: The sample/s were tested oven dried, dry sieved and in a 12

Stored and Tested the Sample as received

Samples supplied by the Client

Authorised Sig

[redacted]

Perth
16 Gympie Way, Willetton
WA 6155
Ph: (08) 9418 8742

[redacted]

E-PRECISION LABORATORY

SETTLEMENT TESTING TAILINGS

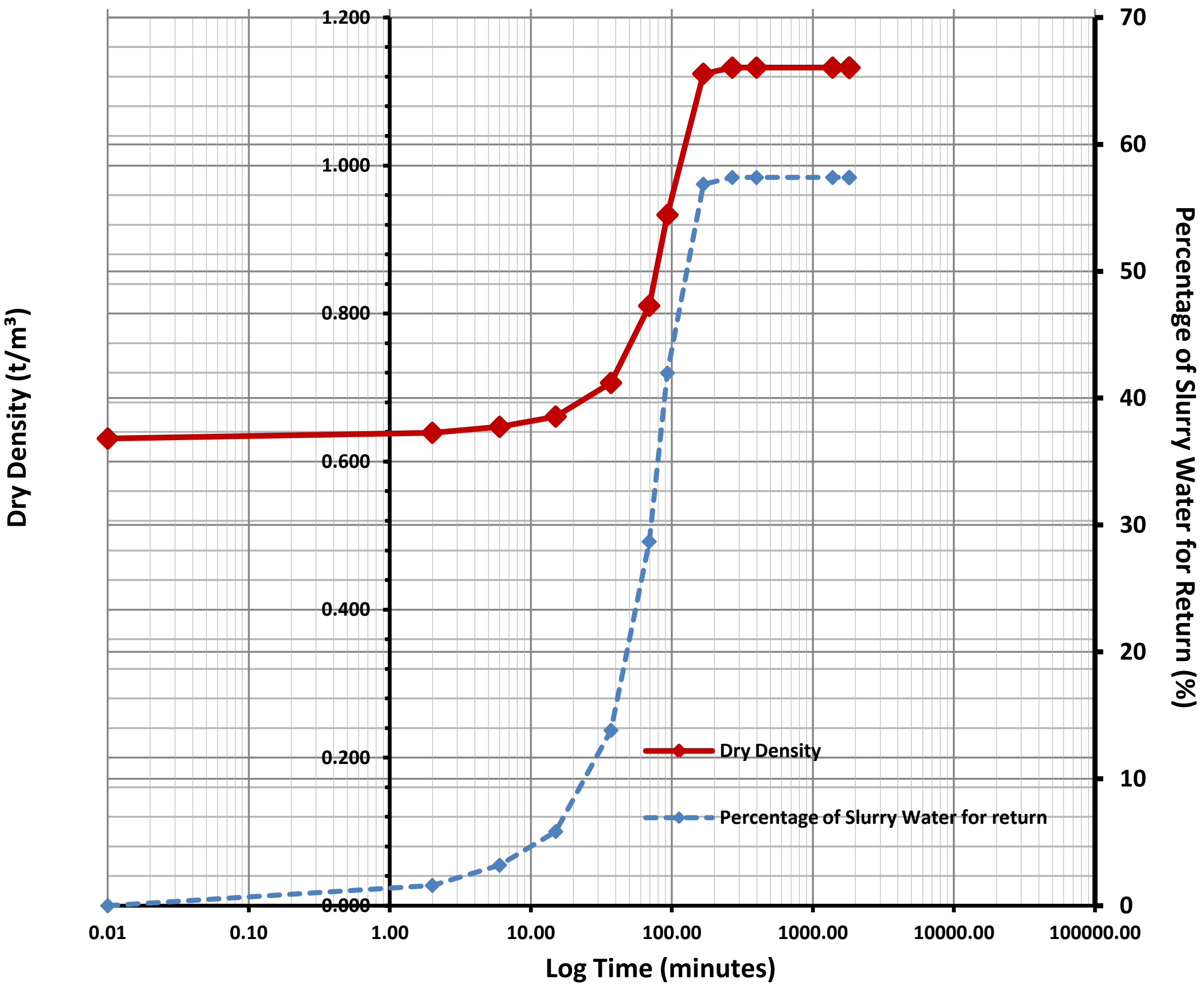
METHOD: IN-HOUSE METHOD

Client:	Tailcon	Date Tested:	07/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample No:	A26414		
Lab ID:	A26414_SETTLEMENT	Room Temperature at Test:	19°

Tested by: Phil
Type of Test: Settlement Testing
Sample Preparation: 45% Solids

Initial Dry Density (t/m³): 0.631
Particle Density (t/m³): 2.775
Initial Bulk Density (t/m³): 1.402

Undrained Dry Density (t/m³) Vs Log Time (minutes)



Comments:

Authorised Signature (Geotechnical Engineer):

[redacted]

The results of tests performed apply only to the specific sample at time of test unless otherwise clearly stated. Reference should be made to E-Precision Laboratory's "Standard Terms and Conditions" E-Precision Laboratory ABN 431 559 578 87

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[redacted]

E-PRECISION LABORATORY

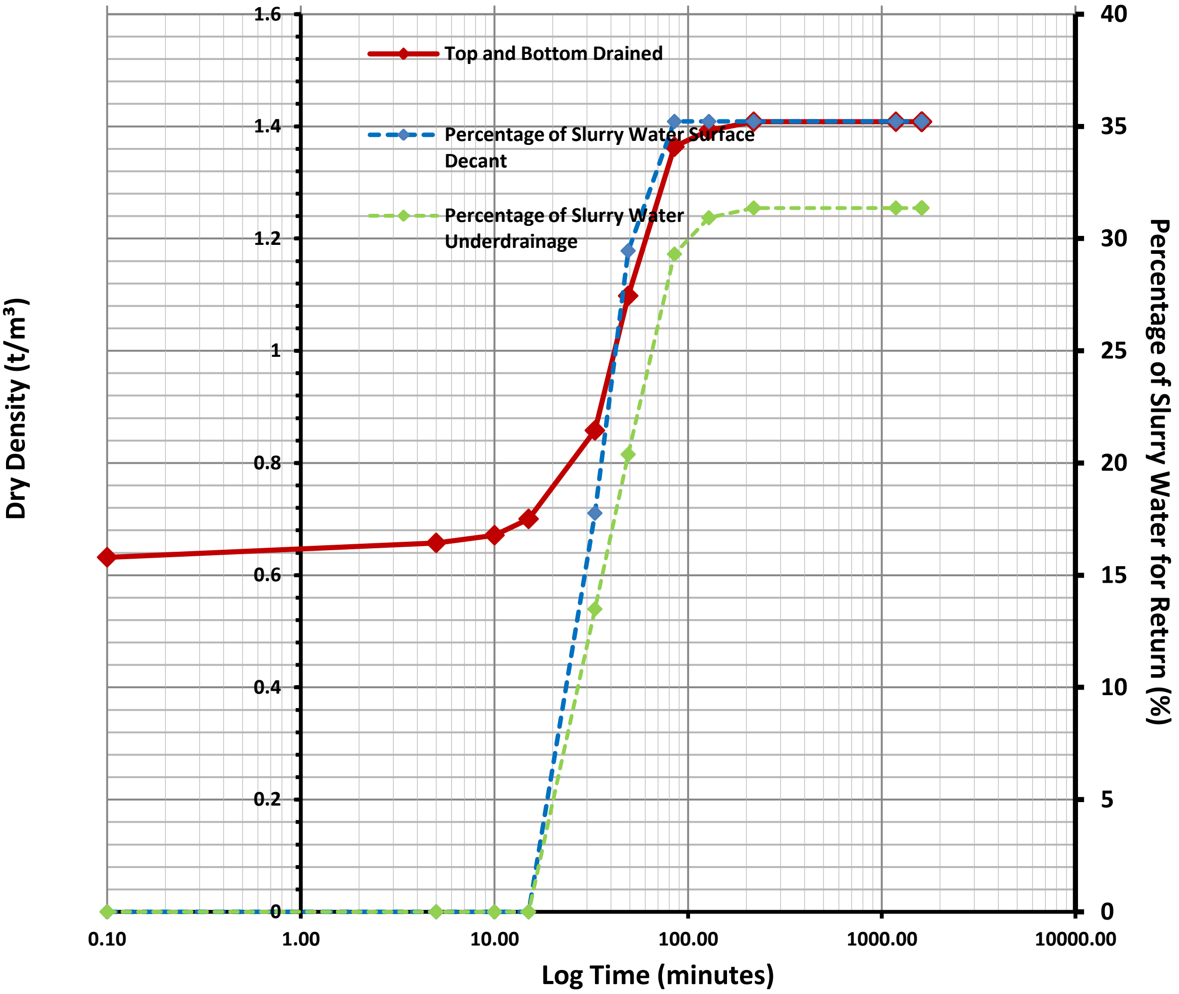
SETTLEMENT TESTING TAILINGS

METHOD: IN-HOUSE METHOD

Client:	Tailcon	Date Tested:	07/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample No:	A26414		
Lab ID:	A26414_SETTLEMENT	Room Temperature at Test:	19°

Tested by:	Phil	**Initial Dry Density (t/m³):**	0.632
Type of Test:	Settlement Testing	**Particle Density (t/m³):**	2.775
Sample Preparation:	45% Solids	**Initial Bulk Density (t/m³):**	1.404

Top and Bottom Drained Dry Density (t/m³) Vs Log Time (minutes)



Comments:

Authorised Signature (Geotechnical Engineer): [redacted]

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E-PRECISION LABORATORY

SETTLEMENT TESTING TAILINGS

METHOD: IN-HOUSE METHOD

Client: Tailcon
Date Tested: 07/06/2025
Project: Youanmi Gold Project 2025
EP Lab Job Number: TAILCON
Sample No: A26414
Lab ID: A26414_SETTLEMENT
Room Temperature at Test: 19°

Tested by: Phil
Initial Dry Density (t/m³): -
Type of Test: Settlement Testing
Particle Density (t/m³): -
Sample Preparation: 45% Solids
Initial Bulk Density (t/m3): -

Photo of Test Setup

Undrained

Drained

Comments:

Authorised Signature (Geotechnical Engineer): [redacted]

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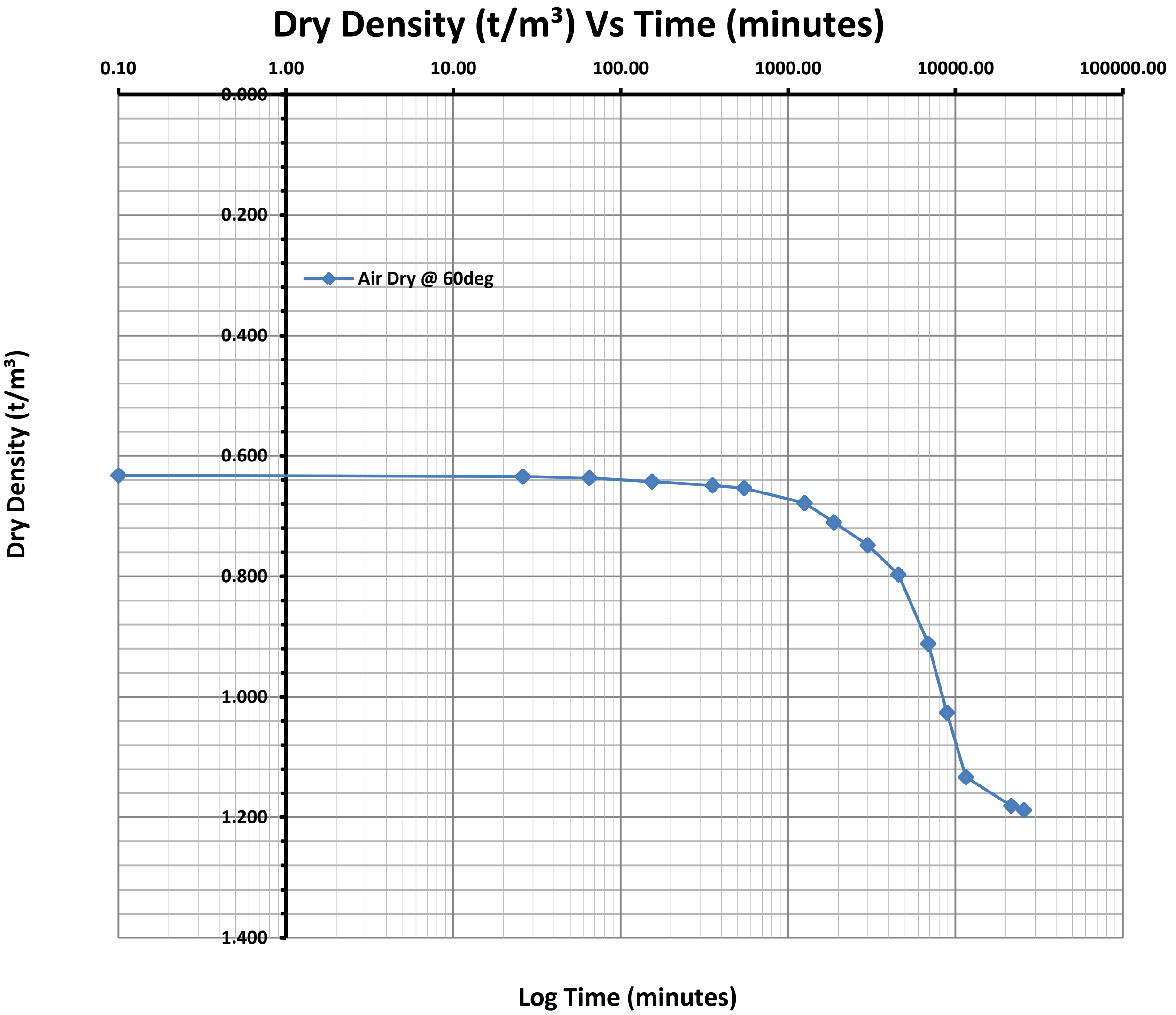
E-Precision Laboratory

AIR DRYING SETTLING TEST

METHOD: Supplied by Client SRC-WF-100 / SRC-RF-100

Client: Tailcon
Project: Youanmi Gold Project 2025
Sample No: A26414
Lab ID: A26414_AIR_DRY
Date Tested: 05/06/2025
EP Lab Job Number: TAILCON
Room Temperature at Test: 19°

Tested by: Phil
Type of Test: Air Dry Testing
Sample Preparation: 45% Solids
Initial Bulk Density (t/m³): 1.404
Particle Density (t/m³): 2.775
Moisture Content Initial (%): 122.087



Comments:

Authorised Signature (Geotechnical Engineer): [redacted]

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E-Precision Laboratory

AIR DRYING SETTLING TEST

METHOD: Supplied by Client SRC-WF-100 / SRC-RF-100

Client:	Tailcon	Date Tested:	05/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample No:	A26414		
Lab ID:	A26414_AIR_DRY	Room Temperature at Test:	19°

Photo of Samples after Testing

Oven dried @ 60deg

Comments:

Authorised Signature (Geotechnical Engineer [redacted]

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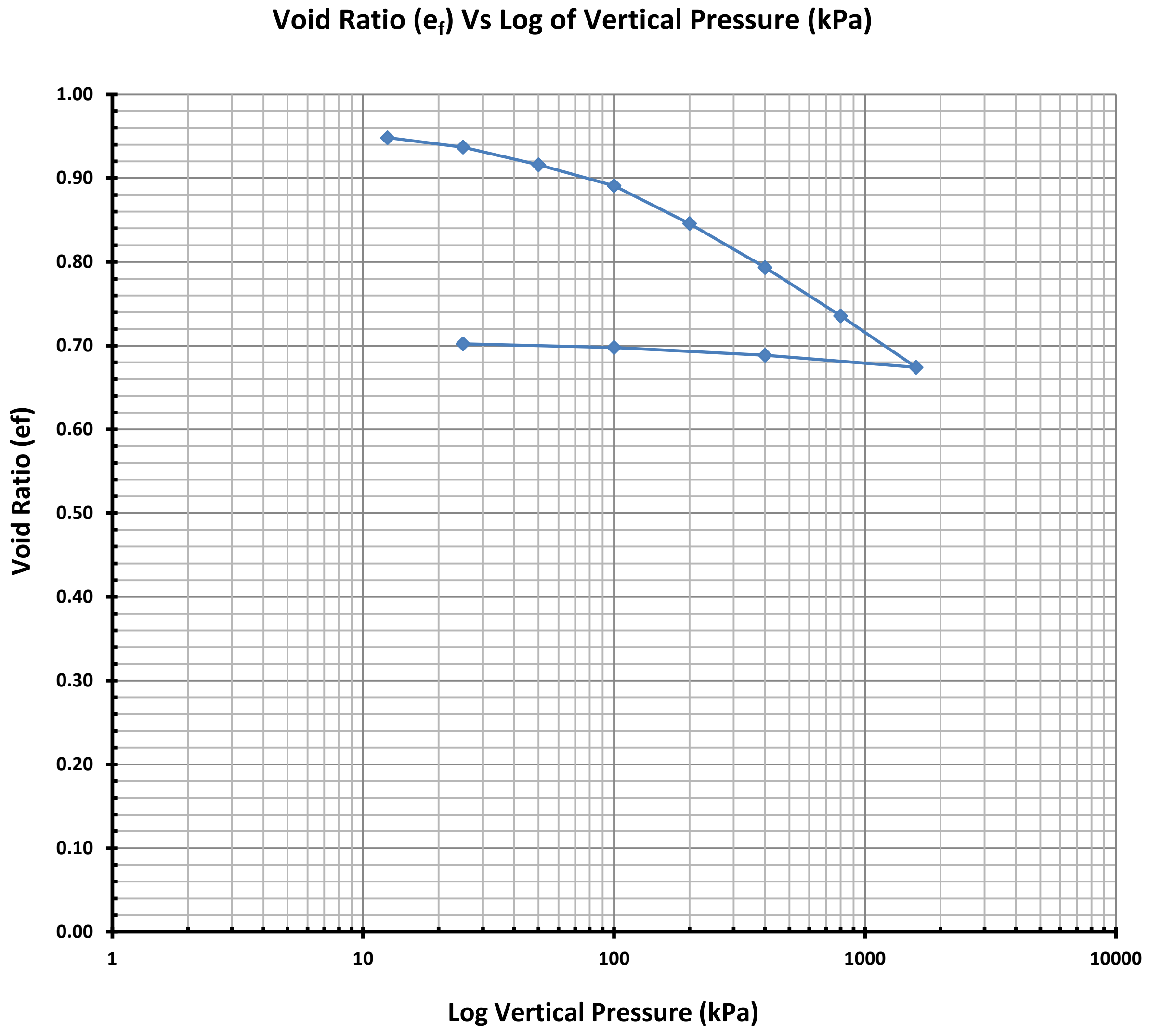
E-Precision Laboratory

CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Tested by:	Phil	Initial Moisture (%):	40.58	Test Condition:	Undrained
Height (mm):	38.97	Final Moisture Content (%):	31.93	Sample Condition:	Saturated
Diameter (mm):	61.80	Bulk Density (t/m³):	1.98	Particle Density (t/m³):	2.775
Direction:	Vertical	Dry Density (t/m³):	1.41	Initial Void Ratio (e_i):	0.966



[redacted]

E-Precision Laboratory

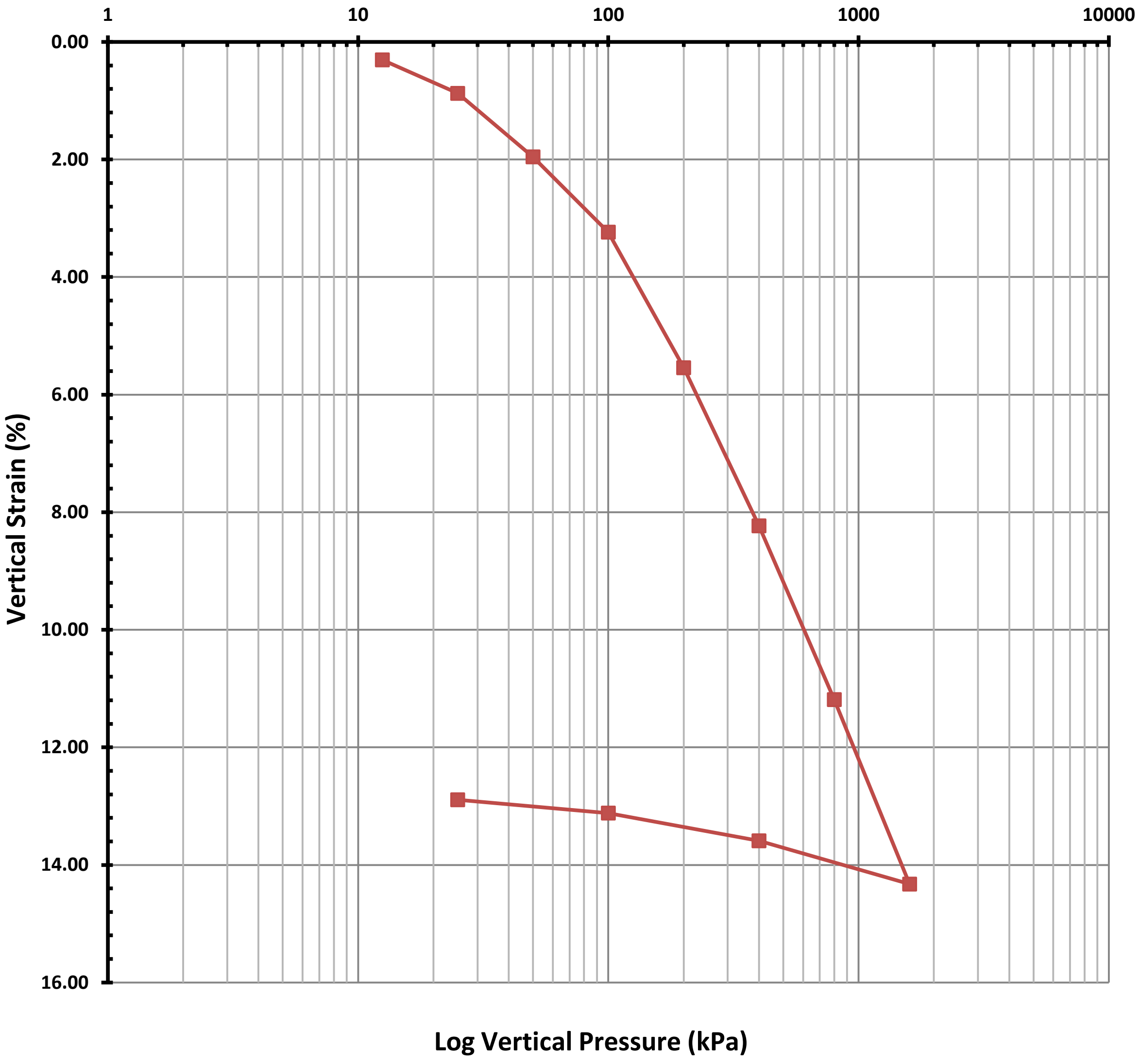
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client: Tailcon
Project: Youanmi Gold Project 2025
Sample ID: A26414
Lab ID: A26414_OED
Depth (m): -

Date Tested: 11/06/2025
EP Lab Job Number: TAILCON
Lab: EPLab
Room Temperature at Test: ~ 19°C

Vertical Strain (%) Vs Log of Vertical Pressure (kPa)



CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Test Results

*

Stages	Vert Disp (mm)	Cv (m^2/yr)		Compressibility Mv (m^2/kN)	K (m/s)		Void Ratio (e_f)	Vertical Strain (%)
		*t_{50}	t_{90}					
Stage 1 @ 12.5kPa	0.119	19.656	-	2.44E-04	1.5E-09		0.948	0.31
Stage 2 @ 25kPa	0.341	12.971	-	4.57E-04	1.8E-09		0.937	0.88
Stage 3 @ 50kPa	0.762	12.741	-	4.36E-04	1.7E-09		0.916	1.96
Stage 4 @ 100kPa	1.261	12.361	-	2.61E-04	1.0E-09		0.891	3.24
Stage 5 @ 200kPa	2.160	7.071	-	2.38E-04	5.2E-10		0.846	5.54
Stage 6 @ 400kPa	3.208	6.768	-	1.42E-04	3.0E-10		0.793	8.23
Stage 7 @ 800kPa	4.360	7.851	-	8.05E-05	2.0E-10		0.735	11.19
Stage 8 @ 1600kPa	5.583	7.334	-	4.42E-05	1.0E-10		0.674	14.33

Unload @ 400kPa	5.296
Unload @ 100kPa	5.112
Unload @ 25kPa	5.024

** Values interpreted via lab only*

Comments: **Sample collected from Drained Settlement Testing**

Cv values to be interpreted via Engineer

Samples supplied by the Client

Authorised Signatory (Geotechnical Engineer): [redacted]

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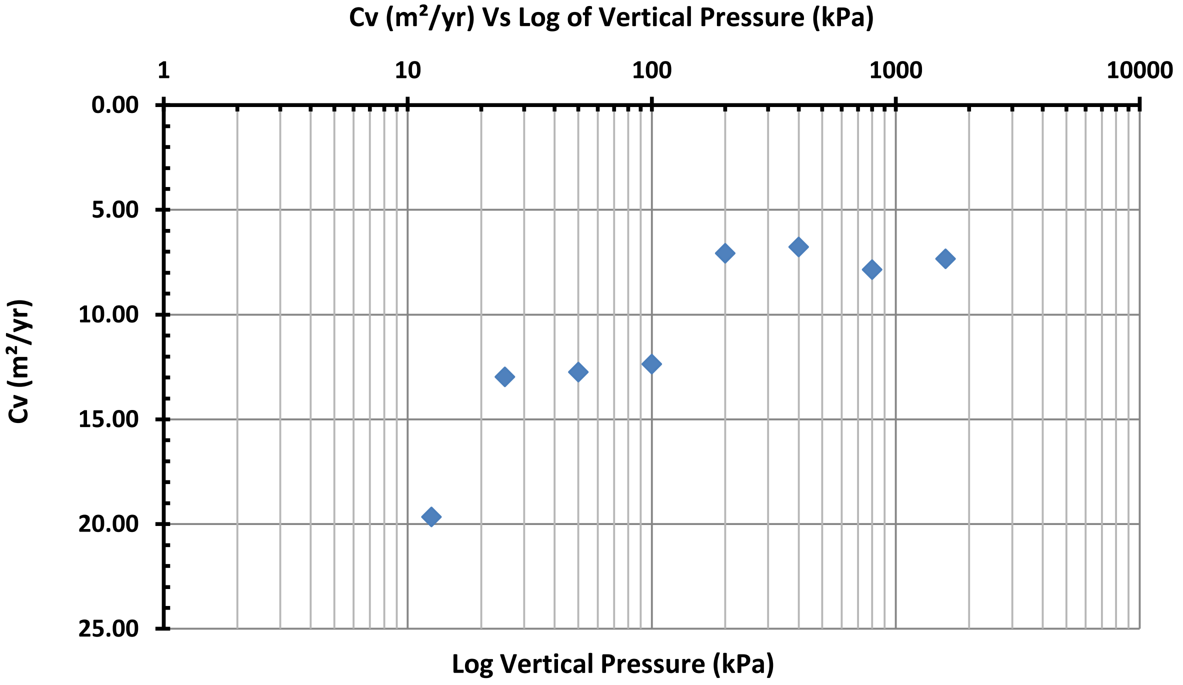
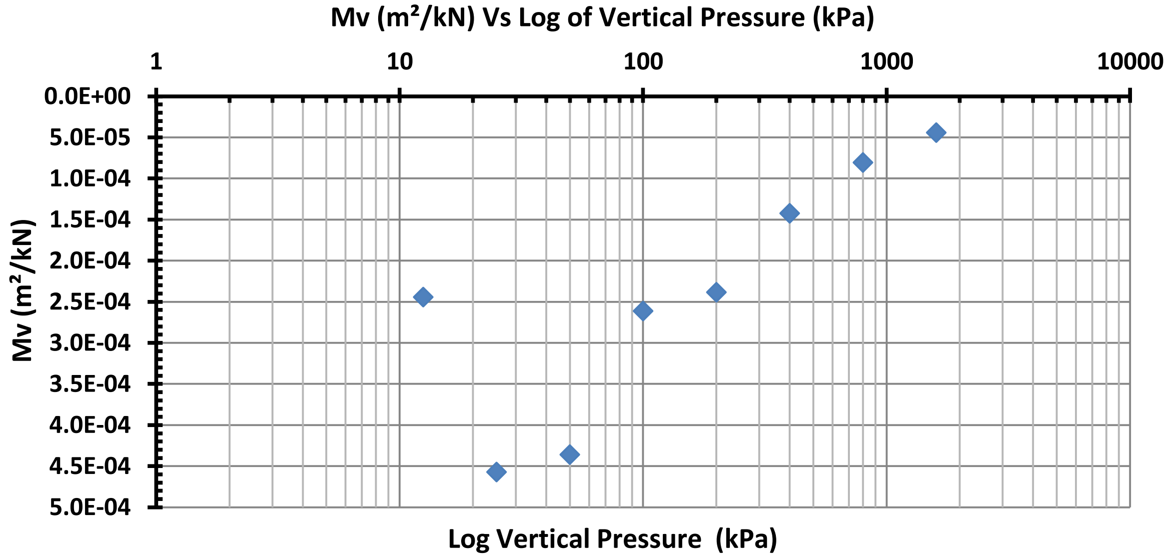
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C



* Plot based on Log (time) data



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CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

TEST RESULTS PLEASE SEE PAGES BELOW

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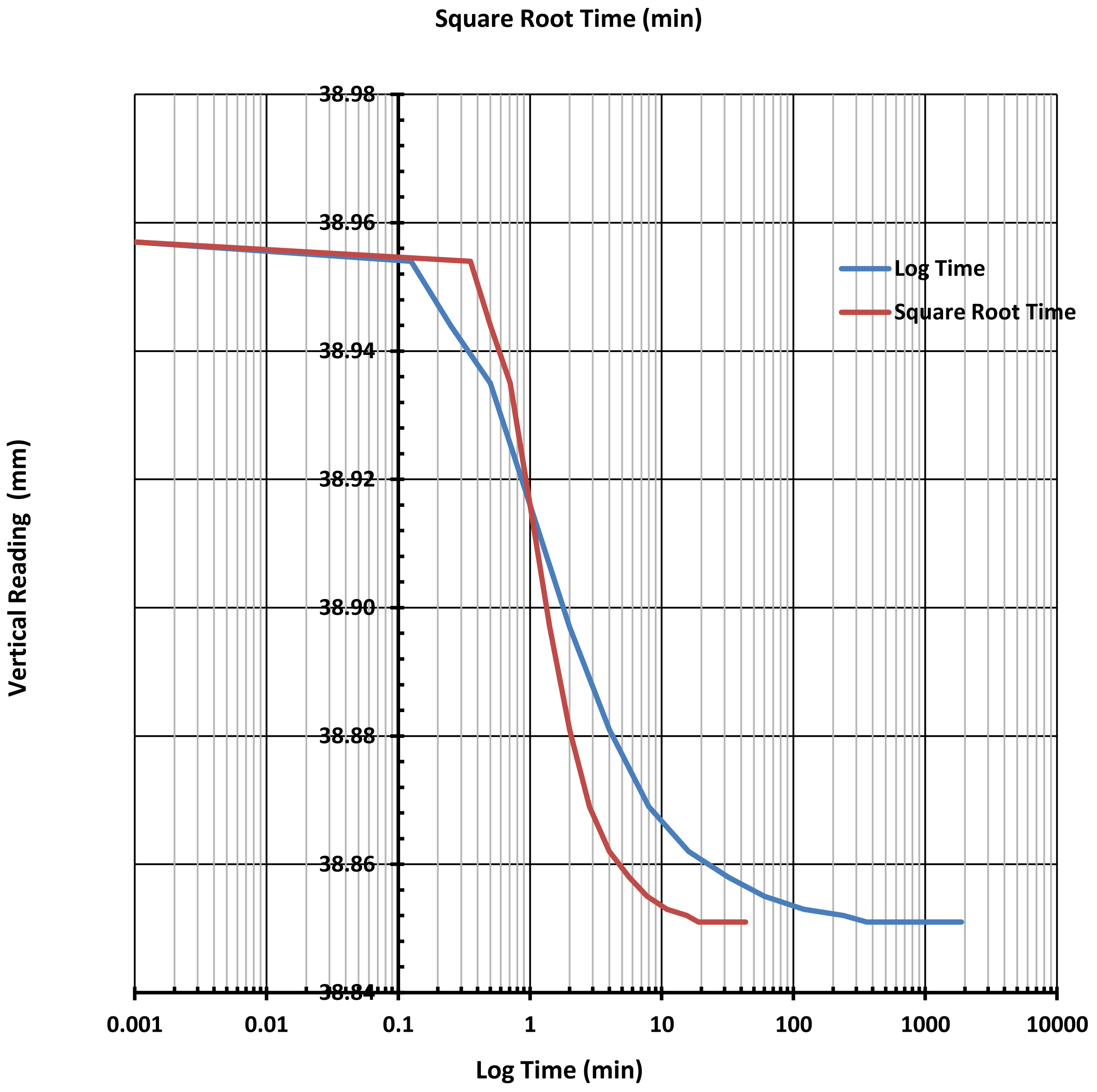
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 1 @ 12.5kPa



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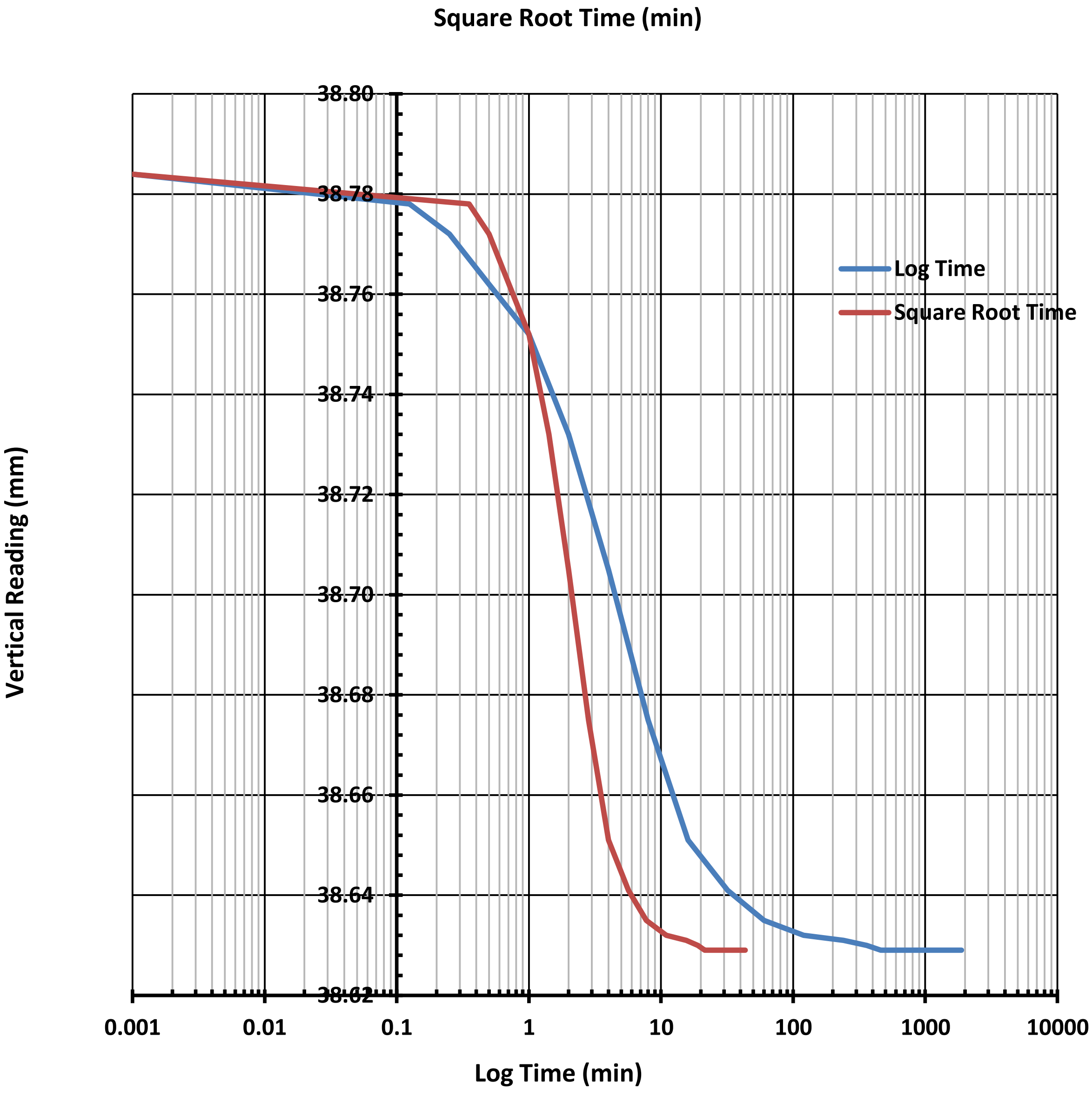
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 2 @ 25kPa



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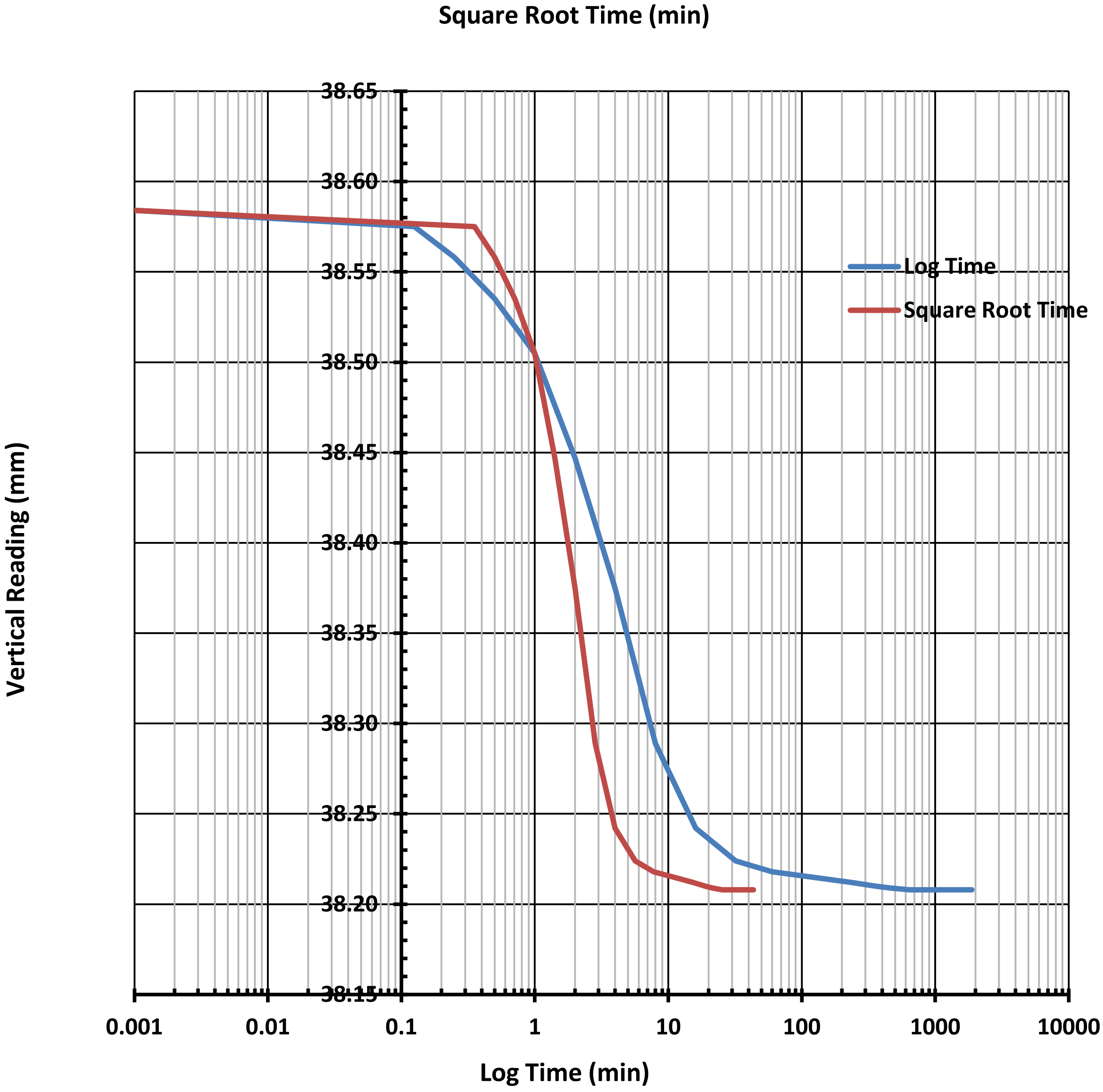
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 3 @ 50kPa



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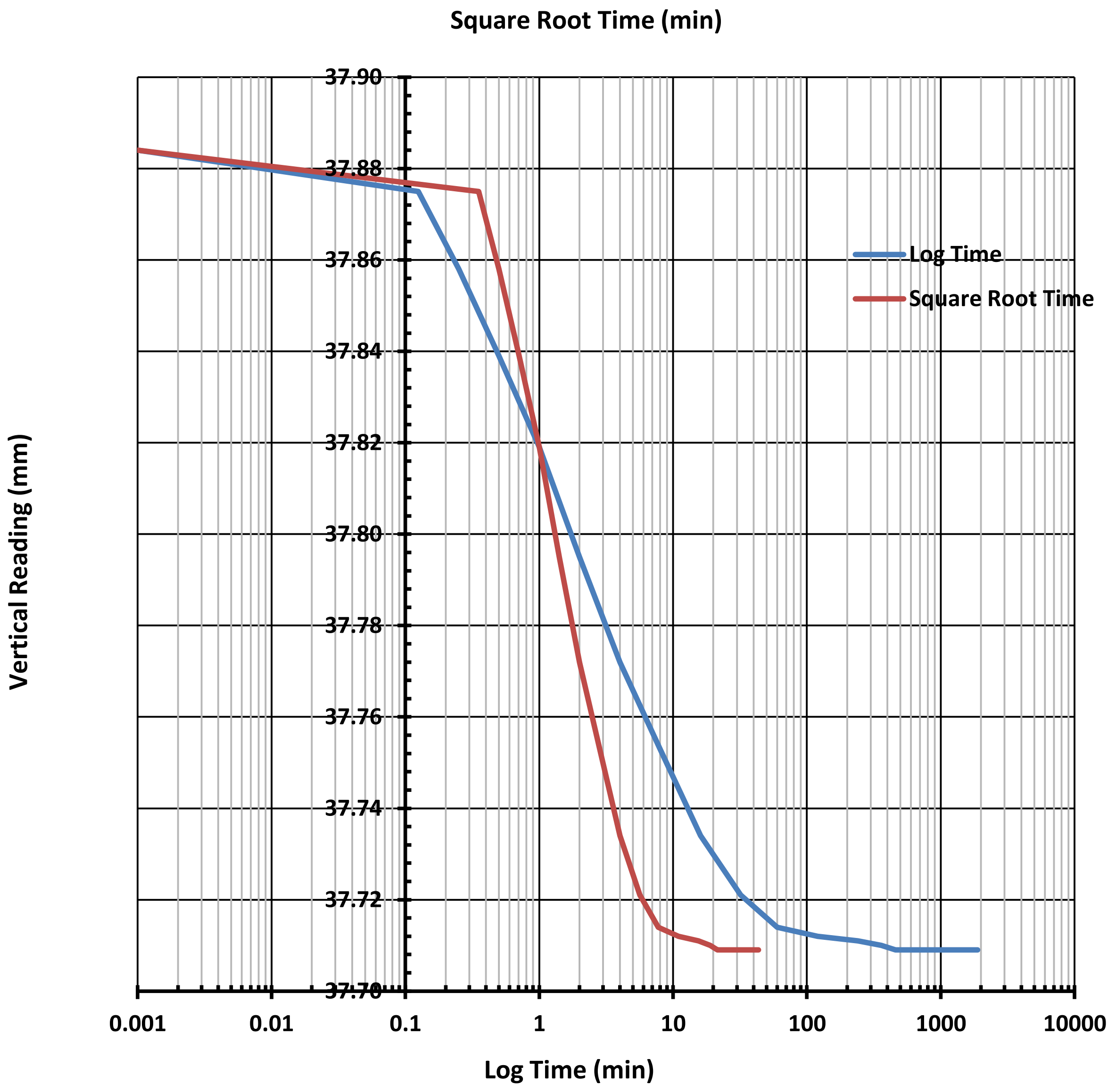
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 4 @ 100kPa



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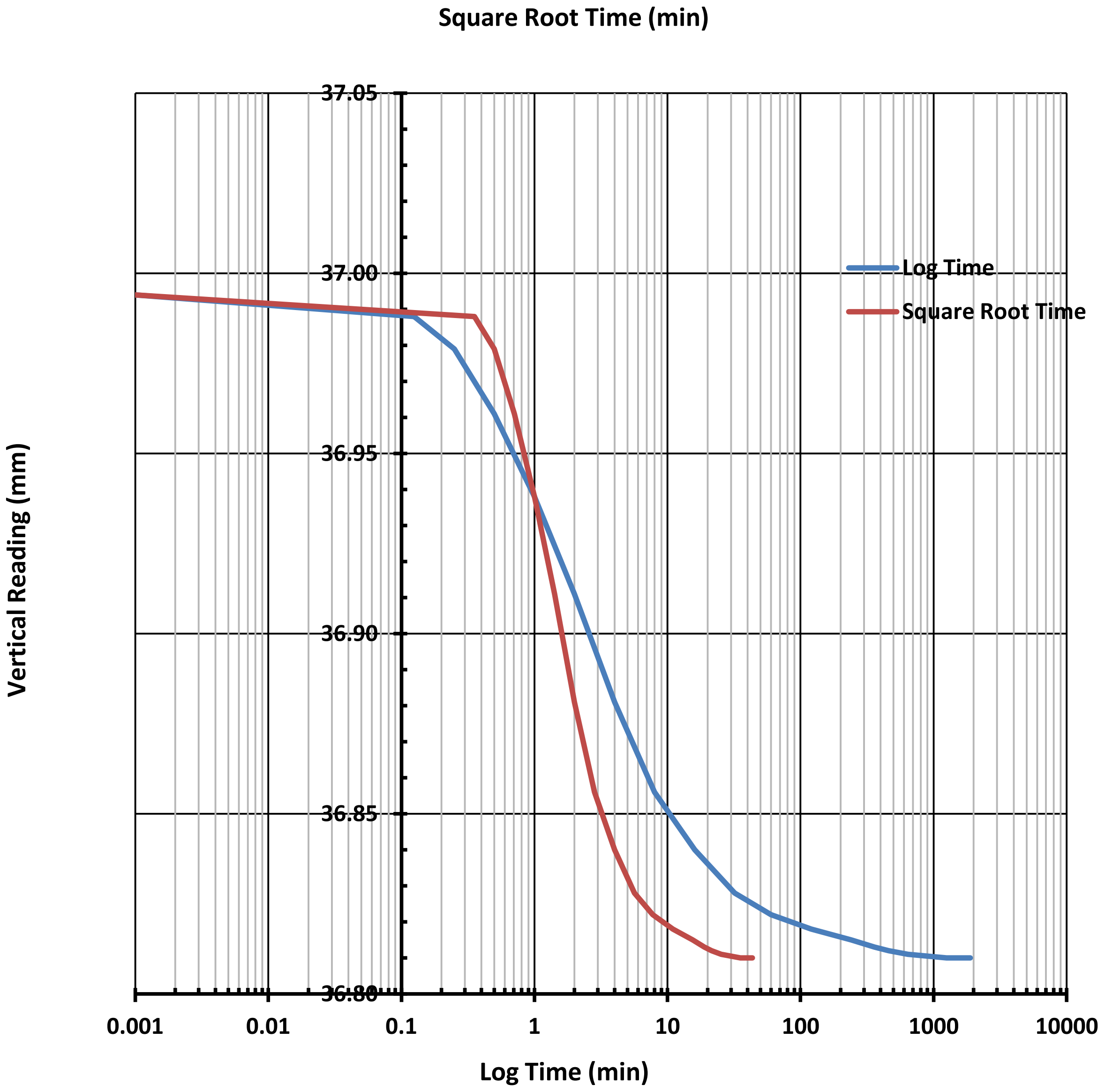
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 5 @ 200kPa



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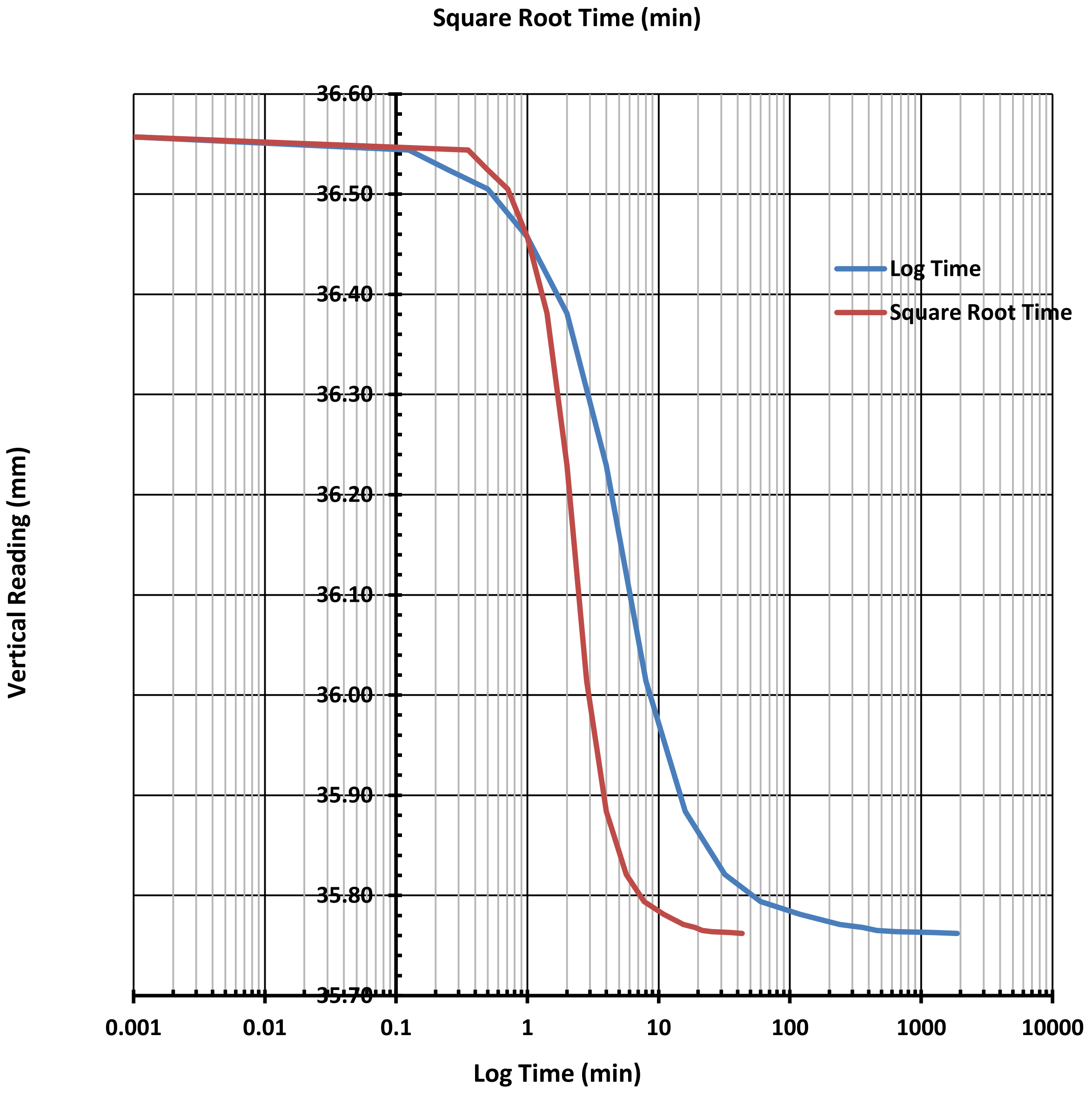
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 6 @ 400kPa



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[redacted]

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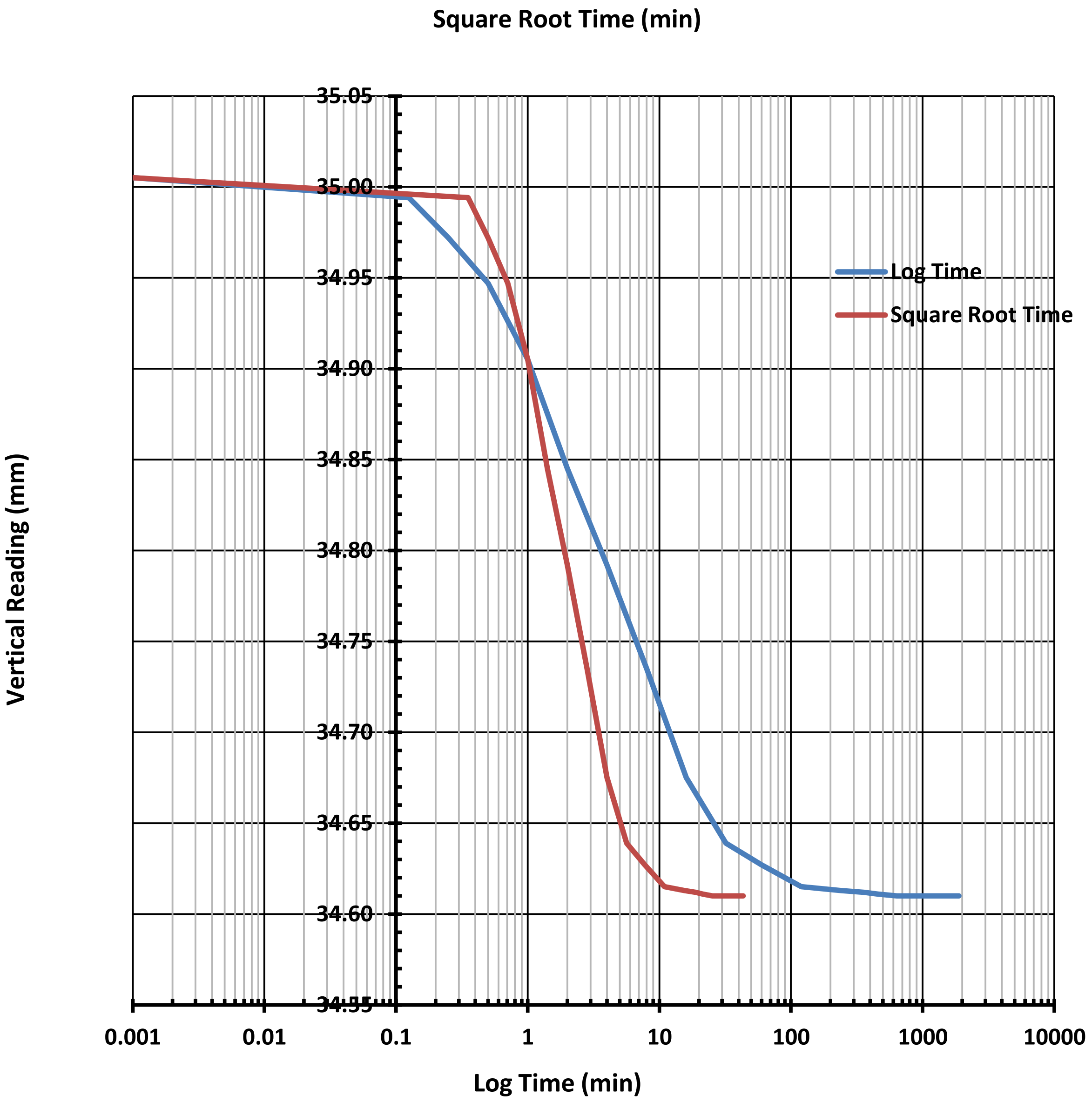
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 7 @ 800kPa



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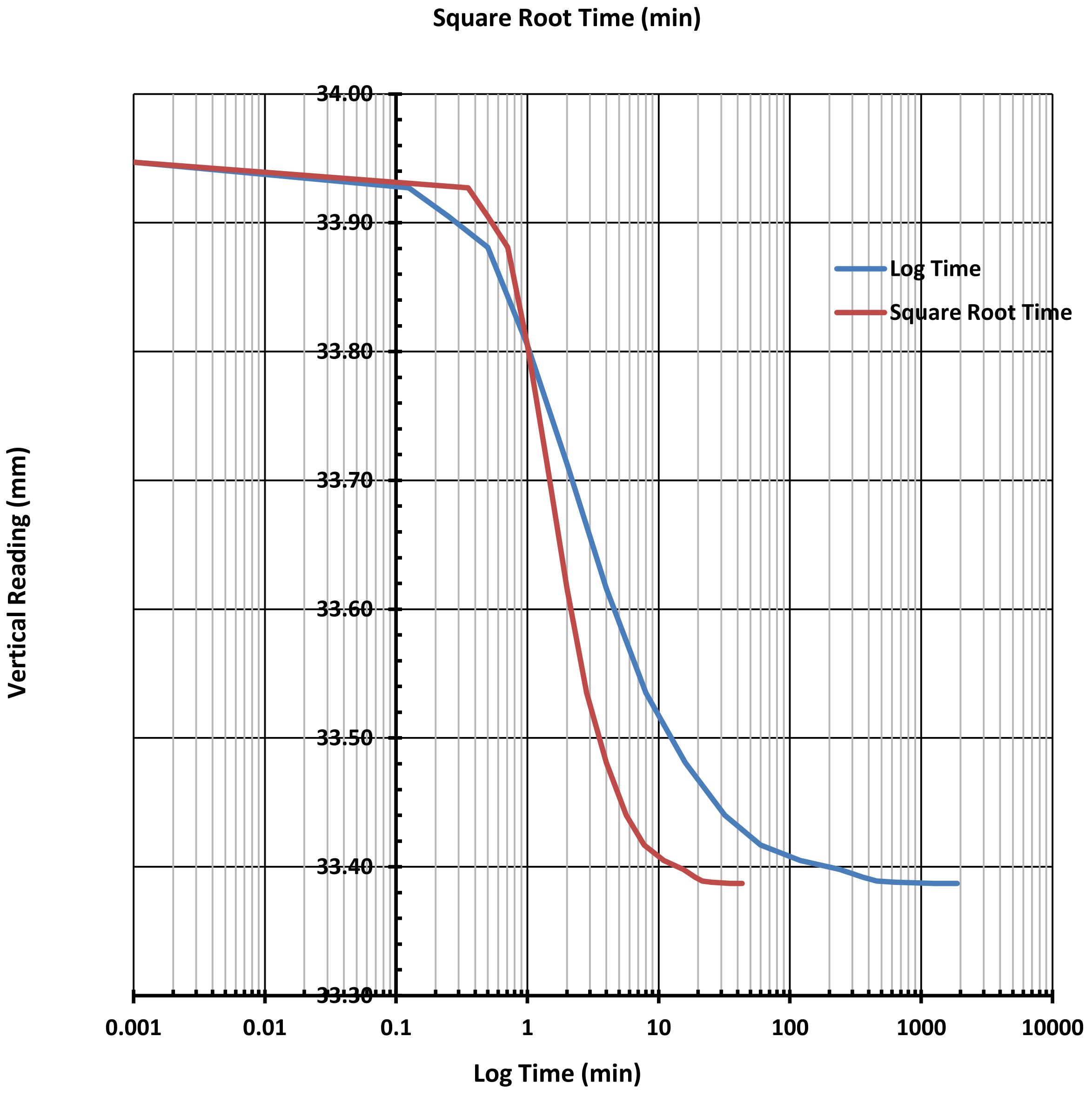
CONSOLIDATION - ONE DIMENSION

Method: AS1289 6.6.1 / Inhouse Method

Client:	Tailcon	Date Tested:	11/06/2025
Project:	Youanmi Gold Project 2025	EP Lab Job Number:	TAILCON
Sample ID:	A26414		
Lab ID:	A26414_OED	Lab:	EPLab
Depth (m):	-	Room Temperature at Test:	~ 19°C

Stage 8 @ 1600kPa



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E-PRECISION LABORATORY

FALLING HEAD PERMEABILITY TEST REPORT

Test Method: AS1289 6.7.2

Client:	Tailcon	Date Tested:	16/06/2025
Project:	Youanmi Gold Project 2025	Date Reported:	19/06/2025
Lab:	EPLAB	EP Lab Job Number:	TAILCON
Tested by:	Phil		
Checked by:	Phil		

Lab ID:	A26414_FH			
Client ID:	A26414 Tails			
Sample ID:	-			
From Depth (m):	-			
To Depth (m):	-			
Sample Conditions:	Sample from Drained Settlement			
Surcharge Pressure (kPa):	25			
Initial Bulk Density (t/m^3):	1.983			
Initial Moisture Content (%):	40.69			
Initial Dry Density (t/m^3):	1.41			
Saturation (Skempton's B):	1.00			
K_{20} (m/s):	**1.47×10^{-6}**			

Notes:
Stored and Tested the Sample as received
Samples supplied by the Client

Authorised Signatory (G [redacted]

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16 Gympie Way, Willetton
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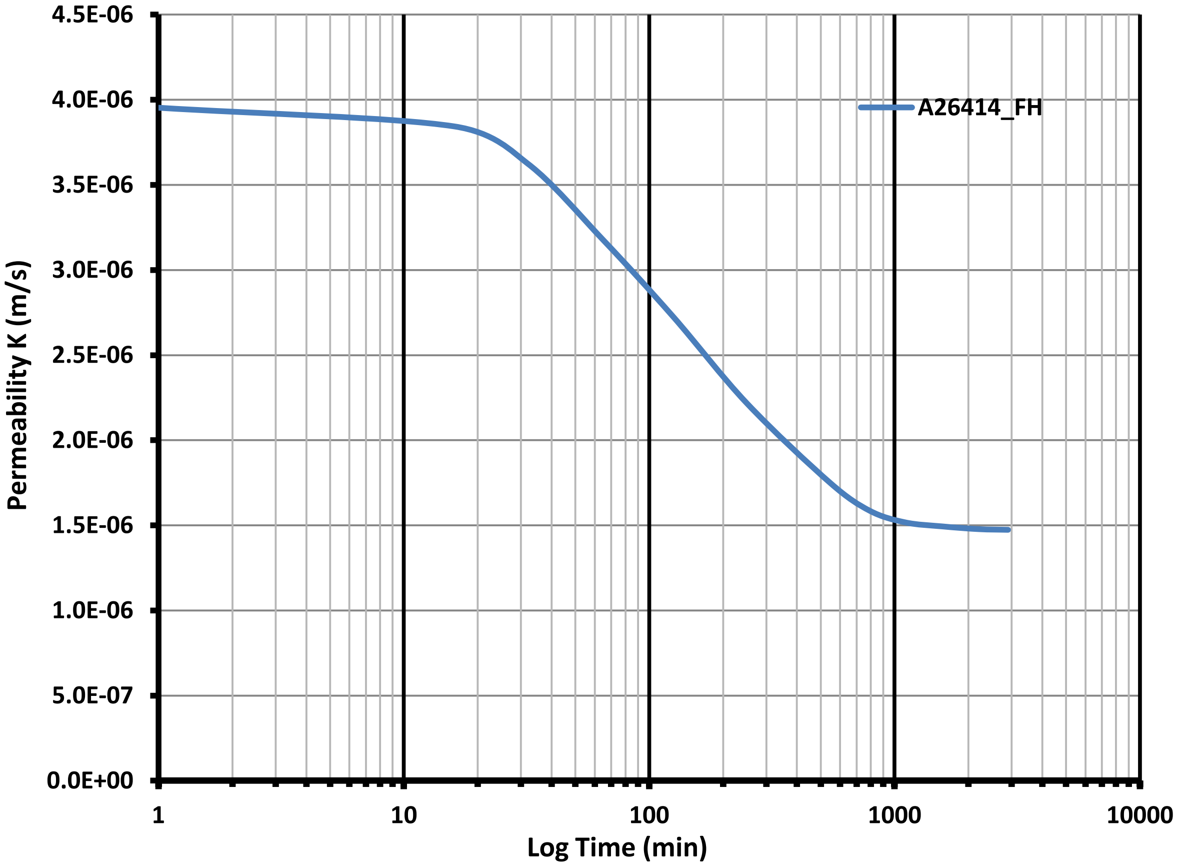
Ph: (08) 9418 8742
[redacted]

E-Precision Laboratory

FALLING HEAD PERMEABILITY TEST REPORT

Test Method: AS1289 6.7.2

Client:	Tailcon	Date Tested:	16/06/2025
Project:	Youanmi Gold Project 2025	Date Reported:	19/06/2025
Lab:	EPLAB	EP Lab Job Number:	TAILCON



Notes:
Stored and Tested the Sample as received
Samples supplied by the Client

Authorised Signatory (Geotechnical Engineer): [redacted]

Appendix E TSF3 Water Balance

	YEAR		Annualy											
	DATE		Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26
	DAYS IN MONTH		31	28	31	30	31	30	31	31	30	31	30	31
	OPERATIONAL STAGE		1	1	1	1	1	1	1	1	1	1	1	1
RAINFALL														
Monthly Rainfall (mm)	Rainfall Scenario	**1**	28	37	34	18	18	22	22	13.8	6.7	7.8	12.2	12.4
Tailings Storage Surface Area (m^2)			429,105	429,105	429,105	429,105	429,105	429,105	429,105	429,105	429,105	429,105	429,105	429,105
Upstream Surface Area (m^2)			0	0	0	0	0	0	0	0	0	0	0	0
Rainfall Inflow Volume from Tailings Surface (m^3/month)		**1**	11,972	15,963	14,461	7,552	7,724	9,483	9,312	5,922	2,875	3,347	5,235	5,321
Rainfall Inflow Volume from Upstream Surface (m^3/month)		**-**	0	0	0	0	0	0	0	0	0	0	0	0
DEPOSITION														
Production Rate (t/month)			83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333	83,333
Slurry Density (%)	From Plant	**45.0%**	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
Volume of Tailings into TSF (m^3)			57,471	57,471	57,471	57,471	57,471	57,471	57,471	57,471	57,471	57,471	57,471	57,471
Cumulative Volume of Tailings Into TSF (m^3)			57,471	114,943	172,414	229,885	287,356	344,828	402,299	459,770	517,241	574,713	632,184	689,655
Volume of Slurry Water into TSF (m^3/month)			101,852	101,852	101,852	101,852	101,852	101,852	101,852	101,852	101,852	101,852	101,852	101,852
TOTAL INFLOW (m3/month)			**113,824**	**117,815**	**116,313**	**109,404**	**109,576**	**111,335**	**111,163**	**107,773**	**104,727**	**105,199**	**107,087**	**107,173**
CUMMULATIVE WATER INFLOW (m3/month)			**113,824**	**231,638**	**347,951**	**457,355**	**566,931**	**678,266**	**789,429**	**897,203**	**1,001,930**	**1,107,129**	**1,214,216**	**1,321,388**
EVAPORATION (from pond and wet beaches)														
Monthly Evaporation (mm)	Pan factor	**0.64**	402	322	288	188	125	86	90	122	180	265	322	384
Tailings Pond Area (m^2)			85,821	85,821	85,821	85,821	85,821	85,821	85,821	85,821	85,821	85,821	85,821	85,821
Running Beaches (m^2)			36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000	36,000
Total TSF Evaporation Outflow (m^3/month)			31,342	25,105	22,454	14,658	9,746	6,705	7,017	9,512	14,034	20,661	25,105	29,939
RETENTION														
In-situ Dry Density (tailings)	Specific Gravity (SG)	**2.8**	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
Volume Retained in Tailings (m^3/month)			33.25%	33.25%	33.25%	33.25%	33.25%	33.25%	33.25%	33.25%	33.25%	33.25%	33.25%	33.25%
Volume Retained in Tailings (m^3/month)			27,709	27,709	27,709	27,709	27,709	27,709	27,709	27,709	27,709	27,709	27,709	27,709
TOTAL OUTFLOW (m3/month)			**59,051**	**52,814**	**50,163**	**42,367**	**37,455**	**34,414**	**34,726**	**37,221**	**41,743**	**48,370**	**52,814**	**57,648**
CUMMULATIVE WATER TO BE REMOVED (m3/month)			**59,051**	**111,866**	**162,029**	**204,396**	**241,851**	**276,265**	**310,992**	**348,213**	**389,956**	**438,326**	**491,140**	**548,788**
PROCESS PLANT ABSTRACTION	PLANT ABSTRACTION	**80.0**	54,560	49,280	54,560	52,800	54,560	52,800	54,560	54,560	52,800	54,560	52,800	54,560
DIRECT DISCHARGE		**-**	0	0	0	0	0	0	0	0	0	0	-	-
TOTAL REMOVAL														
MONTHLY POND VOLUME			212	15,720	11,589	14,237	17,561	24,121	21,877	15,992	10,184	2,269	1,473	-5,035
CUMMULATIVE POND VOLUME			212	15,933	27,522	41,759	59,320	83,441	105,318	121,310	131,494	133,763	135,235	130,200

Appendix F TSF3 BoQ

Appendix F - page 1

YGP TSF3 CONSTRUCTION COSTS BY ITEM			STAGES	Starter Stage	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
			RL	462	465	468	471	474	477
		DAM TAILINGS CAPACITY PER STAGE IN DRY TONNES		2,164,256	1,858,174	1,895,858	1,690,272	1,612,826	1,514,064
		DAM TAILINGS CAPACITY PER STAGE IN YEARS (1Mtpa)		2.2	1.9	1.9	1.7	1.6	1.5
		CUMULATIVE DAM CAPACITY IN DRY TONNES		2,164,256	4,022,429	5,918,287	7,608,559	9,221,385	10,735,449
ITEM	Works Type	Description	Unit	Qty	Qty	Qty	Qty	Qty	Qty
		Site Prep Earthworks and Drains							
1		**Site Preparation**							
1.1	Clear and grub	Clear and grub vegetation from embankment footprint area	m^2	82,592	0	0	0	0	0
1.2	Clear and grub	Clear and grub vegetation from Basin footprint area	m^2	418,930	0	0	0	0	0
1.3	Topsoil stripping	Strip topsoil from the embankment footprint to 300 mm depth. Load, haul and place material in designated stockpile areas (within 5km).	m^3	24,778	0	0	0	0	0
1.4	Topsoil stripping	Strip topsoil from the basin to 300 mm depth. Load, haul and place material in designated stockpile areas (within 5km).	m^3	125,679	0	0	0	0	0
1.5	Rd sheeting removal	Remove existing road sheeting material. Stockpile to designated area (within 5km).	m^3	0	2,150	2,136	2,142	2,188	2,137
2		**Earthwork**							
2.1	Cut	Basin excavation-0.7m deep, stockpile to the designated area within 5km.	m^3	350,700	0	0	0	0	0
2.2	Cut	Cut-off trench excavation 2.0m deep	m^3	14,964	0	0	0	0	0
2.3	Drain	Subsoil drain - Supply and install subsoil drain (slotted Draincoil DN100 or similar) including fittings.	lin m	1,105	0	0	0	0	0
2.4	Fill	Backfill - Import and place filter (sand) from designated area within 5km.	m^3	155	0	0	0	0	0
2.5	Drain	Drainage blanket - Supply and install geocomposite blanket drain (Pozidrain Drainage Geocomposite or approved equivalent).	m^2	3,647	0	0	0	0	0
2.6	Fill	Cut-off trench backfill with compacted Zone A	m^3	14,810	0	0	0	0	0
2.7	Fill	Downstream Zone B - Load and haul selected mine waste for embankment construction from designated source within 5km.	m^3	225,257	91,034	95,336	99,115	96,032	93,662
2.8	Fill	Downstream Zone B - Spread in max. 2m lifts, moisture condition, tracffic compaction.	m^3	225,257	91,034	95,336	99,115	96,032	93,662
2.9	Fill	Upstream Zone A - Load and haul clay material from designated stockpile area within 5km.	m^3	45,448	33,522	33,315	33,832	33,165	32,259
2.10	Fill	Upstream Zone A - Spread in max. 300mm loose lifts, moisture condition, compact to specification.	m^3	45,448	33,522	33,315	33,832	33,165	32,259
2.11	Fill	Upstream crest safety windrow (0.5m high, 1v:1h side slopes) including breaks at minimum 50m intervals - Load, haul, place, and shape with selected mine waste within 5km.	m^3	585	584	589	595	581	567
2.12	Fill	Downstream crest safety windrow (0.5m high, 1v:1h side slopes, 1m wide top) - Load, haul, place, and shape with selected mine waste within 5km.	m^3	597	593	595	608	594	579
2.13	Fill	Road sheeting - Load, haul and construct (150mm thick, 6m wide) road sheeting on embankment crest with approved material from stockpile within 5km.	m^3	2,150	2,136	2,142	2,188	2,137	2,086
2.14	Fill	Construct temporary ramp for construction	m^3	40,126	16,181	10,458	6,061	2,790	685
3		**Seepage Collection Drain**							
3.1	Cut	Excavate trench, spread cutting near the trench	m^3	2,411	0	0	0	0	0
3.2	Drain	Supply and install subsoil drain (nominal MEGAFLO 450G)	lin m	2,366	0	0	0	0	
3.3	Fill	Backfill - Import and place selected mine waste (gravels) from designated area within 5km.	m^3	2,411	0	0	0	0	0
3.4	Geofab	Supply and install geofab in the drain as per product specification and drawings dimensions.	m^2	15,804	0	0	0	0	0
3.5	Fill	Backfill - Import and place filter (sand) from designated area within 5km.	m^3	946	0	0	0	0	0
3.6	Cut	Excavate the outlet pipe trench	m^3	2,163	0	0	0	0	0
3.7	Drain	Outlet pipe (unslotted Draincoil DN100 or similar) including fittings to sump	lin m	167	0	0	0	0	0
3.8	Fill	Outlet drain backfill the trench with compacted Zone A.	m^3	2,163	0	0	0	0	0
3.9	Sump	Excavate, supply and install Sump	No.	3	0	0	0	0	0
4		**Foundation Sub-soil Drain**							
4.1	Cut	Excavate the drain trench	m^3	1,133	0	0	0	0	0
4.2	Geofab	Supply and install geofab in the drain as per product specification and drawings dimensions.	m^2	6,801	0	0	0	0	0
4.3	pipe	Primary drain - Supply and install Draincoil slotted socked SN20 DN100	lin m	2,519	0	0	0	0	0
4.4	Fill	Primary drain backfill the trench with selected mining waste.	m^3	1,133	0	0	0	0	0
4.5	Cut	Excavate the outlet trench	m^3	36	0	0	0	0	0
4.6	pipe	Outlet pipe Draincoil unslotted SN20 DN100 connecting to sump	lin m	224	0	0	0	0	0
4.7	Fill	Outlet drain backfill the trench with selected mining waste.	m^3	36	0	0	0	0	
4.8	Sump	Excavate, supply and install Sump	No.	3	0	0	0	0	0
5		**Foundation Cut-off Trench Seepage Interception Drain**							
5.1	pipe	Supply and install Draincoil slotted socked SN20 DN100.	lin m	1,105	0	0	0	0	0
5.2	Fill	Backfill the trench with approved filter material such as selected mining waste.	m^3	155	0	0	0	0	0
5.3	Geocomposite blanket	Supply and install geocomposite blanket drain as per product specification and drawings dimensions.	m^2	3,647	0	0	0	0	0
5.4	Cut	Excavate the outlet trench	m^3	24	0	0	0	0	0
5.5	pipe	Outlet pipe Draincoil unslotted SN20 DN100 connecting to sump	lin m	16	0	0	0	0	0
5.6	Fill	Outlet drain backfill the trench with selected mining waste.	m^3	24	0	0	0	0	
5.7	Sump	Excavate, supply and install Sump	No.		0	0	0	0	0
		Slurry Decant and Piezometers							
7		**Slurry Delivery Line**							
7.1	Slurry line	Main delivery line - HDPE Pipe Assumed size of PE100-PN16 (SDR11), DN630 (Assumed)	lin m	2,784	0	0	0	0	0
7.2	Slurry line	Slurry Distirbution line - HDPE Pipe Assumed size of PE100-PN16 (SDR11), DN630	lin m	2,339	2,336	2,355	2,381	2,324	2,267
7.3	Slurry line	Distribution line Valves	No.	2	2	2	2	2	2
7.4	Slurry line	Spigot pipe - HDPE pipe Assumed size of PE100-PN10 (SDR17), DN250	lin m	655	374	377	381	372	363
7.5	Slurry line	Tees (1 per spigot)	No.	47	47	47	48	46	45
7.6	Slurry line	Valves (2 per spigot)	No.	94	93	94	95	93	91
8		**Decant System**							
8.1	Water line	Decant causeway and ramp	m^3	27,682	15,328	14,697	13,358	12,648	11,971
8.2	Fill	Rock Ring - Load, haul and place selected Mine waste rock	m^3	3,601	4,284	5,027	5,512	6,066	6,673
8.3	Water line	Decant - HDPE Pipe Assumed PE100-PN10 (SDR17), DN560	lin m	2,970	0	0	0	0	0
8.4	Water line	Decant pumping system (Pump + pipe+ shallow head intake device such as Turret)	item	1	0	0	0	0	0
9		**Vibrating Wire Piezometer**							
9.1	VWP	Drilling for VWP installation	m	0	30	0	50.00	0.00	85.00
9.2	VWP	Supply and install VWP sensors to design location and depth	No.	0	10	0	15.00	0.00	15.00
9.3	VWP	Supply and install VWP cables including trenching, conduit and fittings (sensor to logger)	lin m	0	525	0	1,115	0	1,465.00
9.4	VWP	Supply and install VWP logger with telemetry capability and terminal box (single channel logger)	No.	0	10	0	15.00	0.00	15.00
9.5	VWP	Supply and install VWP telemetry gateway including solar power kit	No.	0	1	0	0.00	0.00	0.00
10		Total Mobilisation, Site Establish, Demobilisation & O/H							
10.1		**Mobilisation and Demobilisation**							
		Mobilisation							
	Establish/manage	Mobilisation of Personnel and mobile plant to Site.	Lump sum	1	1	1	1	1	1
		Demobilisation							
	Establish/manage	Demobilisation of Personnel and mobile plant from Site.	Lump sum	1	1	1	1	1	1
10.2		**Site Establishment**							
	Establish/manage	Contract pre-start meeting	Lump sum	1	1	1	1	1	1
	Establish/manage	Training and Inductions	Lump sum	1	1	1	1	1	1
	Establish/manage	Establishment of temporary buildings, fixed plant/amenities and connection of services, as required, and removal on completion.	Lump sum	1	1	1	1	1	1
10.3		**Temporary Works**							
	Establish/manage	Design, submit for approval and construct temporary works, as required, including access roads and ramps, haul roads, dust suppression, sediment control measures/structures, protection of existing services and arrangements for sourcing of construction water.	Lump sum	1	1	1	1	1	1
10.4		**Overheads**							
	Establish/manage	On site supervision, (includes project manager, site supervisor, fitter, admin assistent, etc), not operators, (List to be supplied)	Lump sum	1	1	1	1	1	1
	Establish/manage	Supply, rental costs and maintenance of temporary buildings and amenities etc, as required.	Lump sum	1	1	1	1	1	1
	Establish/manage	Power Generation Costs (Principal to provide diesel) (IF REQUIRED)	Lump sum	1					
	Establish/manage	Travel (air fares for commute travel)	Lump sum	1	1	1	1	1	1
	Establish/manage	Other Overhead Costs **workshop**	Lump sum	1	1	1	1	1	1
10.5		**Cleanup**							
	Establish/manage	Clean up of site on completion including removal of all temporary works and provision of all notices, documentation and as-constructed drawings, as required	Lump sum	1	1	1	1	1	1