WHITEHAVEN COAL LIMITED

Assessment of Geotechnical Stability of LF#4.4 Residual Void Lowwalls at Blackwater Mine

May 2026

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C O N T E N T S

1. INTRODUCTION 1
1.1 Limitation 1
2. STATEMENT OF LANDFORM DESIGN INTENT 1
3. GEOTECHNICAL MODEL 2
3.1 Strata and Properties 5
3.2 Groundwater Pressure Model 6
3.3 Potential Geotechnical Instability Mechanisms 6
3.4 Statement of Model Uncertainty 7
4. CONSEQUENCE ASSESSMENT 7
5. DESIGN ACCEPTANCE CRITERIA 7
6. STABILITY ANALYSES 8
7. SAFETY ASSESSMENT 9
8. CONCLUSIONS 9
9. REFERENCES 9
APPENDIX A MODEL RELIABILITY STATEMENT 11
APPENDIX B CONSEQUENCE CATEGORY ASSESSMENT 13
APPENDIX C STABILITY ANALYSES 16
APPENDIX D SAFETY RISK ASSESSMENT 25

L I S T O F T A B L E S

Table 3-1: Geometric characteristics of voids 2
Table 3-2: Geotechnical parameters used in stability analyses 5
Table 4-1: Consequence category assessment for geotechnical instability 7
Table 5-1: Adopted design acceptance criteria 8
Table 6-1: Geotechnical stability results for lowwall cross-sections 9

L I S T O F F I G U R E S

Figure 3-1: Location of cross-sections analysed 3
Figure 3-2: Example cross-section for analysis 5

1. INTRODUCTION

Dr Sue Henderson (RPEQ 4952) of Henderson Geotech Pty Ltd was requested to provide assessment of pit lowwall geotechnical stability for inclusion in void closure plans for Blackwater Mine. The work, for the proposed final landform LF4.4 and associated land uses, was undertaken in the April-May 2026.

The assessments described in this report were made in accordance with the principles of the Guidelines for Assessment of Geotechnically Safe and Stable Post-Mining Landforms (Simmons et al, 2024).

1.1 Limitation

This report has been prepared by Henderson Geotech Pty Ltd for Whitehaven Coal Limited (Client) for the purpose of supporting preparation of Progressive Rehabilitation and Closure Plan for Blackwater Mine. It shall not be used or relied on for any other purpose. No parties other than the Client and the Department of Environment, Tourism, Science, and Innovation (DETSI) are authorised to rely on this report without the prior written consent of Henderson Geotech Pty Ltd.

This report is, in part, based on information provided by the Client or by other parties on behalf of the Client (Client-supplied information) in addition to data collected by Henderson Geotech Pty Ltd from the public domain. Henderson Geotech Pty Ltd has not always verified the accuracy of such information and makes no representations regarding its accuracy. Henderson Geotech Pty Ltd is not responsible for the consequences of any error or omission in Client-supplied information.

Henderson Geotech Pty Ltd has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same specialist field for projects of a similar nature and at the time and in the jurisdiction where the services were rendered. Henderson Geotech Pty Ltd makes no warranty, express or implied.

2. STATEMENT OF LANDFORM DESIGN INTENT

This assessment of geotechnical stability for residual void lowwalls at Blackwater Mine was undertaken to support an amendment to Blackwater Mine's Progressive Rehabilitation and Closure Plan, to demonstrate that the final voids can be rehabilitated as non-use management areas (NUMAs) that will not adversely impact nearby woodland and grazing PMLUs for at least 60 years.

The geotechnical stability analyses and assessment described in this report are applicable only to the scenarios and inputs also described herein. A new assessment will be required if there are:

- Non-trivial changes to the location or geometry of the planned residual voids;
- Changes to proposed post-mining land uses of the voids or adjoining lands;
- Substantial changes to the understanding of stratigraphy or geotechnical properties; or

- Substantial changes to the understanding of end-of-mining and long-term groundwater levels or long-term pit lake levels.

3. GEOTECHNICAL MODEL

A topographic model of the proposed final landform included fourteen NUMA voids. The features considered most likely to affect lowwall stability - height of spoil; dip of the mined floor; and depth of the final pit lake – are summarised in Table 3-1.

Table 3-1: Geometric characteristics of voids

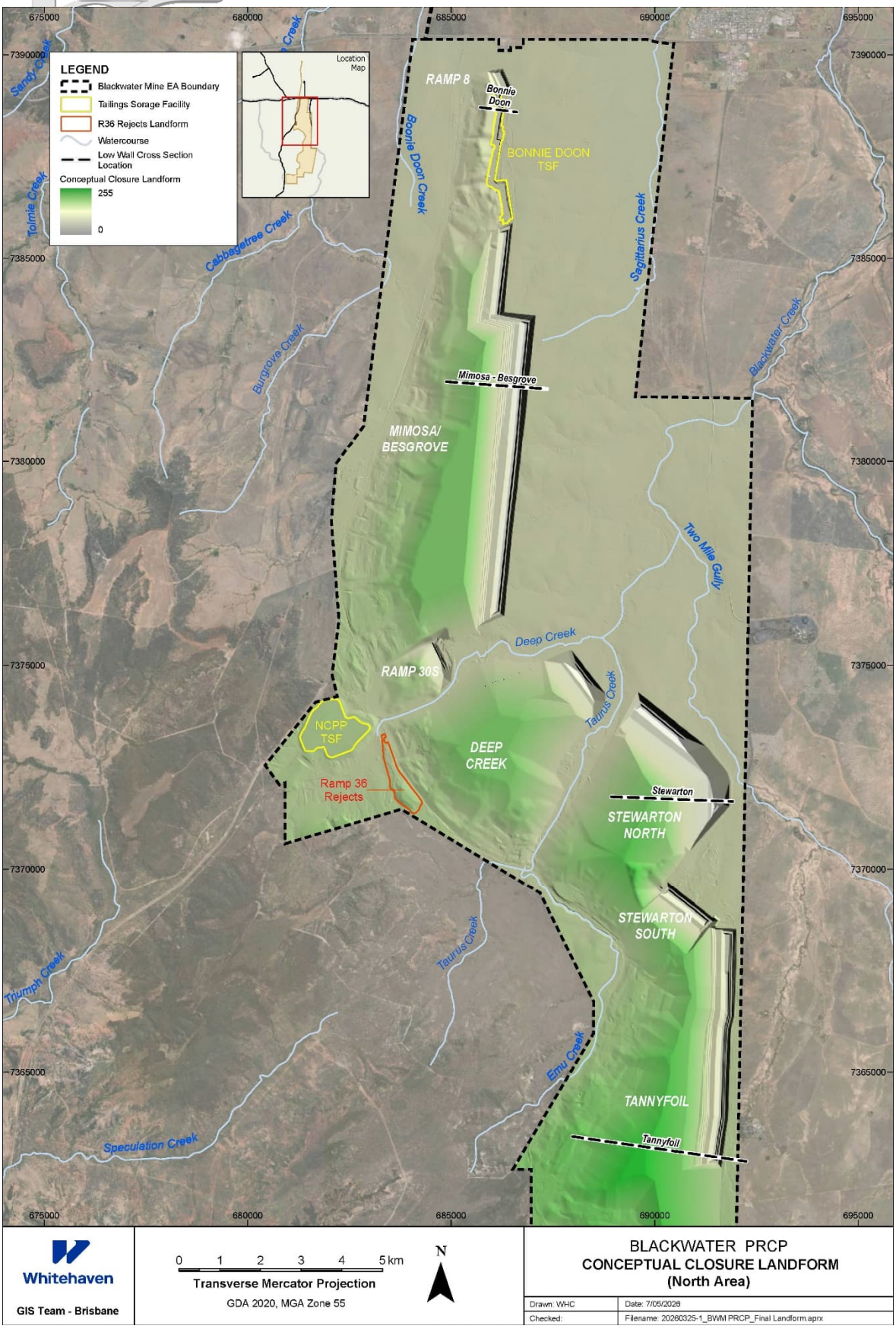
Void name	Approx. length (km)	Max. spoil height (m)	Max floor dip[a] (deg)	Long-term pit lake depth[b] (m)
Ramp 8	0.7	100	6	45
Bonnie Doon	2.8	80	10	2 (& tailings)
Mimosa/Besgrove	9.3	332	4	55
Deep Creek	1.4	306	2	84
Ramp 30	0.8	136	4	10
Stewarton North	3.7	384	3	75
Stewarton South	1.4	244	4	10
Tannyfoil	5.8	174	5	24
South Ballamoo	4.4	280	4	53
Kenmare	0.8	230	4	54
Ramp 74 / Laleham	1.7	60	3	3 (& tailings)
North Marshmead	5.3	350	3	68
South Marshmead	1.6	265	6	66
Kennedy	5.5	315	2	64
Comet Downs East	0.6	230	1	112

[a] plans showing contours of floor dip angle provided by Whitehaven Coal Limited 5/11/2025
[b] long term pit lake surface elevations provided in SLR (2026 b)

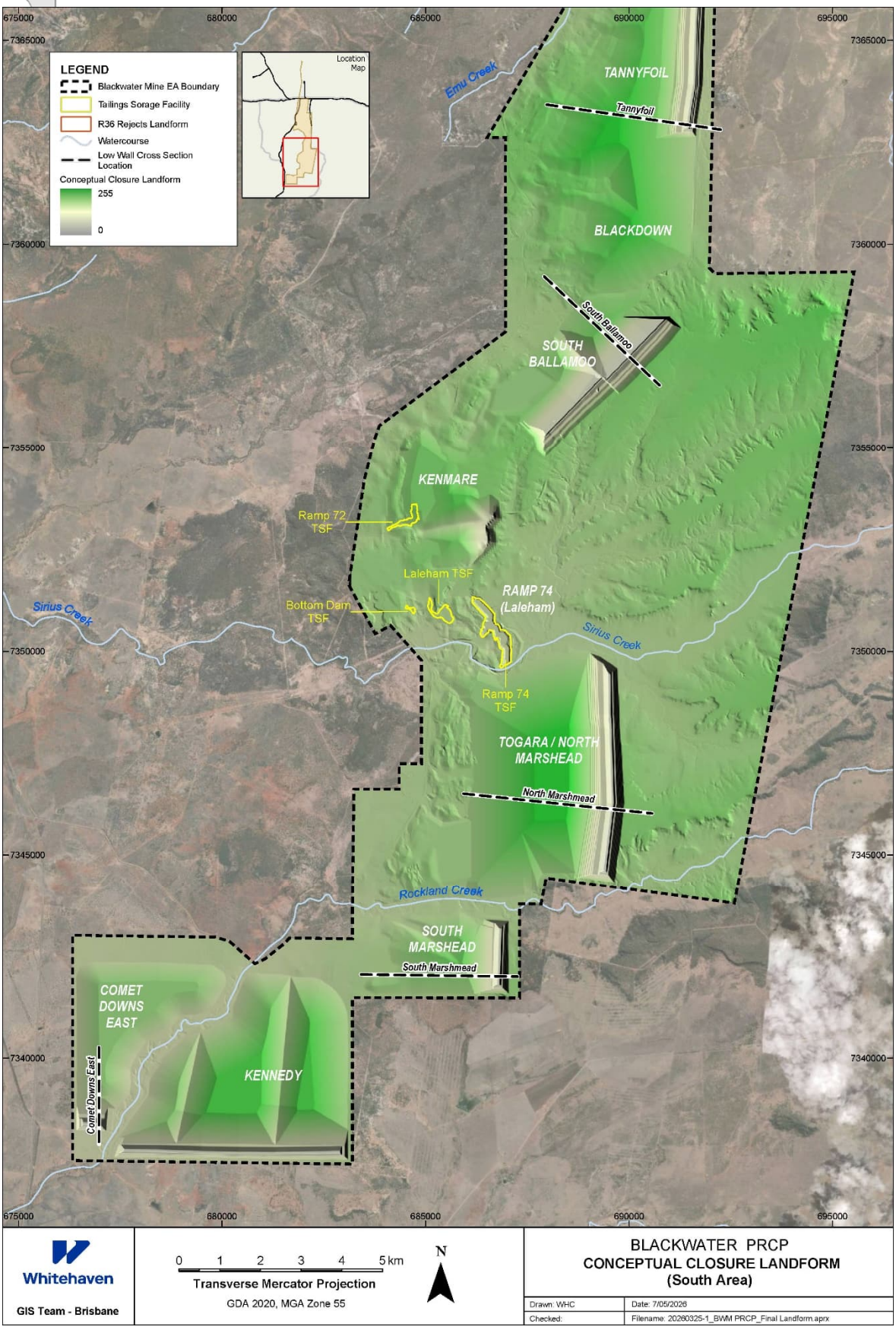
Eight cross-sections were selected for stability analysis, covering highest spoil, steepest floor dig, and deepest long-term pit lake, as well as large voids with 'typical' characteristics, and one of the in-pit TSFs.

Figure 3-1: Location of cross-sections analysed

a) Northern area



b) Southern area



3.1 Strata and Properties

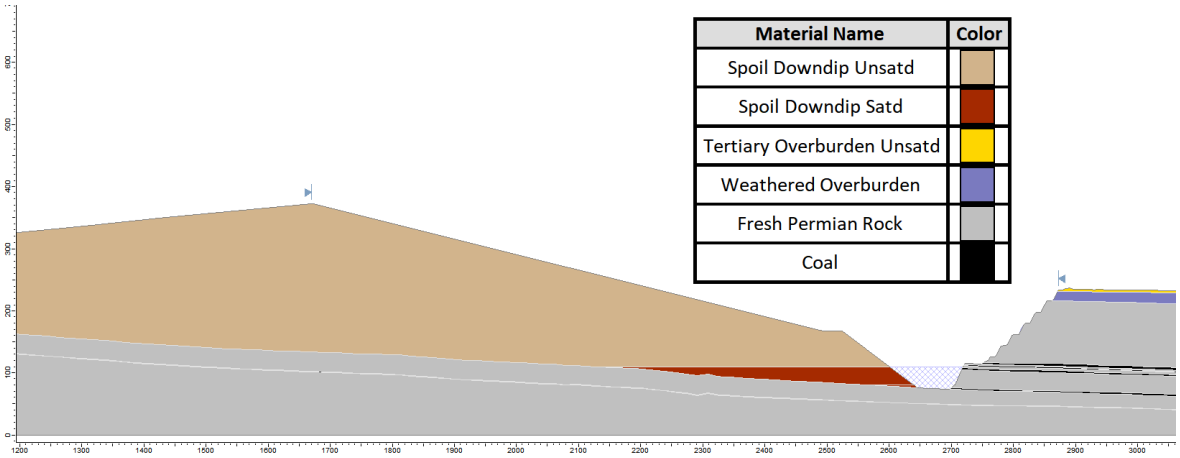
For each cross-section, the Client provided base of Tertiary overburden, base of weathering, coal seam roofs and floors, mined pit shell, and final landform surface.

Strength properties were sourced from BHP (September 2020), Table 6. The coefficient of permeability of the spoil was based on industry experience and is typical of silt-sand/gravel mixtures. Coefficients of permeability for coal and overburden were adapted from calibrated average values reported in SLR (2026 a). Strength and hydraulic properties are summarised in Table 3-2. An example of a cross-section set up for stability analysis is included as Figure 3-2.

Table 3-2: Geotechnical parameters used in stability analyses

Material	Weight kN/m^3	Cohesion kPa	Friction Angle degree	Coeff. of Permeability m/s	k_v/k_h
Unsaturated spoil (down dip spoil)	18	40	30	5e-5	0.25
Saturated spoil (down dip spoil)	20	23	25	5e-5	0.25
Unsaturated Tertiary overburden	20	50	30	7.1e-7	0.01
Saturated Tertiary overburden	20	15	30	7.1e-7	0.01
Weathered Permian overburden	24	75	30	4.5e-6	0.02
Fresh Permian over/interburden	24	450	42	1.9e-9	0.01
Fresh coal	15	30	35	1.1e-7	0.01
Saturated Tailings	14	15	0		

Figure 3-2: Example cross-section for analysis



3.2 Groundwater Pressure Model

Piezometric heads at the ends of each cross-section were provided by the Client based on hydrogeological modelling (SLR, 2026 b) and were applied as total head boundaries at the edges of each cross-section. Long-term pit lake levels were provided in the same reference.

Three groundwater scenarios were applied in geotechnical stability analyses for each cross-section, namely:

- end-of mining;
- long-term equilibrium post-mining, and
- interim condition, with pit lake half the long-term depth and total head boundaries mid-way between end-of-mining and long-term.

Water pressures throughout the sections were then obtained by finite element analyses. Obviously, groundwater conditions change over time after the end of mining; however. the rate of such change is slow enough that steady state analysis was considered sufficiently accurate.

3.3 Potential Geotechnical Instability Mechanisms

Aside from the mined pit floor and coal seams below that, the geological model did not indicate dominant structural features that would affect lowwall stability. Dragline spoil dumps often contain coarse and finer zones; however these are implicitly allowed for in the adopted strength properties, which were partly based on back-analysis of historic spoil slopes and slips.

In this context, 2D circular and non-circular slip surfaces were considered. Circular slips are typical of fine grained spoil and sedimentary rock masses while non-circular slips dominate in granular materials and might be dictated by material interfaces such as the pit floor and the interface between saturated and unsaturated spoil.

On lowwalls, rainfall runoff will mainly flow straight down the batters, with vegetation in the grazing and woodland PMLUs limiting the quantity of such runoff. On these bases, it was concluded that erosion is not likely to materially affect long-term geotechnical stability.

The open porous character of dumped spoil may allow physical weathering, such as slaking, to some depth, however, the associated strength reduction is already accommodated in the adopted strength parameters, in particular those for saturated spoil.

WMR (2025) modelled flows in the various creek catchments that traverse Blackwater Mine and found that none of the voids would be inundated in floods up to 1:1000 AEP events.

Flood modelling was also undertaken for a probable maximum flood (PMF) event. This conceptual flood is applicable to dam design, specifically dams with major or catastrophic failure consequence (ANCOLD, 2000), and flood emergency management planning (Geoscience Australia, 2019). The consequences of geotechnical instability of landforms at Blackwater Mine range from negligible to low (refer Section 4) and therefore PMF is not an appropriate design standard to apply in this assessment.

The hydrogeological assessment and modelling simulated a period of 1,900 years, and the resultant long-term pit lake levels were included in each cross-section analysed. In summary, the effects of severe hydrological events appropriate to the consequences of void geotechnical instability have been addressed in this assessment.

3.4 Statement of Model Uncertainty

The stability assessment methodology described in Simmons et al (2024) includes a matrix to consider and score the confidence in the geotechnical model, based on the quality of input data for various aspects of the model. This subsidiary assessment is included as Appendix A. In summary. the combined geotechnical and groundwater pressure model has a reliability score of 52/100 and is therefore ranked near the margin of Medium to High Uncertainty.

As outlined in Simmons et al (2024), the model uncertainty rating is not a reflection on the reliability of the geotechnical assessment process. Rather, it is a tool to guide selection of appropriate Design Acceptance Criteria (refer Section 5).

4. CONSEQUENCE ASSESSMENT

A consequence assessment, also undertaken in accordance with Simmons et al (2024), is included as Appendix B. Although woodland habitat is the proposed post-mining land use for lowwalls outside the non-use management area voids, and in fact for most of the spoil landforms, for completeness grazing was considered as a potential land use in the assessment. The outcomes are summarised in Table 4-1.

Table 4-1: Consequence category assessment for geotechnical instability

Scenario	Consequence of Geotechnical Instability
Lowwall instability that extends into grazing PMLU	Low
Lowwall instability that extends into woodland PMLU	Low
Lowwall instability that does not extend outside NUMA	Negligible

5. DESIGN ACCEPTANCE CRITERIA

Instability along potential slip surfaces is most commonly assessed using limit equilibrium analyses. Results are expressed as Factor of Safety, with the typical range in factor of safety adopted for slope design being 1.2 to 1.5. In a particular stability assessment, the target values of Factor of Safety that are adopted as Design Acceptance Criteria depend on both model uncertainty and consequences of instability – the high end of the range is appropriate for higher model uncertainty and higher consequence. Consideration of the geotechnical model as Medium Uncertainty in conjunction with the consequence levels listed in Section 4, led to selection of the minimum factors of safety set out in Table 5-1.

Table 5-1: Adopted design acceptance criteria

Scenarios	Minimum Factor of Safety
Instability extending into grazing PMLUs	1.50
Instability extending to watercourses or flood protection structures	1.50
Instability extending into woodland PMLU	1.35
Instability contained wholly within NUMA	1.20

6. STABILITY ANALYSES

The cross-sections were analysed using Slide2 Modeler, 2D Limit Equilibrium Analysis for Slopes. The analytical methods used initially were Morgenstern/GLE - Vertical Slices - Circular Surfaces and Sarma - Vertical Slices - Non-Circular Surfaces, both with Auto Refine Search Method. Initial assessment found that the Sarma method produced lower minimum Factors of Safety because it was better able to generate potential slip surfaces with sliding faces in saturated spoil adjoining the pit floor.

The long-term pit lake scenario produced the lowest factor of safety, except for Mimosa/ Besgrove and Comet Downs East, for which the lowest result occurred with the half-depth pit lake. Significant results are presented in Appendix C and summarised in Table 6-1. Except for Bonnie Doon, Stewarton North and South Ballamoo, the minimum factor of safety was lower than the design acceptance criterion adopted for NUMA voids. The reason for this was that the landform design left the final batters within the NUMAs as-dumped (at angle of repose) and these segments did not have acceptable stability when saturated strength properties were applied to the spoil below the pit lake level. When each pit approaches its final location, more detailed spoil category assessment and observation may justify changes to the conservative strength parameters applied in the stability analyses reported herein. That would be the appropriate stage to refine void design details, for example, benching or flattening the lowwall slope to a design acceptance criterion appropriate to the consequences of instability.

However, the design acceptance criterion for woodland was always achieved at a lower elevation than the opposite highwall crest, and the design acceptance criterion for grazing was always achieved in front of the lowwall crest. As seen from the result images in Appendix C, when there was a wide bench behind the as-dumped segment, those acceptance criteria were met on the bench but where the bench was narrow or absent, they were achieved further up the lowwall slope.

In summary, with the proviso of revising the geotechnical model and/or the slope geometry within the NUMA as each pit approaches its final strip, void lowwalls can meet design acceptance criteria for geotechnical stability.

Table 6-1: Geotechnical stability results for lowwall cross-sections

Section	Minimum FoS	Location of FoS ≥1.35 on lowwall	Position of FoS ≥1.35 relative to highwall crest	Position of FoS ≥1.5 relative to lowwall crest
Bonnie Doon	1.31	on slope	below	in front
Mimosa/Besgrove	0.91	on slope	below	in front
Stewarton North	1.36	on bench	below	in front
Tannyfoil	1.06	on bench	below	in front
Sth Ballamoo	1.78	No FoS<1.5		
Nth Marshmead	0.94	on bench	below	in front
Sth Marshmead	0.95	on slope	below	in front
Comet Downs East	0.91[a]	on slope	below	in front

a minimum factor of safety occurred for pit lake at half final depth.

7. SAFETY ASSESSMENT

Simmons et al (2024) requires a qualitative safety risk assessment to be undertaken for the designed slopes, to identify further risk reduction measures aligned with the ALARP principle. That is, even though compliance with the Design Acceptance Criteria achieves an appropriate level of risk, further mitigative measures should be considered if the cost and difficulty are “reasonable” in the context of the incremental reduction in safety risk.

The safety risk assessment is included as Appendix D. In essence, the recommended additional measures consist of exclusion bunds on the highwall, exclusion fencing all around the NUMA, and explanation of the function of the bunds and fences in the Land Management Plan that will be attached to the land when leases are relinquished.

8. CONCLUSIONS

For the final landform geometry provided, geotechnical stability of void lowwalls meet appropriate Design Acceptance Criteria for post-mining land uses adjacent to the NUMA voids. Within the NUMA, some lowwall profiles may require revision at the detailed design stage.

9. REFERENCES

ANCOLD, March 2000, Guidelines on Selection of Acceptable Flood Capacity for Dams, Australian National Committee on Large Dams Incorporated.

BHP, September 2020, Geotechnical Design, Operating and Monitoring Manual, company internal document

Geoscience Australia, 2019, Australian Rainfall and Runoff – a Guide to Flood Estimation version 4.2, Commonwealth of Australia.

Simmons J, Henderson S and Kennedy G, June 2024, Guidelines for Assessment of Geotechnically Safe and Stable Post-Mining Landforms, ACARP C34028 project report.

SLR, 2026 a, Blackwater North Extension Project Groundwater Modelling Technical Report.

SLR, 2026 b, Blackwater Mine Transitional PRC Plan Hydrogeology Assessment Revision 3, report prepared for Whitehaven Coal Limited.

WRM, 2025, Blackwater Mine Progressive Rehabilitation and Closure Plan Final Landform Flood Assessment, report prepared for Whitehaven Coal Limited.

APPENDIX A MODEL RELIABILITY STATEMENT

Model Element	**Max.**		**Uncertainty Level**	**and Weighting**		**Score**
	Score	Introductory	High	Medium	Low	
		0.0	0.2	0.6	1.0	
Strata & landform profile information	10	Basic surfaces with unreliable or absent data	Assessment based on 'typical' regional conditions.	Geological surfaces extracted from site geological model.	Use of information such as drill logs and field mapping to define sub geotechnical units within broader geological units.	6
Structural Model	15	No information	Structure assumed typical of the region	Structure broadly understood from observation and experience at the site	Either no dominant structure OR structure well understood from mapping and drilling	15
Strata Complexity	5	No information	Strata or structure are highly variable with distance OR properties are greatly affected by moisture content.	Strata and structure do not vary rapidly with distance, AND properties not greatly affected by moisture content changes.	Strata quite uniform in thickness and properties AND structure clearly defines slip surfaces	3
Strength Properties	10	No information	Derived from published data for the material classifications, without specific regional data.	Derived from tests on key strata sampled from sites within the region.	Derived from site specific tests on key strata	6
Deformation Properties	5	No information, or not considered in stability assessment	Derived from published data for the material classifications, without specific regional data.	Derived from tests on key strata sampled from sites within the region.	Derived from site specific tests on key strata	0
Groundwater Pressure Model	20	No site measurements; conceptual hydrogeological assessment only	Pre-mining groundwater study OR sensitivity analyses included in stability analyses	>2 years measurement for site groundwater network, with interpretation.	>2 years measurement of at least 2 piezometers at the slope in question, with associated groundwater analysis	12

Method of Analysis	10	No quantitative analyses	Able to accurately represent the failure mechanism BUT there is limited industry experience interpreting the results	Able to approximately represent the failure mechanism AND there is wide industry experience in interpreting the results	Able to accurately represent the failure mechanism AND there is wide industry experience in interpreting the results	10
Reported field performance observations	25	<2 years visual observation of the slope in question.	2-5 years visual observation of the slope in question.	>5 years visual observation or > 2 years movement measurement	> 5 years movement measurement	0

TOTAL = 52

Rating	**Ranking**	**Safety and Stability Implications**
80 - 100	Low Uncertainty	Risk management to an ALARP standard is possible with due allowances for model elements ranked as medium or high uncertainty level
50 - 79	Medium Uncertainty	Risk management to an ALARP standard may not be possible without some combination of improvements to the model, significant increases in design acceptance criteria, or uncertainty allowances in observational stability acceptance criteria
< 50	High Uncertainty	Risk management to an ALARP standard is not likely to be possible. Assessment must be qualified accordingly, or significant improvements made to the model, significant increases in design acceptance criteria, or uncertainty allowances in observational acceptance criteria prior to finalising assessment.

APPENDIX B CONSEQUENCE CATEGORY ASSESSMENT

Consequence Category Levels and Thresholds

	N/A or Negligible	Low	Medium	High
Harm to Humans				
	People are not routinely present in the impacted area or only injuries requiring first aid are likely	Loss of life is not expected and only short-term disabling injuries are expected.	Single loss of life or long-term disabling injuries are expected	Multiple loss of life expected
Environmental Harm				
	Minor, temporary impact to the environment	Measurable impact to an area ≤ 1km^2; where remediation of damage is likely to take ≤ 1 year	Impact to an area ≤ 5km^2; where remediation of damage is likely to take ≤ 5 years	Impact to an area > 5km^2; where remediation of damage is likely to take > 5 years
Property Loss & Damage				
	Minor, temporary community impact that recovers with little intervention; Damage to property or compensation or repair costs < $0.5M	Measurable but limited community impact lasting less than six months; Damage to property or compensation or repair costs $0.5M - $10M	Serious impact on community lasting up to 12 months; Damage to property or compensation or repair costs $10M - $50M	Severe impact on community lasting more than 12 months; Damage to property or compensation or repair costs > $50M

Assessment for Blackwater Mine Lowwalls

Extent of Instability *(length or area affected)*	**Exposure** *(people, ecosystems & property within extent)*	**Harm to Humans**		**Environmental Harm**		**Property Loss & Damage**	
		Impacts	***Cat.***	***Impacts***	***Cat.***	***Impacts***	***Cat.***
Crest Zone							
Woodland PMLU	People will not routinely access the area	People not routinely present	Negl.	Measurable impact to area <1km^2 Stabilisation work to encourage re-establishment of vegetation would take <1year	**Low**	No repair or compensation costs	Negl.
Grazing PMLU	A small number of people likely to access the area due to cattle grazing operations Grassland habitat with some shade trees, suitable for managed grazing Property such as fencing and water troughs may be present	Only short-term disabling injuries expected	**Low**	Measurable impact to area <1km^2 Stabilisation work to encourage re-establishment of grassland would take <1year	**Low**	Costs to replace damage property expected to be <$0.5M	Negl.
Within NUMA	People will not routinely access NUMA Low value habitat on slope No property in NUMA	People not routinely present	Negl.	Minor impact to the environment	Negl	No repair or compensation costs	Negl.

Extent of Instability *(length or area affected)*	**Exposure** *(people, ecosystems & property within extent)*	**Harm to Humans**		**Environmental Harm**		**Property Loss & Damage**	
		Impacts	***Cat.***	***Impacts***	***Cat.***	***Impacts***	***Cat.***
Body of Slope							
Woodland PMLU	People will not routinely access the area	People not routinely present	Negl.	Measurable impact to area <1km^2 Stabilisation work to encourage re-establishment of vegetation would take <1year	**Low**	No repair or compensation costs	Negl.
Grazing PMLU	A small number of people likely to access the area due to cattle grazing operations Grassland habitat with some shade trees, suitable for managed grazing Property such as fencing and water troughs may be present	Only short-term disabling injuries expected	**Low**	Measurable impact to area <1km^2 Stabilisation work to encourage re-establishment of grassland would take <1year	**Low**	Costs to replace damage property expected to be <$0.5M	Negl.
Within NUMA	People will not routinely access NUMA Low value habitat on slope No property in NUMA	People not routinely present	Negl.	Minor impact to the environment	Negl	No repair or compensation costs	Negl.
Toe Zone							
Within NUMA	People will not routinely access NUMA Low value habitat in pit lake No property in NUMA	People not routinely present	Negl.	Minor impact to the environment	Negl.	No repair or compensation costs	Negl.

Negligible consequence for geotechnical instability in NUMA

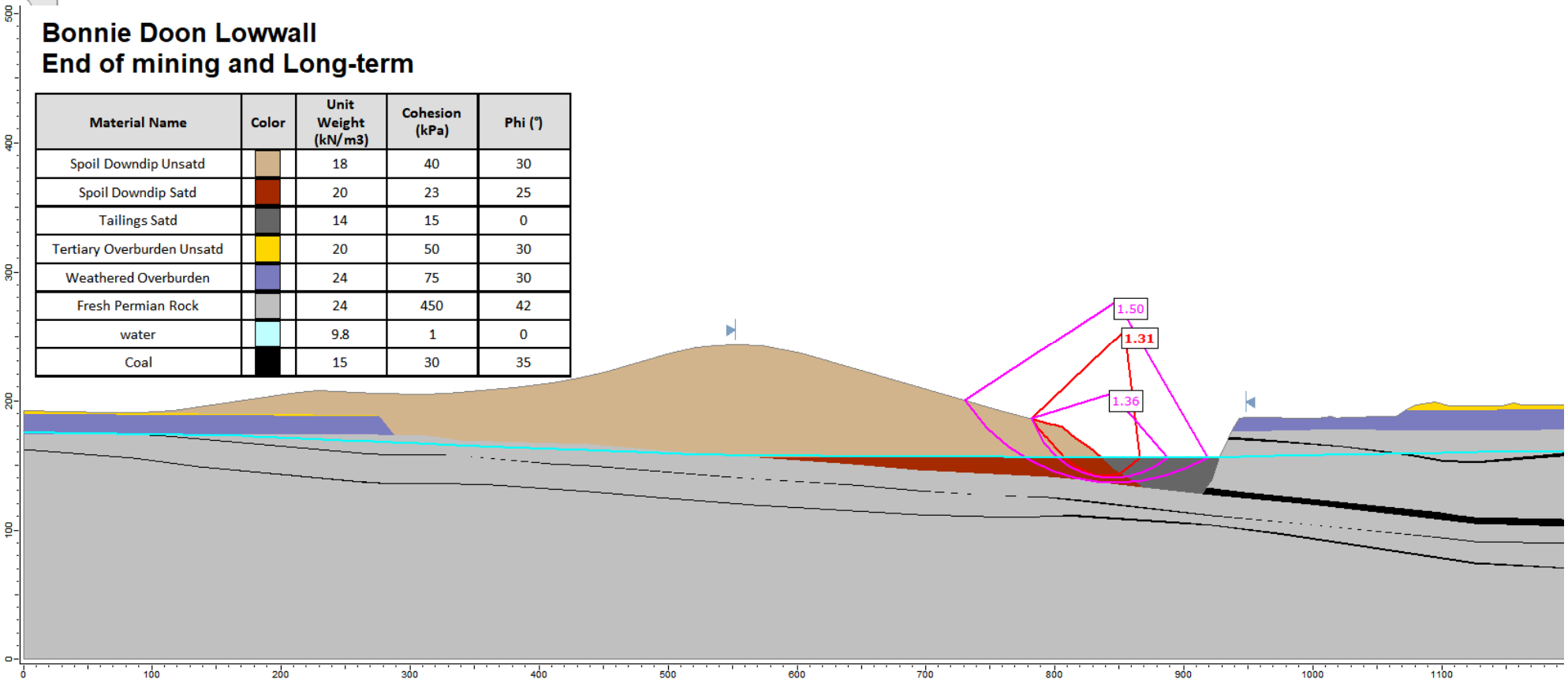
Low consequence for geotechnical instability that extends into Woodland PMLU

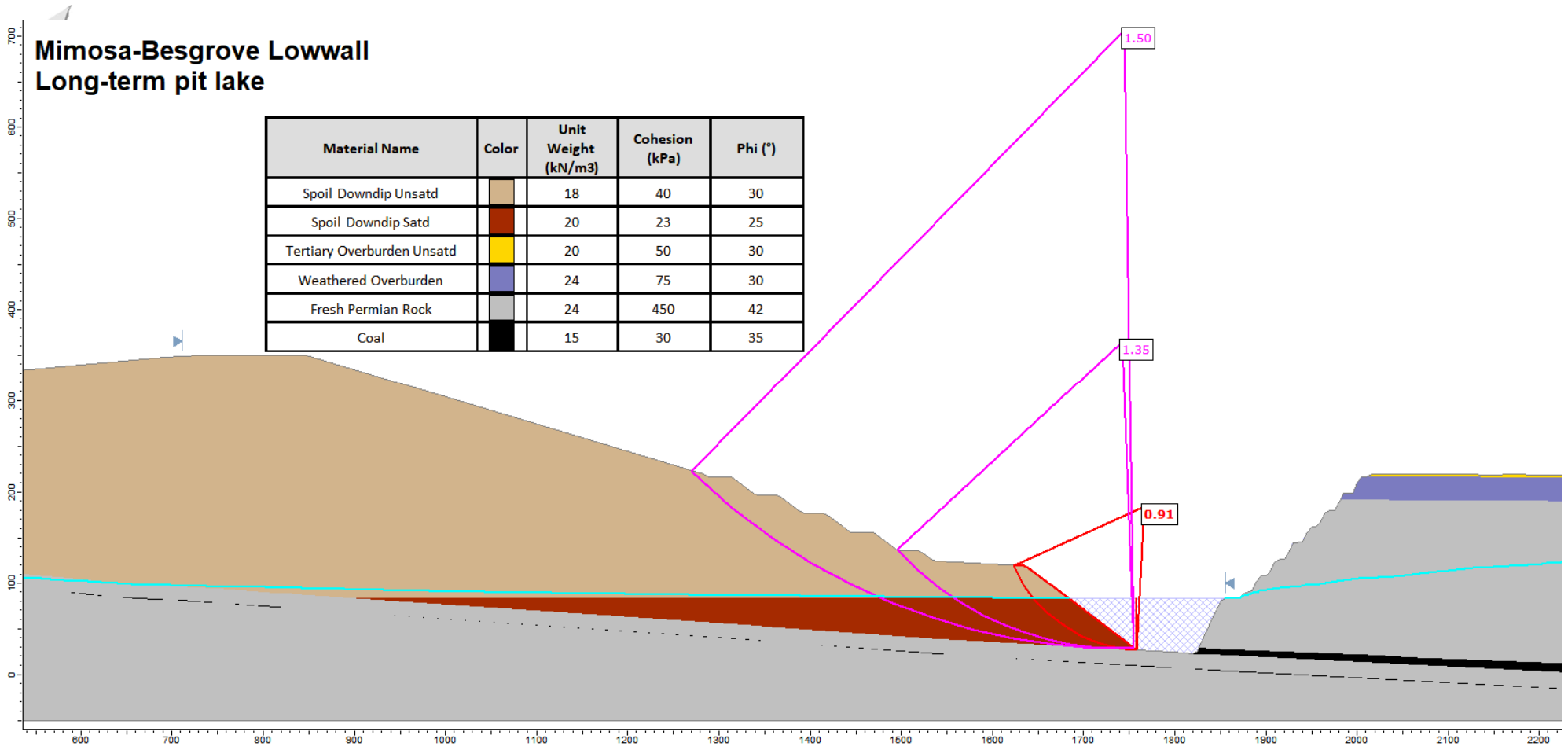
Low consequence for geotechnical instability that extends into Grazing PMLU

APPENDIX C STABILITY ANALYSES

Bonnie Doon Lowwall
End of mining and Long-term

Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tailings Satd		14	15	0
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
water		9.8	1	0
Coal		15	30	35

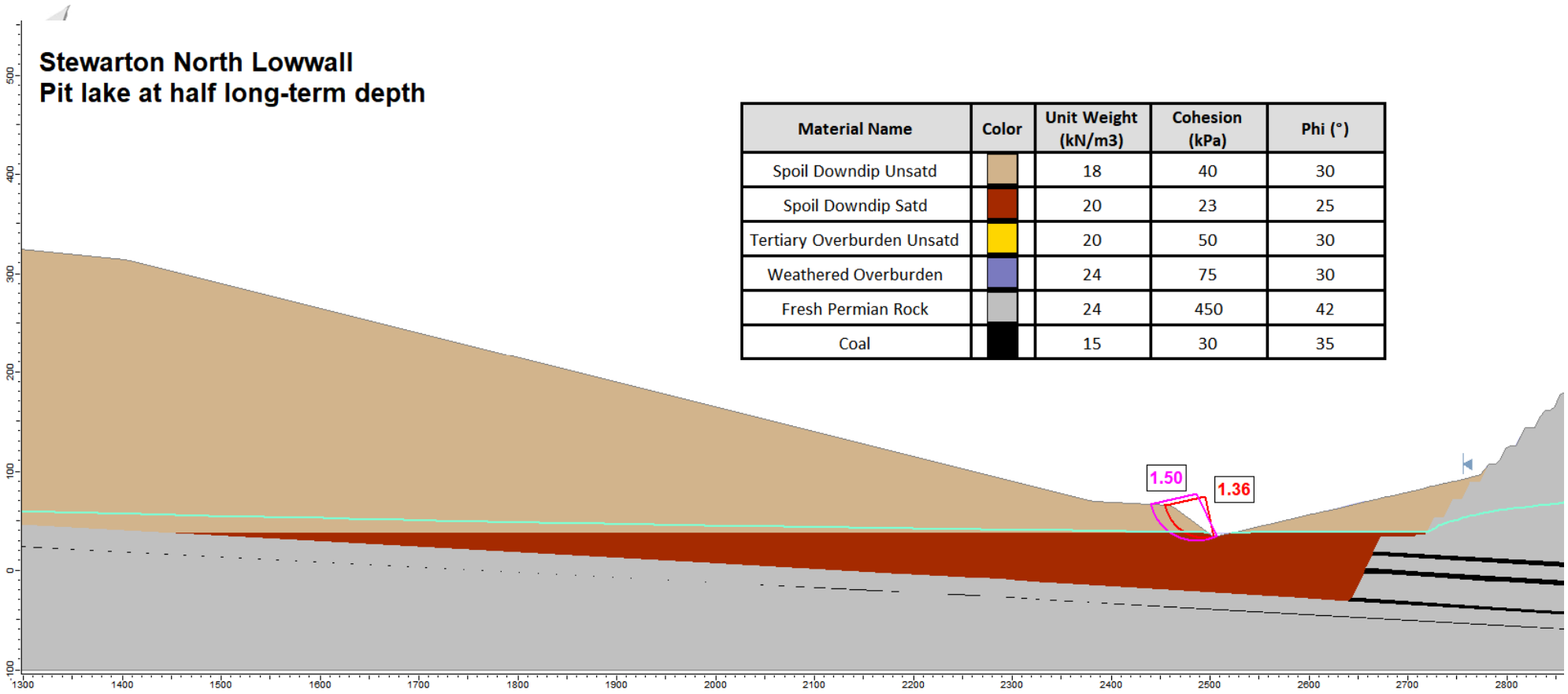




Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
Coal		15	30	35

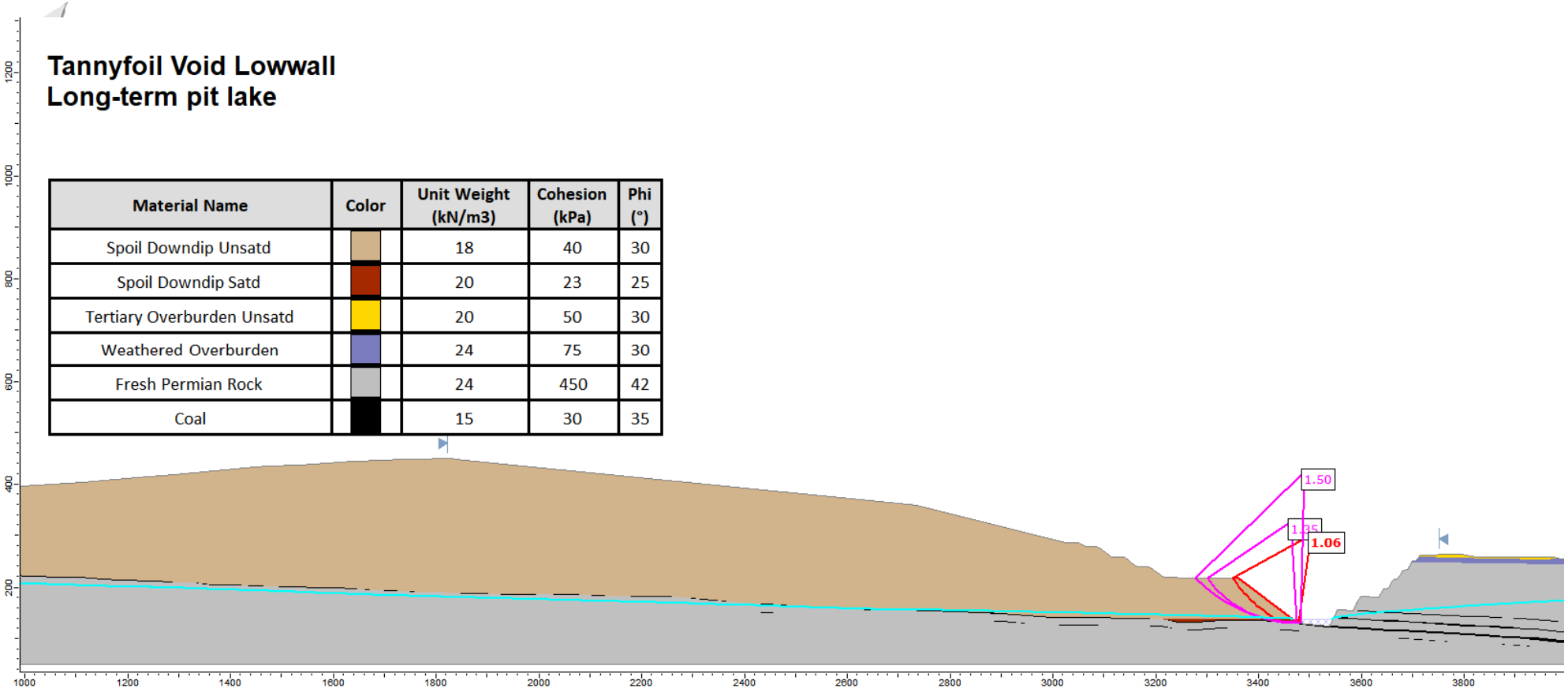
Stewarton North Lowwall
Pit lake at half long-term depth

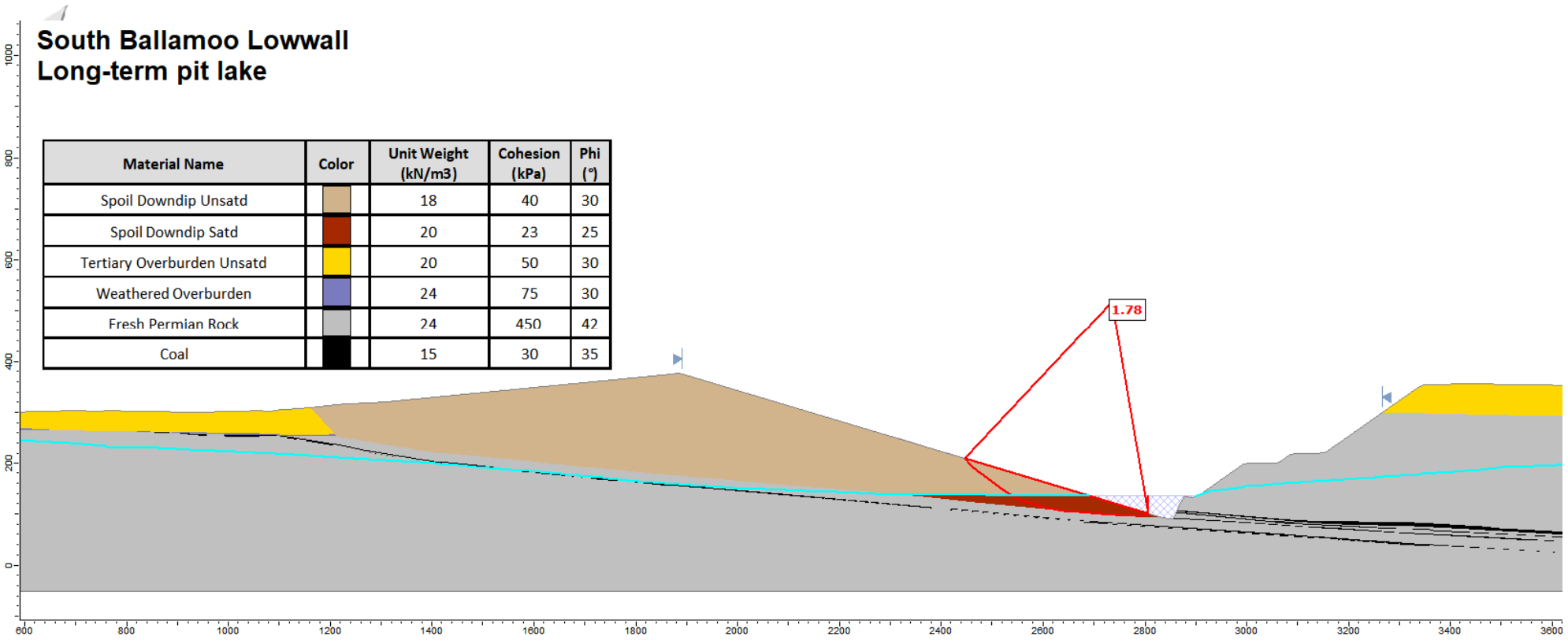
Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
Coal		15	30	35



Tannyfoil Void Lowwall
Long-term pit lake

Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
Coal		15	30	35

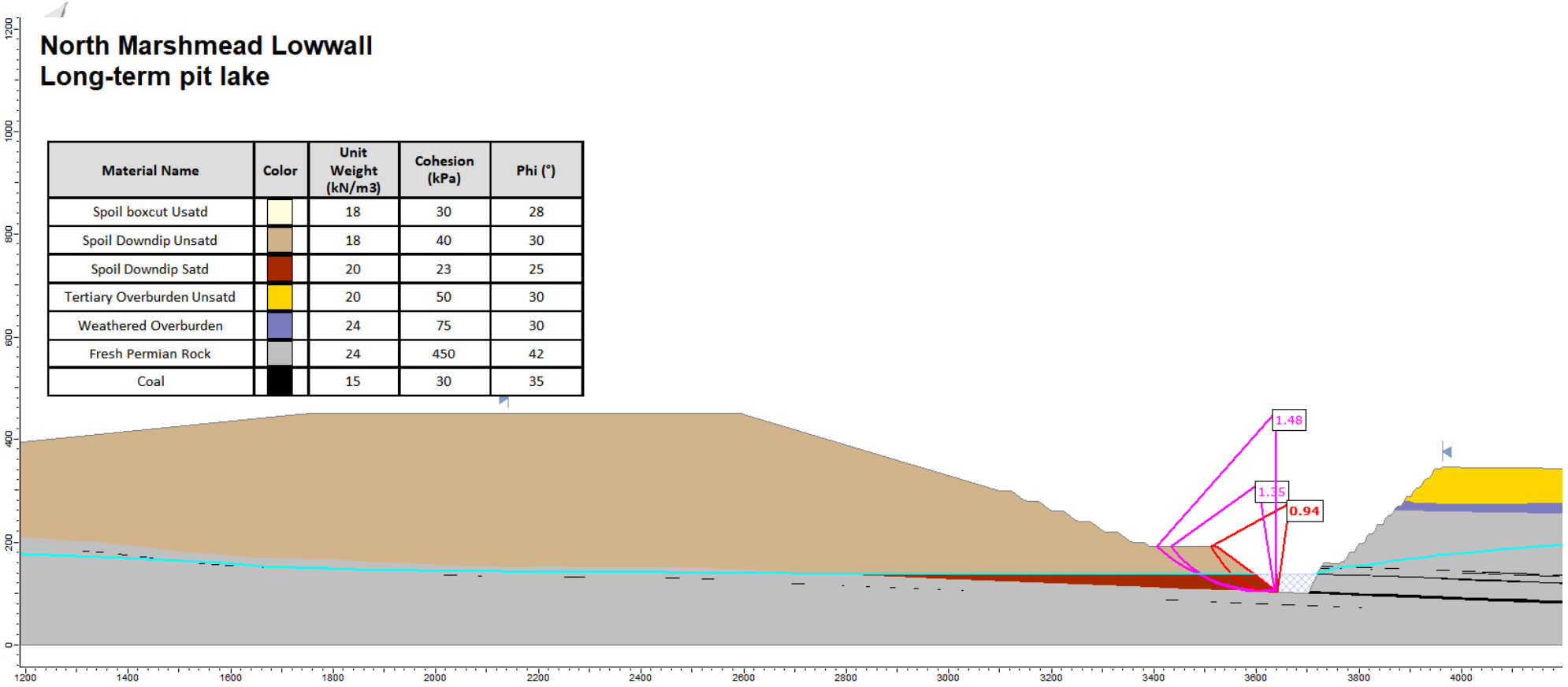


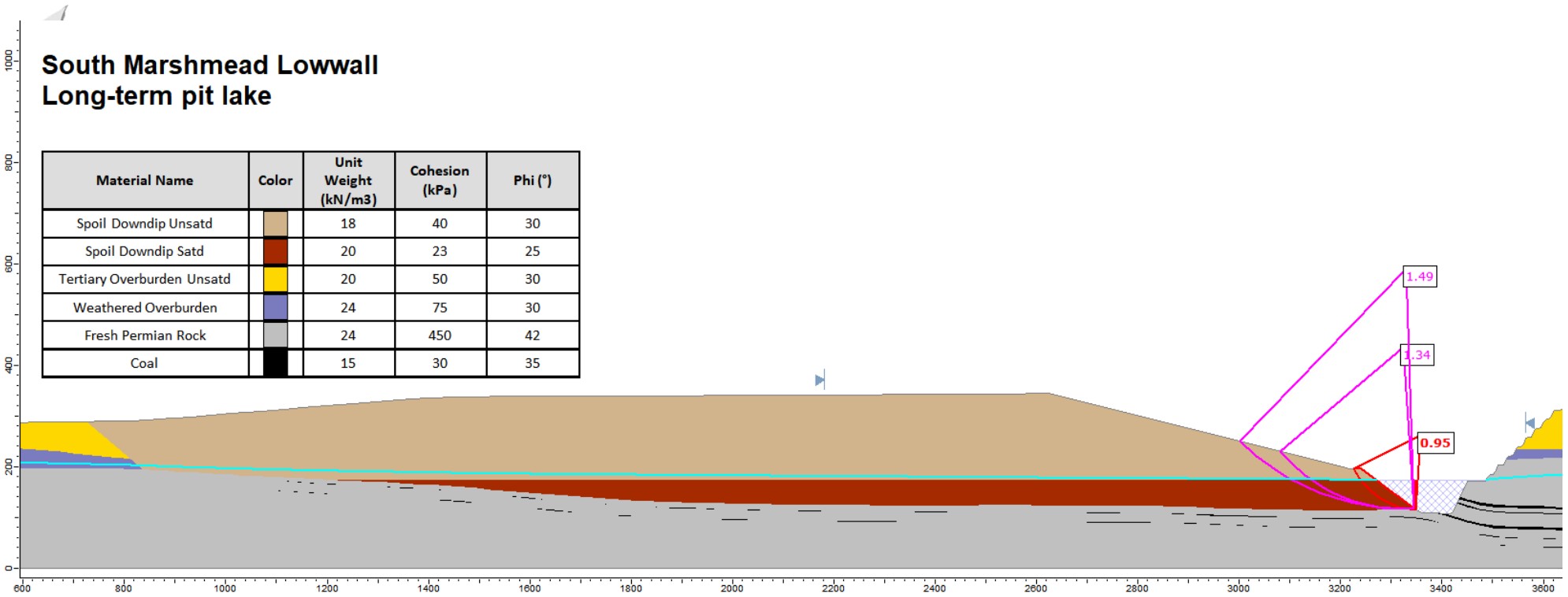


Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
Coal		15	30	35

North Marshmead Lowwall
Long-term pit lake

Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil boxcut Usatd		18	30	28
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
Coal		15	30	35

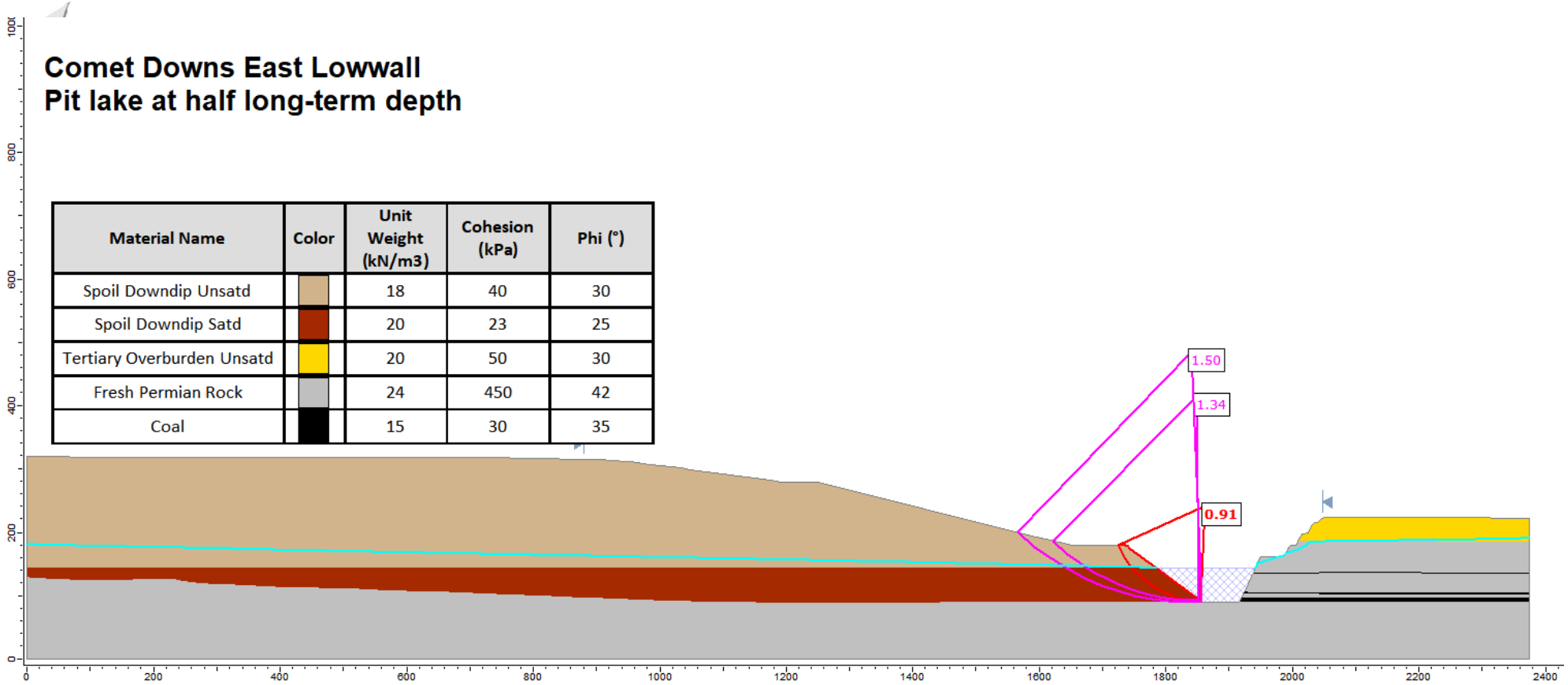




Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Weathered Overburden		24	75	30
Fresh Permian Rock		24	450	42
Coal		15	30	35

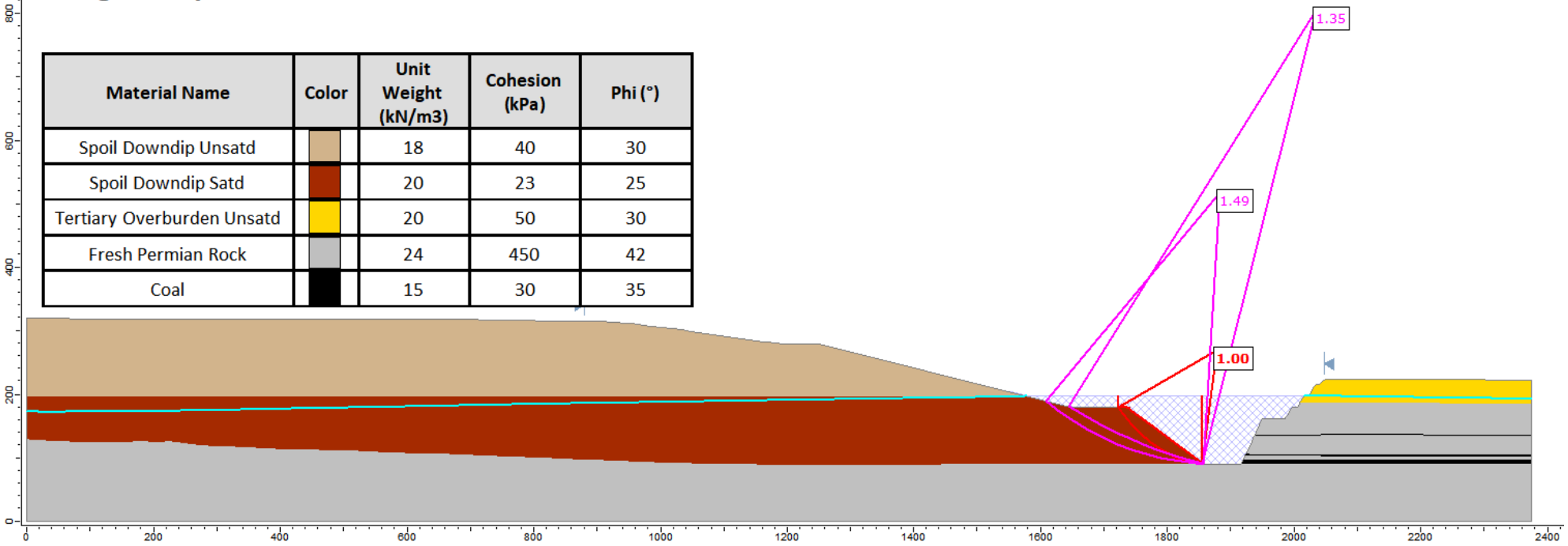
Comet Downs East Lowwall
Pit lake at half long-term depth

Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Fresh Permian Rock		24	450	42
Coal		15	30	35



Comet Downs East Lowwall
Long-term pit lake

Material Name	Color	Unit Weight (kN/m3)	Cohesion (kPa)	Phi (°)
Spoil Downdip Unsatd		18	40	30
Spoil Downdip Satd		20	23	25
Tertiary Overburden Unsatd		20	50	30
Fresh Permian Rock		24	450	42
Coal		15	30	35



APPENDIX D SAFETY RISK ASSESSMENT

Safety (Risk) Assessment Matrix (from Simmons et al, 2024)

		Consequence		
		High	Medium	Low
Likelihood	High	High Risk	Medium Risk	Medium Risk
	Medium	Medium Risk	Medium Risk	Low Risk
	Low	Medium Risk	Low Risk	Low Risk

Hazard	Potential consequence	Factors affecting likelihood	Risk rating of design	Additional mitigation measures
Arc- or wedge- slip instability of lowwall	Person falls on rough ground that is not steeply sloping (medium-term injury)	Unauthorised person might access lowwall side of void	L-L = Low	Fence NUMA on all sides to prevent unauthorised access. Locate lowwall fences outside the extent of the long term pit-lake Note function of exclusion fencing in Land Management Plan
	Damage to fencing		L-L = Low	
	Damage to vegetation		L-L = Low	Rely on natural recovery processes

Note: Lowwall slopes outside the long-term pit lake level are not steep enough to generate a rockfall hazard.