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Talbot Village, Oakleigh South

Domain 4 Batter Stability Assessment Report

Huntingdale Estate Nominees Pty Ltd
c/- Sterling Global

Reference: 754-GEOTABTF09257AA-EG

21 September 2021

TALBOT VILLAGE, OAKLEIGH SOUTH

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ACRONYMS / ABBREVIATIONS

Acronyms/Abbreviations	Definition
BGL	Below ground level
RL	Reduced level
AHD	Australian Height Datum

1. INTRODUCTION

Huntingdale Estate Nominees Pty Ltd (Huntingdale Estate) has engaged Tetra Tech Coffey Pty Ltd (Coffey) to provide geotechnical services in support of a proposed redevelopment within a former sand pit site (Talbot Village site) located to the north east of the intersection of Huntingdale Road and Centre Road, Oakleigh South, Victoria. The proposed development comprises of a range of residential land uses including designated areas of open space and commercial land use.

One component of these geotechnical services has been the slope stability assessment of the existing quarry void located in Domain 4 (Zone 4 in the Statement of Environmental Audit, (HS Support 2020)). This has involved stability assessments of each of the pit walls at various times between 2015 and 2019 which were reported in References 1 to 4.

This report compiles the previous stability analyses and assessment into one report and presents the results of additional slope stability analyses under seismic (earthquake) loading.

This report supersedes all the above previous letters and should be read in conjunction with GEOTABTF09257AA-AQ Rev10 “Zone 4 Backfill Design Report” dated 25 September 2015 (Reference 1).

2. EXISTING QUARRY CONDITIONS

Figures 1 and 2 show the location of Domain 4 in the south west corner of the Talbot Village site.

Figure 3 shows the existing surface levels in 2013 based on Taylors Development Strategist Drawing 0180D-D1-Rev_A (12/06/2013).

The survey information has been used to generate a series of sections through Domain 4 as shown on Figure 3. Typical quarry pit batters are shown on east west sections G-G’ and H-H’ in Figure 4 and M-M’ and O-O’ in Figure 5. These sections show the location of slimes and uncontrolled fill in the nothern half of the site. The slimes and uncontrolled fill will be removed and replaced with engineered fil to create an engineered fill platform up to 20m thick to reach the proposed design surface level of approximately RL 60m.

The sections indicate the quarry pit batter slopes generally range between 40^o and 45^o except for localised sections of the eastern and western batters which have slopes of about 58^o.

3. STABILITY ANALYSES

3.1 ANALYSIS PROGRAM

In order for the backfilling works to proceed in a safe manner, it is important to consider the stability of the existing batters in Domain 4. Stability analyses were conducted using the limit equilibrium method in Rocscience SLIDE computer program. The analyses in 2015 were conducted with Version 6.005 while the later analyses in 2017 and 2019 used Version 7.023 and Version 8.016 respectively. The current additional analyses under seismic (earthquake) loading were performed with Version 9.016.

The SLIDE outputs are provided in Appendix A to E.

3.2 STABILITY MODEL

The analyses presented in the “Zone 4 Backfill Design Report” in 2015 (Reference 1) adopted a model geometry for the quarry wall height and slope angle based on Section G-G as shown in Figures 3 and 4.

The geotechnical model comprises 5m of Silty Sand overlying 15m of Clayey Sand as inferred from BH7B and BH9B for western and eastern batters, respectively (see Figure 6). SPT test results of boreholes conducted within the natural soils on site varied from an N* value of 15 up to 130 blows per 300mm. Based on the correlation between STP values and friction angle (ϕ) presented in Peck (1974), friction angles (ϕ‘) of the sands is estimated to be ranged between 34^0 and 40^0. For the purposes of slope stability assessment in this report, a typical N* value of 30 which is equal to a friction angle (ϕ) of 36^o has been assigned to the sands.

3.3 BACK ANALYSIS

The performance of the batters over the past 20 years provides guidance on the inherent stability of the natural materials. The batter slopes based on the available survey and the ground profile were used to “back analyse” the stability of the batter slopes. The basis of this back analysis was that a minimum Factor of Safety (FOS) of 1.0 applies for global instability for the “steepest” sections for both the eastern and the western batters. That is, the minimum strength parameters required for the slope to be on the point of imminent slope failure.

The results of the back analysis of the western batters are presented in Figure A1 which are based on an assumed conservative groundwater profile extending rising from the base of the quarry to close to Huntingdale Road level about 25m back from the site boundary. A FOS of 1.06 was obtained for a shallow failure in the upper 10m of the slope using the friction angle of 36^o for the sands and a cohesion of 2 kPa for the clayey sands. The result of this analysis gave geotechnical strength parameters which we consider represent conservative values for the materials. These strength parameters are presented in Table 1 together with the results of assessment.

The following Factor of Safety (FOS) has been adopted for global stability in the slope stability assessment:

- A FOS of 1.3 for temporary conditions while excavation or backfilling is occurring during construction;
- A FOS of 1.5 for long term conditions following completion of construction; and
- A FOS of 1.1 for short term conditions during seismic (earthquake) event.

3.4 STABILITY OF THE WESTERN BATTERS

Figures A1 to A3 in Appendix A show the results of an assessment of the western batter using the geotechnical parameters which were derived from the back analysis in Figure A1. A loading of 20kN was included to simulate the potential traffic loading from Huntingdale Road. It is noted that there is an over-steep section at the top of the batter which should be remediated prior to placement of fill within the excavation. Figure A2 shows the FOS for global stability for a failure surface within the site is marginally below 1.3. Figure A3 shows the FOS for a failure surface which would impact Huntingdale Road is 1.41.

Table 1: Summary of results of the global stability assessment for western batters

Analysis	Figure #	Geotechnical Parameter						Factor Of Safety (FOS)
		Unit Weight (kN/m³)		Cohesion (kN/m²)		Internal Friction (ϕ')		
		Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	
West Batter, Back Calculation	A1	20	20	0	2	36	36	1.06
West Batter, Global Stability	A2	20	20	0	2	36	36	1.27
West Batter, Global Stability at Huntingdale Road	A3	20	20	0	2	36	36	1.41

The results of the stability assessment show that the existing batters have a FOS for global stability of approximately 1.3 or greater and an appropriate FOS exists against instability at Huntingdale Road provided the localised parts of the batters which are steeper that 45° exhibiting signs of fretting are battered back to a maximum slope angle of 45°. Where battering is not possible due to access or space restrictions, it will be necessary to create an exclusion zone at the base of the batter to ensure works are conducted in a manner any local fretting will not impact on the safety of construction personnel.

3.5 STABILITY OF THE EASTERN BATTERS

Figures B1 to B5 in Appendix B show the results of an assessment of the eastern batter using geotechnical parameters which were derived from the back analysis. A loading of 6kN was included to simulate the potential construction traffic on Talbot Road which would be limited to empty trucks. A groundwater profile was assumed to extend from the base of the pit to 1m below ground surface at Talbot Road.

Figure B1 shows the minimum FOS for a shallow failure is 1.17 ignoring the very small and shallow failure surface. The deeper seated failure surface extending back 3.9m from the crest gave a FOS of 1.28, which is marginally below 1.3.

Figure B2 shows the FOS of greater than 1.3 for a shallow failure which intersects the eastern edge of Talbot Road, prior to any traffic loading.

Figure B3 shows the FOS of 1.17 for the critical surface with the applied traffic loading. However, this critical surface is a shallow failure as similar to Figure B1 and would not impact Talbot Road.

Figure B4 shows the FOS of greater than 1.3 for a shallow failure which intersects the eastern edge of Talbot Road as well as the FOS of marginally below 1.3 for global stability with the applied traffic loading.

Figure B5 shows the FOS of greater than 1.3 for a failure on the east and west sides of Talbot road with an applied traffic loading and following a failure of the critical surface shown in Figure B1. This demonstrates that Talbot Road would not be impacted if a shallow failure along the critical surface occurs.

Table 2: Summary of results of the global stability assessment for eastern batters

Analysis	Figure #	Geotechnical Parameter						Factor Of Safety (FOS)
		Unit Weight (kN/m^3)		Cohesion (kN/m^2)		Internal Friction (ϕ')		
		Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	Silty Sand	Clayey Sand	
East Batter, Back Calculation (Critical surface)	B1	20	20	0	2	36	36	1.17
East Batter, Global Stability	B1	20	20	0	2	36	36	1.28
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – No Load applied	B2	20	20	0	2	36	36	1.43
East Batter, Critical Surface with Traffic Loading applied	B3	20	20	0	2	36	36	1.17
East Batter, Global Stability with Traffic Loading applied	B4	20	20	0	2	36	36	1.28
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied	B4	20	20	0	2	36	36	1.43
East Batter, Global Stability after critical failure	B5	20	20	0	2	36	36	1.38
East Batter, at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied	B5	20	20	0	2	36	36	1.44

The results of the stability assessment show that the existing batters have an FOS for global stability of approximately 1.3 or greater. The results also show an appropriate FOS exists for instability at Talbot Avenue provided the recommendations below are followed:

- Localised parts of the batters which are steeper that 45° which have exhibited signs of fretting should be trimmed back to a maximum slope angle of 45°. Where battering is not possible due to access or space restrictions, it will be necessary to create an exclusion zone at the base of the batter to ensure works are conducted so that any local fretting will not impact on the safety of workers.
- An exclusion zone of minimum 4m from the crest of the batter should be maintained throughout the construction of the fill platform in Domain 4. It is noted that this is based on the assessed section of the eastern batter which is the steepest. A reduced exclusion zone may be considered for other parts of the site but specific assessment would be required. A plan showing the exclusion zone is presented in Figure B6 in Appendix B.
- Given the nature of these batters and the ongoing works associated with the filling of the excavation, it is recommended that routine visual assessments are undertaken to identify any signs of instability and implementation of remedial actions if required to maintain safe batter conditions.

3.5.1 Additional assessment for eastern batter conducted in 2017

In 2017, an additional stability assessment was performed to refine the quarry crest exclusion zone distance along the eastern batter. The results were presented in Coffey letter GEOTABTF09257AA-BR dated 1 May 2017.

The crest of part of the eastern wall lies relatively close to Talbot Avenue. Power lines and limited road width make the road untrafficable if a 4m exclusion zone is applied at this location, precluding the use of Talbot Avenue for trucks to exit the site.

An additional stability analysis was carried out where the crest is closest to Talbot Avenue to assess the required exclusion zone distance. The batter slope in this area is less steep that the section previously analysed.

The previous 2015 assessment used an equivalent load of 6.0kN/m² over a length of 4.0m. For this assessment, a surcharge of 8.0 kN/m² over a width of 3.0m was adopted to better model the load spread of a truck on the 4.15m wide bitumen road.

Figure B7 (refer Appendix B) shows a potential failure surface with factor of safety of 1.17 that daylights in the road at a distance of 2.0m from the crest for the 3.0m wide surcharge which is applied at a distance of 1.75m from the crest. At this location the survey shows the crest is 0.4m from the western edge of the bitumen. Based on this geometry, it is recommended the truck wheel track exclusion zone of 2.05m be measured as a 1.65m offset from the western edge of the bitumen as shown in Figure B8 (refer Appendix B).

The 1.65m offset distance is to apply for 35m to the north of Point A, and 22m to the south as shown in the Figure B6 (refer Appendix B).

The width of the road between the exclusion zone and the eastern edge of the bitumen road is about 2.5m. In order to accommodate a 2.4m wide truck, the barriers may be positioned within the exclusion zone such that the truck wheel tracks do not encroach within the exclusion zone. Due to the narrow trafficable width, additional measures such as reduced speed limits, improvement to the road shoulder and bollard/barriers next to telegraph poles may need to be considered.

It is recommended that the batter face within this zone is not cut, trimmed or modified until such time as the fill against the face has reached a level of 55m AHD, which can be reviewed at the time of any proposed construction work.

3.6 SOUTHERN BATTERS

3.6.1 2017 stability assessment

A slope stability assessment was previously performed for the southern batters of quarry pit and the results were presented in Coffey letters GEOTABTF09257AA-BS dated 11 September 2017.

The model adopted was based on Section M-M as shown in Figures 3 and 5 with an inferred geological model based on BH17. Groundwater levels were based on the groundwater level in BH17 as reported in Coffey report ENAUABTF00751AB_R01_DRAFT_Rev02 (September 2018). Pond water level was estimated from NearMap images from 14 Jan 2019 and the available site survey contours.

For this preliminary analysis, the 5 storey apartment building was simulated as a 40 kN/m² distributed load on the ground surface. Similar strengths were used for the natural sands as for the western batters. Fill parameters of 2kPa cohesion and effective friction angle of 28 degrees were adopted which are consistent with lower bound properties for silty sand fill. These parameters gave a FOS of 1.00 for batter scale stability and a FOS of 1.29 for global stability with the water table at RL40m which was assumed to be the condition when the fill was placed as shown in Figure C1 in Appendix C.

Figure C2 considers a complete slope failure at the site boundary with the fill placed along the southern boundary and the water level at RL45m. The results show a FOS of 1.17 where the failure slip extends near to the southern boundary.

Figure C3 considers the same failure surface as for Figure C1 but with the pond drained to RL40 which is at the same level as in Figure C2 which represents a critical case. This results in a FOS of 1.08 and shows the rapid draining of the pond decreases the factor of safety by 8%. This is a temporary condition, and as the groundwater level adjusts to the drained pond level the FOS increases to 1.29 as shown in Figure C1. This broad assessment shows the reduction in the water level will reduce the factor of safety marginally over the current conditions and then increase as the slope drains.

For information purposes, Figure C4 shows the case when the pit is filled to RL54m with the factor of safety of 1.8 for failure at the southern boundary which confirms the view that the filled pit will provide a stable condition around the edge of the current pit.

The results of initial stability assessments for southern batters are summarised in Table 3 and the SLIDE outputs are provided in Appendix C.

Table 3: Summary of results of the initial stability assessment in 2017 for southern batters

Analysis	Figure No.	Geotechnical Parameter						Factor Of Safety (FOS)
		Unit Weight (kN/m^3)		Cohesion (kN/m^2)		Internal Friction (ϕ')		
		Bulk weight	Saturated	Fill Silty Sand	Clayey Sand	Fill Silty Sand	Clayey Sand	
South Batter, Back Calculation as constructed with water level at RL40 (Critical surface)	C1	20	22	2	2	28	36	1.00
South Batter, water level at RL45 (current condition)	C2	20	22	2	2	28	36	1.17
South Batter, rapid dewater pond water level to RL45 for filling of pit	C3	20	22	2	2	28	36	1.08
South Batter, Lower water level to RL40 for filling of pit	C1	20	22	2	2	28	36	1.29
South Batter, pit filled to RL 54	C4	20	22	2	2	28	36	1.87

3.6.2 2019 additional stability assessment

In response to comments received from DEDJTR regarding the stability of the southern batters during dewatering of the pits and also the impact on the existing buildings located adjacent to the south boundary, an additional stability assessment was performed for the southern batters of quarry pit in 2019.

The results of the additional assessment including transient ground water model during dewatering of quarry pit were presented in Coffey letter GEOTABTF09257AA-DB dated 27 February 2019.

The initial assessment in 2017 was conducted to assess the stability of the batters within the Domain 4 boundary as the geometry and loading of the adjacent buildings was unknown. For those preliminary analyses purposes, the building was represented by a 40kPa loading on the original ground surface.

Coffey has not sought the details of the adjacent building as the overall stability of the adjacent site lies with the designers of those structures. Based on site observations, the new buildings comprise a 3-story building with a single basement extending about 2m below ground level. Typically, the loading from a residential floor is less than 10 kPa. A 2m deep basement results in an unloading of the site by about 40 kPa assuming that 1m thick soil is equivalent to about 20kPa. These assumptions indicate the construction of building with a basement is likely to have resulted in “unloading” of the adjacent building site, i.e. a reduction in the load applied to the top of the pit batters

(i) Stability of the adjacent site and building

Figure C5 in Appendix C presents the factors of safety for various parts of the southern batter prior to the inclusion of the new building. The FOS are similar to the values obtained in the 2017 initial assessment (Figure C2). The minimum FOS is 1.00 for shallow failure of the batter.

The FOS for a failure surface starting at the Domain 4 boundary and extending to near the base of the pit is 1.20.

The FOS for failure through the buildings is also presented with a FOS of 1.86 at the northern edge while the FOS for the entire building is 3.50. These FOS significantly exceed the FOS of 1.5 that is normally adopted value for assessing the stability of slopes.

Figure C5a considers the site after the 2m deep excavation for the adjacent building. The FOS for the batters is similar to that in Figure C5 while the FOS for the failure surface extending back 25m increases as the driving forces are reduced. The FOS for the batters inside Domain 4 are unchanged from the pre-excavation case.

Figure C6 presents the results for the application of the building load. The FOS for the building with the failure surface across the building is 3.48 and similar to the previous analyses. The FOS for a failure surface on the north side of the building is 1.90 which is marginally higher than the FOS of 1.86 for the same failure surface in the pre-excavation model.

The above results show the FOS for the building is well in excess of 1.5 within the acceptable criteria.

(ii) Batter stability – worst case

In the worst case the south batter could fail when the FOS falls below 1. In that situation, the soil above the failure surface will rotate along the failure surface which has the effect of reducing the driving force on the failure surface. Figure C7 shows the batter after the surface with a FOS of 1 has been removed. The resulting FOS at the edge of the building is 1.82 while the FOS for the failure surface extending across the building is essentially unchanged from the previous loading case at 3.43.

These analyses indicate that any local instability of the south batters will not materially effect the stability of the adjacent buildings.

(iii) Batter stability during dewatering

The initial stability assessment in Figure C3 indicated that a rapid drawdown of pond water may temporarily reduce the global stability of the south wall of the Domain 4 pit. The analyses was based on the groundwater level back from the batter remains unchanged and then drops through the slope and provides a “worst case” loading. In reality, the groundwater will drain into the pit over time and reduce the groundwater impact on the overall slope stability.

This transient behaviour was modelled using the 2D finite element transient ground water model within the Rocscience SLIDE computer program, which calculated the ground water surface level within the pit wall over time as the groundwater is drawn down.

Figure C8a shows the initial case with a FOS of 1.18 extending through the slope to the base of the pit. This is similar to the value of 1.20 obtained in Figure C6.

Figure C8b presents the results after 5 days for a drawdown of 0.1m per day. This results in a FOS of 1.16. The FOS after 30 days and 60 days are 1.18 and 1.21 respectively (Figures C8c and C8d). The results indicate that the FOS changes by a few percent (generally less than 2%) during the drawdown process. In all cases the FOS is more than the back-analysed shallow slope failure.

Based on the modelling results it is considered acceptable to draw the pond down at a rate of 0.1m per day. The drawdown rate could be increased to a maximum of 0.2m per day but with a maximum aggregate of 1m over any 10-day period.

The results of additional stability assessments for southern batters are summarised in Table 4 and the SLIDE outputs are provided in Appendix C.

Table 4: Summary of results of the additional stability assessment for southern batters

Analysis	Figure No.	Factor of Safety (FOS)			
		Shallow	Toe to Domain 4 boundary	North side of building	South side of building
Prior to construction	C5	1.00	1.20	1.86	3.50
After excavation of basement	C5a	1.00	1.28	1.90	4.92
After construction of apartments	C6	1.00	1.20	1.90	3.48
After shallow batter failure	C7	1.04	1.46	1.82	3.43
Transient groundwater drawdown 0.1m per day Initial	C8a	1.00	1.18	1.97	3.46
Transient groundwater drawdown 0.1m per day after 5 days	C8b	1.00	1.16	1.90	3.42
Transient groundwater drawdown 0.1m per day after 30 days	C8c	1.00	1.18	1.90	3.46
Transient groundwater drawdown 0.1m per day after 60 days	C8d	1.00	1.21	1.90	3.49

3.7 NORTHERN BATTERS

A stability assessment for preload design in Domain 1 has been previously performed for the north wall of Domain 4 and the results of the assessment were presented in Coffey letter GEOTABTF09257AA-CX dated 26 March 2019.

The analyses were performed based on Section O-O as shown in Figures 4 and 5.

The geotechnical model was based on subsurface conditions encountered in BH43 and several monitoring wells and gas bores near the crest of the pit at the northern boundary as shown on Figure D1 and summarised in Table D1 in Appendix D. The boreholes encountered landfill foundry sands to a depth of about 9m below ground level, overlying municipal wastes comprising predominantly sands with cobbles of siltstone, metal, glass, PVC, plastic and cloth fragments, down to a depth of 20m below ground level. The landfill sands are generally medium dense to dense, but could be occasionally interbedded with thin layers of loose materials as shown on Figure D2. These observations confirm that the north wall of the Domain 4 pit has been formed in fill materials which were of sufficient strength and impermeable to retain water in the quarry pit.

(Note: additional boreholes BH49 to BH53 drilled during the investigation within Domain 1 in 2020-21 has further confirmed that the landfill sands are generally medium dense to dense).

Four scenarios were assessed:

- Scenario 1: Existing slope geometry and without a preload;
- Scenario 2: Existing slope geometry with a 2m high preload stockpile at the crest;
- Scenario 3: Post excavation of slimes or uncontrolled fill at the base of the pit during backfilling of Domain 4, but without preload; and
- Scenario 4: Post excavation of slimes or uncontrolled fill at the base of the pit during backfilling of Domain 4, with a 2m high preload stockpile at the crest.

A surcharge simulating a loaded truck on the haul road was applied in all scenarios.

The stability assessment results including the adopted geotechnical parameters in the stability assessment are shown in Figures D3 to D6 provided in Appendix D.

The results show that for the current batter geometry for scenarios 1 and 2, the Factor of Safety (FOS) is 2.1. For scenario 3, which applies when the slope has been extended during the Domain 4 backfilling, the FOS is 1.3. Scenario 4 includes the preload in the Scenario 3 model, which has no effect on the FOS of 1.3. Scenario 4 also shows that the FOS of 1.5 extends halfway through the batter of the preload.

A FOS of 1.3 is considered acceptable for the temporary case while backfilling is occurring during construction.

The results of the stability assessment indicate the preload may be constructed to the southern side of the existing gravel track with a 3H:1V batter slope with a FOS of 1.3. The edge of the existing track varies between 3m and 5.7m from the crest of the north wall of the pit. It is recommended that the track be modified to maintain a 4m exclusion zone in accordance with the current Domain 4 backfill design report.

The construction of the preload on the southern side of the existing gravel track will require the construction of a new access road to the north of the existing track over the preload. As discussed in the current Domain 4 backfill design report, prior to earth works occurring between the pit crest and the haul road, the Contractor will need to prepare a risk assessment and slope stability management work plan that takes into account working near the crest of the pit.

4. CURRENT STABILITY ASSESSMENT UNDER SEISMIC (EARTHQUAKE) LOADING

4.1 GENERAL

As part of the current scopes, a pseudostatic stability assessment was performed for Domain 4 slope batters under earthquake loading. The earthquake loading was based on 1/500 years return period which gives a Peak Ground Acceleration (PGA) of 0.09g. A horizontal pseudo-static coefficient (k_h) of 0.5PGA, giving k_h=0.045, was adopted in the slope stability under earthquake loading based in accordance with AS4678-2002 "earth-retaining structures".

4.2 WESTERN BATTERS - SEISMIC LOADING

The slope stability analyses were carried out on similar section to the previous analyses as presented in Table 1 in Section 3.4.

The results of the stability assessment under earthquake loading for western batters are summarised in Table 5 and the SLIDE outputs are provided in Appendix E.

In general, the results of the stability assessment show that the existing western batters have FOS for global stability of greater than 1.1, which is considered to be acceptable under an earthquake event provided the recommendations as listed in Section 3.4 are followed.

Table 1: Summary of results of the stability assessment under earthquake loading for western batters

Analysis	Figure No.	Factor Of Safety (FOS)
West Batter, Global Stability as in Figure A2	E1	1.15
West Batter, Global Stability at Huntingdale Road as in Figure A3	E2	1.26

4.3 EASTERN BATTERS – SEISMIC LOADING

The slope stability analyses were carried out based on similar sections as presented in Table 2 in Section 3.5.

The results of the stability assessment under earthquake loading for eastern batters are summarised in Table 6 and the SLIDE outputs are provided in Appendix F.

In general, the results of the stability assessment show that the existing eastern batters have FOS for global stability of greater than 1.1, which is considered to be acceptable under an earthquake event provided the recommendations as listed in Section 3.5 are followed.

Table 2: Summary of results of the stability assessment under earthquake loading for eastern batters

Analysis	Figure No.	Factor Of Safety (FOS)
East Batter, Critical Surface (only shallow failure) as in Figure B1	F1	1.01
East Batter, Global Stability as in Figure B1	F1	1.16
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – No Load applied as in Figure B2	F2	1.26
East Batter, Critical Surface (only shallow failure) with Traffic Loading applied as in Figure B3	F3	1.01
East Batter, Global Stability with Traffic Loading applied as in Figure B4	F4	1.16
East Batter, Shallow failure at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied as in Figure B4	F4	1.25
East Batter, Global Stability after critical failure as in Figure B5	F5	1.24
East Batter, at the eastern edge of the road (8m from top of Batter) – with Traffic Loading applied as in Figure B5	F5	1.35

4.4 SOUTHERN BATTERS – SEISMIC LOADING

The slope stability analyses were carried out based on similar sections as presented in Tables 3 and 4.

The results of the stability assessment under earthquake loading for southern batters are summarised in Table 7 and the SLIDE outputs are provided in Appendix G.

In general, the results of the stability assessment show that the existing southern batters have FOS of approximately 1.0 during construction and dewatering pond water under an earthquake event, which is considered to be marginally stable. However, these analyses indicate that any local or shallow instability of the south batters will not affect the overall stability of the adjacent buildings with FOS typically greater than 1.2, well in excess of the acceptance criteria for short term condition under an earthquake event.

Table 3: Summary of results of the stability assessment under earthquake loading for southern batters

Analysis	Figure No.	Factor of Safety (FOS)			
		Shallow	Toe to Domain 4 boundary	North side of building	South side of building
South Batter, water level at RL45 (current condition) as in Figure C2	G2	1.03		N/A	
South Batter, rapid dewater pond water level to RL45 for filling of pit as in Figure C3	G3	0.96		Refer G5 to G8 results	
South Batter, Lower water level to RL40 for filling of pit as in Figure C1	G1	1.15		Refer G5 to G8 results	
South Batter, pit filled to RL 54 as in Figure C4	G4	1.44		Refer G5 to G8 results	
Prior to construction of apartment as in Figure C5	G5	0.92	1.04	1.22	2.93
After excavation of basement as in Figure C5a	G5a	0.92	1.04	1.30	3.18
After construction of apartment as in Figure C6	G6	0.92	1.04	1.30	2.69
After shallow batter failure as in Figure C7	G7	0.96	1.23	1.27	2.72
Transient groundwater drawdown 0.1m per day Initial as in Figure C8a	G8a	0.96	1.04	1.36	2.77
Transient groundwater drawdown 0.1m per day after 5 days as in Figure C8b	G8b	0.96	1.03	1.36	2.77
Transient groundwater drawdown 0.1m per day after 30 days as in Figure C8c	G8c	0.96	1.05	1.36	2.81
Transient groundwater drawdown 0.1m per day after 60 days as in Figure C8d	G8d	0.96	1.08	1.36	2.83

4.5 NORTHERN BATTERS -SEISMIC LOADING

The slope stability analyses were carried out based on Section O-O and similar scenarios as discussed in Section 3.7.

The stability assessment results under earthquake loading for northern batters are shown in Figures H1 to H4 provided in Appendix H.

The results show that for the current batter geometry for scenarios 1 (refer Figure H1) and 2 (refer Figure H2), the Factor of Safety (FOS) is 1.8 during an earthquake event. For scenario 3 (refer Figure H3), which applies when the slope has been extended during the Domain 4 backfilling, the FOS is 1.2, well in excess of the acceptance criteria for short term condition under an earthquake event. Scenario 4 (refer Figure H4) includes the preload in the Scenario 3 model, which has no effect on the FOS of 1.2.

5. REFERENCES

[1] Coffey Geotechnics Pty Ltd (Coffey), 2015. *Zone 4 Backfill Design Report, Huntingdale Estate, Oakleigh South, VIC.* GEOTABTF09257AA-AQ_Rev10, September 2015.

[2] Coffey Geotechnics Pty Ltd (Coffey), 2019. *Zone 4 Backfill Design Specification, Huntingdale Estate, Oakleigh South, VIC.* GEOTABTF09257AA-BC_Rev10 dated April 2019.

[3] Coffey *Services* Australia Pty Ltd (Coffey), 2017. *Additional Analysis to Refine Quarry Crest Exclusive Zone Distance.* Ref GEOTABTF09257AA-BR, 2017.

[4] Coffey Geotechnics Pty Ltd (Coffey), 2017. *Stability Assessment for Southern Side of Zone 4*. GEOTABTF09257AA-BS dated 11 September 2017.

[5] Coffey Services Australia Pty Ltd (Coffey), 2019a. *North Wall Zone 4, Zone 1 preload stability assessment.* Ref. GEOTABTF09257AA-CX dated 26 March 2019.

[6] Coffey Services Australia Pty Ltd (Coffey), 2019. *Additional Stability Assessment for Southern Side of Zone 4*. GEOTABTF09257AA-DB dated 27 February 2019.

[7] HS Support (2020) 53X Environmental Audit of Land at 1221-1249 Centre Road and 22 Talbot Avenue, Oakleigh South, Vic, Ref. AUS##C01679_2019, dated 13 May 2020.

[8] Coffey Services Australia Pty Ltd, 2020. *Construction Environmental Management Plan (CEMP), 2020. Huntingdale Estate, Oakleigh South, VIC.* Ref. 754-ENAUABTF00751AB_R17 dated 1 May 2020a.

[9] Coffey Services Australia Pty Ltd (Coffey), 2020b. *Former Talbot Quarry – A summary of the geotechnical history of the project.* Ref. GEOTABTF09257AA-DR dated 10 August 2020.

[10] Coffey Services Australia Pty Ltd (Coffey), 2021. *Geotechnical Investigation Report 2020-21 Additional Investigation.* Ref. GEOTABTF09257AA-EC, 2021

[11] Coffey *Services* Australia Pty Ltd (Coffey), 2021a. *Settlement Predictions Report.* Ref GEOTABTF09257AA-ED, 2021.

6. LIMITATIONS

This report has been prepared solely for the use of our client Sterling Global, their professional advisers and relevant authorities in relation to the specific project described in this document. No liability is accepted in respect of it use for any other purpose by any other person or entity. All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

Your attention is drawn to the attached document entitled "*Important Information about your Coffey Report*".

IMPORTANT INFORMATION ABOUT YOUR TETRA TECH COFFEY REPORT

As a client of Tetra Tech Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Tetra Tech Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Tetra Tech Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Tetra Tech Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Tetra Tech Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Tetra Tech Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Tetra Tech Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Tetra Tech Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Tetra Tech Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Tetra Tech Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Tetra Tech Coffey to work with other project design professionals who are affected by the report. Have Tetra Tech Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks. If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Tetra Tech Coffey for information relating to geoenvironmental issues.

Rely on Tetra Tech Coffey for additional assistance

Tetra Tech Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Tetra Tech Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

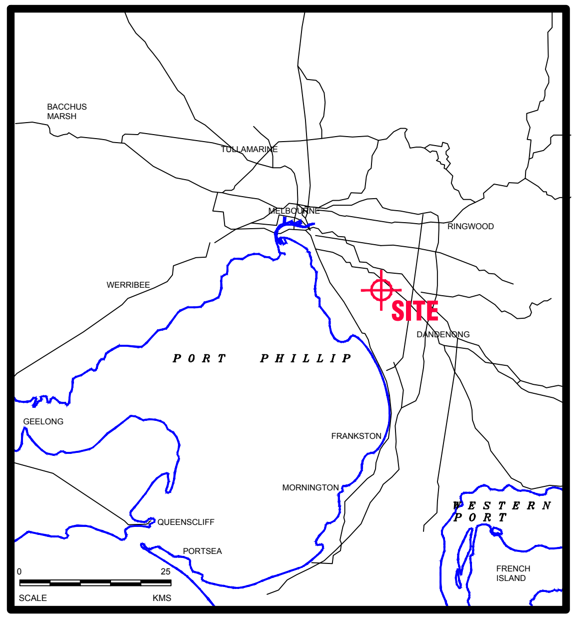
Responsibility

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Tetra Tech Coffey to other parties but are included to identify where Tetra Tech Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Tetra Tech Coffey closely and do not hesitate to ask any questions you may have.

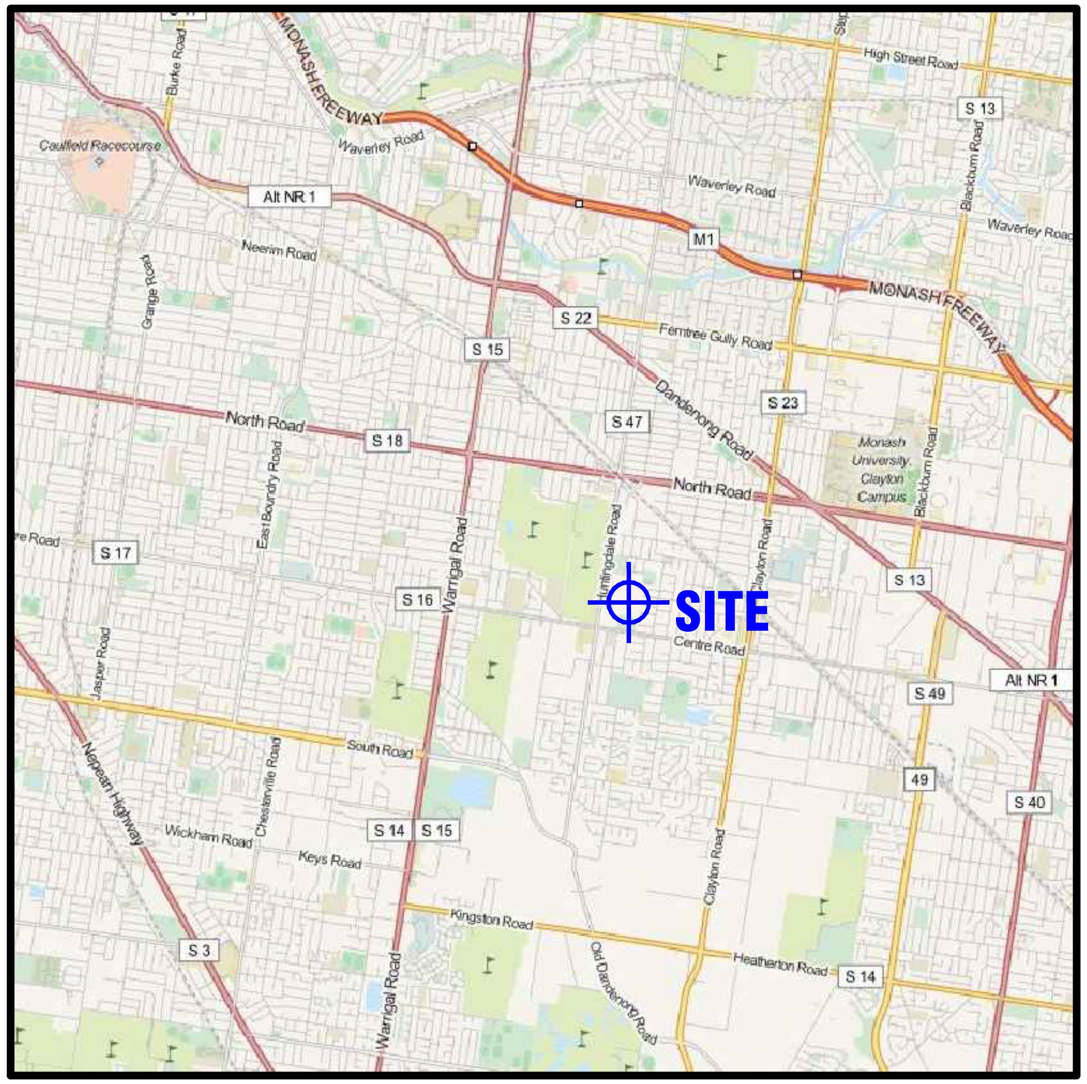
FIGURES

TALBOT VILLAGE
DOMAIN 4 BATTER STABILITY ASSESSMENT

PROJECT ID: GEOTABTF09257AA



GENERAL AREA MAP



REGIONAL AREA MAP

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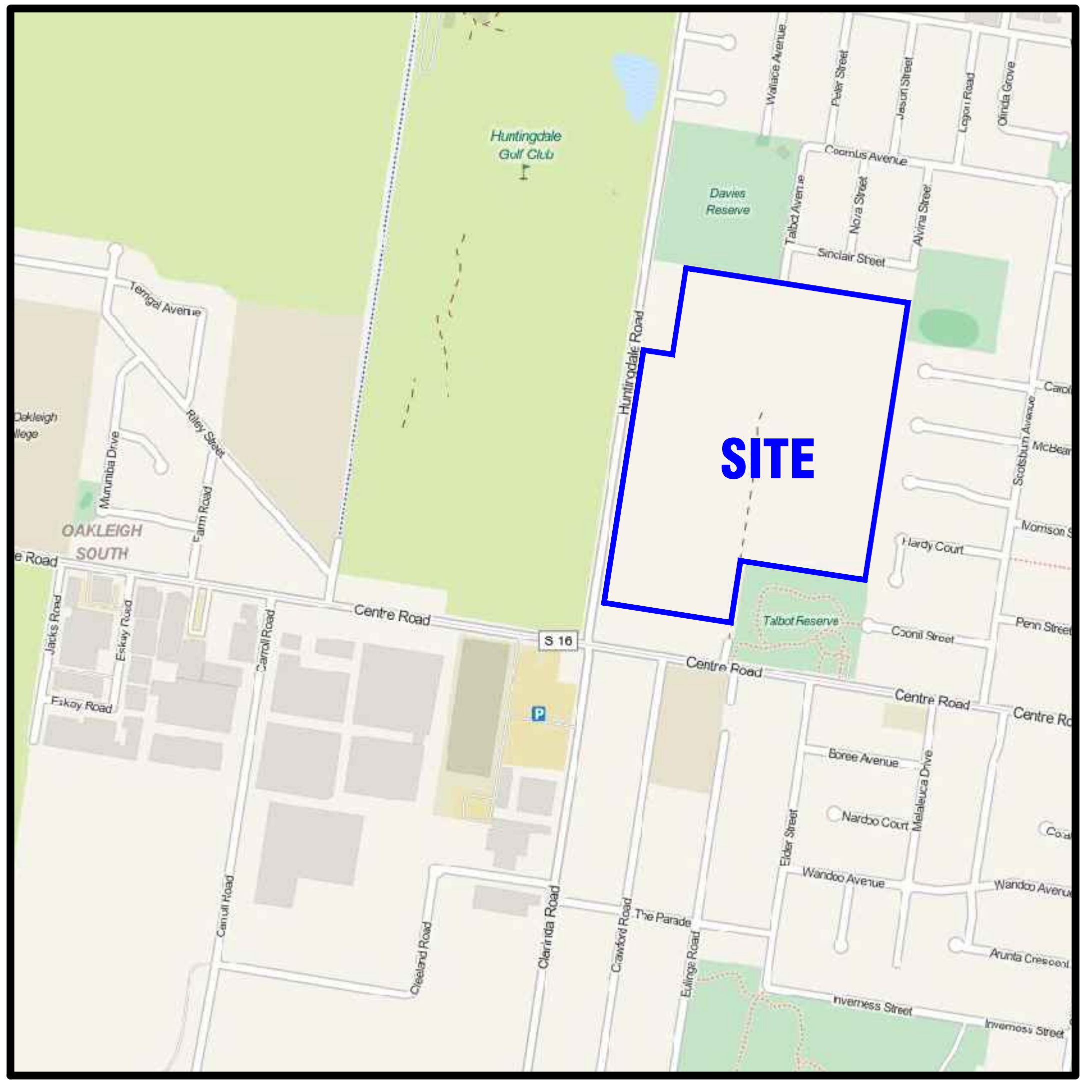

LOCAL AREA MAP

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revision	description	drawn	approved	date

drawn	FK/LH
approved	
date	16 / 9 / 21
scale	AS SHOWN
original size	A3

coffey

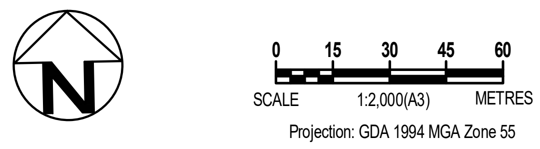
client:	TALBOT ROAD FINANCE PTY LTD
project:	DOMAIN 4 BATTER STABILITY HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SITE LOCALITY PLAN
project no:	GEOTABTF09257AA-EG
figure no:	01

IMAGERY SOURCE: Nearmap (06-09-2020)

revision	no.	description	drawn	approved	date
	A	ORIGINAL ISSUE	GY	FK	08.09.21

LEGEND

- DOMAIN BOUNDARY
- SITE BOUNDARY
- CADASTRE



drawn	GDY
approved	FK
date	08.09.2021
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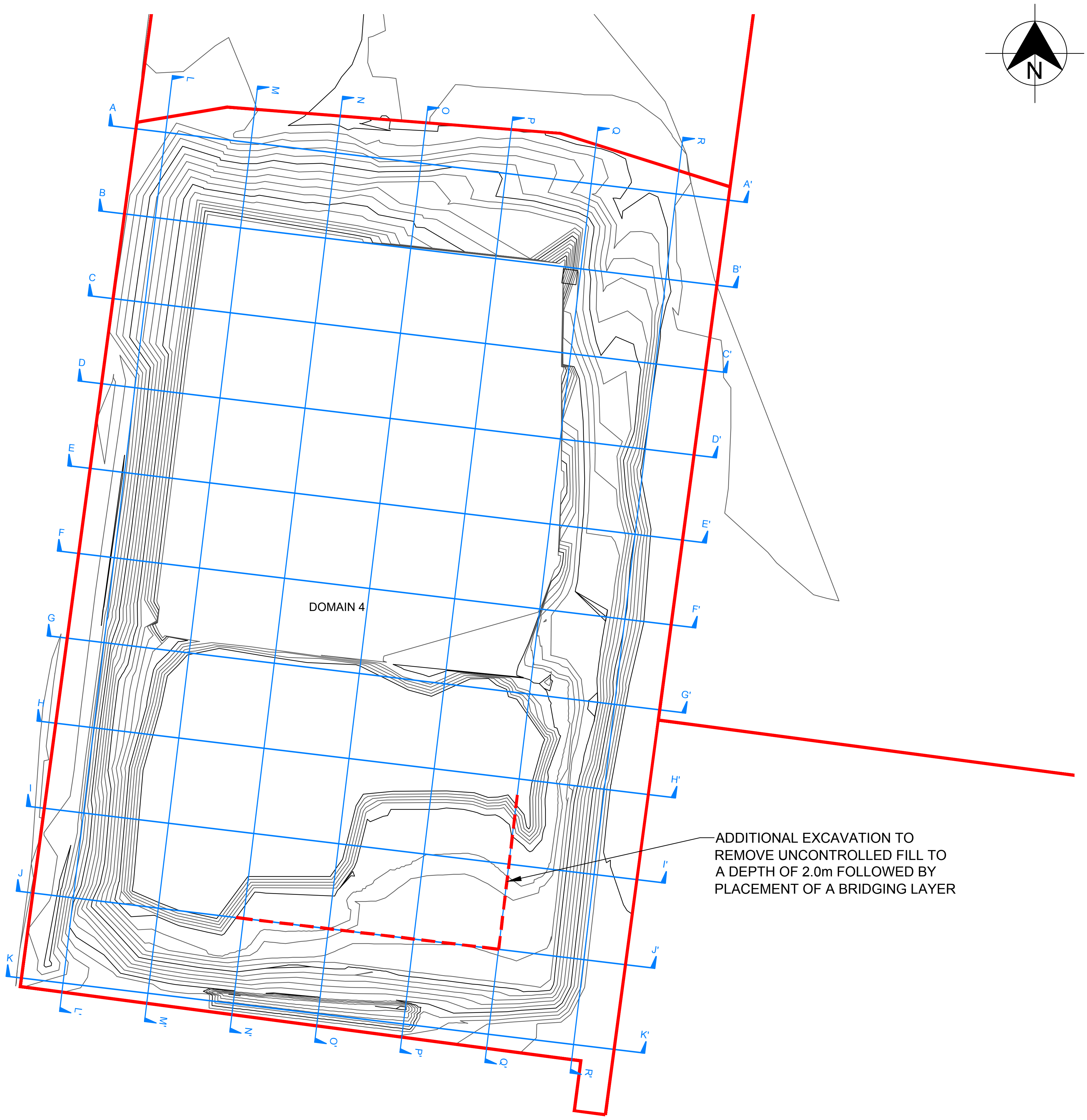
original size	A3

coffey
A TETRA TECH COMPANY

client:	HUNTINGDALE ESTATE NOMINEES PTY LTD
project:	GEOTECHNICAL SITE INVESTIGATION 1221-1249 CENTRE ROAD & 22 TALBOT AVENUE OAKLEIGH SOUTH, VICTORIA
title:	SITE GEOTECHNICAL DOMAINS
project no: GEOTABTF09257AA-EG	figure no: 02 — rev: A

MXD Template Reference: 09257AA_EE_GIS002_v0_2



NOTE: CONTOURS REPRESENT THE EXPECTED EXCAVATION LEVEL

TABLE 1 : COORDINATES OF SECTIONSC

SECTION	START		END	
	EASTING	NORTHING	EASTING	NORTHING
AA'	333115.08	5801017.84	333338.46	5800990.89
BB'	333111.48	5800988.06	333334.86	5800961.10
CC'	333107.89	5800958.28	333331.27	5800931.32
DD'	333104.30	5800928.49	333327.67	5800901.53
EE'	333100.70	5800898.71	333324.08	5800871.75
FF'	333097.11	5800868.93	333320.48	5800841.97
GG'	333093.51	5800839.14	333316.89	5800812.18
HH'	333089.92	5800809.36	333313.30	5800782.40
II'	333086.32	5800779.57	333309.70	5800752.61
JJ'	333082.73	5800749.79	333306.11	5800722.83
KK'	333079.13	5800720.01	333302.51	5800693.05
LL'	333137.33	5801035.30	333097.79	5800707.68
MM'	333167.12	5801031.71	333127.57	5800704.09
MM'	333196.90	5801028.12	333157.36	5800700.49
OO'	333226.68	5801024.52	333187.14	5800696.90
PP'	333256.47	5801020.93	333216.93	5800693.30
QQ'	333286.25	5801017.33	333246.71	5800689.71
RR'	333316.03	5801013.74	333276.49	5800686.11

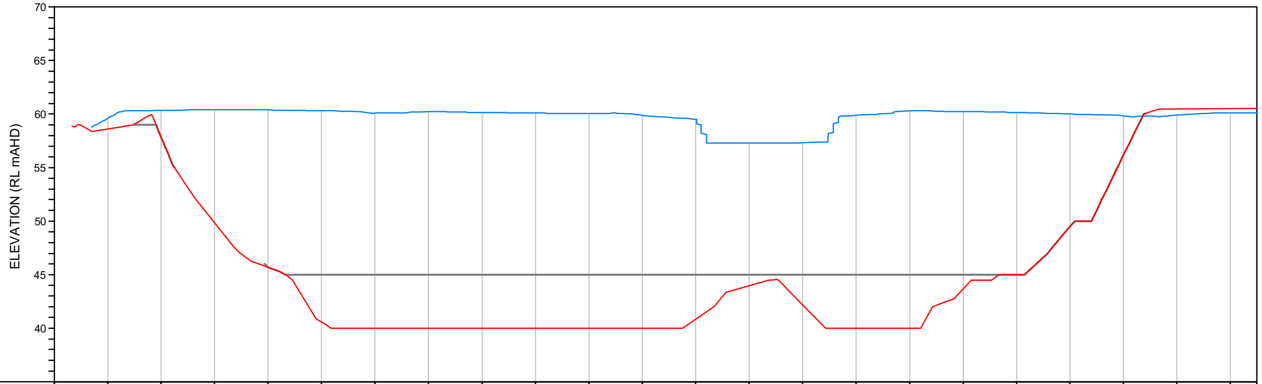
LEGEND

SECTION LINE

0 15 30 45 60 75
SCALE 1:1500 (A3) METRES

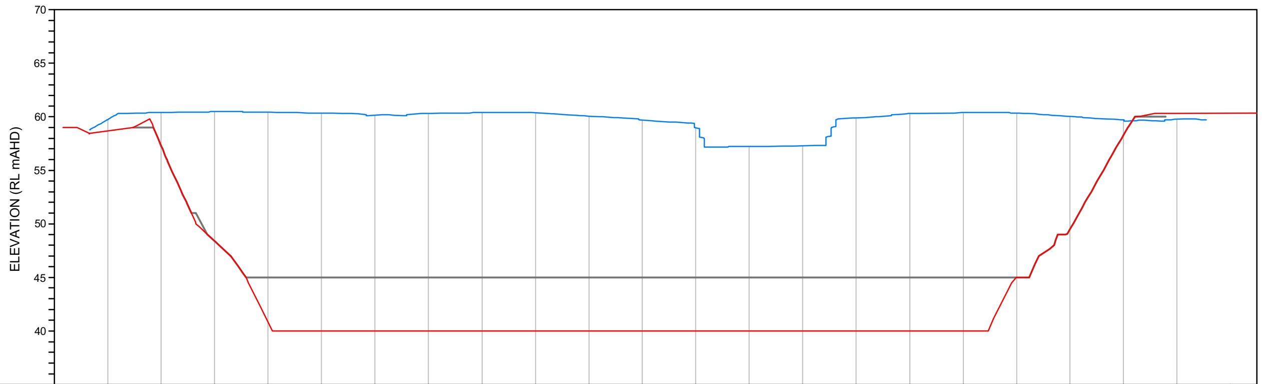
drawn	FK/LH	client:	TALBOT ROAD FINANCE PTY LTD
approved		project:	DOMAIN 4 BATTER STABILITY
date	16 / 09 / 21		HUNTINGDALE ESTATE, OAKLEIGH SOUTH
scale	1:1500	title:	CROSS SECTIONS LOCALITY PLAN
original size	A3	project no:	GEOTABTF09257AA-EG figure no: 03

EXISTING SURFACE LEVEL
LEVEL FOLLOWING REMOVAL OF UNSUITABLE MATERIAL
FINISHED SURFACE LEVEL



DESIGN LEVEL (mAHD)		59.597	60.346	60.401	60.381	60.315	60.090	60.222	60.146	60.094	60.050	59.885	59.507	57.294	57.337	59.890	60.287	60.216	60.147	60.006	59.828	59.909	60.095	60.098
EXPECTED EXCAVATION LEVEL(mAHD)		58.593	57.858	49.852	45.696	40.567	40.000	40.000	40.000	40.000	40.000	40.000	40.846	43.967	42.183	40.000	40.000	43.666	45.000	49.504	56.161	60.476	60.519	60.541
EXISTING LEVEL(mAHD)			57.858		45.696	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	49.504	56.161			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION G-G'
HORZ: 1:1000
VERT: 1:500



DESIGN LEVEL (mAHD)		59.738	60.403	60.469	60.430	60.355	60.144	60.314	60.398	60.362	60.072	59.679	58.970	57.223	57.276	59.903	60.300	60.390	60.364	60.033	59.701	59.765		
EXPECTED EXCAVATION LEVEL(mAHD)		58.668	57.313	48.386	40.859	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	45.000	49.504	58.272	60.311	60.331	60.339
EXISTING LEVEL(mAHD)			57.313	48.386	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	49.504	58.272			
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000	200.000	210.000	220.000	225.000

SECTION H-H'
HORZ: 1:1000
VERT: 1:500

revision	description	drawn	approved	date

10 0 10 30 50
Horizontal Scale (metres) 1:1000
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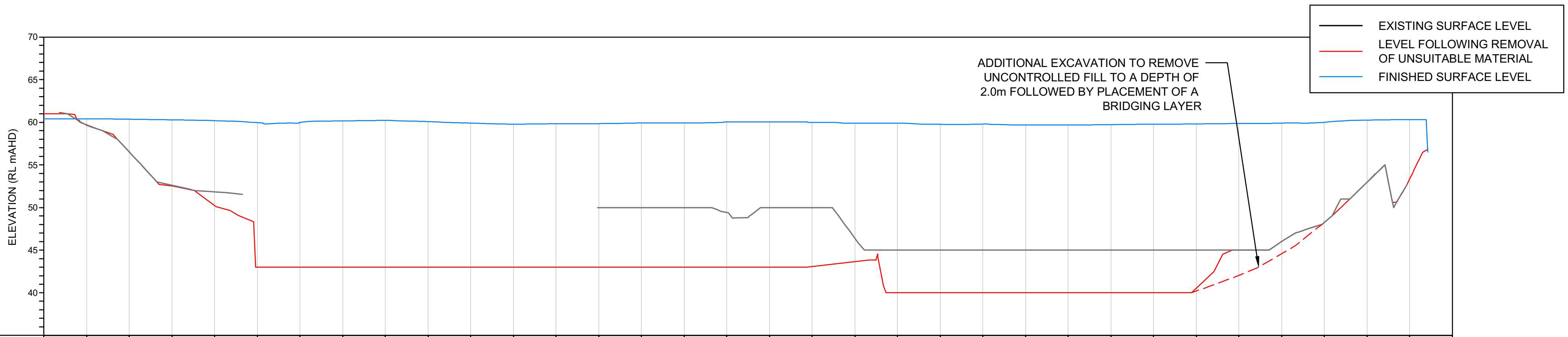
Vertical Scale (metres) 1:500

drawn	DA / LH
approved	
date	17 / 12 / 14
scale	AS SHOWN
original size	A3

coffey

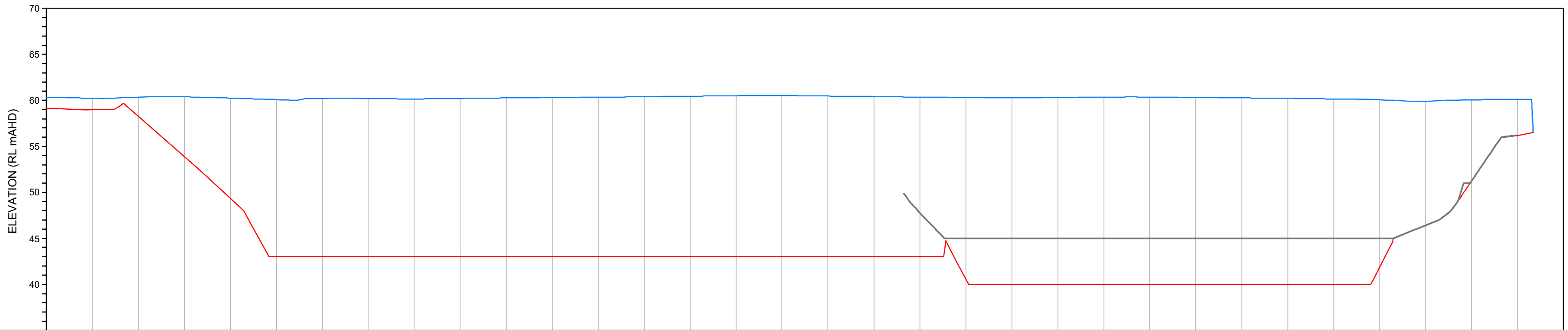
client:	TALBOT ROAD FINANCE PTY LTD
project:	ZONE 4 BACKFILL DESIGN
	HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION GG' AND HH'
project no: GEOTABTF09257AA	figure no: 04



DESIGN LEVEL (mAHD)	60.411	60.404	60.356	60.279	60.173	59.960	60.003	60.146	60.200	60.053	59.907	59.769	59.823	59.842	59.915	59.926	60.007
EXPECTED EXCAVATION LEVEL(mAHD)	61.000	59.631	56.517	52.533	50.205	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000
EXISTING LEVEL(mAHD)		59.717	56.517	52.596	51.824									50.000	50.000	50.000	49.408
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000

DESIGN LEVEL (mAHD)	60.010	60.002	59.898	59.885	59.751	59.789	59.679	59.671	59.713	59.761	59.796	59.851	59.896	60.000	60.241	60.312	
EXPECTED EXCAVATION LEVEL(mAHD)	43.000	43.072	43.644	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.528	45.000	46.009	48.250	52.977	53.329	
EXISTING LEVEL(mAHD)	50.000	50.000	46.415	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	46.009	48.250	52.977		
DISTANCE (m)	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION O-O'
HORZ: 1:1000
VERT: 1:500



DESIGN LEVEL (mAHD)	60.316	60.224	60.343	60.401	60.243	60.086	60.203	60.198	60.161	60.207	60.256	60.305	60.353	60.403	60.452	60.502	60.518
EXPECTED EXCAVATION LEVEL(mAHD)	59.109	58.993	58.245	53.876	49.321	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000	43.000
EXISTING LEVEL(mAHD)																	
DISTANCE (m)	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000

DESIGN LEVEL (mAHD)	60.462	60.417	60.360	60.315	60.263	60.313	60.355	60.360	60.317	60.257	60.215	60.155	60.067	59.899	60.059	60.107	
EXPECTED EXCAVATION LEVEL(mAHD)	43.000	43.000	43.000	40.567	40.000	40.000	40.000	40.000	40.000	40.000	40.000	40.000	41.885	46.413	51.240	56.194	
EXISTING LEVEL(mAHD)			47.762	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	45.000	46.413	51.240		
DISTANCE (m)	170.000	180.000	190.000	200.000	210.000	220.000	230.000	240.000	250.000	260.000	270.000	280.000	290.000	300.000	310.000	320.000	330.000

SECTION M-M'
HORZ: 1:1000
VERT: 1:500

revision	description	drawn	approved	date

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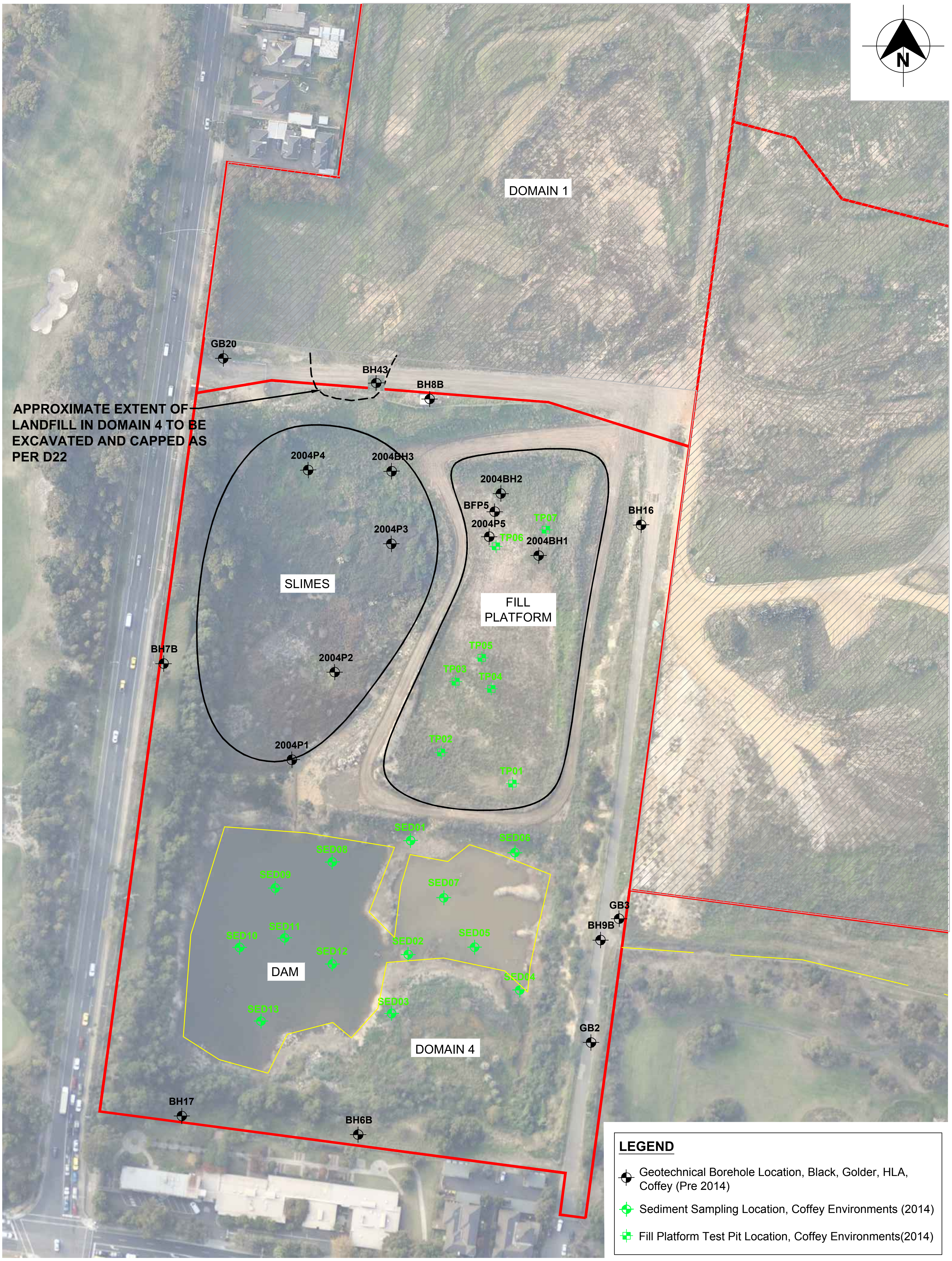
Horizontal Scale (metres) 1:1000

5 0 5 15 25
Vertical Scale (metres) 1:500

drawn	DA / LH
approved	
date	17 / 12 / 14
scale	AS SHOWN
original size	A3

coffey

client:	TALBOT ROAD FINANCE PTY LTD
project:	ZONE 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
title:	SECTION OO' & MM'
project no:	GEOTABTF09257AA
figure no:	05



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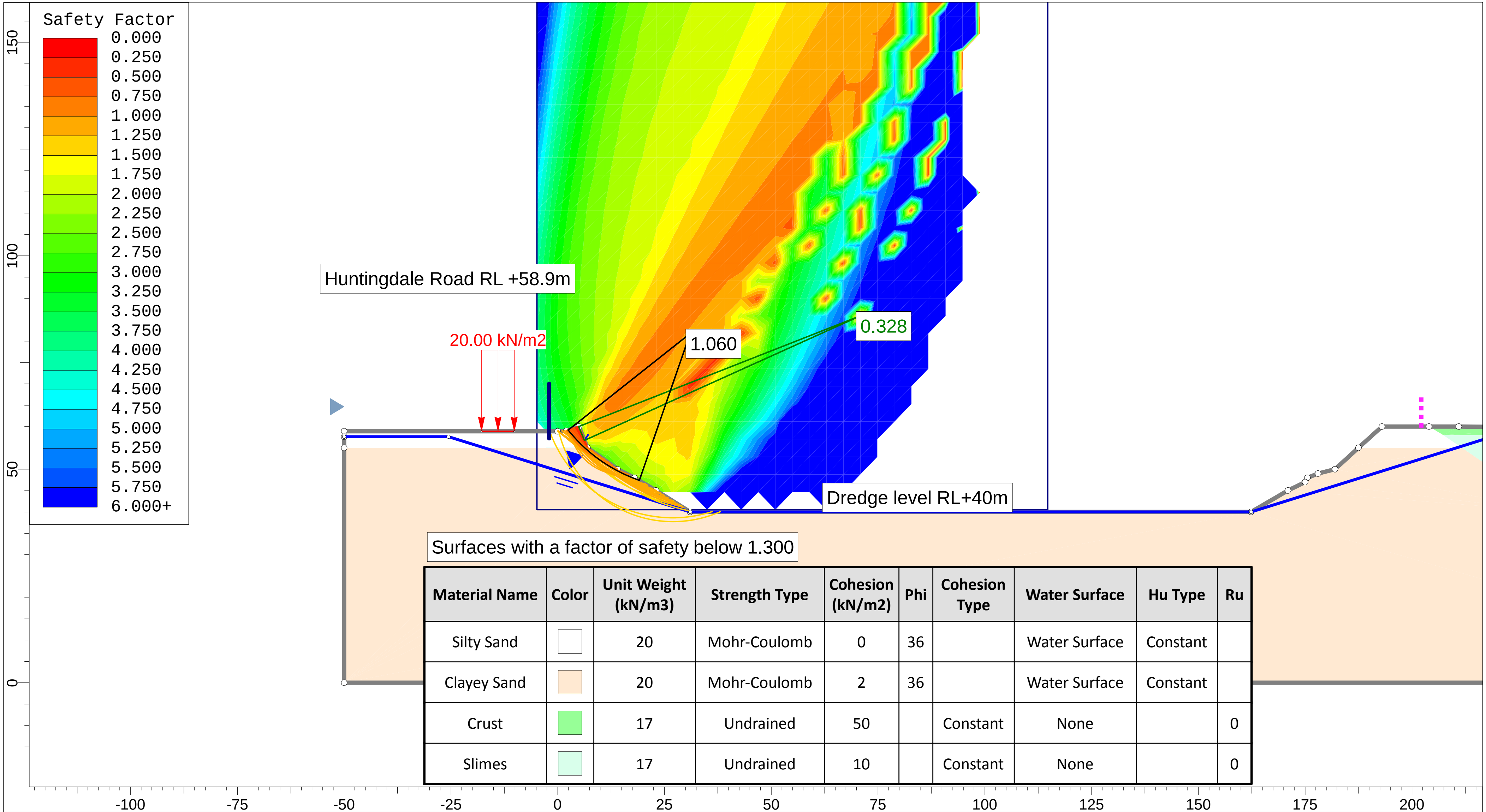
drawn	FK/LH	client:	TALBOT ROAD FINANCE PTY LTD
approved		project:	DOMAIN 4 BACKFILL DESIGN HUNTINGDALE ESTATE, OAKLEIGH SOUTH
date	16 / 9 / 21	title:	TEST LOCATIONS PLAN
scale	1:1500	project no:	GEOTABTF09257AA-EG
original size	A3	figure no:	06

coffey

APPENDIX A: SLOPE STABILITY FOR WESTERN BATTERS

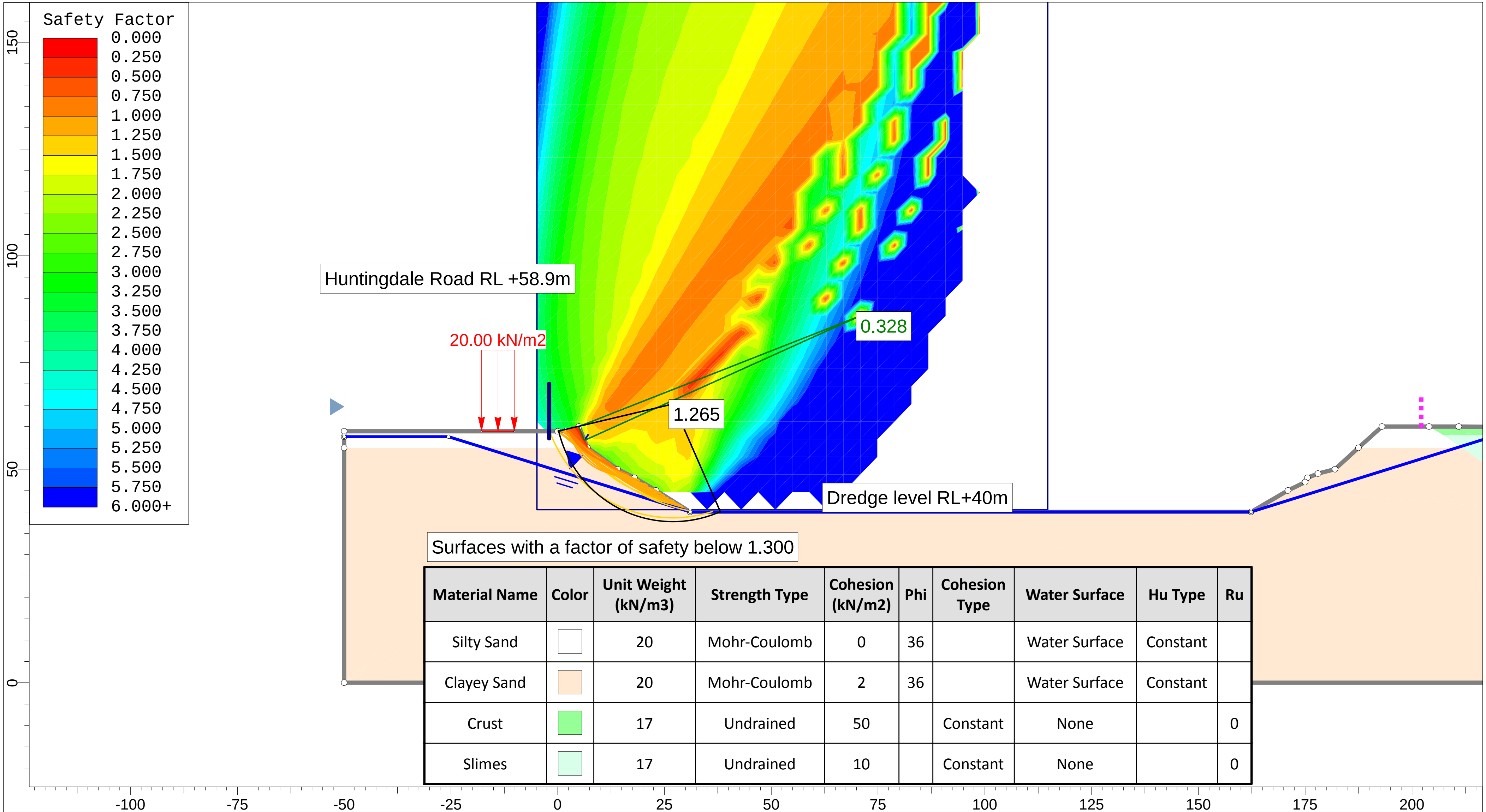


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

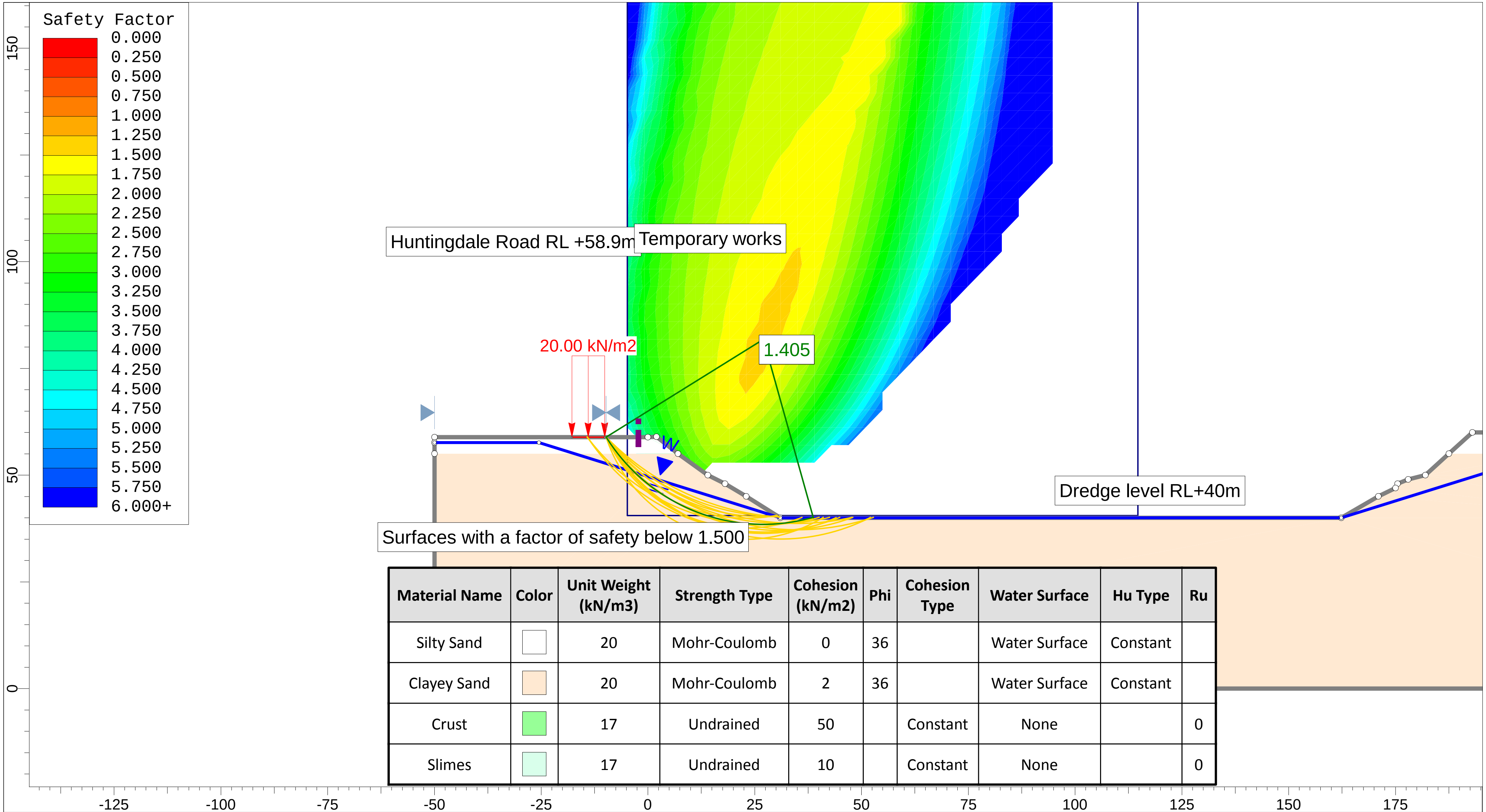
Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	West batter - Back analysis - Shallow		
Drawn By	CB	*Scale* 1:1250	*Company* Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM		*File Name* WEST Figure A1.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis - Global
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	BE WEST Figure A2.slim



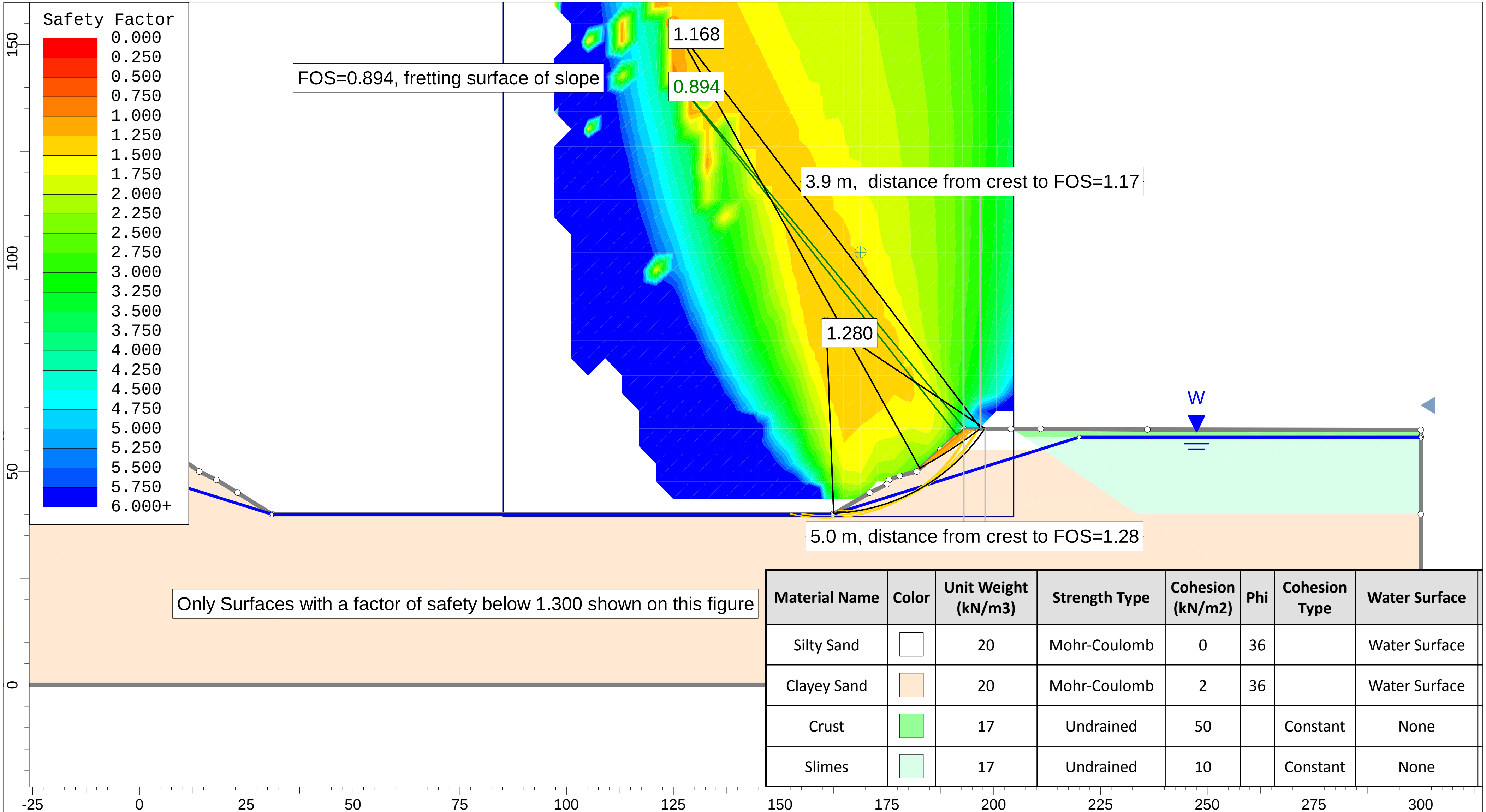
Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis - Huntingdale Road
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	WEST Figure A3.slim

APPENDIX B: SLOPE STABILITY FOR EASTERN BATTERS

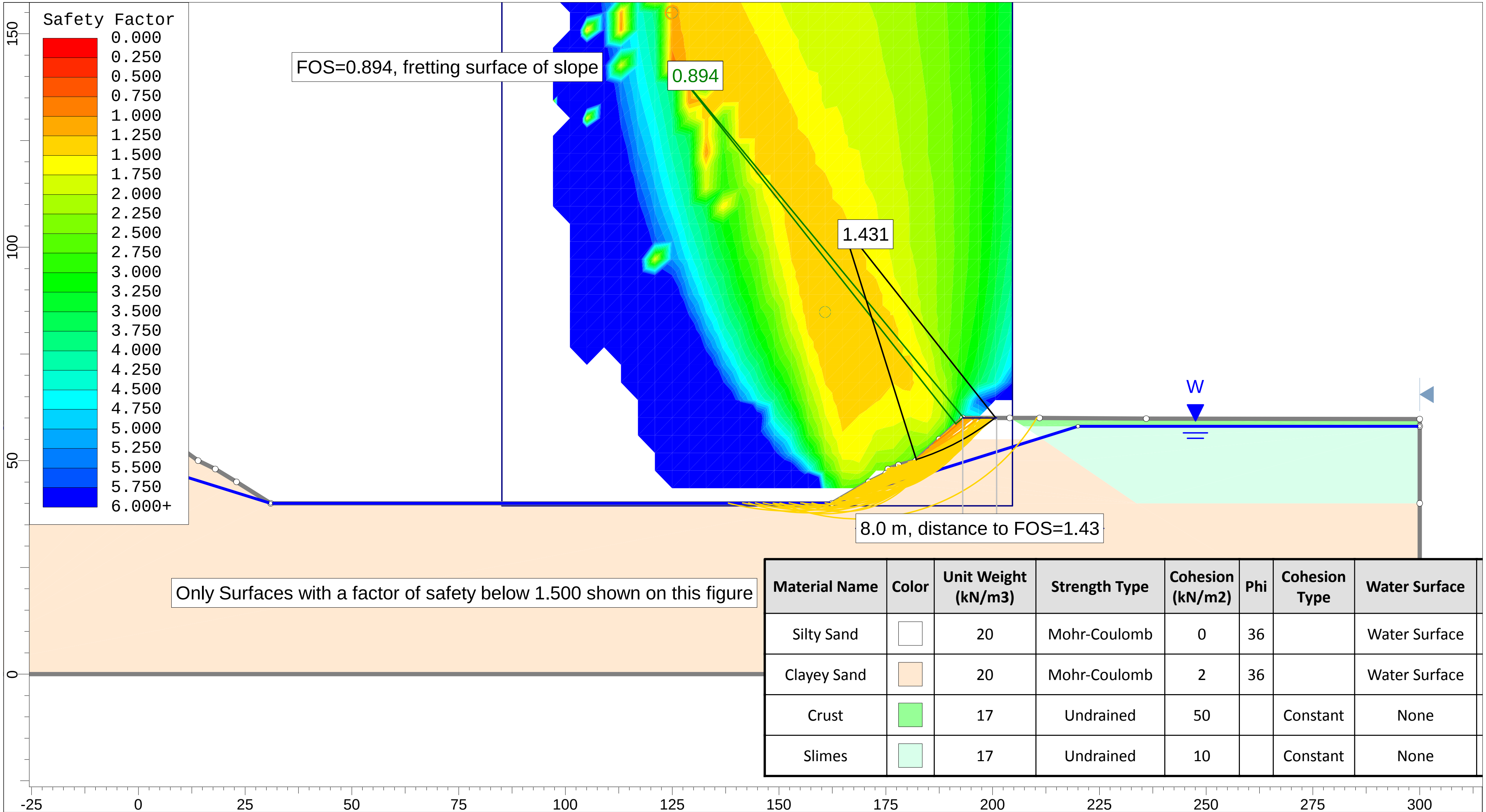


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh South, Victoria
Analysis Description	East batter - Back analysis - Shallow
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	EAST Figure **B1**.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

coffey

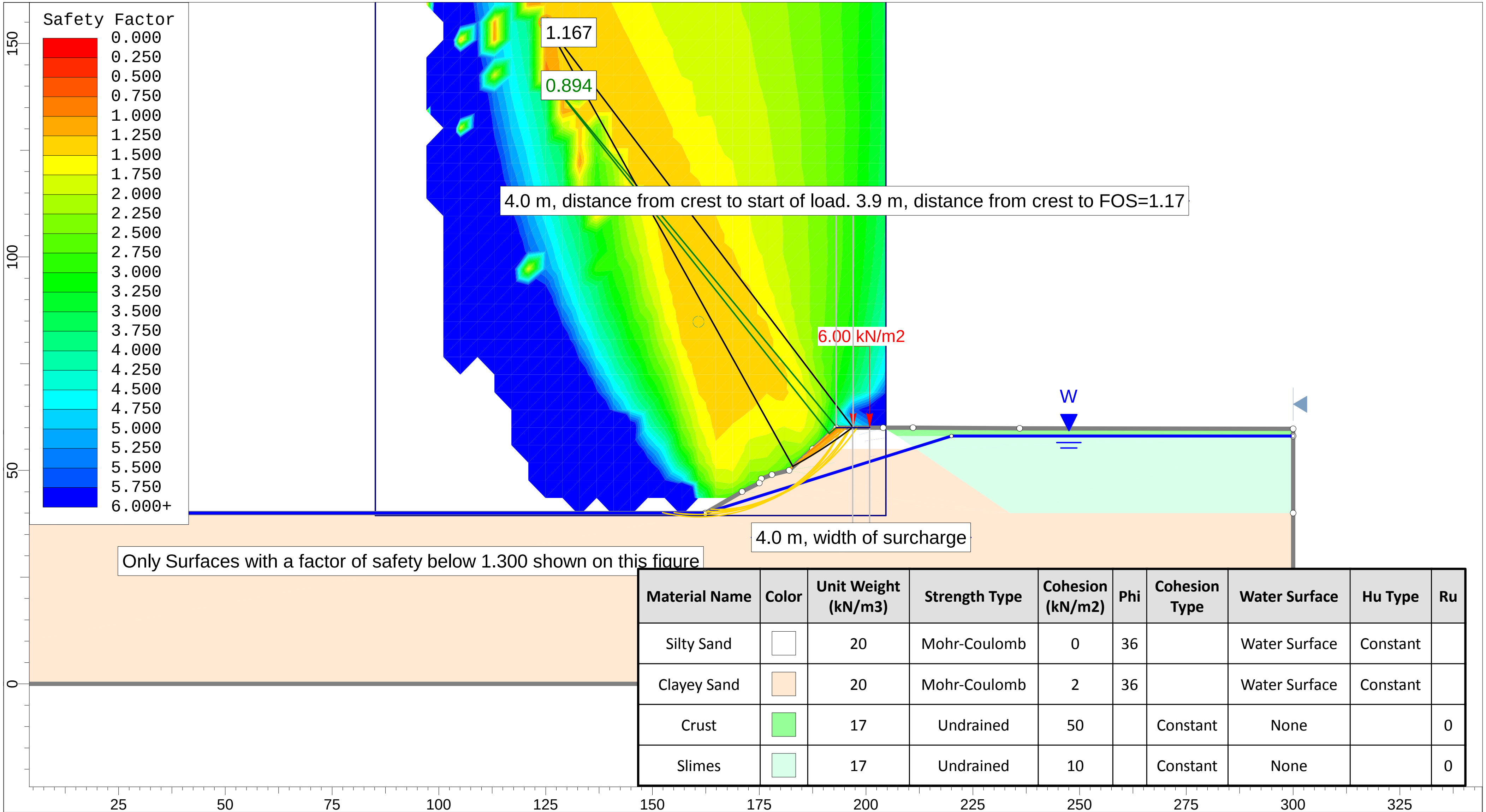
SLIDEINTERPRET 6.005

Project Huntingdale Estate, Oakleigh South, Victoria

Analysis Description East batter - Back analysis - Shallow

Drawn By CB | *Scale* 1:1250 | *Company* Talbot Road Finance Pty Ltd

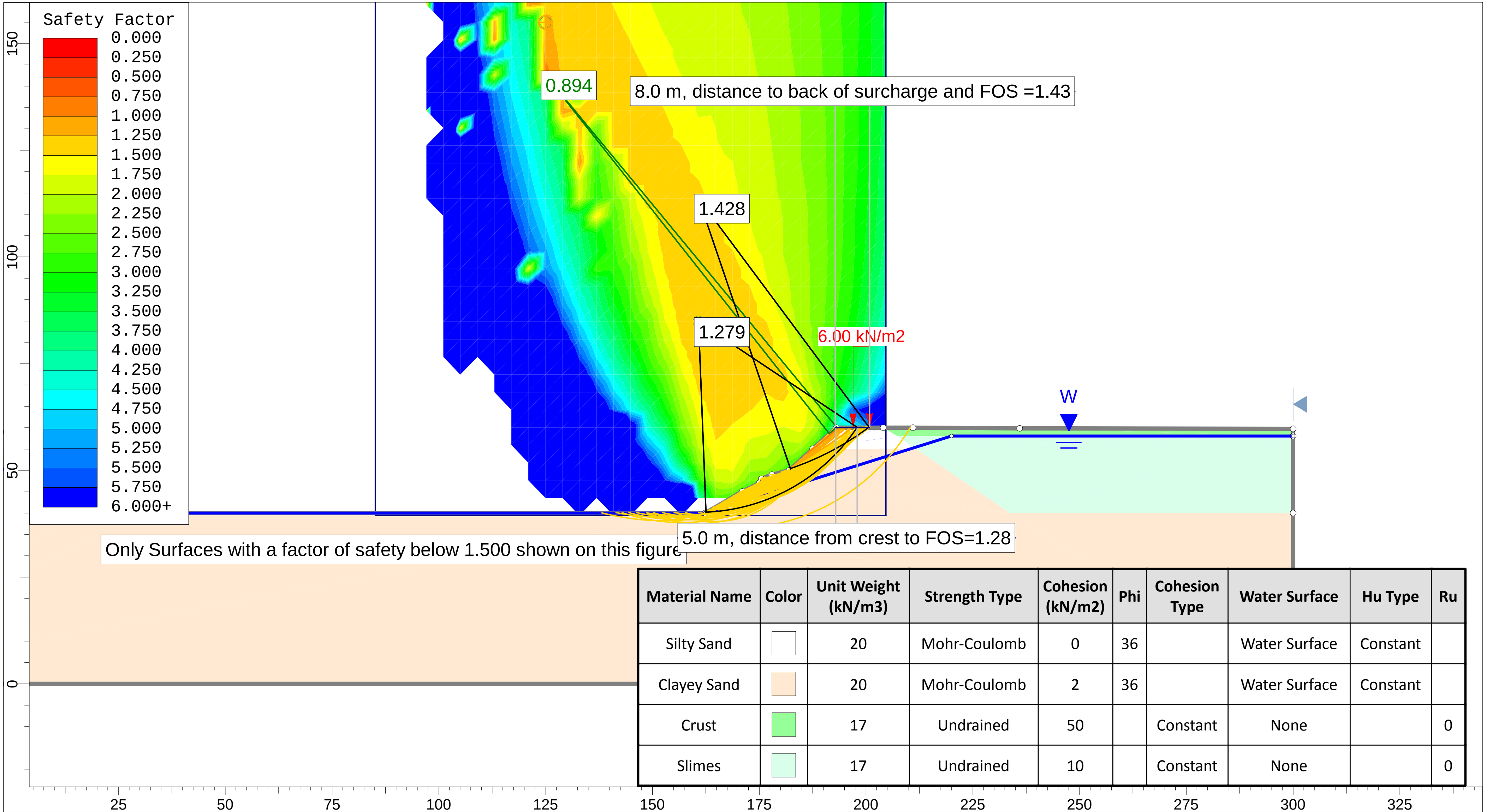
Date 14/01/2015, 2:17:49 PM | *File Name* EAST Figure **B2**.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	East batter - Empty truck loading 4m set back		
Drawn By	CB	*Scale* 1:1250	*Company* Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM	*File Name*	EAST Figure **B3**.slim

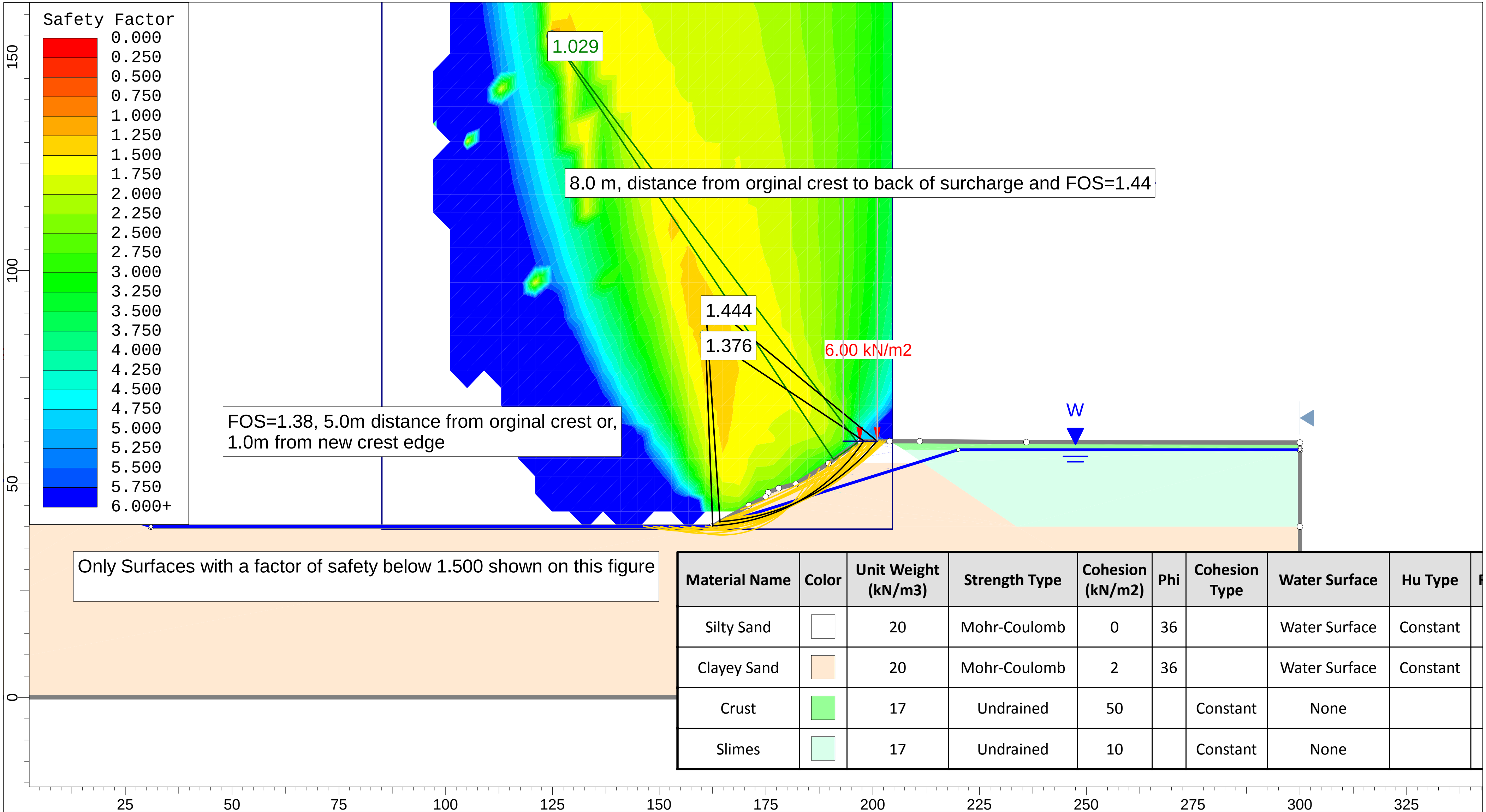
SLIDEINTERPRET 6.005



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		0
Slimes		17	Undrained	10		Constant	None		0

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	East batter - Empty truck loading 4m set back
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	EAST Figure **B4**.slim

SLIDEINTERPRET 6.005



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kN/m2)	Phi	Cohesion Type	Water Surface	Hu Type	F
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Constant	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Constant	
Crust		17	Undrained	50		Constant	None		
Slimes		17	Undrained	10		Constant	None		

coffey

SLIDEINTERPRET 6.005

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	East batter - Empty truck loading and collapse of upper slope wedge
Drawn By	CB
Scale	1:1250
Company	Talbot Road Finance Pty Ltd
Date	14/01/2015, 2:17:49 PM
File Name	EAST Figure **B5**.slim

NOTE:
CONTOURS FROM TAYLORS DEVELOPMENT STRATEGISTS DRAWING 0180D-D1-REV_A (12/06/2013)

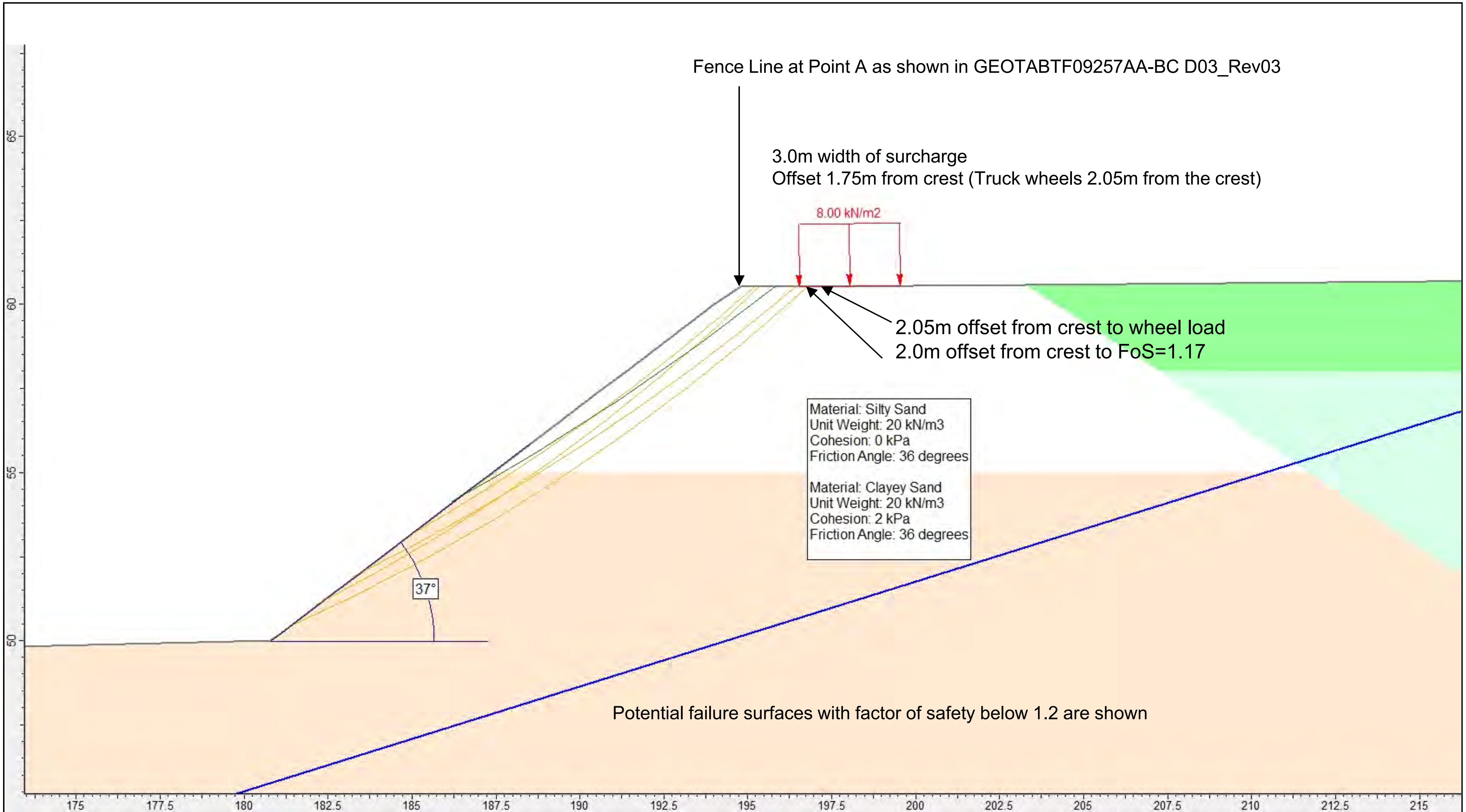
3

LEGEND

- Critical Batter Slope (Contour)
- Existing Surface Level Contour
- 3m Exclusion Zone

0 10 20 30 40 50
SCALE 1:1000 (A3) METRES

drawn	[illegible]O	coffey A TETRA TECH COMPANY	client: TALBOT ROAD FINANCE PTY LTD
approved	MF		project: Domain 4 Batter Stability HUNTINGDALE ESTATE, OAKLEIGH SOUTH
date	01/05/17		
scale	1:1000		title: EXCLUSION ZONE AT EASTERN BATTER
original size	A3		project no: GEOTABTF09257AA figure no: B6

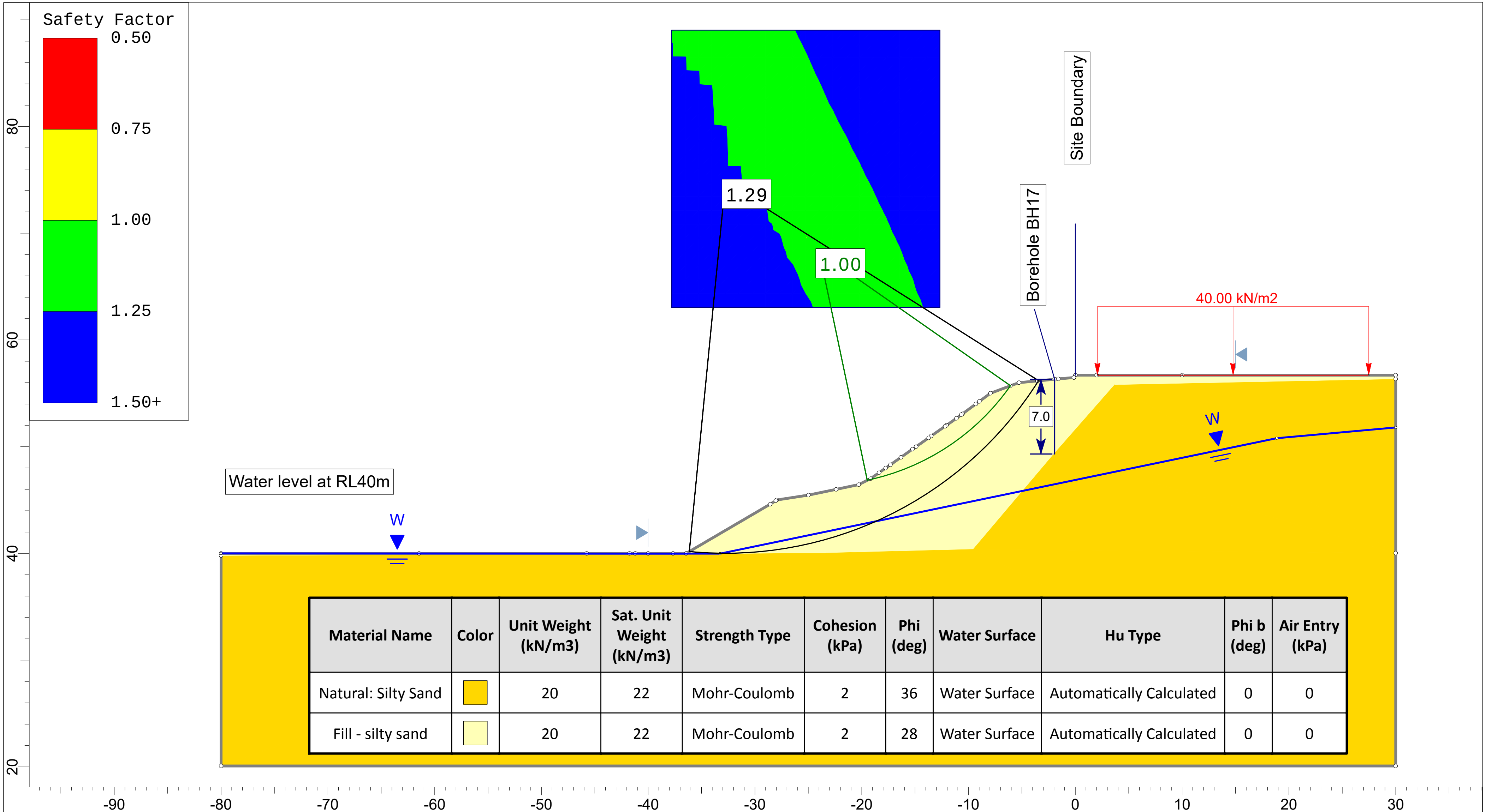


drawn	MF	coffey A TETRA TECH COMPANY	client:	TALBOT ROAD FINANCE
approved	IVP		project:	HUNTINGDALE ESTATE DOMAIN 4 QUARRY EXCLUSION ZONE
date	1/5/2017			
scale	NTS		title:	Stability analysis results
original size	A4		project no: GEOTABTF09257AA-EG	Figure B7

Exclusion Zone with 1.65m offset measured from the edge of the bitumen to be applied over a 57m length as shown in D03_Rev03.
The barriers are to be located so that the truck wheel tracks are to be at least 1.65m from the edge of the bitumen.

drawn	MF	coffey A TETRA TECH COMPANY	client:	TALBOT ROAD FINANCE
approved	IVP		project:	HUNTINGDALE ESTATE
date	1/5/2017			
scale	NTS		title:	1.5m Exclusion Zone measured from edge of bitumen
original size	A4		project no: GEOTABTF09257AA-EG	Figure B8

APPENDIX C: SLOPE STABILITY FOR SOUTHERN BATTERS

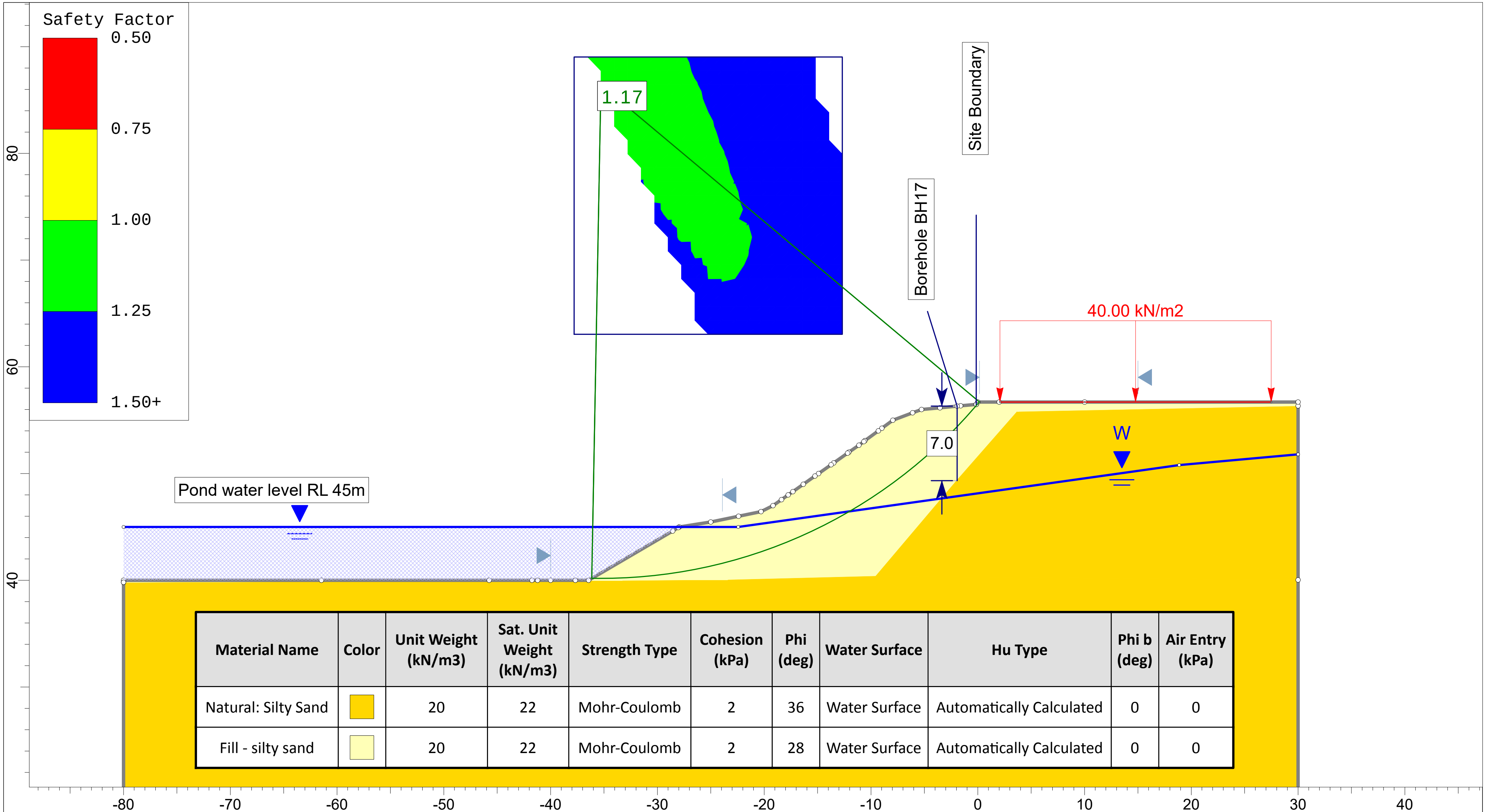


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
A TETRA TECH COMPANY

Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - back analysis
Drawn By	MF
Scale	1:500
Company	Talbot Road Finanace Pty Ltd
Date	11/09/2017
File Name	SOUTH Figure C1.slim

SLIDEINTERPRET 7.023

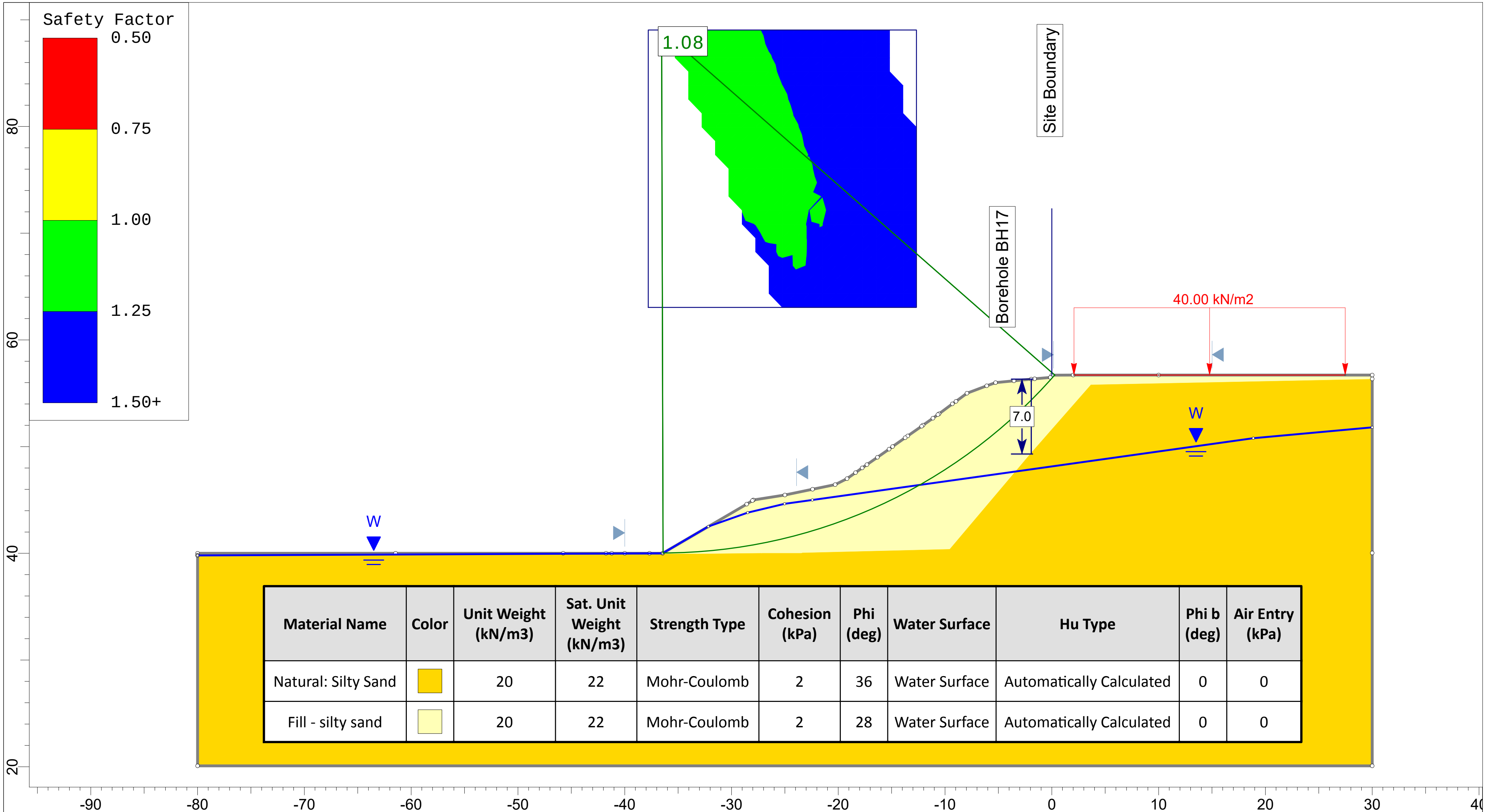


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
A TETRA TECH COMPANY

SLIDEINTERPRET 7.023

Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4↓ - Stability of south batter - estimated existing pond water level		
Drawn By MF	*Scale* 1:500	*Company*	Talbot Road Finanace Pty Ltd
Date	11/09/2017	*File Name*	SOUTH Figure C2.slim

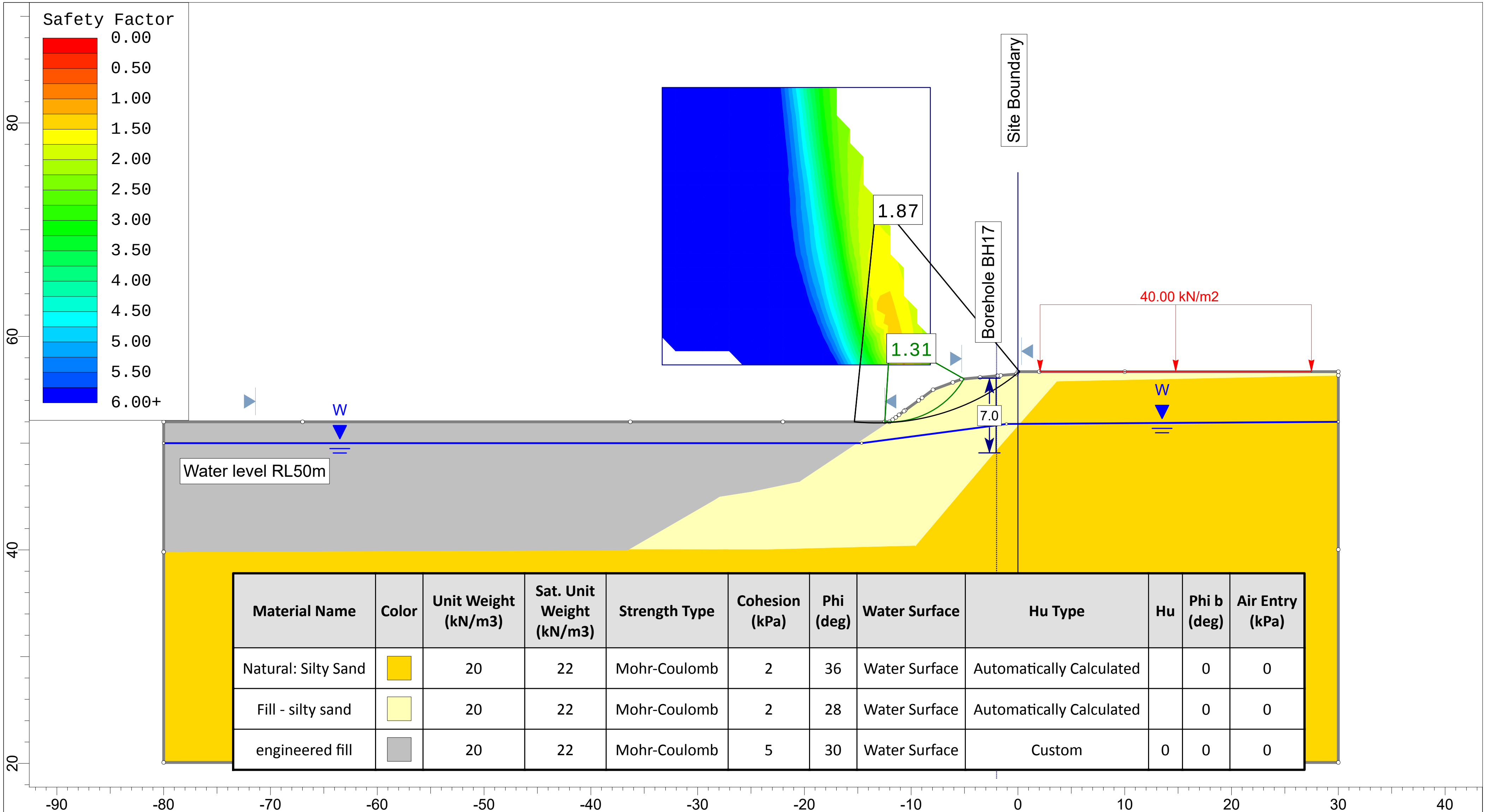


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
A TETRA TECH COMPANY

Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter after rapid draining of pond
Drawn By	HHK
Scale	1:500
Company	Talbot Road Finanace Pty Ltd
Date	11/09/2017
File Name	SOUTH Figure C3.slim

SLIDEINTERPRET 7.023



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated		0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated		0	0
engineered fill		20	22	Mohr-Coulomb	5	30	Water Surface	Custom	0	0	0

coffey
A TETRA TECH COMPANY

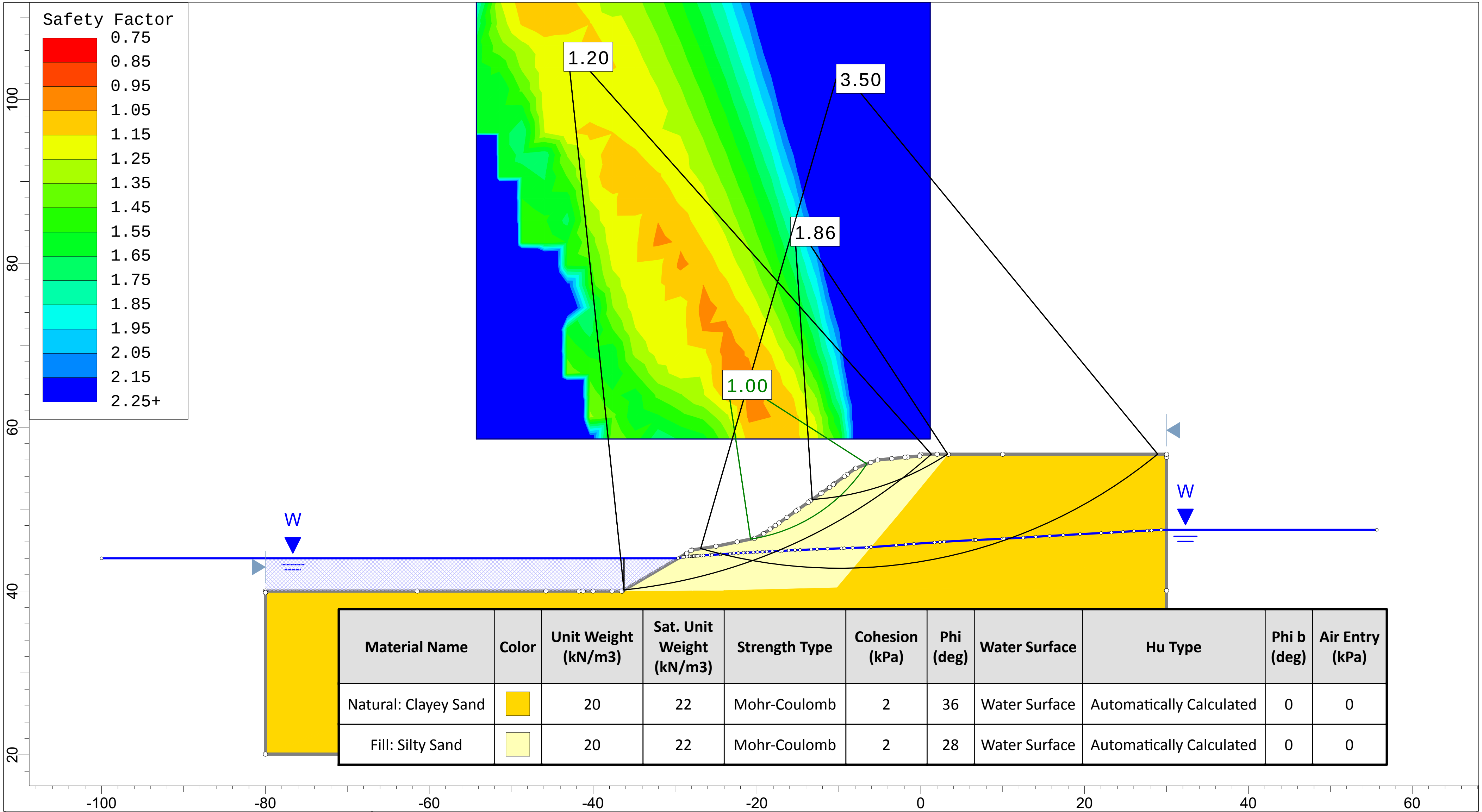
SLIDEINTERPRET 7.023

Project Huntingdale Estate, Oakleigh

Analysis Description Domain 4 - Stability of south batter with fill platform at 52 mRL

Drawn By MF *Scale* 1:500 *Company* Talbot Road Finanace Pty Ltd

Date 11/09/2017 *File Name* SOUTH Figure C4.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	Current water level - prior to construction of appartments
Drawn By	MF
Scale	1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C5.slim

coffey
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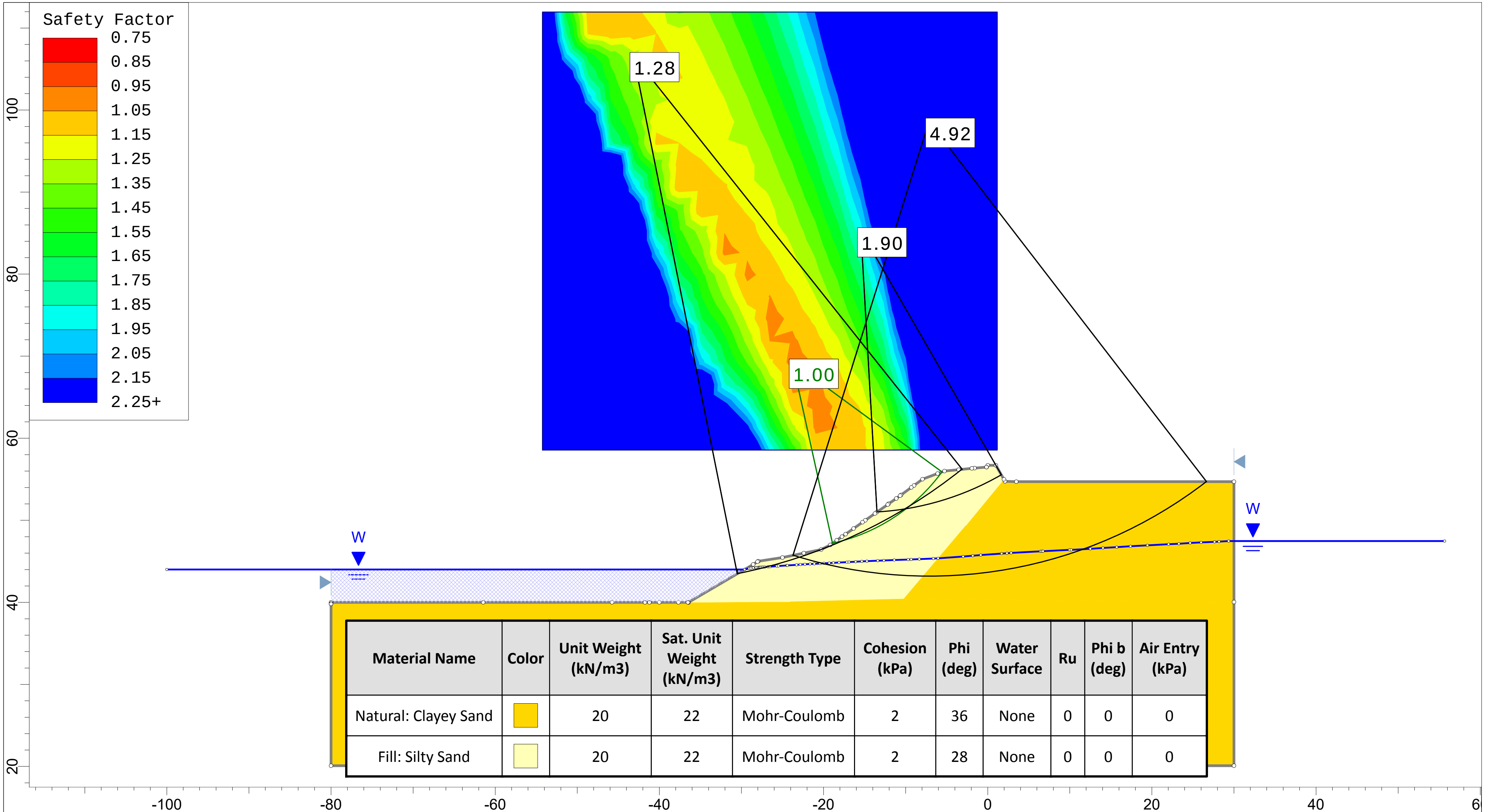
SLIDEINTERPRET 8.016

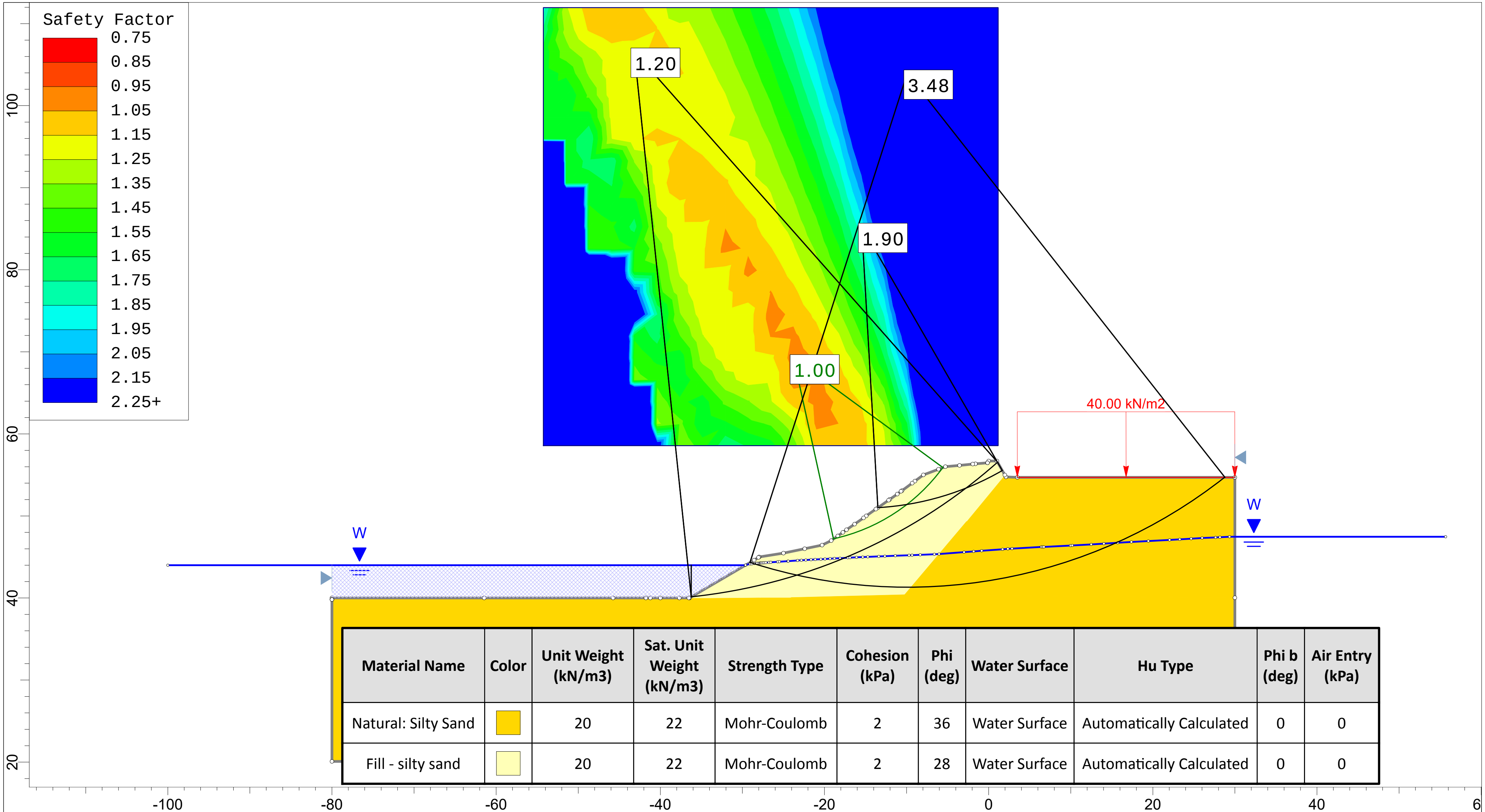


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	None	0	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	None	0	0	0

coffey
A TETRA TECH COMPANY

SLIDEINTERPRET 8.016

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	Current water level - after basement excavation
Drawn By	MF
Scale	1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C5a.slim

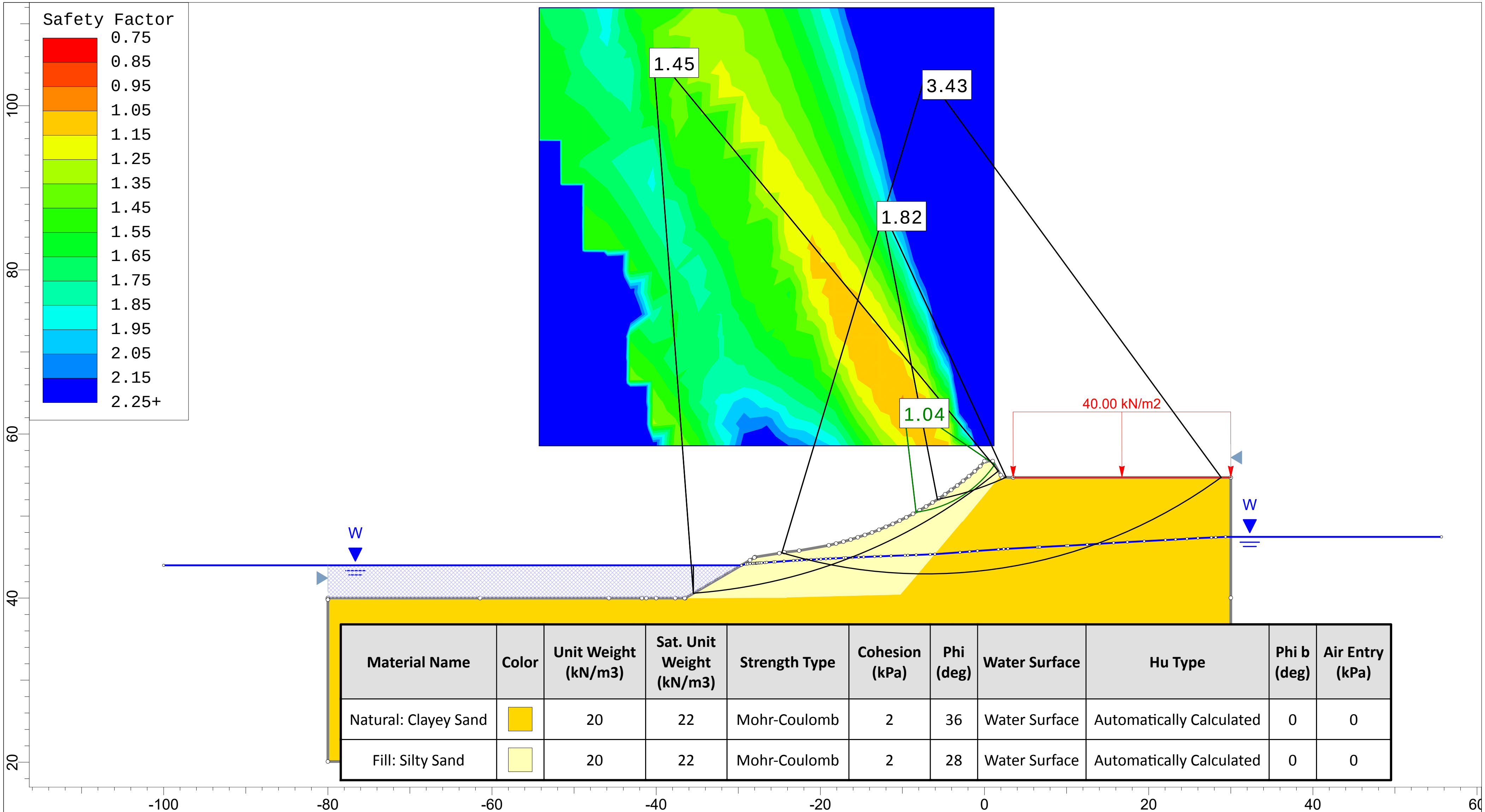


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

coffey
A TETRA TECH COMPANY

SLIDEINTERPRET 8.016

Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	After construction of apartments
Drawn By	MF
Scale	1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C6.slim

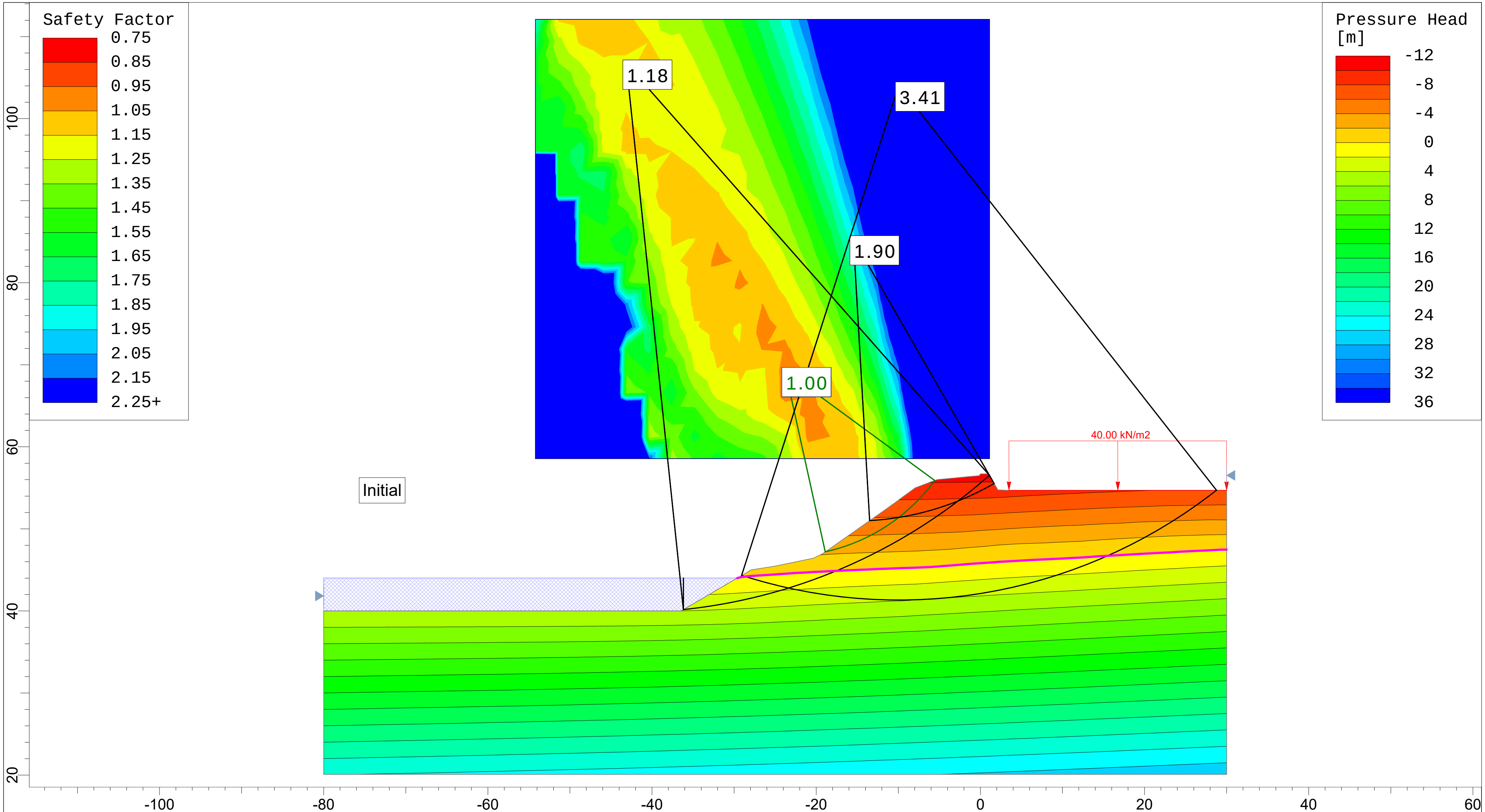


Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

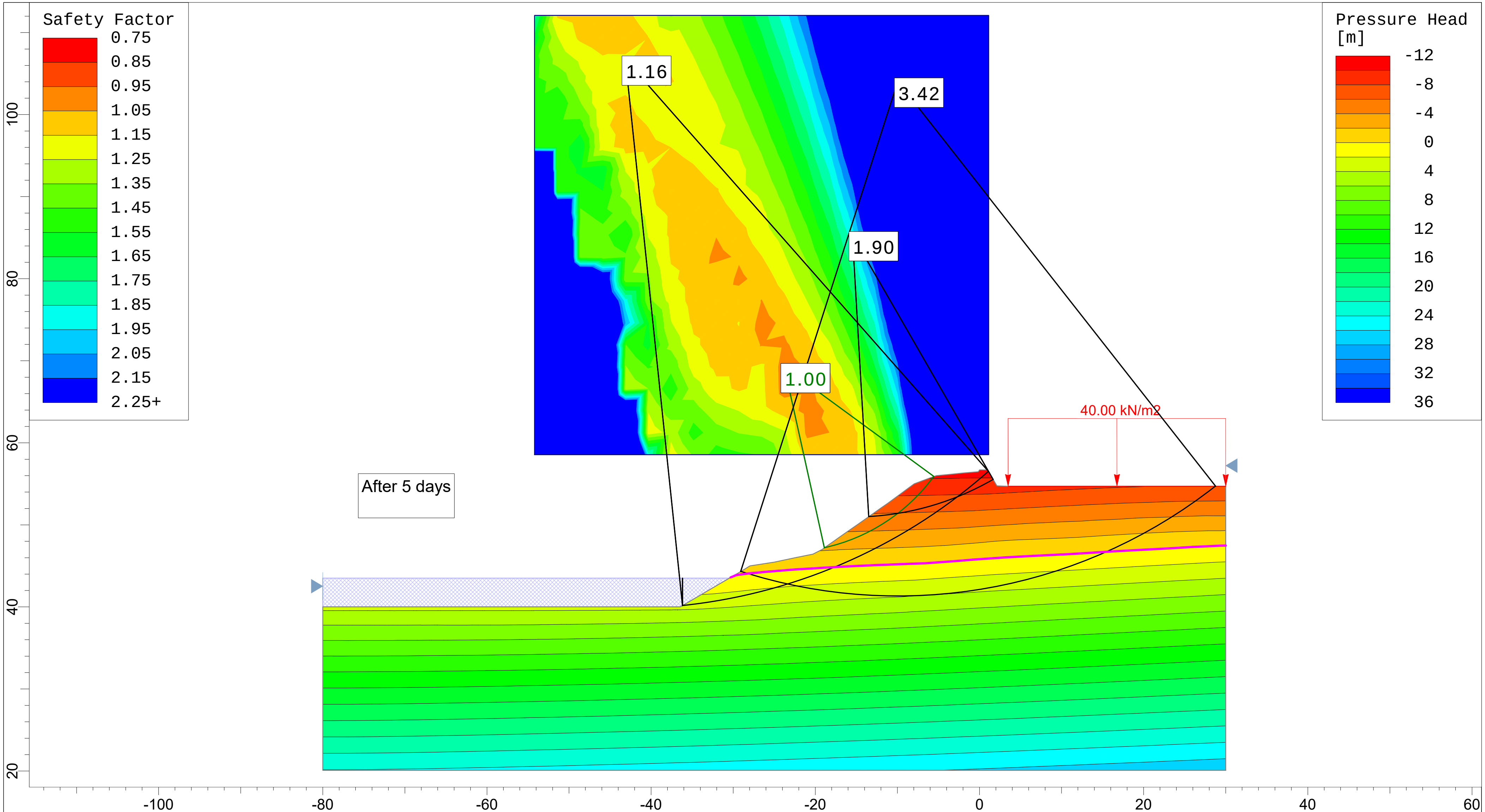
Project	Talbot Quarry Domain 4 south batter stability assessment
Analysis Description	Current water level -After construction of apartments - after min FoS failure surface material removed
Drawn By	MF
Scale	1:650
Job Number	754-GEOTABTF09257AA-BD
Date	26 February 2019
File Name	Figure C7.slim

coffey
A TETRA TECH COMPANY

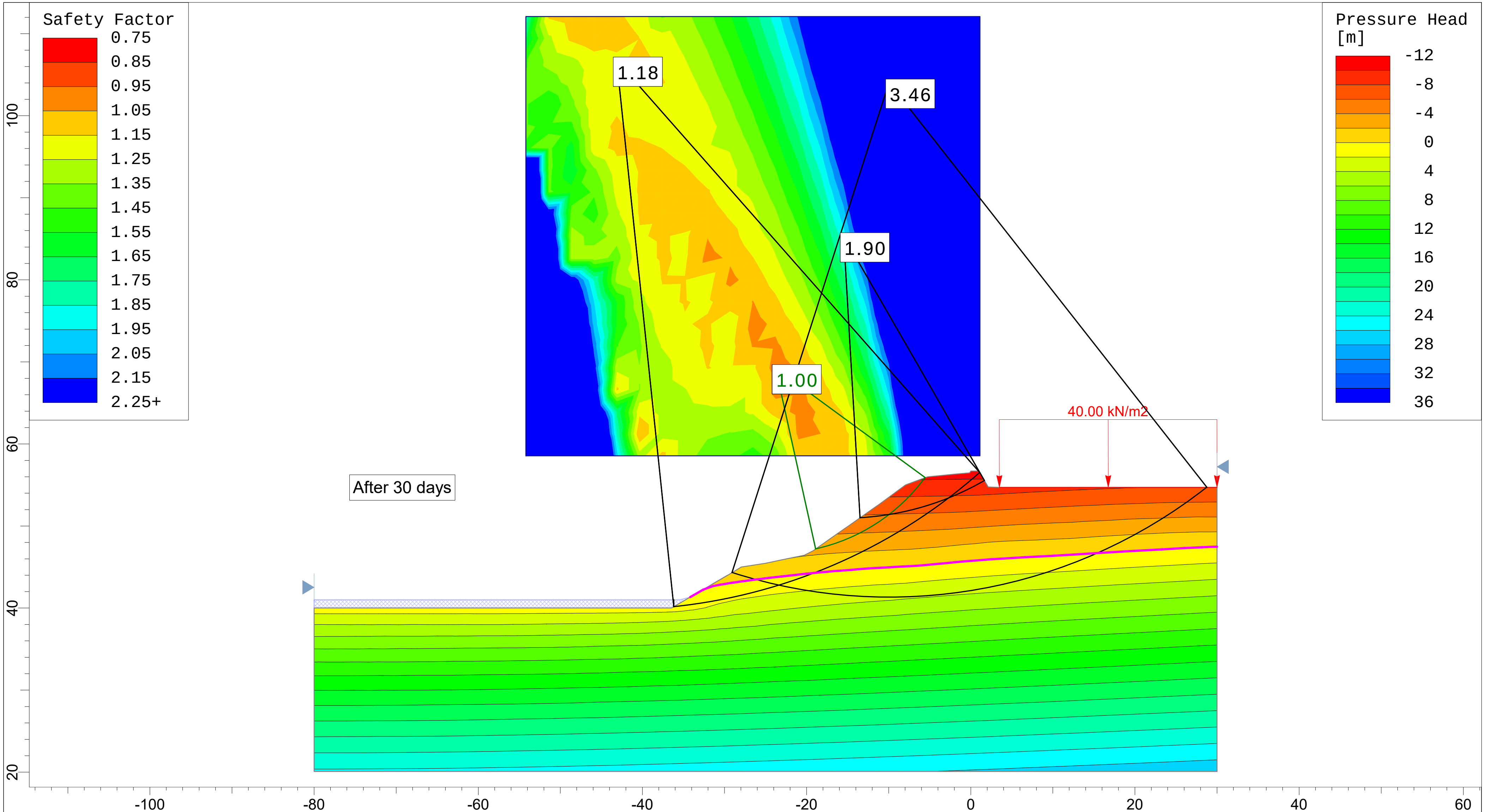
SLIDEINTERPRET 8.016



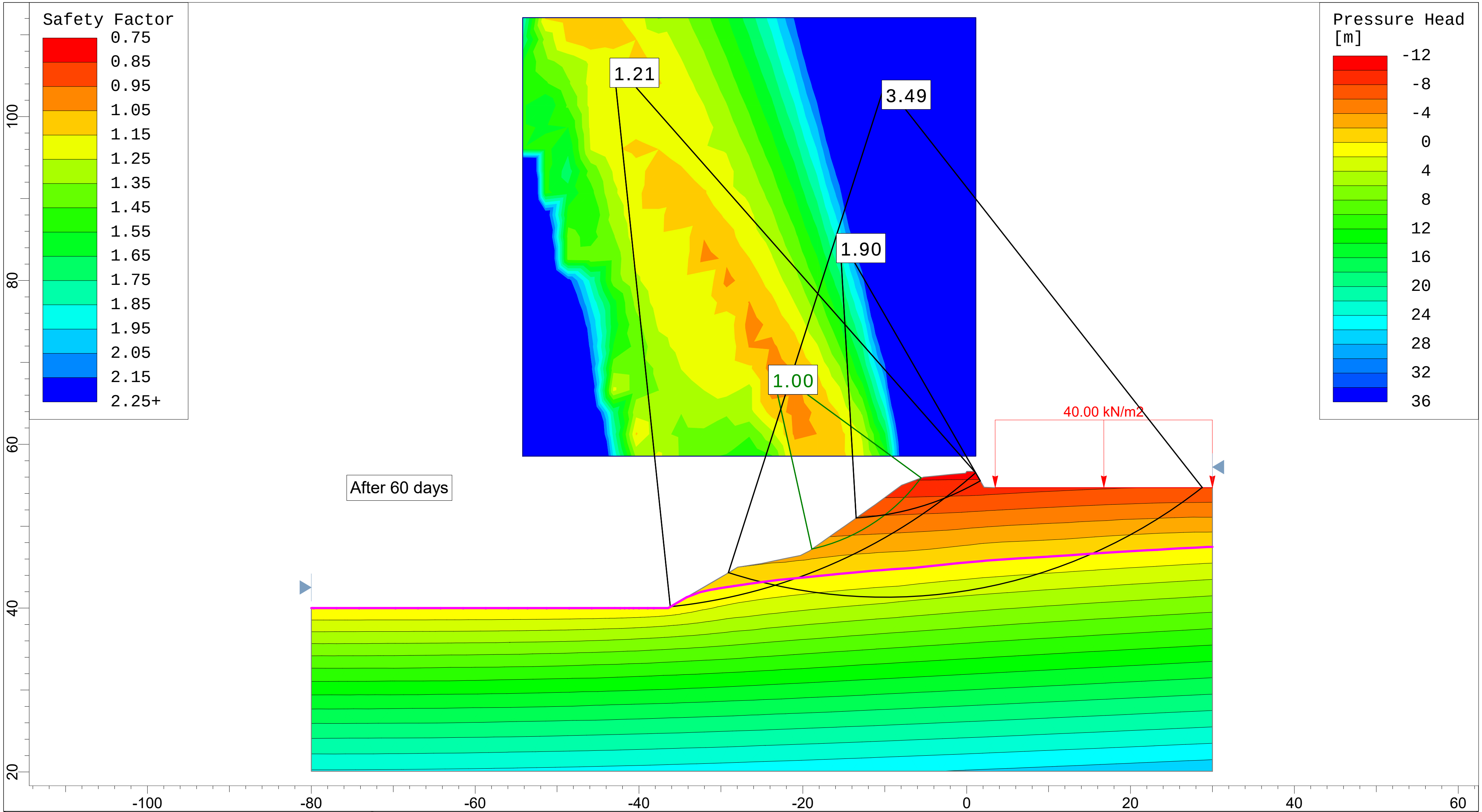
coffey A TETRA TECH COMPANY	*Project* Talbot Quarry Domain 4 south batter stability assessment		
	Analysis Description Transient groundwater 0.1m/day drawdown - Initial		
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8a



coffey A TETRA TECH COMPANY	*Project*	Talbot Quarry Domain 4 south batter stability assessment		
	Analysis Description	Transient groundwater 0.1m/day drawdown - After 5 days		
	Drawn By MF	*Scale* 1:650	*Document Reference*	754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date*	27 February 2019		Figure C8b



coffey A TETRA TECH COMPANY	*Project* Talbot Quarry Domain 4 south batter stability assessment			
	Analysis Description Transient groundwater 0.1m/day drawdown - After 30 days			
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD	
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8c	



coffey A TETRA TECH COMPANY	*Project* Talbot Quarry Domain 4 south batter stability assessment		
	Analysis Description Transient groundwater 0.1m/day drawdown - After 60 days		
	Drawn By MF	*Scale* 1:650	*Document Reference* 754-GEOTABTF09257AA-BD
SLIDEINTERPRET 8.016	*Date* 27 February 2019		Figure C8d

APPENDIX D: SLOPE STABILITY FOR NORTHERN BATTERS

Figure D1 – Domain 1 proposed preload extending to the crest of the Domain 4 north batter

Table D1 - Subsurface materials encountered in boreholes near the north wall of the Domain 4 pit

Borehole ID	Depth from and to (m) below surface level	Material Description
BH8	0 – 11.5	Fill: Silty SAND, loose to medium dense, fine to medium grained, black, moist, metal, large sandstone gravel, cloth material
BH30	0 – 11	Fill: Gravelly SAND; fine to medium grained, black, with plastic and concrete fragments, some metal and cobbles of siltstone
	11-12	Sandy Silty CLAY (Brighton Group); low to medium plasticity, mottled brown/grey/green/orange, wet
BH31	0 – 6	Fill: Gravelly SAND; fine to coarse grained sand, brown-orange, fine to coarse grained gravel, some cobbles, dry to moist, loose, with plastic/PVC/concrete fragments
	6 – 12	Clayey SAND; fine to medium grained, light brown with grey mottling, moist, medium dense
BH43	1 – 9	SAND; black, fine to coarse grained, trace fine to course gravel (Foundry sand waste)
	9 – 20.5	Clayey SAND, Sandy CLAY, CLAY, with plastic, glass, brick, and timber pieces (Refuse landfill)
	20.5 – 25.9	Silty SAND, fine to medium grained, dark grey (Brighton Group)
GB20	0 – 6.5	Clayey SAND and Sandy CLAY
GB21A	0 – 1.5	SAND; Black, medium grained, moist, soft, minor gravel fragments.
	1.5 – 6	FILL; Silty SAND fine grained sand, black, some foundry waste with sand castings, loose.
GB54B	0 – 6	Gravelly SAND; fine to medium grained, light brown to black, medium to coarse grained gravel, some cobbles, dry, medium dense.
	6 – 8.5	Sandy CLAY; medium plasticity, green/brown, dry to moist, firm.
GB56	0 – 5	Fill: Gravelly SAND; fine to medium grained, dark brown/black, some cobbles, with some plastic and metal pieces
	5 – 7	Silty SAND; fine to medium grained, black, dry to moist

Soil Description Explanation Sheet (1 of 2)

DEFINITION:
In engineering terms soil includes every type of uncemented or partially cemented inorganic or organic material found in the ground. In practice, if the material can be remoulded or disintegrated by hand in its field condition or in water it is described as a soil. Other materials are described using rock description terms.

CLASSIFICATION SYMBOL & SOIL NAME

Soils are described in accordance with the Unified Soil Classification (UCS) as shown in the table on Sheet 2.

PARTICLE SIZE DESCRIPTIVE TERMS

NAME	SUBDIVISION	SIZE
Boulders		>200 mm
Cobbles		63 mm to 200 mm
Gravel	coarse	20 mm to 63 mm
	medium	6 mm to 20 mm
	fine	2.36 mm to 6 mm
Sand	coarse	600 μm to 2.36 mm
	medium	200 μm to 600 μm
	fine	75 μm to 200 μm

MOISTURE CONDITION

Dry Looks and feels dry. Cohesive and cemented soils are hard, friable or powdery. Uncemented granular soils run freely through hands.

Moist Soil feels cool and darkened in colour. Cohesive soils can be moulded. Granular soils tend to cohere.

Wet As for moist but with free water forming on hands when handled.

CONSISTENCY OF COHESIVE SOILS

TERM	UNDRAINED STRENGTH s_u (kPa)	FIELD GUIDE
Very Soft	<12	A finger can be pushed well into the soil with little effort.
Soft	12 – 25	A finger can be pushed into the soil to about 25mm depth.
Firm	25 – 50	The soil can be indented about 5mm with the thumb, but not penetrated.
Stiff	50 – 100	The surface of the soil can be indented with the thumb, but not penetrated.
Very Stiff	100 – 200	The surface of the soil can be marked, but not indented with thumb pressure.
Hard	>200	The surface of the soil can be marked only with the thumbnail.
Friable	–	Crumbles or powders when scraped by thumbnail.

DENSITY OF GRANULAR SOILS

TERM	DENSITY INDEX (%)
Very loose	Less than 15
Loose	15 – 35
Medium Dense	35 – 65
Dense	65 – 85
Very Dense	Greater than 85

MINOR COMPONENTS

TERM	ASSESSMENT GUIDE	PROPORTION OF MINOR COMPONENT IN:
Trace of	Presence just detectable by feel or eye, but soil properties little or no different to general properties of primary component.	Coarse grained soils: <5% Fine grained soils: <15%
With some	Presence easily detected by feel or eye, soil properties little different to general properties of primary component.	Coarse grained soils: 5 - 12% Fine grained soils: 15 - 30%

SOIL STRUCTURE

ZONING		CEMENTING	
Layers	Continuous across exposure or sample.	Weakly cemented	Easily broken up by hand in air or water.
Lenses	Discontinuous shape.	Moderately cemented	Effort is required to break up the soil by hand in air or water.
Pockets	Irregular inclusions of different material.		

GEOLOGICAL ORIGIN WEATHERED IN PLACE SOILS

Extremely weathered material	Structure and fabric of parent rock visible.
Residual soil	Structure and fabric of parent rock not visible.

TRANSPORTED SOILS

Aeolian soil	Deposited by wind.
Alluvial soil	Deposited by streams and rivers.
Colluvial soil	Deposited on slopes (transported downslope by gravity).
Fill	Man-made deposit. Fill may be significantly more variable between tested locations than naturally occurring soils.
Lacustrine soil	Deposited by lakes.
Marine soil	Deposited in ocean basins, bays, beaches and estuaries.

Soil Description Explanation Sheet (2 of 2)

SOIL CLASSIFICATION INCLUDING IDENTIFICATION AND DESCRIPTION

FIELD IDENTIFICATION PROCEDURES USC (Excluding particles larger than 60 mm and basing fractions on estimated mass)					USC	PRIMARY NAME
COARSE GRAIINED SOILS More than 50% of materials less than 63 mm is larger than 0.075 mm	(A 0.075 mm particle is about the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than 2.36 mm	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes	GW	GRAVEL
				Predominantly one size or a range of sizes with more intermediate sizes missing.	GP	GRAVEL
			GRAVELS WITH FINES Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below)	GM	SILTY GRAVEL
				Plastic fines (for identification procedures see CL below)	GC	CLAYEY GRAVEL
		SANDS More than half of coarse fraction is smaller than 2.36 mm	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate sizes	SW	SAND
				Predominantly one size or a range of sizes with some intermediate sizes missing.	SP	SAND
			SANDS WITH FINES (Appreciabl e amount of fines)	Non-plastic fines (for identification procedures see ML below).	SM	SILTY SAND
				Plastic fines (for identification procedures see CL below).	SC	CLAYEY SAND

FINE GRAINED SOILS More than 50% of material less than 63 mm is smaller than 0.075 mm		IDENTIFICATION PROCEDURES ON FRACTIONS <0.2 mm			USC	PRIMARY NAME
		DRY STRENGTH	**DILATANCY**	**TOUGHNESS**		
	SILTS & CLAYS Liquid limit less than 50	None to Low	Quick to slow	None	ML	SILT
		Medium to High	None	Medium	CL	CLAY
		Low to medium	Slow to very slow	Low	CL	ORGANIC SILT
	SILTS & CLAYS Liquid limit greater than 50	Low to medium	Slow to very slow	Low to medium	MH	SILT
		High	None	High	CH	CLAY
		Medium to High	None	Low to medium	OH	ORGANIC CLAY
HIGHLY ORGANIC SOILS		Readily identified by colour, odour, spongy feel and frequently by fibrous texture.			PT	PEAT

- Low plasticity – Liquid Limit w_L less than 35%. ● Medium plasticity – w_L between 35% and 50%. ● High plasticity – w_L greater than 50%.

COMMON DEFECTS IN SOIL

TERM	DEFINITION	DIAGRAM	TERM	DEFINITION	DIAGRAM
PARTING	A surface or crack across which the soil has little or no tensile strength. Parallel or sub parallel to layering (eg bedding). May be open or closed.		SOFTENED ZONE	A zone in clayey soil, usually adjacent to a defect in which the soil has a higher moisture content than elsewhere.	
JOINT	A surface or crack across which the soil has little or no tensile strength but which is not parallel or sub parallel to layering. May be open or closed. The term 'fissure' may be used for irregular joints <0.2 m in length		TUBE	Tubular cavity. May occur singly or as one of a large number of separate or inter-connected tubes. Walls often coated with clay or strengthened by denser packing of grains. May contain organic matter.	
SHEARED ZONE	Zone in clayey soil with roughly parallel near planar, curved or undulating boundaries containing closely spaced, smooth or slickensided, curved intersecting joints which divide the mass into lenticular or wedge shaped blocks.		TUBE CAST	Roughly cylindrical elongated body of soil different from the soil mass in which it occurs. In some cases the soil which makes up the tube cast is cemented.	
SHEARED SURFACE	A near planar curved or undulating, smooth, polished or slickensided surface in clayey soil. The polished or slickensided surface indicates that movement (in many cases very little) has occurred along the defect.		INFILLED SEAM	Sheet or wall like body of soil substance or mass with roughly planar to irregular near parallel boundaries which cuts through a soil mass. Formed by infilling of open joints.	

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Engineering Log - Borehole

Borehole ID.	**BH43**
sheet:	1 of 4
project no.	**754-GEOTABTF09257AA**
client:	**Huntingdale Estate Nominees**
principal:	
project:	**Talbot Quarry Regen - Zone 4 Northwall Assessment**
location:	**Huntingdale Road, Oakleigh South**
date started:	**21 Jan 2019**
date completed:	**22 Jan 2019**
logged by:	**EY**
checked by:	**MF**

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
SD / C		Not Observable					GC	**FILL: CLAYEY GRAVEL**: fine to coarse grained, angular to sub-angular, brown, with fine to coarse grained sand. becoming grey, low plasticity clay	M - D	VD		**FILL**
							SC	**FILL: CLAYEY SAND**: fine to coarse grained, orange-brown, low to medium plasticity clay, trace fine to coarse grained gravel.	M			
			SPT 3, 20, 14 N*=34		1.0		SP	**FILL: SAND**: fine to coarse grained, dark grey, black, trace fine to coarse grained gravel.				
			SPT 5, 5, 4 N*=9		2.0			becoming dark grey-black		MD		
					3.0							
					4.0							
			SPT 3, 4, 4 N*=8		5.0							
			SPT 6, 9, 4 N*=13		6.0							
			SPT 3, 6, 8 N*=14		7.0							

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

Engineering Log - Borehole

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project no. **754-GEOTABTF09257AA**

client: **Huntingdale Estate Nominees**
principal:
project: **Talbot Quarry Regen - Zone 4 Northwall Assessment**
location: **Huntingdale Road, Oakleigh South**

date started: **21 Jan 2019**
date completed: **22 Jan 2019**
logged by: **EY**
checked by: **MF**

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°
drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance**

Method & support: SD, C. Water: Not Observable.

samples & field tests	depth (m)	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	structure and additional observations
		SP	**FILL: SAND**: fine to coarse grained, dark grey, black, trace fine to coarse grained gravel. *(continued)*	M	MD	**FILL**
SPT 2, 3, 5 N*=8	9.0					
		CH	**FILL: CLAY**: high plasticity, grey, orange, red, with fine to coarse grained sand, trace plastic pieces up to 30 mm.		St	
		SC	**FILL: CLAYEY SAND**: fine to coarse grained, dark grey, brown, high plasticity clay.		MD	
	10.0	SP	**FILL: SAND**: fine to coarse grained, dark grey, with plastic sheets and pieces up to 50 mm.		L	
SPT 3, 2, 4 N*=6						
	11.0	CI	**FILL: CLAY**: medium plasticity, grey-orange.		St	HP 180 - 200 kPa
		SP	**FILL: SAND**: fine to coarse grained, dark grey, with plastic sheets and pieces up to 50 mm.		L - MD	
			FILL: CLAYEY SAND: fine to coarse grained, grey-orange, high plasticity clay, trace fine to coarse grained gravel, with timber and plastic pieces up to 50 mm.			
SPT 4, 4, 5 N*=9	12.0	SP	**FILL: SAND**: fine to coarse grained, dark grey, with plastic sheets and pieces up to 50 mm.			
			with plastic, glass, brick and timber pieces			
	13.0	CH	**FILL: Sandy CLAY**: high plasticity, brown, grey, orange, with brick and glass fragments.		St - VSt	HP 180 - 250 kPa
SPT 10/50mm HB N*=R			with medium to coarse grained gravel			
		SP	**FILL: SAND**: fine to coarse grained, grey-orange, with plastic sheets and pieces up to 50 mm.		MD	
	14.0	CH	**FILL: Sandy CLAY**: high plasticity, brown, grey, orange, with brick and glass fragments.		St	
SPT 9, 12, 14 N*=26	15.0	SC	**FILL: CLAYEY SAND**: fine to coarse grained, black, grey, green, brown, low plasticity clay, with metal, glass and plastic pieces up to 30 mm. becoming grey, trace rootlets up to 10 mm		MD	

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling
* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Borehole

Borehole ID.	**BH43**
sheet:	3 of 4
project no.	**754-GEOTABTF09257AA**
date started:	**21 Jan 2019**
date completed:	**22 Jan 2019**
logged by:	**EY**
checked by:	**MF**

client: **Huntingdale Estate Nominees**

principal:

project: **Talbot Quarry Regen - Zone 4 Northwall Assessment**

location: **Huntingdale Road, Oakleigh South**

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°

drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

drilling information | **material substance**

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
SD / C		Not Observable					SC	**FILL: CLAYEY SAND**: fine to coarse grained, black, grey, green, brown, low plasticity clay, with metal, glass and plastic pieces up to 30 mm. *(continued)*	M	MD		**FILL**
			SPT 4, 8, 4 N*=12									
					17.0			wood and timber pieces (16.9-18.1 m)				
			SPT 3, 4, 3 N*=7		18.0		CI	**FILL: CLAY**: medium plasticity, brown, grey, trace brick fragments <5 mm.		F - St		
					19.0			becoming wood in a clay matrix (40%)				
							SP	**FILL: SAND**: fine to coarse grained, pale grey.		L		
					20.0							
							SM	**SILTY SAND**: fine to medium grained, dark grey, low plasticity silt.	W			**BLACK ROCK FORMATION**
			SPT 1, 1, 1 N*=2		21.0							
					22.0			becoming dark grey, dark green		MD		
			SPT 4, 5, 5 N*=10									
					23.0							
								becoming grey, mottled pale grey, nodules of weakly cemented sand present <5 mm		L		

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 no resistance ranging to refusal

water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense

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Engineering Log - Borehole

Borehole ID.	**BH43**
sheet:	4 of 4
project no.	**754-GEOTABTF09257AA**

client:	***Huntingdale Estate Nominees***	date started:	***21 Jan 2019***
principal:		date completed:	***22 Jan 2019***
project:	***Talbot Quarry Regen - Zone 4 Northwall Assessment***	logged by:	***EY***
location:	***Huntingdale Road, Oakleigh South***	checked by:	***MF***

position: E: 333209; N: 5801027 (WGS84) | surface elevation: Not Specified | angle from horizontal: 90°
drill model: Boartlongyear LS250, Track mounted | drilling fluid: | hole diameter : 100 mm

method & support	penetration 1 2 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description (SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components)	moisture condition	consistency / relative density	hand penetrometer (kPa) 100 200 300 400	structure and additional observations
SD C		Not Observable	SPT 2, 3, 3 N*=6				SM	**SILTY SAND**: fine to medium grained, dark grey, low plasticity silt. *(continued)*	W	L		**BLACK ROCK FORMATION**
								becoming grey, mottled pale grey, mottled green				
					25.0		SP	**SAND**: fine to medium grained, grey.		MD		
			SPT 2, 6, 13 N*=19									
					26.0			Borehole BH43 terminated at 25.95 m Target depth				
					27.0							
					28.0							
					29.0							
					30.0							
					31.0							

method
AD auger drilling*
AS auger screwing*
HA hand auger
W washbore
SD sonic drilling

* bit shown by suffix
e.g. AD/T
B blank bit
T TC bit
V V bit

support
M mud N nil
C casing

penetration
1 2 3 no resistance ranging to refusal

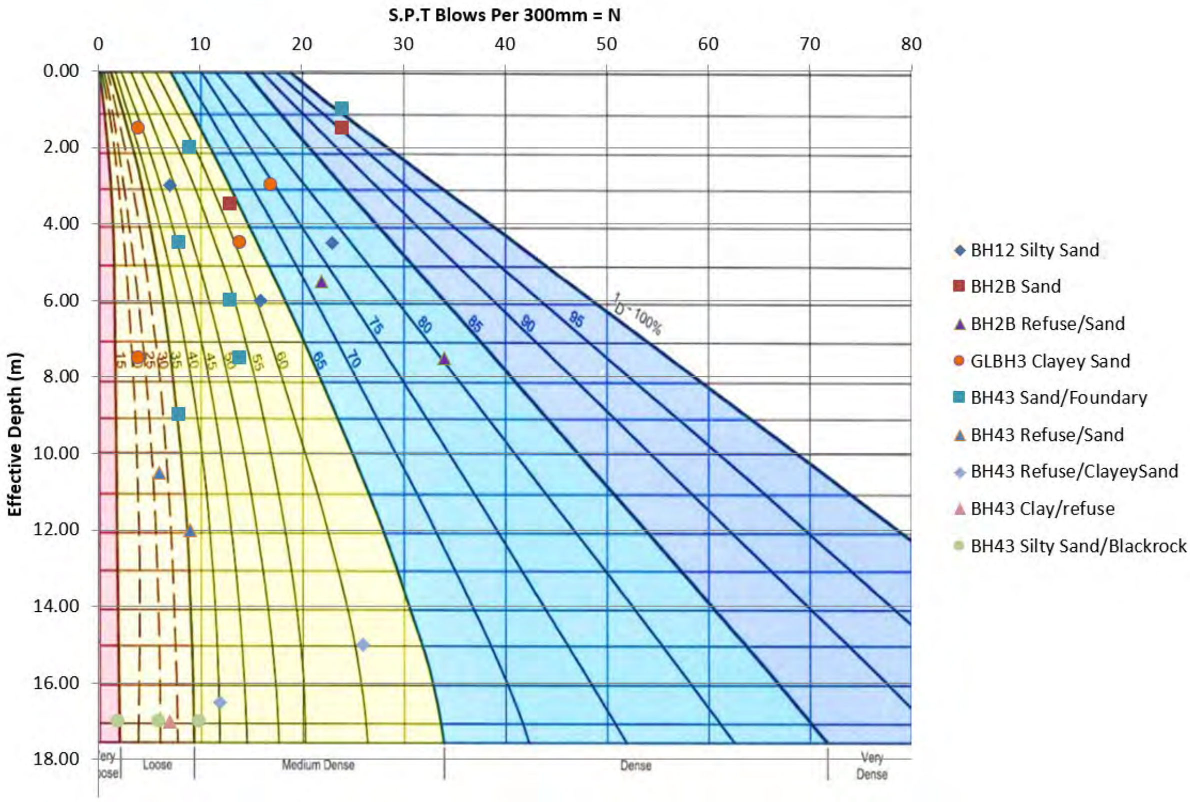
water
10-Oct-12 water level on date shown
water inflow
water outflow

samples & field tests
B bulk disturbed sample
D disturbed sample
E environmental sample
SS split spoon sample
U## undisturbed sample ##mm diameter
HP hand penetrometer (kPa)
N standard penetration test (SPT)
N* SPT - sample recovered
Nc SPT with solid cone
VS vane shear; peak/remouded (kPa)
R refusal
HB hammer bouncing

classification symbol & soil description
based on Unified Classification System

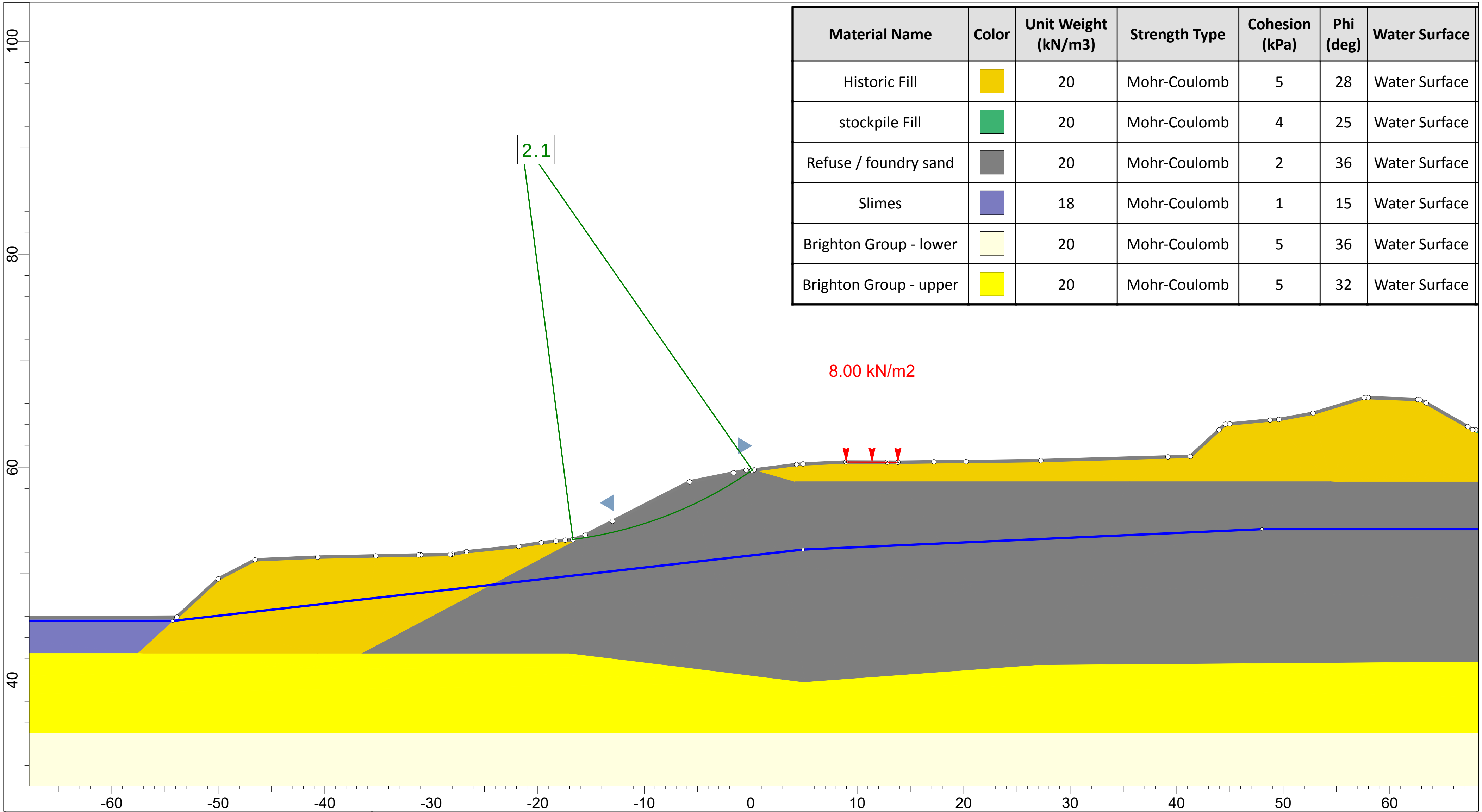
moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency / relative density
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable
VL very loose
L loose
MD medium dense
D dense
VD very dense



drawn	FK	coffey	client:	TALBOT ROAD FINANCE PTY LTD
approved			project:	DOMAIN 4 BACKFILL DESIGN
date	16 / 9 / 21			HUNTINGDALE ESTATE, OAKLEIGH SOUTH
scale	1:1500		title:	SPT N values from boreholes at northern batters
original size	A3		project no: GEOTABTF09257AA-EG	figure no: D2

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface
stockpile Fill		20	Mohr-Coulomb	4	25	Water Surface
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface
Slimes		18	Mohr-Coulomb	1	15	Water Surface
Brighton Group - lower		20	Mohr-Coulomb	5	36	Water Surface
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface



Project	Talbot Quarry Regen - Domain 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - current geometry
Drawn By	M. Farrington
Scale	1:500
Job Number	GEOTABTF09257AA-CX
Date	26 March 2019
File Name	Figure D3

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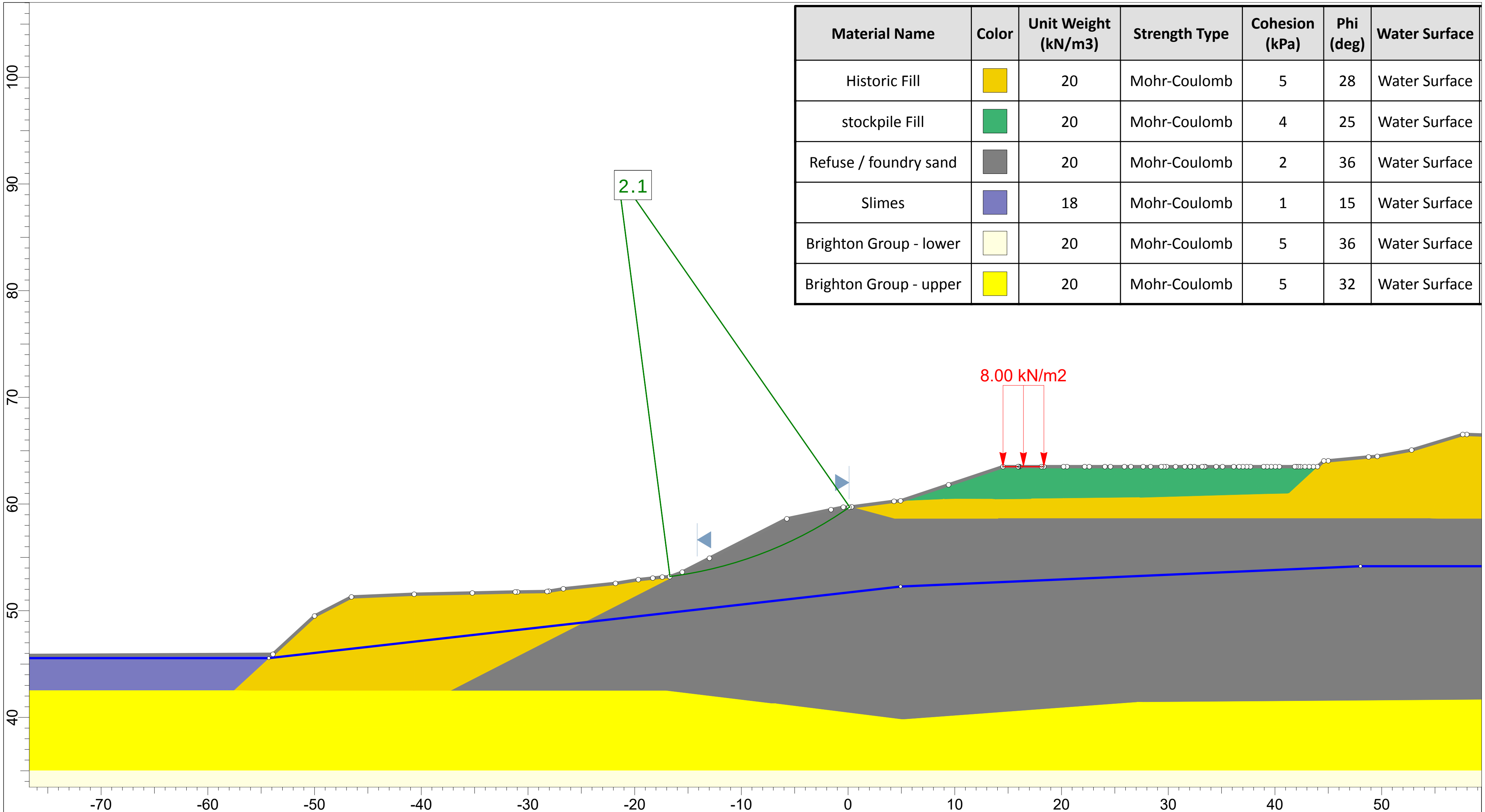

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface
stockpile Fill		20	Mohr-Coulomb	4	25	Water Surface
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface
Slimes		18	Mohr-Coulomb	1	15	Water Surface
Brighton Group - lower		20	Mohr-Coulomb	5	36	Water Surface
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface

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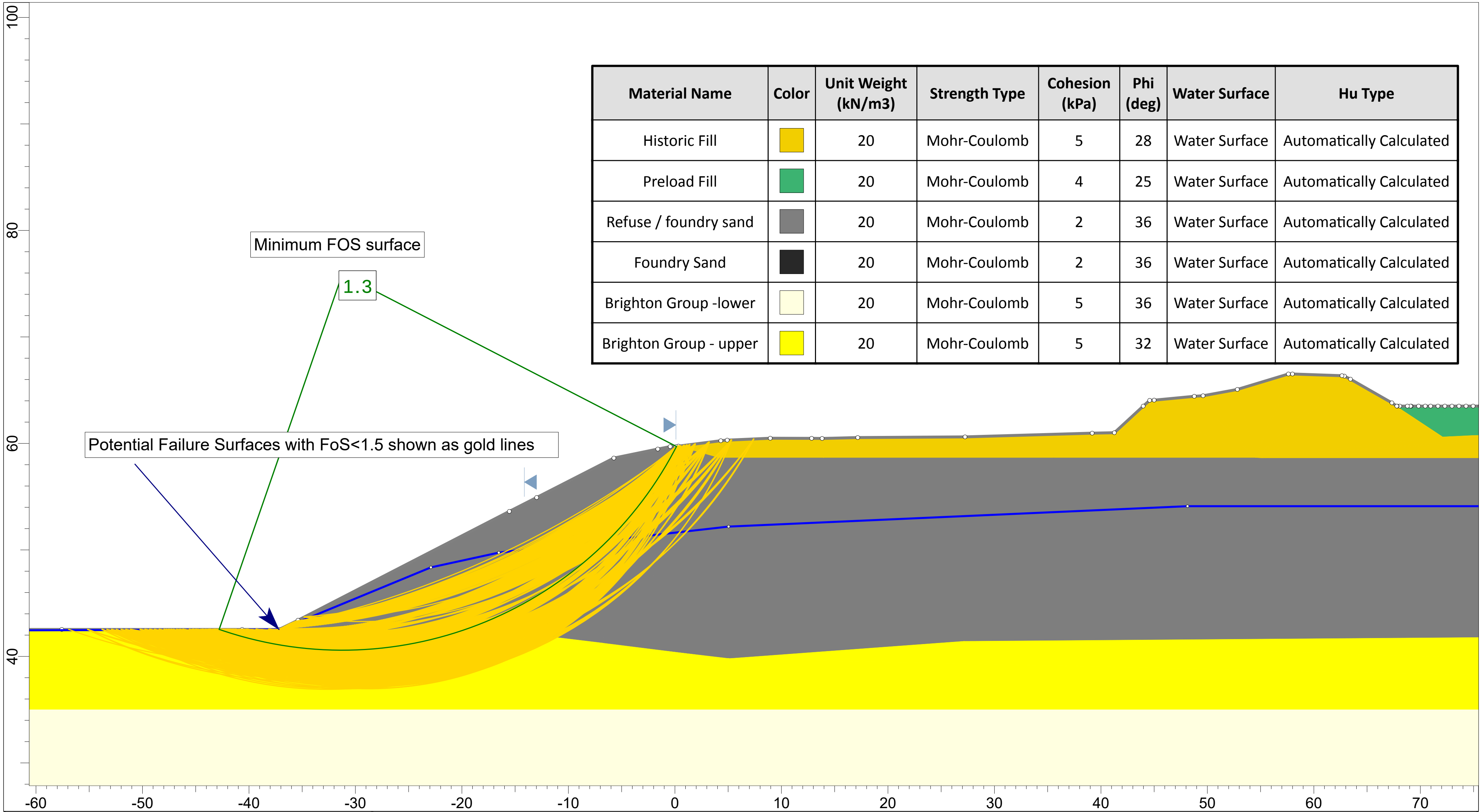
Project	Talbot Quarry Regen - Domain 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - with stockpile
Drawn By	M. Farrington
Scale	1:500
Job Number	GEOTABTF09257AA-CX
Date	26 March 2019
File Name	Figure D4



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface	Automatically Calculated
Preload Fill		20	Mohr-Coulomb	4	25	Water Surface	Automatically Calculated
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated
Foundry Sand		20	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated
Brighton Group -lower		20	Mohr-Coulomb	5	36	Water Surface	Automatically Calculated
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface	Automatically Calculated

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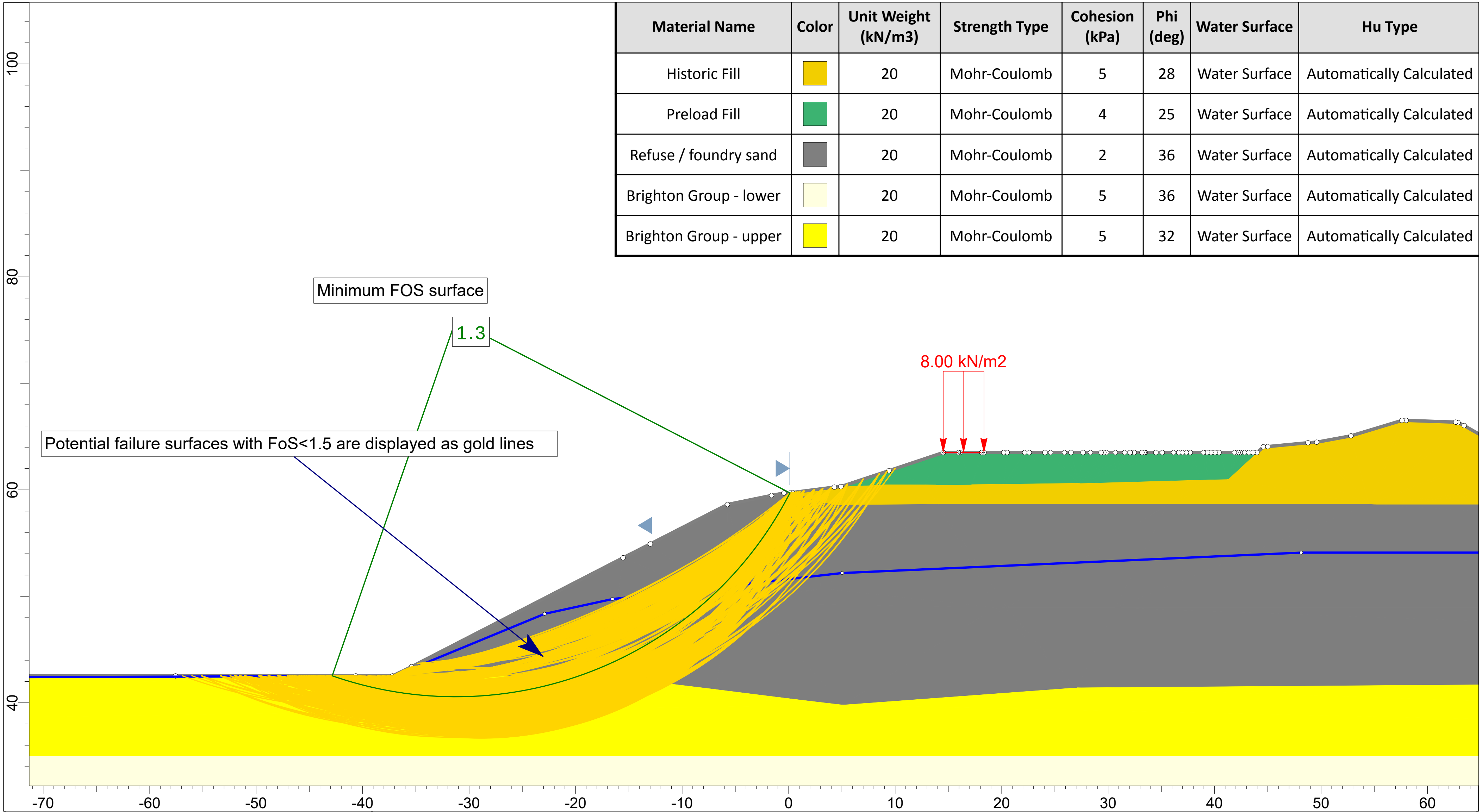
Project Talbot Quarry Regen - Domain 1 Stockpile

Analysis Description Domain 4 -North wall stability assessment - after slimes excavated

Drawn By M. Farrington | *Scale* 1:500 | *Job Number* GETOABTF09257AA-CX

Date 26 March 2019 | *File Name* Figure D5

SLIDEINTERPRET 8.016



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type
Historic Fill		20	Mohr-Coulomb	5	28	Water Surface	Automatically Calculated
Preload Fill		20	Mohr-Coulomb	4	25	Water Surface	Automatically Calculated
Refuse / foundry sand		20	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated
Brighton Group - lower		20	Mohr-Coulomb	5	36	Water Surface	Automatically Calculated
Brighton Group - upper		20	Mohr-Coulomb	5	32	Water Surface	Automatically Calculated

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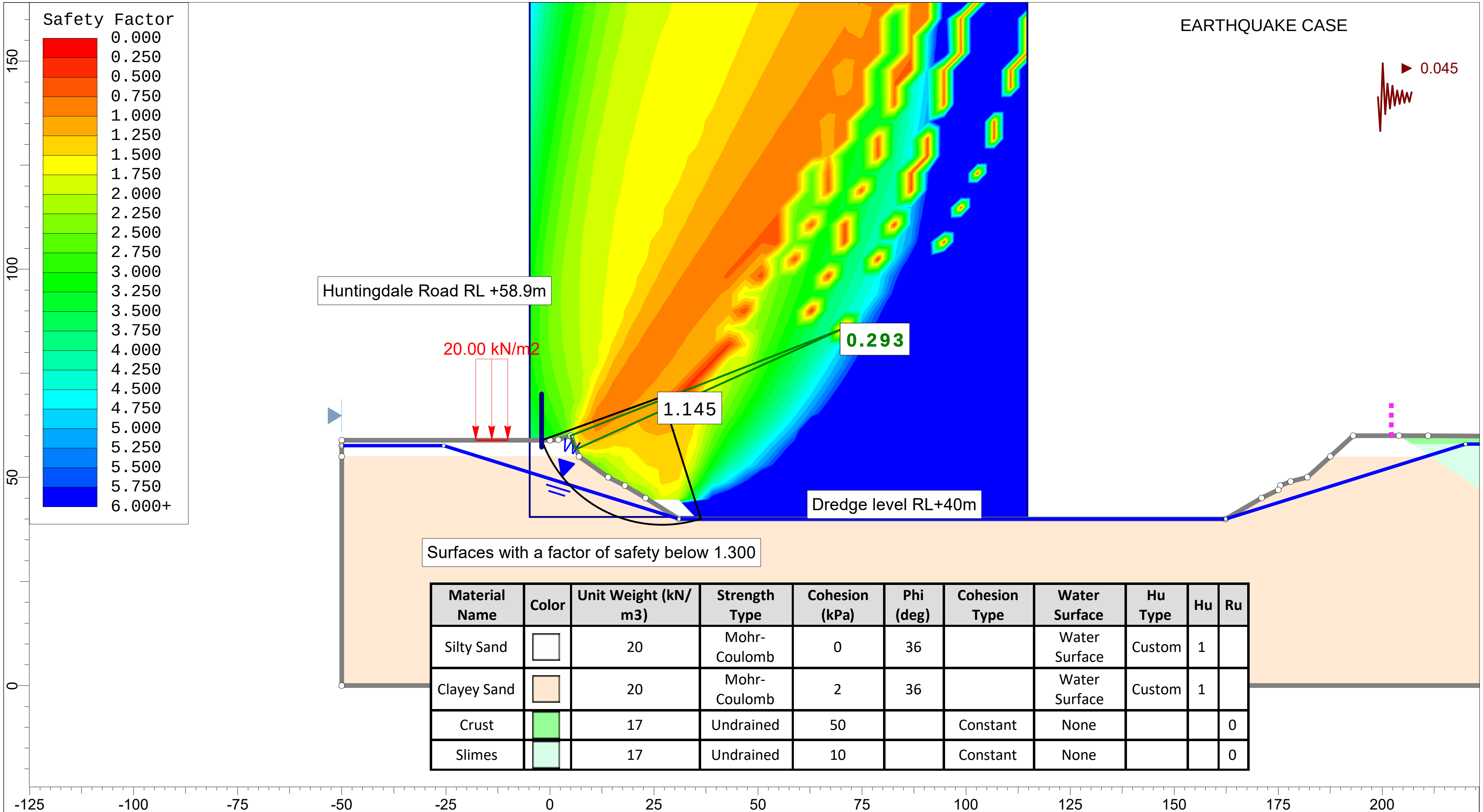
Project	Talbot Quarry Regen - Domain 1 Stockpile		
Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated		
Drawn By	M. Farrington	*Scale* 1:500	*Job Number* GEOTABTF09257AA-CX
Date	26 March 2019	*File Name*	Figure D6

APPENDIX E: CURRENT SLOPE STABILITY FOR WESTERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface	Hu Type	Hu	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Custom	1	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Custom	1	
Crust		17	Undrained	50		Constant	None			0
Slimes		17	Undrained	10		Constant	None			0

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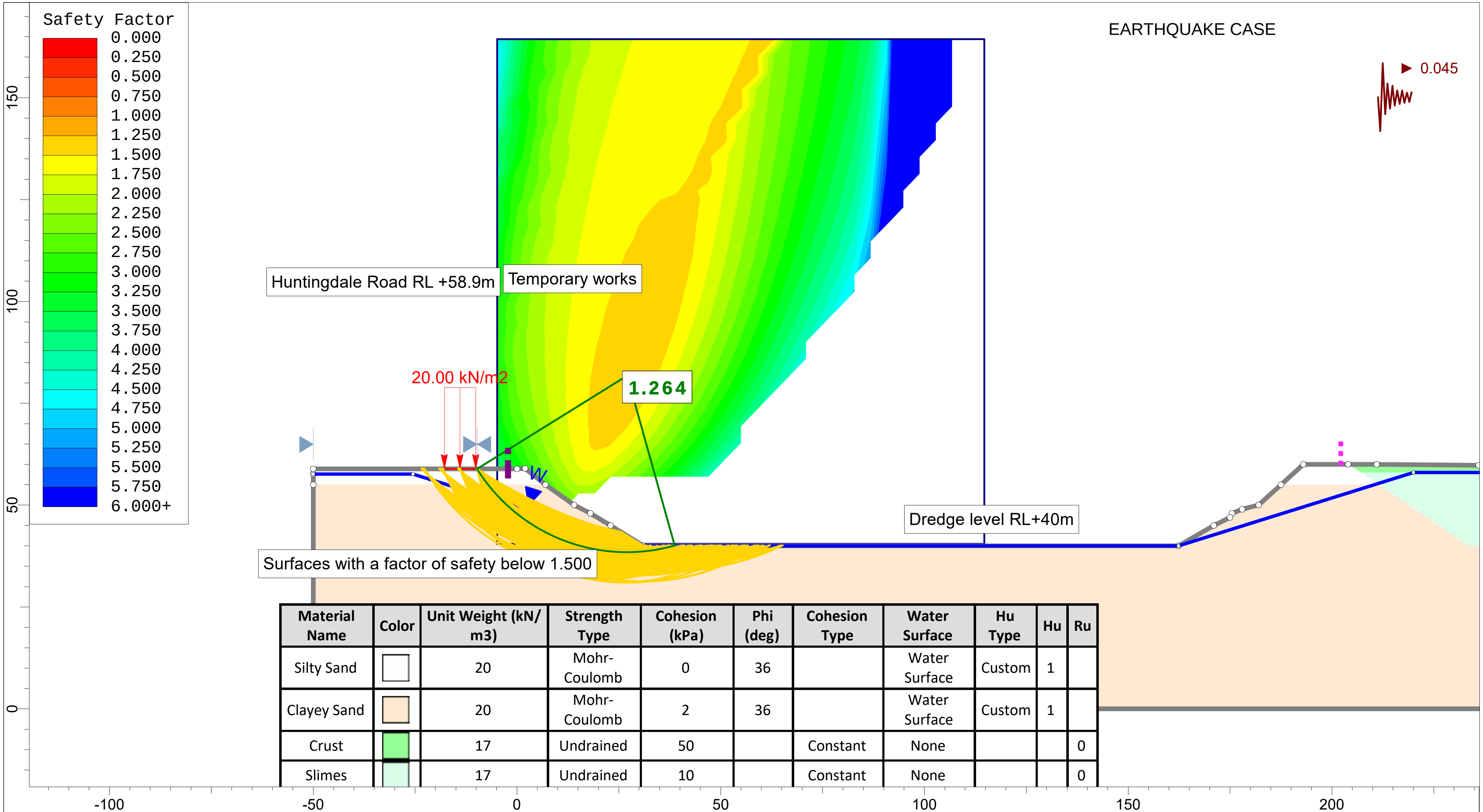
SLIDEINTERPRET 9.016

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis - Global
Drawn By	CB/hhk
Scale	1:1281
Company	Talbot Road Finance Pty Ltd
Date	SEPT 2021
File Name	WEST Figure E1.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface	Hu Type	Hu	Ru
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface	Custom	1	
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface	Custom	1	
Crust		17	Undrained	50		Constant	None			0
Slimes		17	Undrained	10		Constant	None			0

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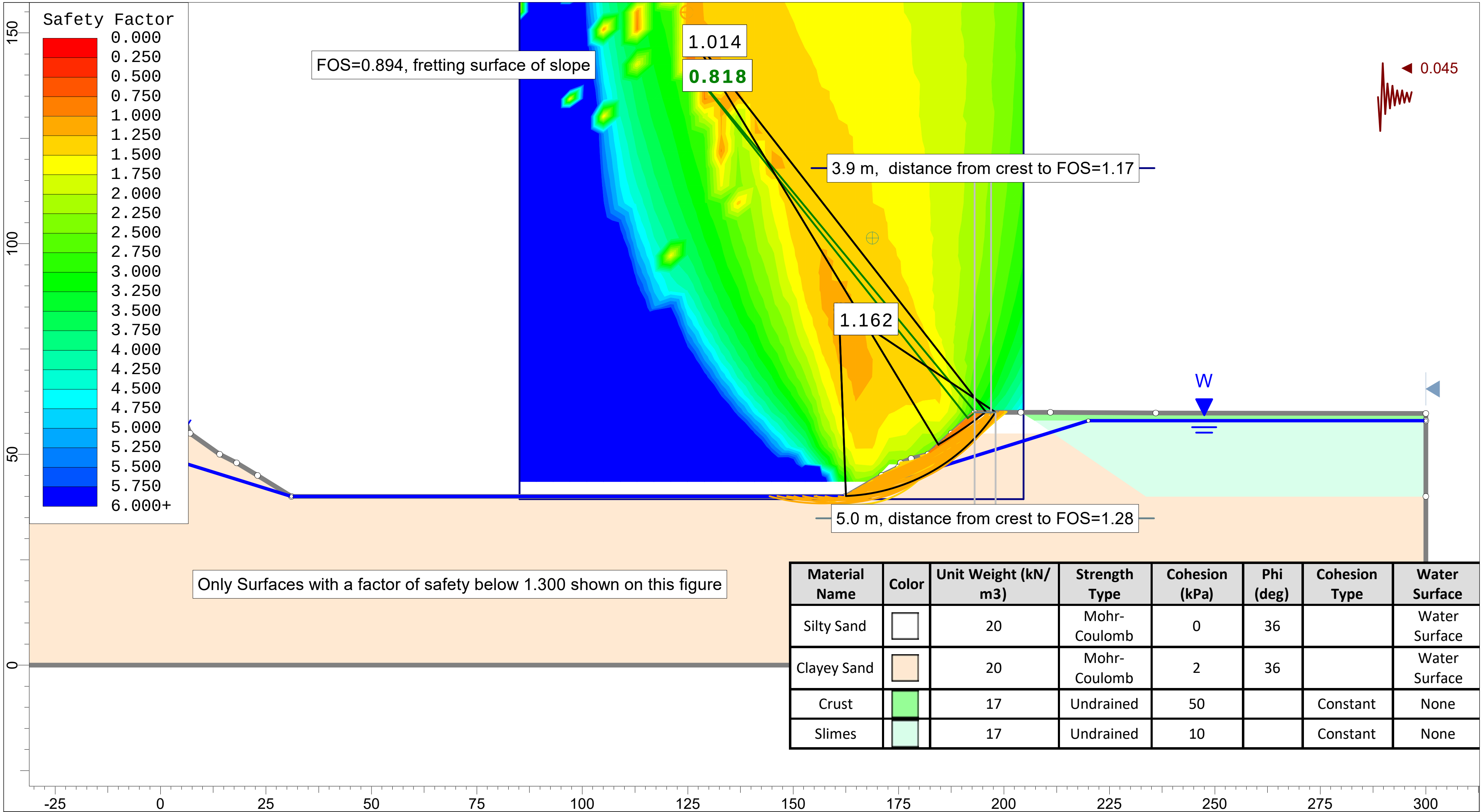
SLIDEINTERPRET 9.016

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	West batter - Back analysis (Earthquake)- Huntingdale Road
Drawn By	CB/HHK
Scale	1:1308
Company	Talbot Road Finance Pty Ltd
Date	sept 2021
File Name	WEST Figure E2.slim

APPENDIX F: CURRENT SLOPE STABILITY FOR EASTERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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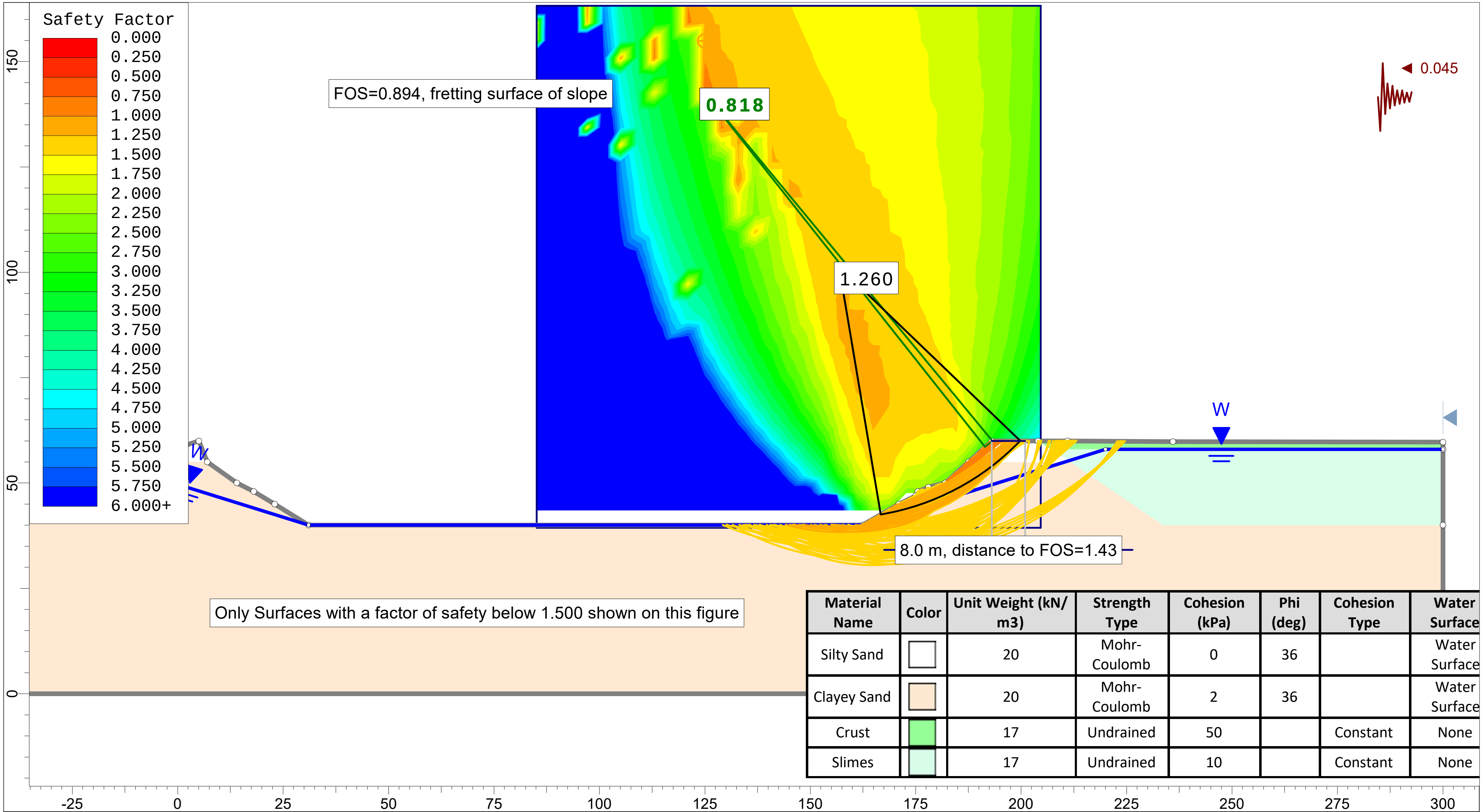
SLIDEINTERPRET 9.016

Project	Huntingdale Estate, Oakleigh South, Victoria
Analysis Description	East batter - Earthquake loading
Drawn By	CB/HHK
Scale	1:1264
Company	Talbot Road Finance Pty Ltd
Date	Sept 2021
File Name	EAST Figure F1.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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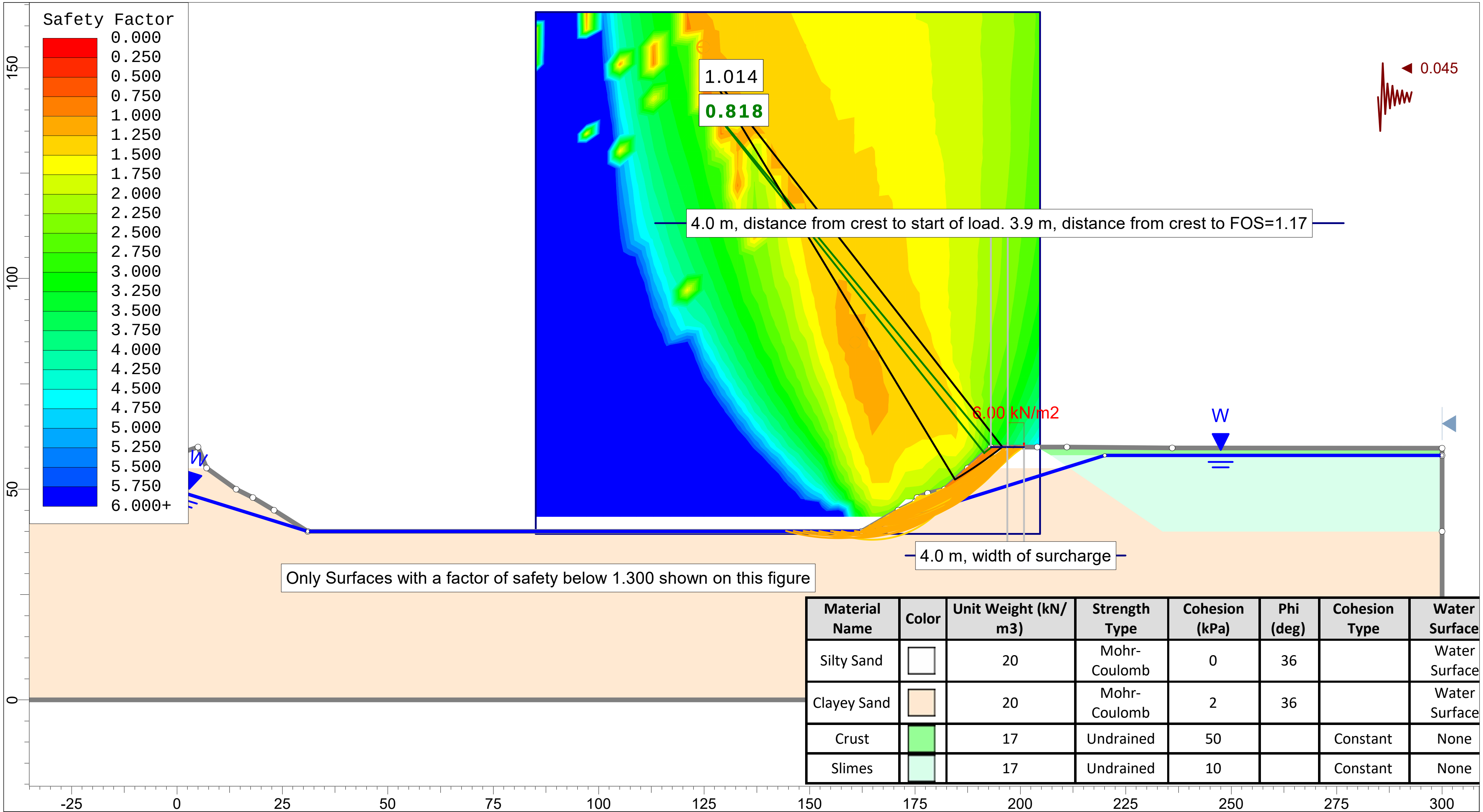
Project	Huntingdale Estate, Oakleigh South, Victoria
Analysis Description	East batter - Earthquake loading
Drawn By	CB/hhk
Scale	1:1264
Company	Talbot Road Finance Pty Ltd
Date	Sept 2021
File Name	EAST Figure F2.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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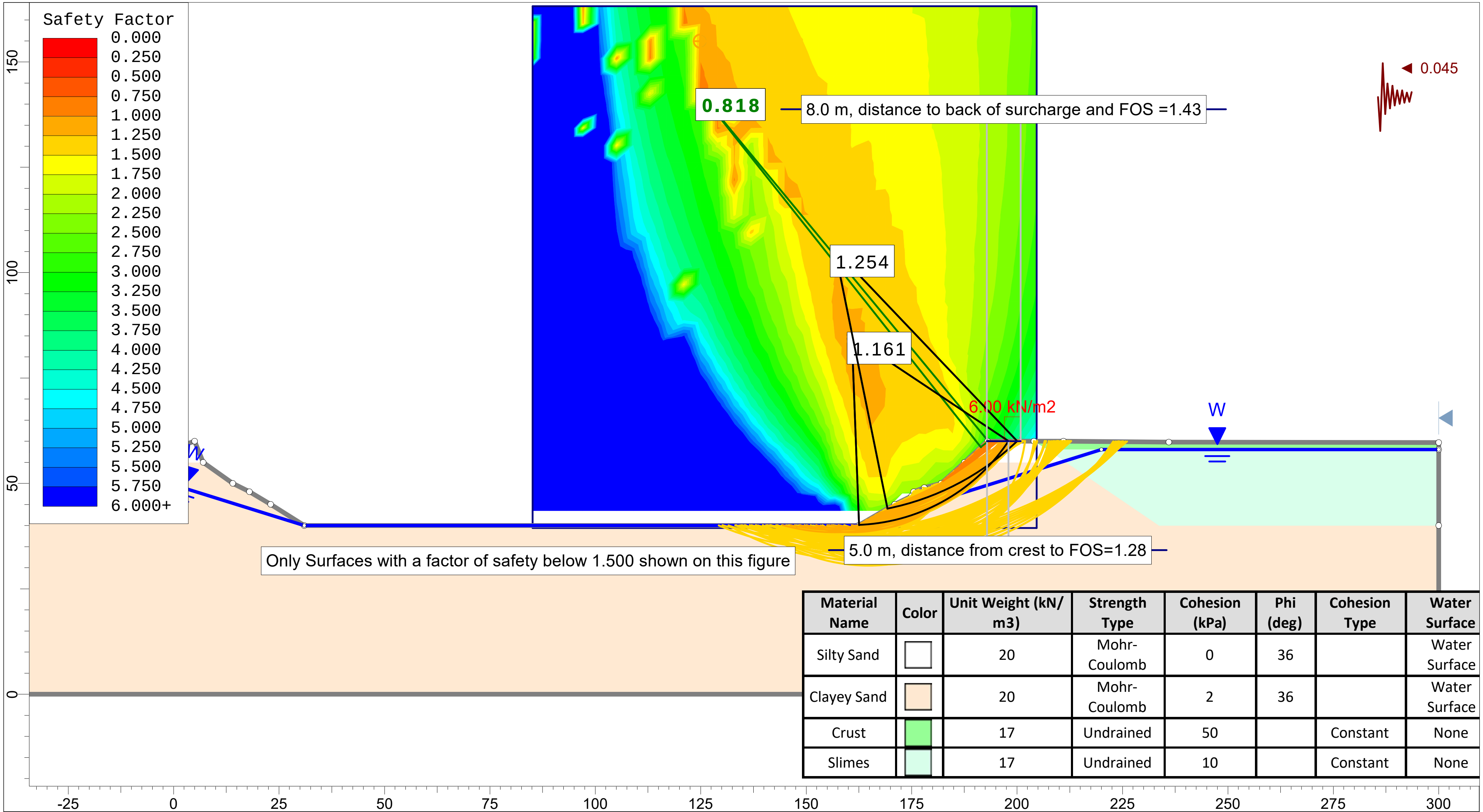
SLIDEINTERPRET 9.016

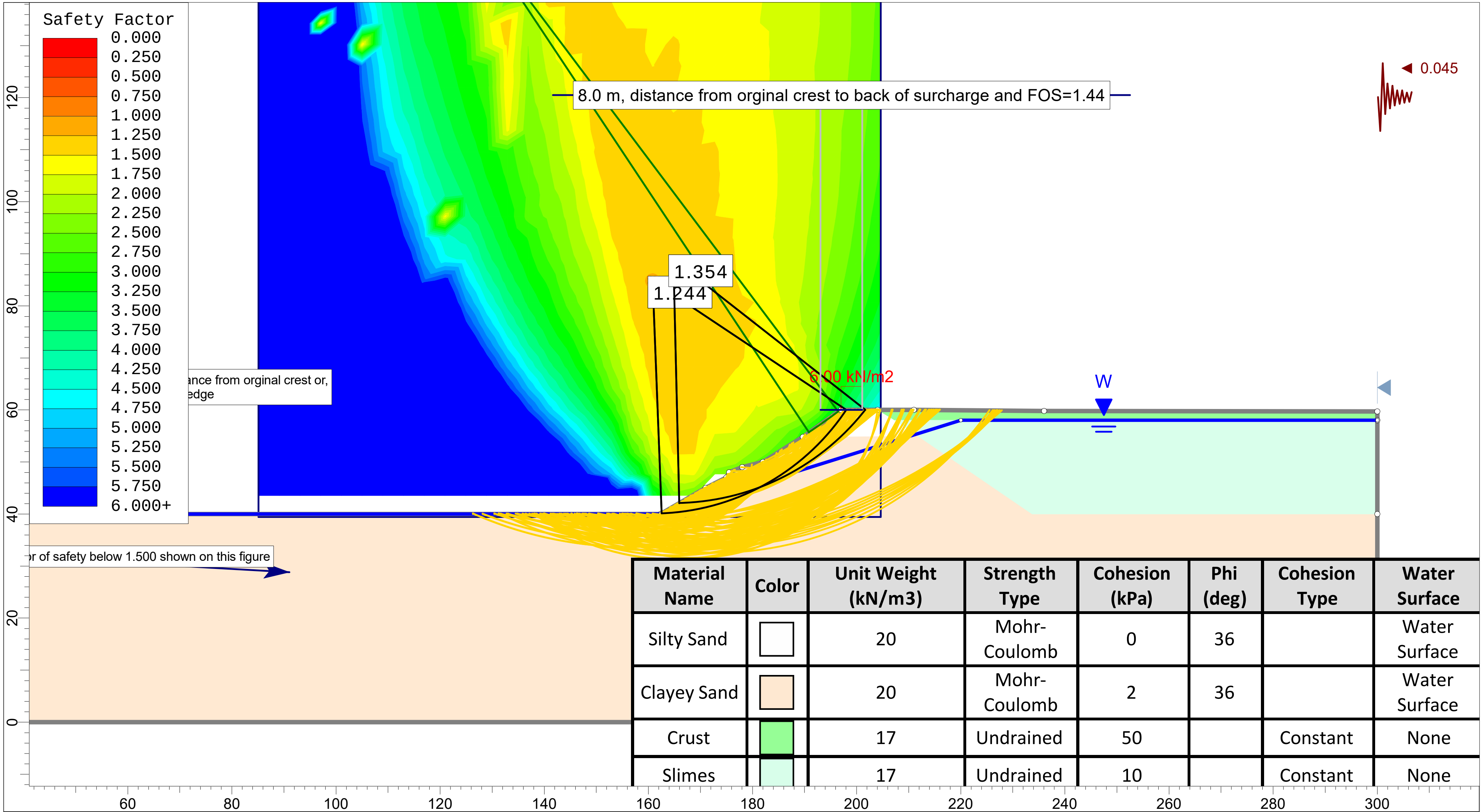
Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	East batter - Empty truck loading 4m set back Earthquake loading		
Drawn By CB/HHK	*Scale* 1:1264	*Company* Talbot Road Finance Pty Ltd	
Date Sept 2021		*File Name* EAST Figure F3.slim	



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

coffey
A TETRA TECH COMPANY
SLIDEINTERPRET 9.016

Project	Huntingdale Estate, Oakleigh, Victoria
Analysis Description	East batter - Empty truck loading 4m set back Earthquake loading
Drawn By	CB/HHK
Scale	1:1264
Company	Talbot Road Finance Pty Ltd
Date	Sept 2021
File Name	EAST Figure F4.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface
Silty Sand		20	Mohr-Coulomb	0	36		Water Surface
Clayey Sand		20	Mohr-Coulomb	2	36		Water Surface
Crust		17	Undrained	50		Constant	None
Slimes		17	Undrained	10		Constant	None

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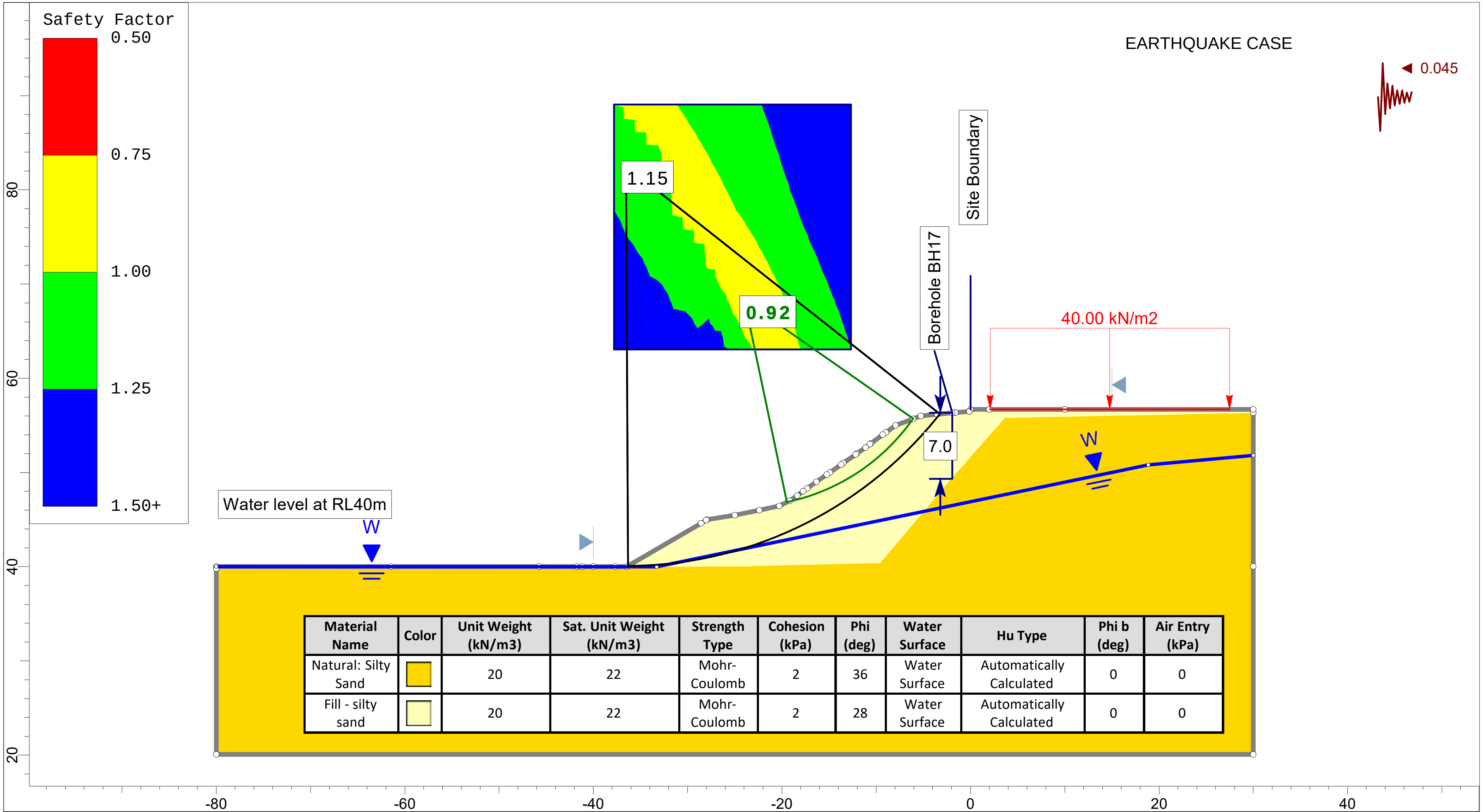
Project	Huntingdale Estate, Oakleigh, Victoria		
Analysis Description	East batter - Empty truck loading and collapse of upper slope wedge Earthquake		
Drawn By CB/HHK	*Scale* 1:1024	*Company* Talbot Road Finance Pty Ltd	
Date Sept 2021		*File Name* EAST Figure F5.slim	

APPENDIX G: CURRENT SLOPE STABILITY FOR SOUTHERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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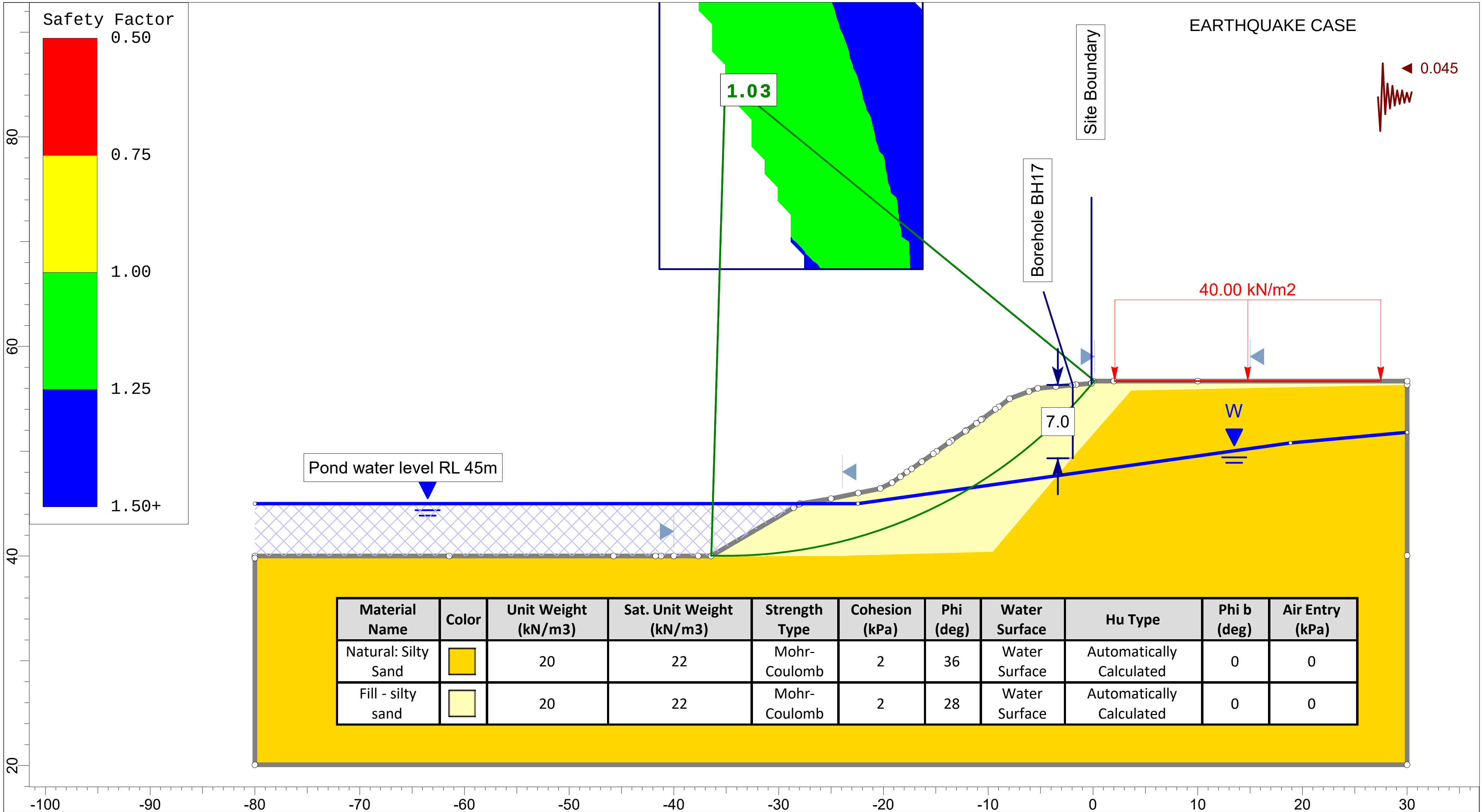
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - back analysis (EQ)
Drawn By	MF/HHK
Scale	1:565
Company	Talbot Road Finanace Pty Ltd
Date	SEPT 2021
File Name	SOUTH Figure G1.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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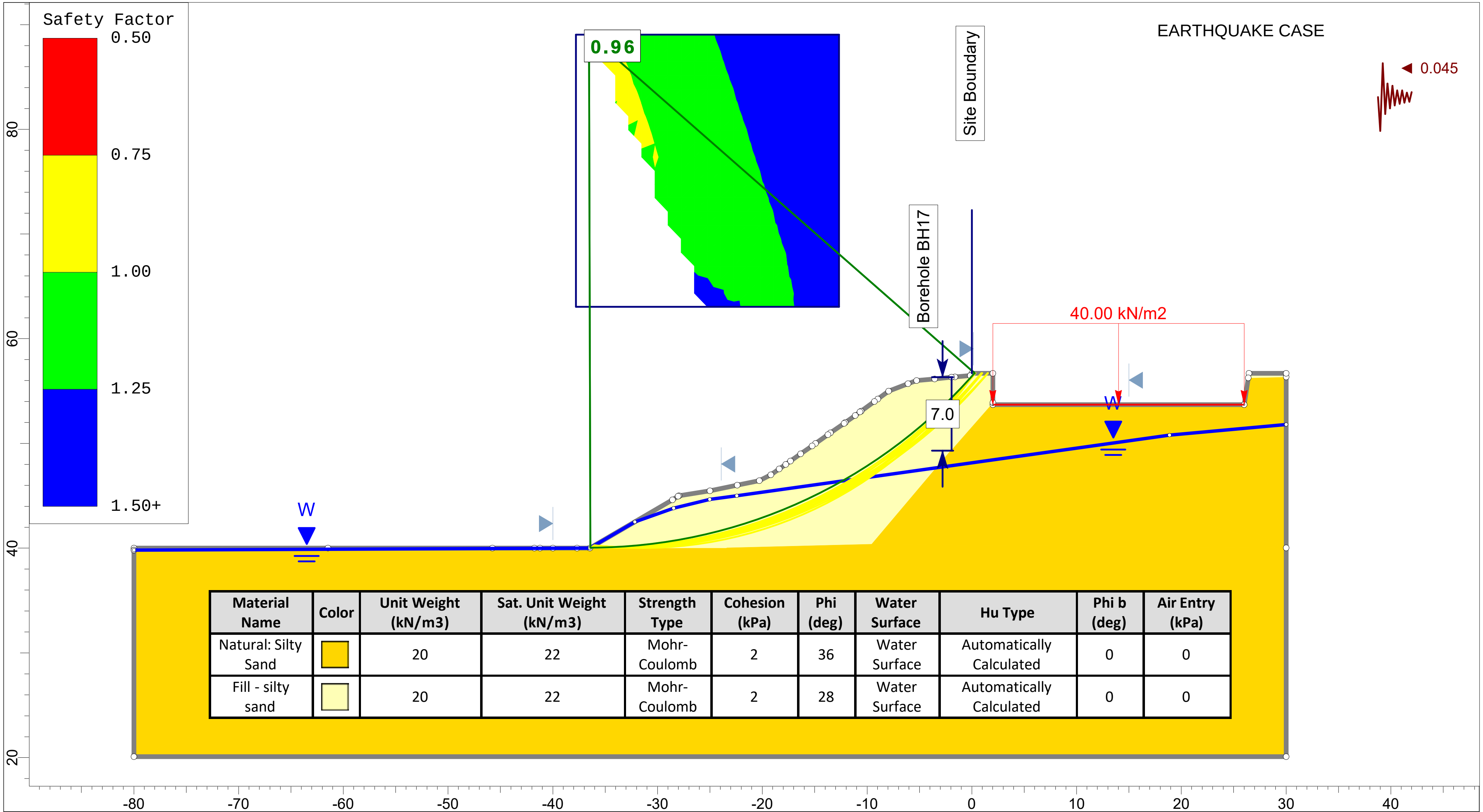
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - estimated existing pond water level (EQ)
Drawn By	MF/HHK
Scale	1:509
Company	Talbot Road Finanace Pty Ltd
Date	SEPT 2021
File Name	SOUTH Figure G2.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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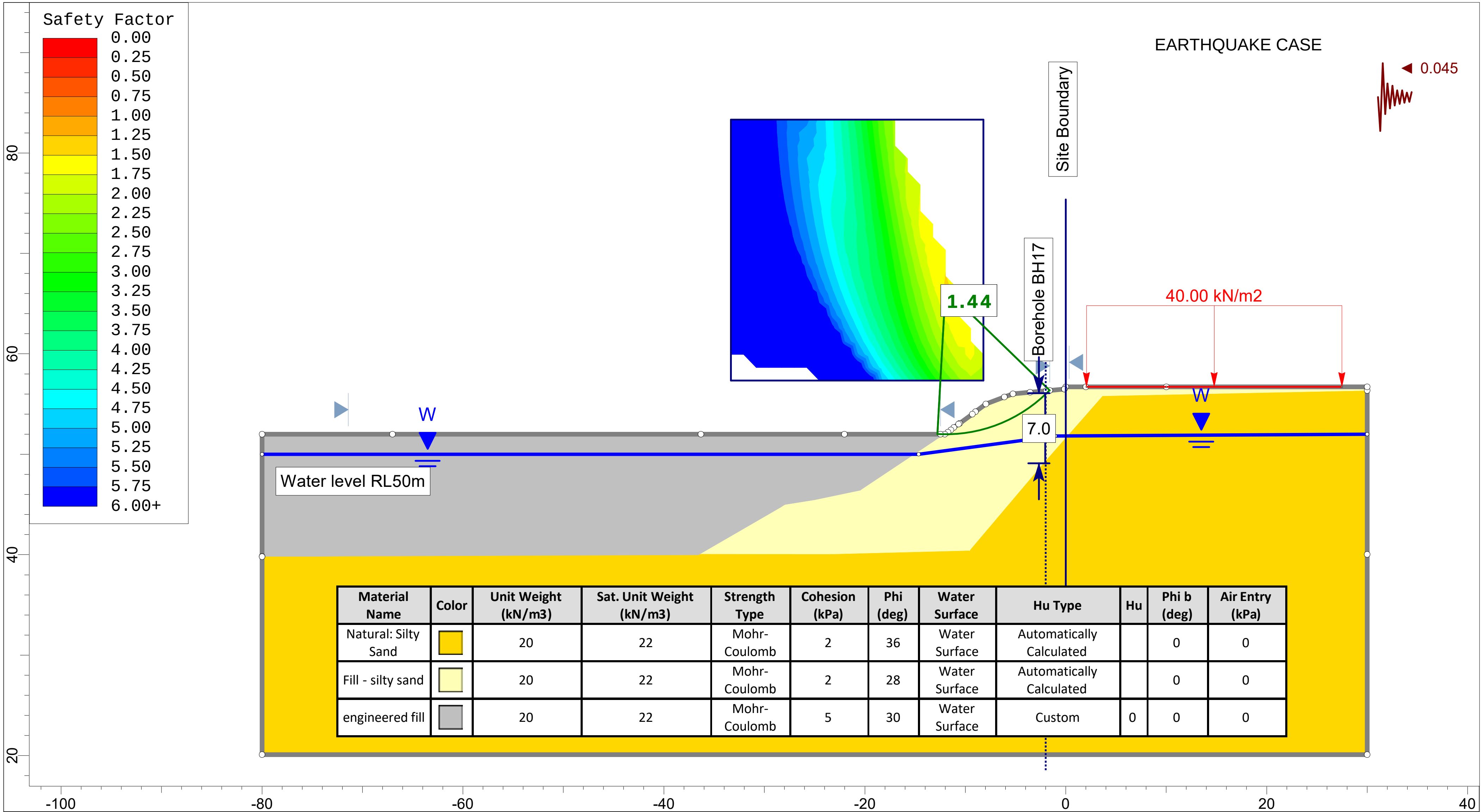
Project Huntingdale Estate, Oakleigh

Analysis Description Domain 4 - Stability of south batter after rapid draining of pond (EQ)

Drawn By HHK | *Scale* 1:509 | *Company* Talbot Road Finanace Pty Ltd

Date sept 2021 | *File Name* SOUTH Figure G3.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated		0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated		0	0
engineered fill		20	22	Mohr-Coulomb	5	30	Water Surface	Custom	0	0	0

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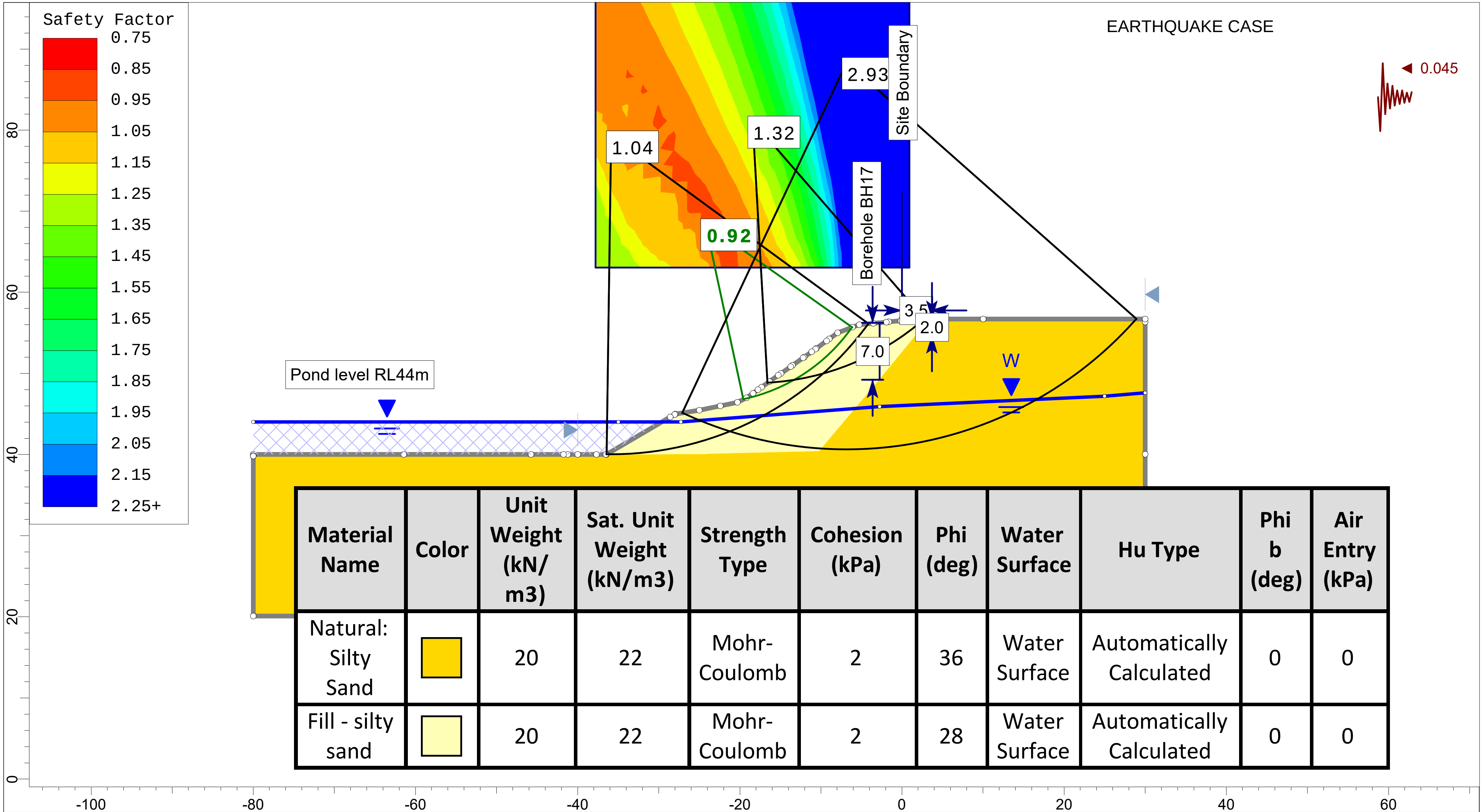
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter with fill platform at 52 mRL (EQ)
Drawn By	MF/HHK
Scale	1:530
Company	Talbot Road Finanace Pty Ltd
Date	SEPT 2021
File Name	SOUTH Figure G4.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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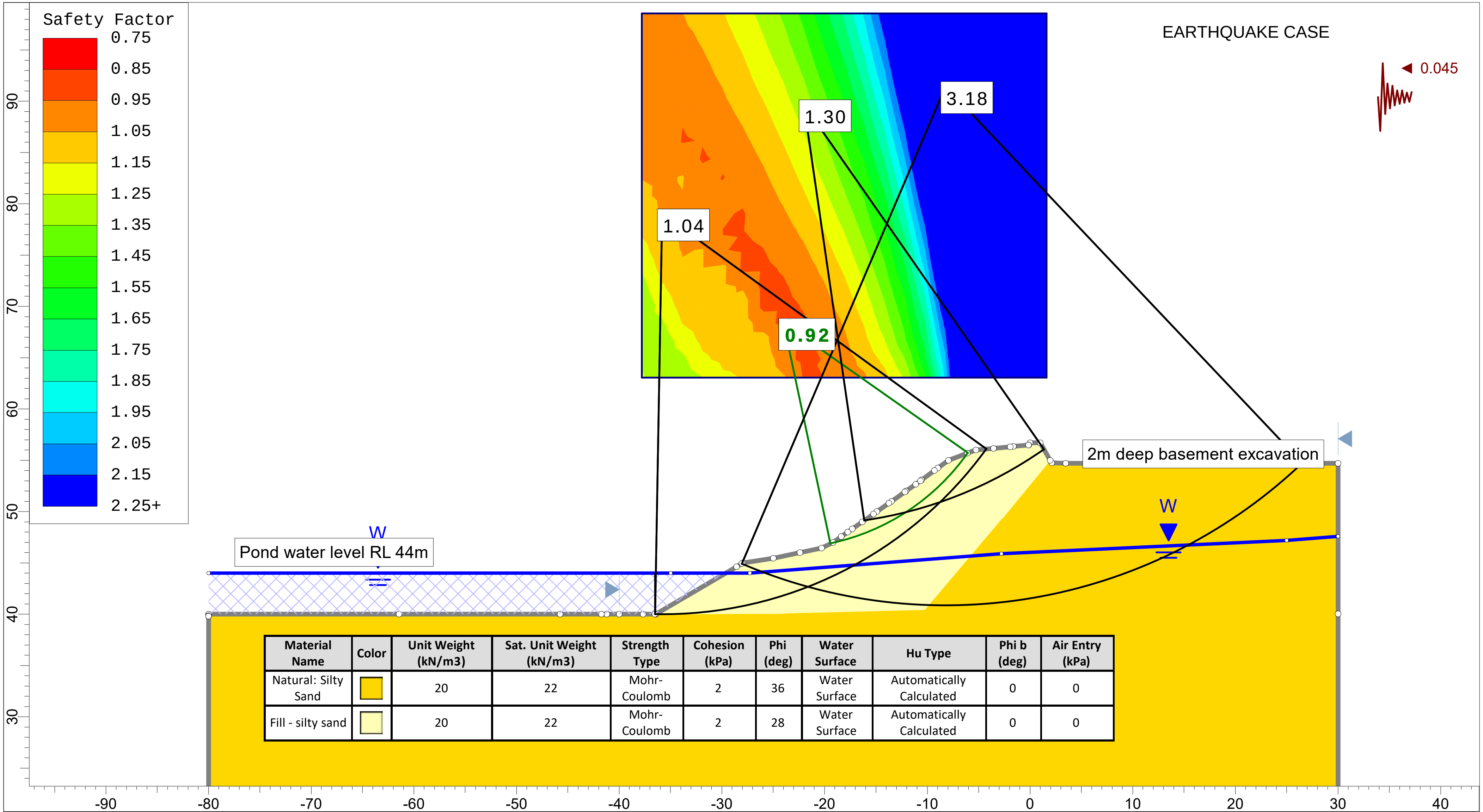
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - current water level - prior to construction of appartments
Drawn By	MF/HHK
Scale	1:657
Company	Talbot Road Finanace Pty Ltd
Date	Sept 2021
File Name	SOUTH Figure G5.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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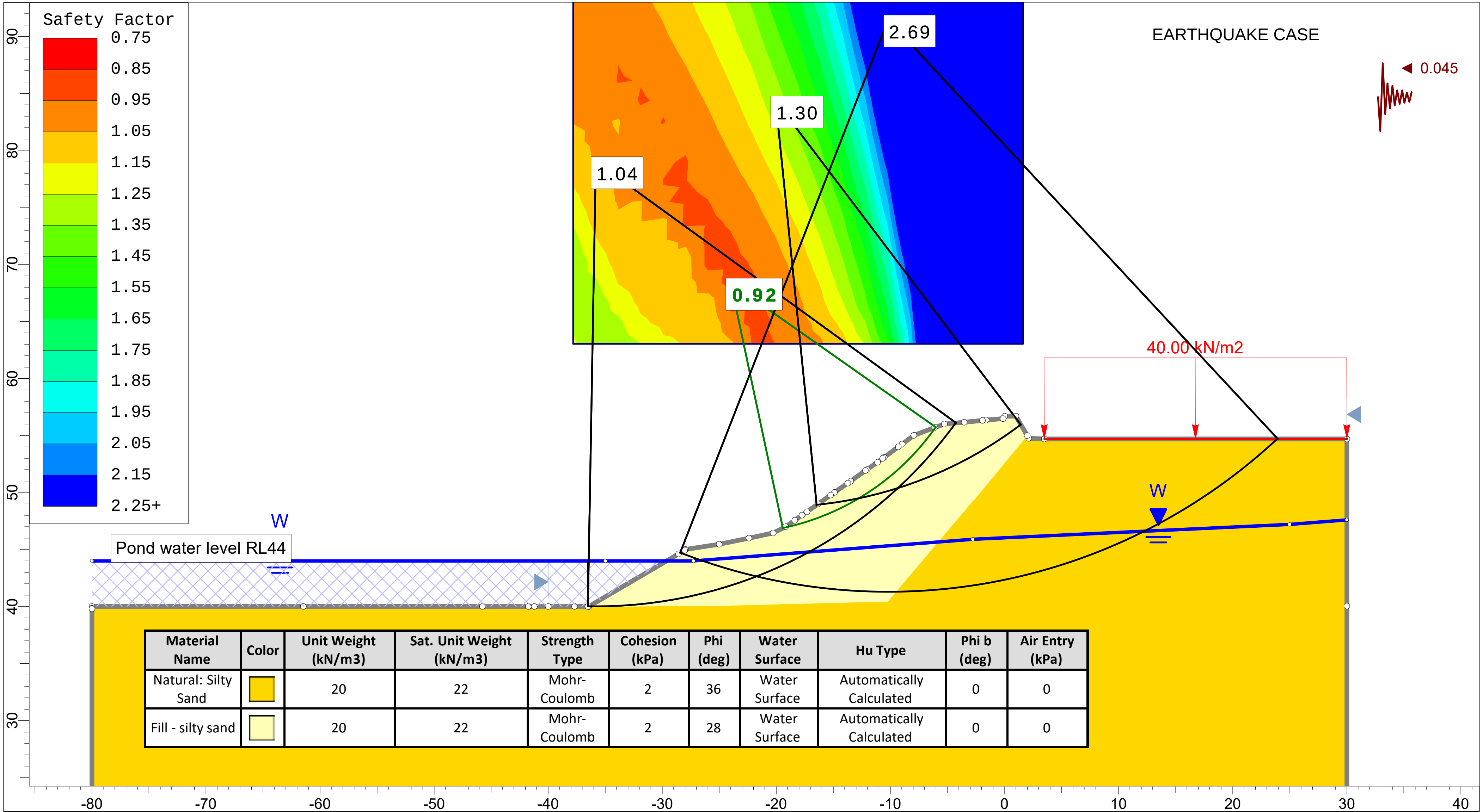
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - current water level -After construction of apartments		
Drawn By MF/HHK	*Scale* 1:519	*Company*	Talbot Road Finanace Pty Ltd
Date	Sept 2021	*File Name*	SOUTH Figure G5a.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Silty Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill - silty sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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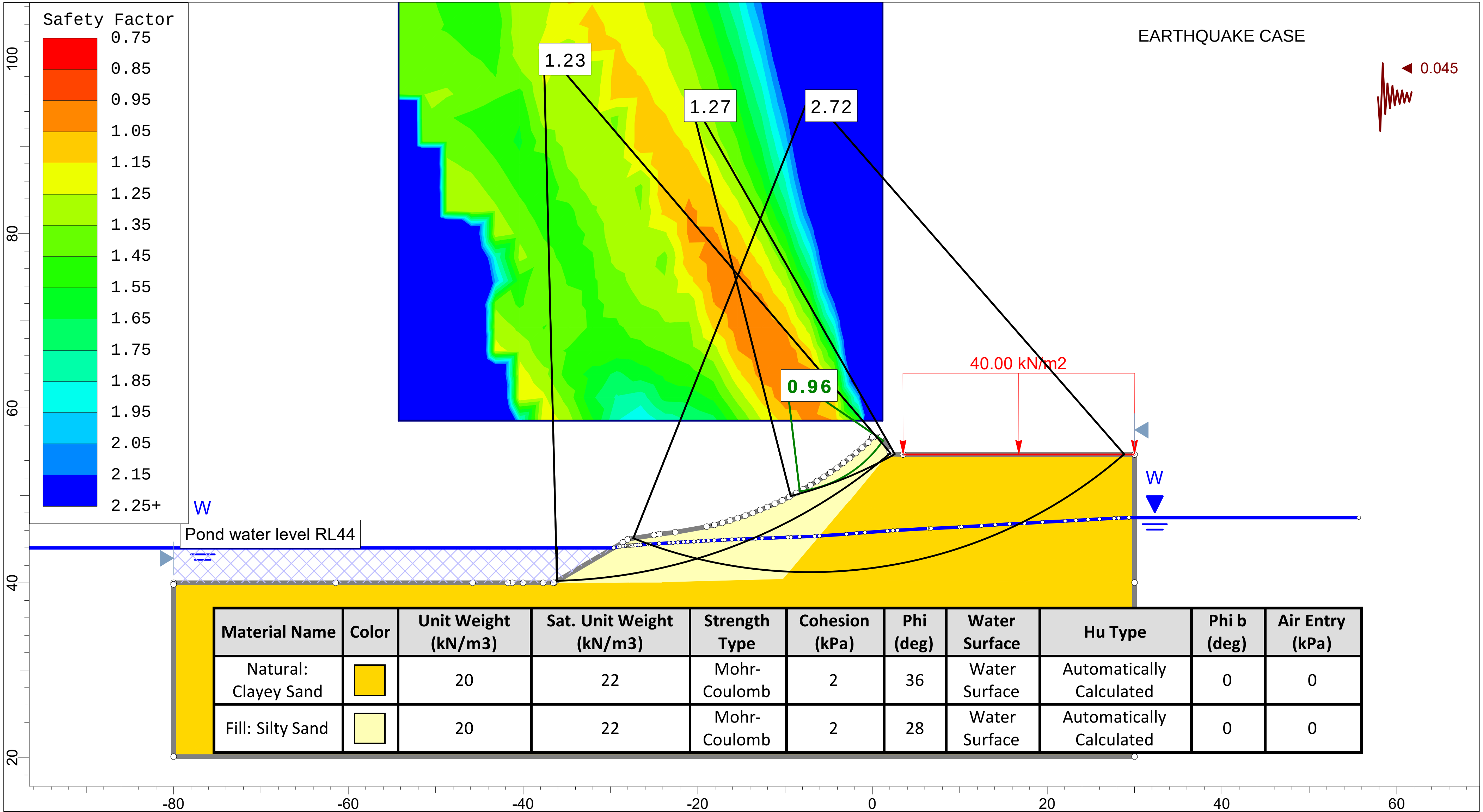
Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - current water level -After construction of apartments
Drawn By	MF/HHK
Scale	1:467
Company	Talbot Road Finanace Pty Ltd
Date	SEPT 2021
File Name	SOUTH Figure G6.slim



Material Name	Color	Unit Weight (kN/m3)	Sat. Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Phi b (deg)	Air Entry (kPa)
Natural: Clayey Sand		20	22	Mohr-Coulomb	2	36	Water Surface	Automatically Calculated	0	0
Fill: Silty Sand		20	22	Mohr-Coulomb	2	28	Water Surface	Automatically Calculated	0	0

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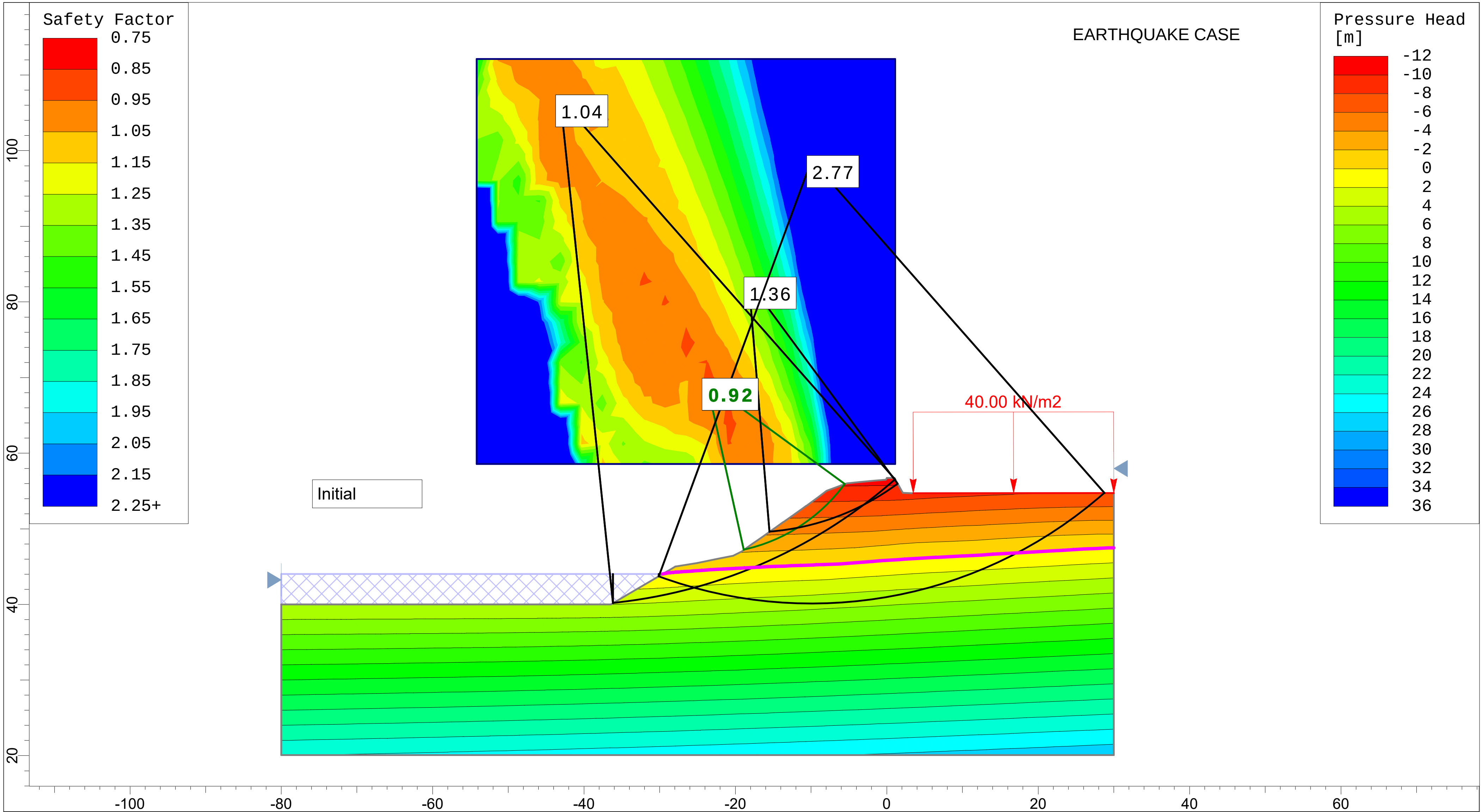
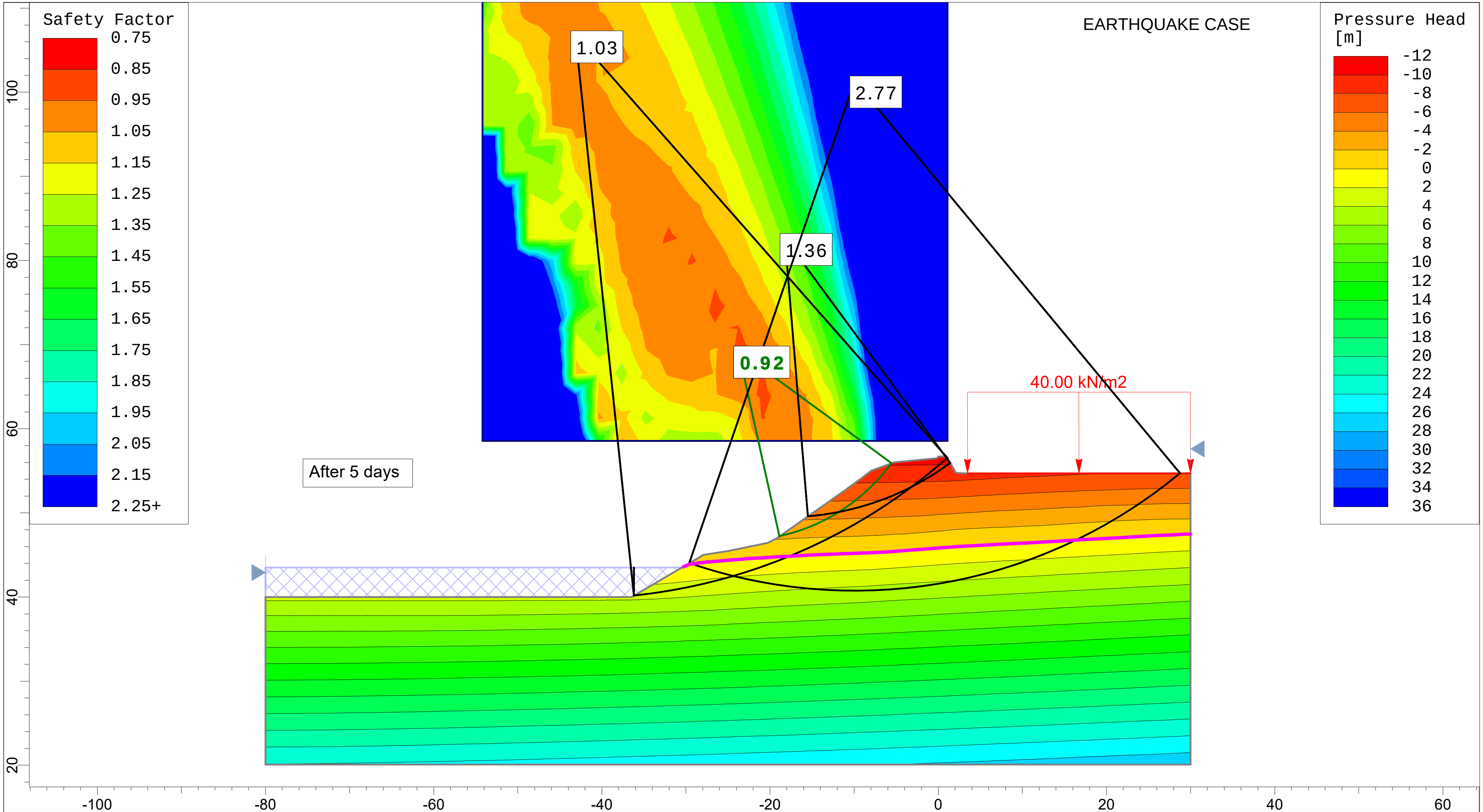
Project	Talbot Quarry, Domain 4 south batter stability assessment
Analysis Description	Current water level -After construction of apartments - after min FoS failure surface material removed
Drawn By	MF/HHK
Scale	1:610
Company	754-GEOTABTF09257AA-AQ
Date	SEPT 2021
File Name	SOUTH Figure G7.slim



coffey A TETRA TECH COMPANY	*Project* Huntingdale Estate, Oakleigh		
	Analysis Description Domain 4 - Stability of south batter - transient groundwater 0.1m/day drawdown		
	Drawn By MF/HHK	*Scale* 1:704	*Company* Talbot Road Finanace Pty Ltd
SLIDEINTERPRET 9.016	*Date* SEPT 2021		Figure G8a



Project	Huntingdale Estate, Oakleigh
Analysis Description	Domain 4 - Stability of south batter - transient groundwater 0.1m/day drawdown
Drawn By MF/HHK	*Scale* 1:634
Company	Talbot Road Finanace Pty Ltd
Date SEPT 2021	Figure G8b

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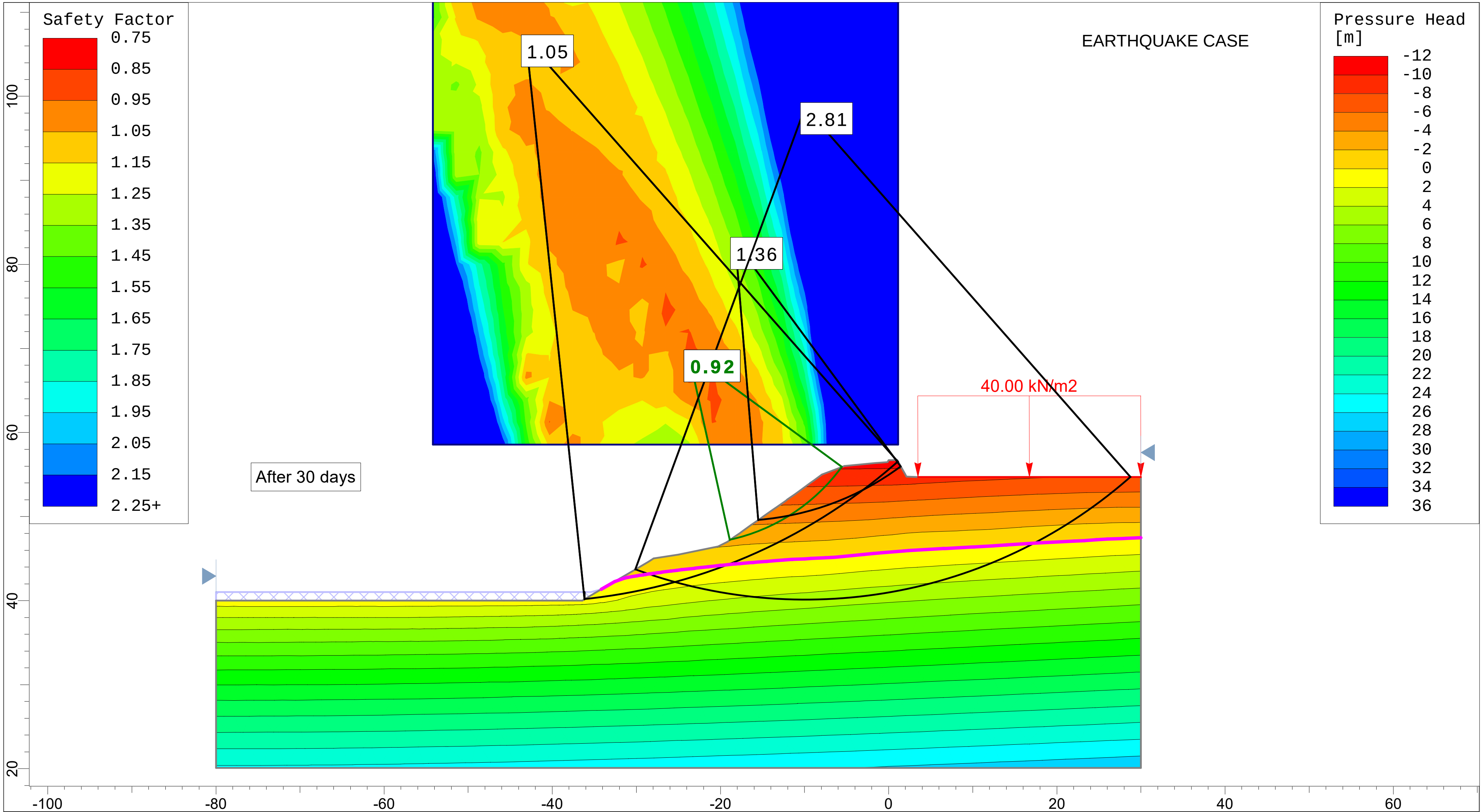

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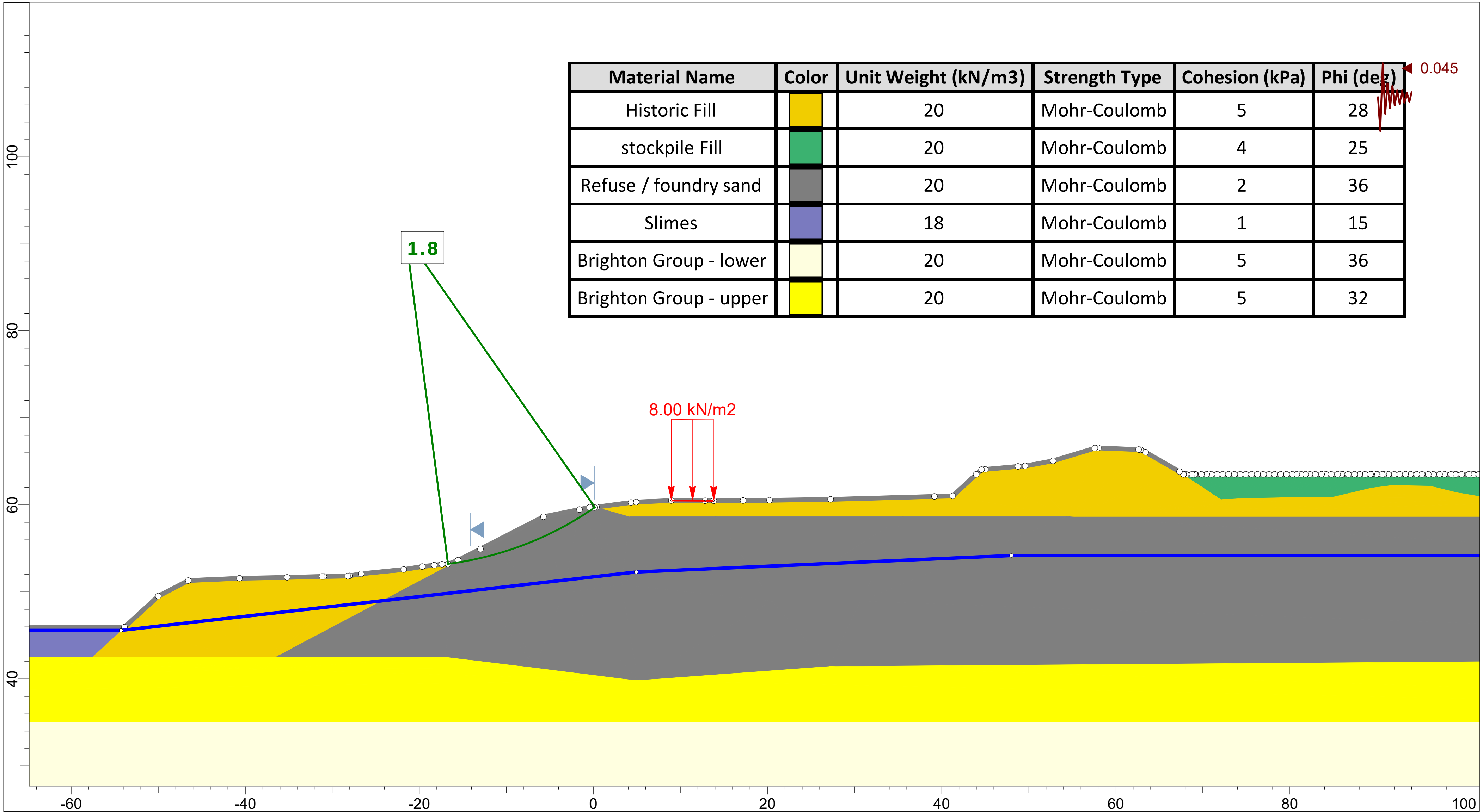
Project	Huntingdale Estate, Oakleigh		
Analysis Description	Domain 4 - Stability of south batter - transient groundwater 0.1m/day drawdown		
Drawn By MF/HHK	*Scale* 1:634	*Company*	Talbot Road Finanace Pty Ltd
Date SEPT 2021			Figure G8c

APPENDIX H: CURRENT SLOPE STABILITY FOR NORTHERN BATTERS UNDER EARTHQUAKE LOADING



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
stockpile Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Slimes		18	Mohr-Coulomb	1	15
Brighton Group - lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32

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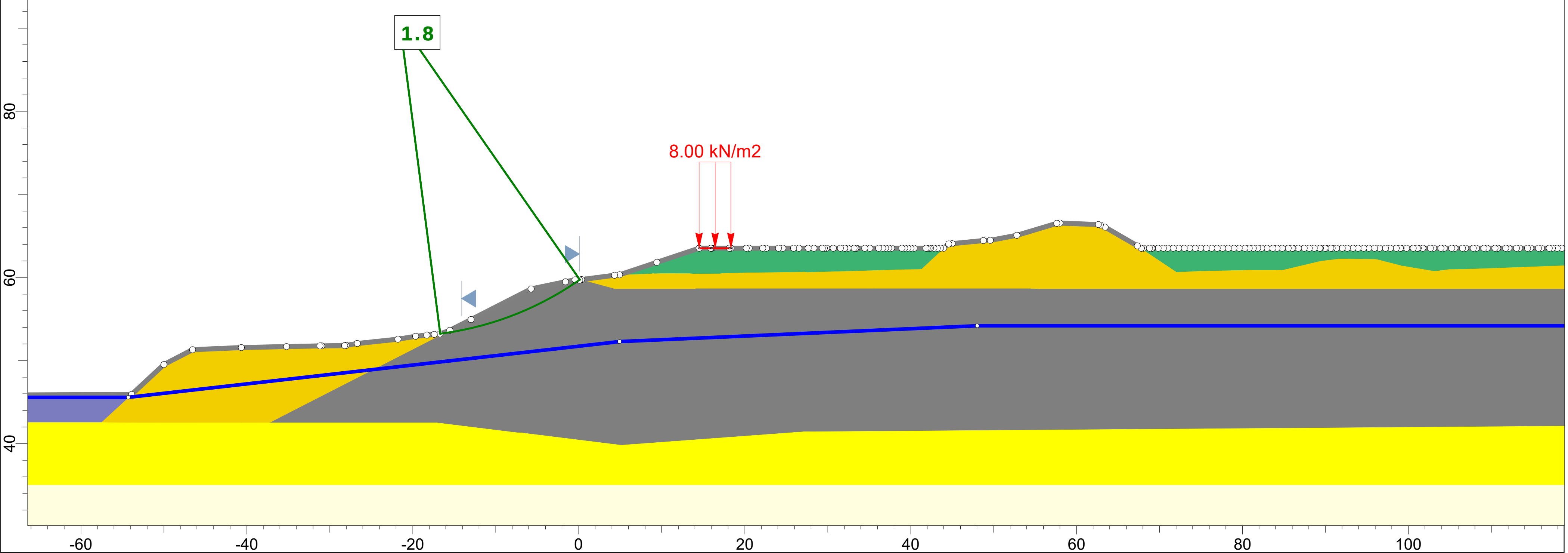
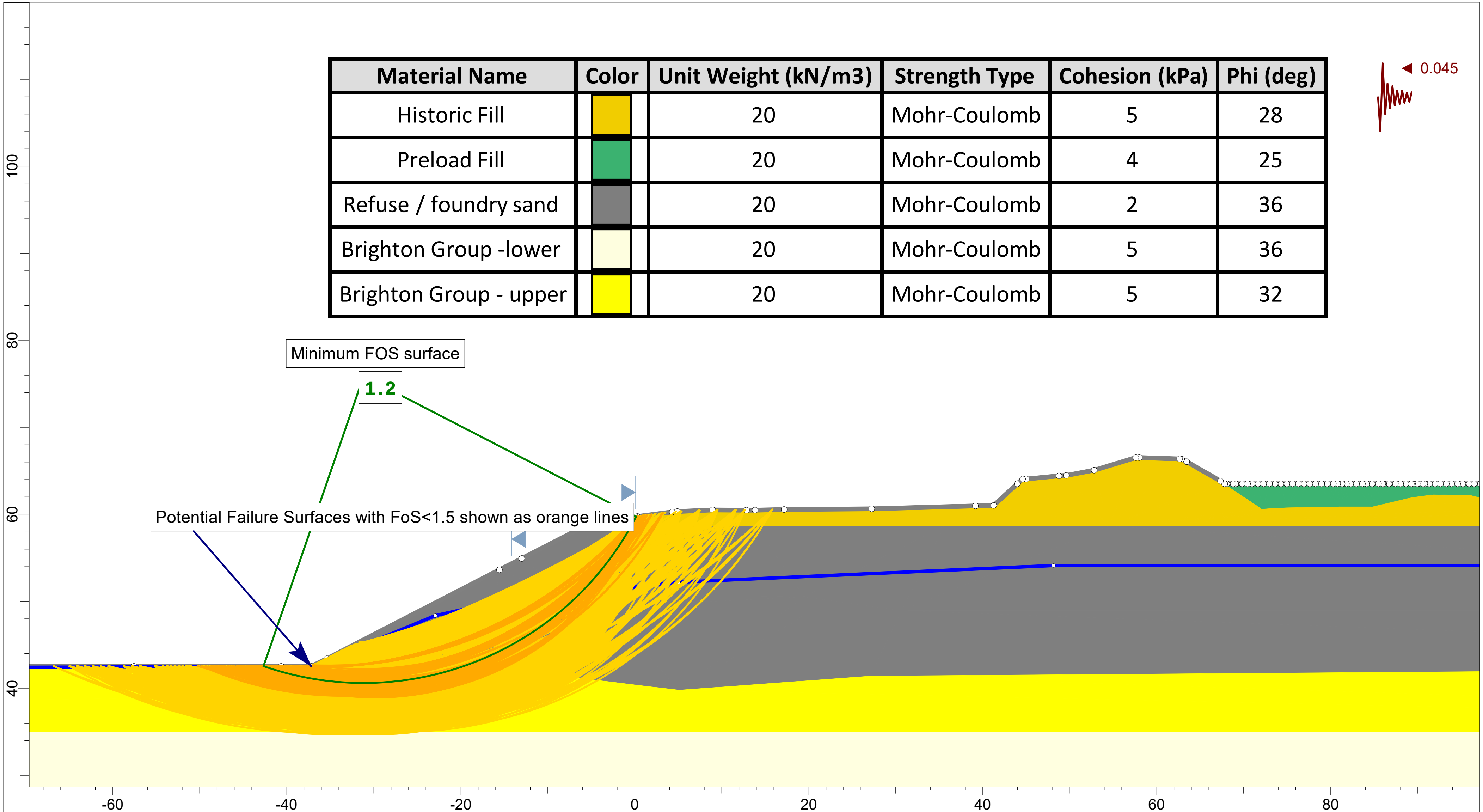
Project	Talbot Quarry Regen - Zone 1 Stockpile
Analysis Description	Domain 4 -North wall stability assessment - current geometry with Earthquake Case
Drawn By	M. Farrington/HHK
Scale	1:612
Company	Coffey Geotechnics
Date	19/09/2018, 5:56:02 PM
File Name	GEOTABTF09257AA-EG Figure H1.slmd

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
stockpile Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Slimes		18	Mohr-Coulomb	1	15
Brighton Group - lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32



Project	Talbot Quarry Regen - Domain 1 Stockpile		
Analysis Description	Domain 4 -North wall stability assessment - with stockpile under earthquake loading		
Drawn By M. Farrington/HHK	*Scale* 1:681	*Company*	Coffey Geotechnics
Date	19/09/2018, 5:56:02 PM	*File Name*	GEOTABTF09257AA-EG Figure H2.slmd

SLIDEINTERPRET 9.016



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
Preload Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Brighton Group -lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32

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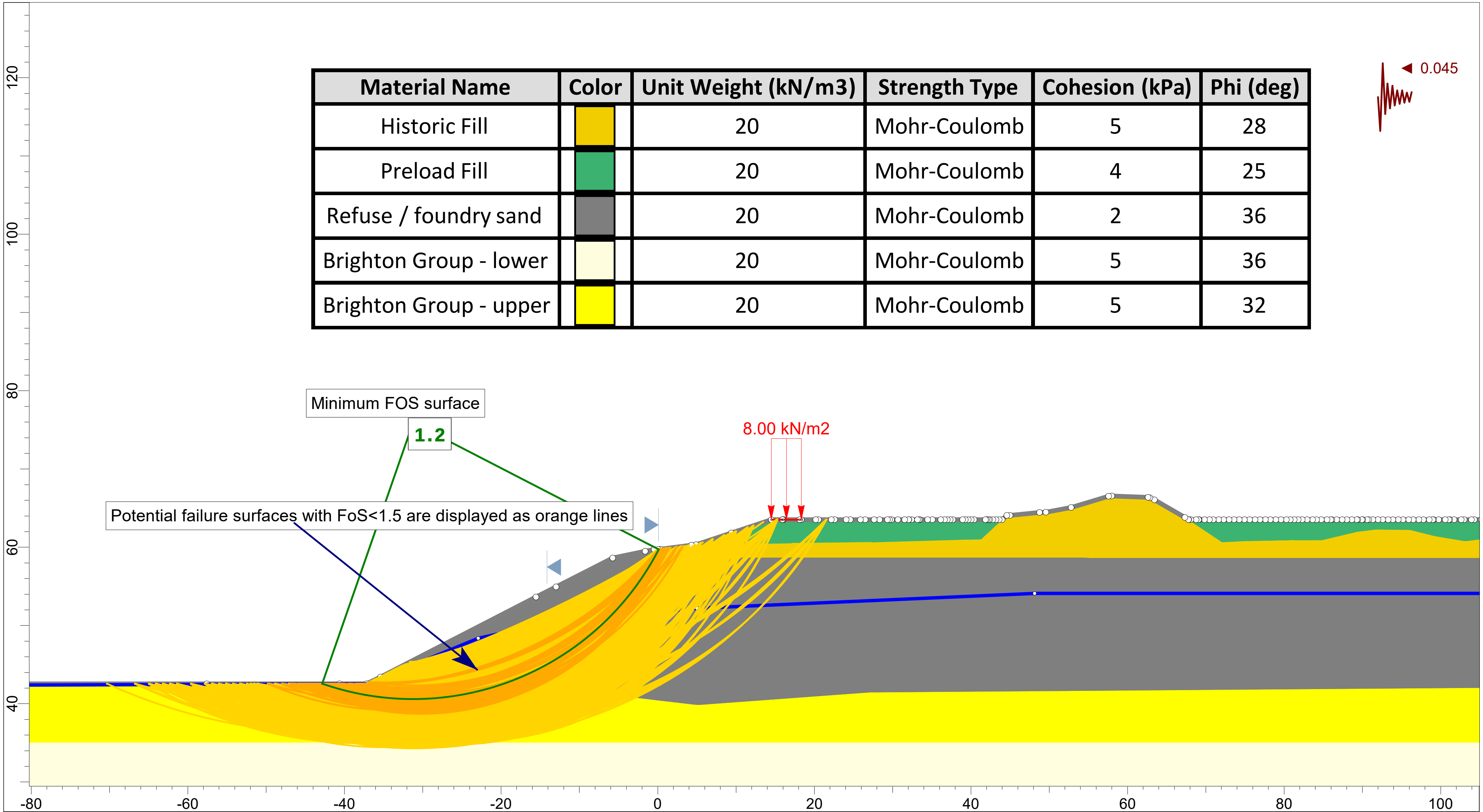
Project	Talbot Quarry Regen - Domain 1 Stockpile		
Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated under earthquake loading		
Drawn By M. Farrington/HHK	*Scale* 1:613	*Company*	Coffey Geotechnics
Date 19/09/2018, 5:56:02 PM		*File Name*	GEOTABTF09257AA-EG Figure H3.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)
Historic Fill		20	Mohr-Coulomb	5	28
Preload Fill		20	Mohr-Coulomb	4	25
Refuse / foundry sand		20	Mohr-Coulomb	2	36
Brighton Group - lower		20	Mohr-Coulomb	5	36
Brighton Group - upper		20	Mohr-Coulomb	5	32

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Project	Talbot Quarry Regen - Domain 1 Stockpile		
Analysis Description	Domain 4 -North wall stability assessment - after slimes excavated under earthquake		
Drawn By M. Farrington/HHK	*Scale* 1:681	*Company*	Coffey Geotechnics
Date	19/09/2018, 5:56:02 PM	*File Name*	GEOTABTF09257AA-EG Figure H4.slmd