28 September 2023

Megan Barr
Consultant Resource Consents Planner
Kapiti Coast District Council

By Email to: Megan.Barr@kapiticoast.govt.nz

RM230036- Response to Section 92 Request for 126-130 Rosetta Road

Kia ora Megan,

Below are our responses to your Section 92 request received on 23 March 2023 for the above application: For ease of reference, I have set them out in the same order that they were asked.

The architectural plans have been updated (attachment 9) to give effect to the recommendations that were made in David Wanty's draft traffic report and to also reflect the recommendations regarding stormwater disposal and attenuation. David Wanty received the updated plan set and acknowledged the changes that were made in his finalised traffic report (attachment 8).

1. **Landscape and Visual Assessment (LVA).** Please find this report and recommended landscape plan (which is adopted for mitigation purposes) at **attachment 1.** If this report is to be peer reviewed we would request the Council to advise the costs involved and how long this would take. I note that there is no mechanism for the Council to put the application on hold while the report is being peer reviewed.
2. **Dwellings constructed prior to titles being issued.** Our client would like the flexibility to possibly construct the dwellings whilst undertaking works to complete the subdivision. An assessment of the dwellings, as per the updated architectural plans (provided at **attachment 9),** is provided at **attachment 2** against the District Plan provisions.
3. **Existing dwelling – additions and alterations.** The existing dwelling received building consent to replace the existing deck and windows. These renovations have not altered the building footprint. The plans are provided at **attachment 3**.
4. **Retaining walls.** These have been added to the plans which annotates the retaining walls that will be 1.2-2m in height and will have a 1-1.2m high fence atop of the retaining wall (as measured from the proposed ground level for building consent purposes). This is shown on the updated architectural plans at **attachment 9** – for House 1. An assessment is provided at **attachment 2.**
5. **Conceptual Stormwater Report, Version 4 dated 24 August 2023.** The stormwater report has been updated and revised with version 3 of the report being peer reviewed by CGW as per the information requirements listed in 5(a) to 5(d) and item 8. The report, which was updated to incorporate the recommendations made in the CGW peer review is provided at **attachment 4**. CGW's peer review is also provided at **attachment 4.**

   The architectural plans at **attachment 9** have been updated to reflect the recommendations regarding attenuation in the Conceptual Stormwater Report, Version 4. Commentary

regarding how the architectural plans align with the recommendations made in the Conceptual Stormwater Report is provided below:

- *Lot 01 (House 01): It is proposed that 2x 5,000lt above ground water storage tanks (10,000lt total) with an additional above ground 5,000lt stormwater attenuation tank to meet the 4,680lt minimum attenuation volume noted in the report for lot 01, are to be positioned against the rear retaining wall. The attenuation tank will have a 21mm outlet orifice positioned 150mm above the base of the tank and a 100mm overflow at the top which will connect into the new stormwater lateral at the boundary.*
- *Lot 02 (House 02) and Lot 03 (House 03) are to have inground water storage tanks installed as there is no suitable location for above ground tanks.*
- *Lot 02 (House 02): It is proposed that a 25,000lt inground concrete water tank is installed to provide the required 10,000lt water storage and the 5,000lt stormwater attenuation, to meet the 4,180lt minimum attenuation volume noted in the report for lot 02. The required 18mm outlet orifice is to be positioned 500mm below the top of the tank to provide 5,000lt attenuation and a 100mm overflow at the top which will connect into the new stormwater lateral at the boundary.*
- *Lot 03 (House 03): It is proposed that a 25,000lt inground concrete water tank is installed to provide the required 10,000lt water storage and the 5,000lt stormwater attenuation, to meet the 2,810lt minimum attenuation volume noted in the report for lot 03. The required 20mm outlet orifice is to be positioned 500mm below the top of the tank to provide 5,000lt attenuation and a 100mm overflow at the top which will connect into the new stormwater lateral at the boundary.*
- *The proposed stormwater storage and attenuation volume proposed for Lot 02 and Lot 03 exceed the stormwater requirements in Leith Consulting's Conceptual Stormwater Disposal Report dated 24 August 2023.*

6. **Slope Stability Assessment.** This has been undertaken by CGW and provided at **attachment 5.**
7. **Right of Way long section.** This is provided at **attachment 6.**
8. **Soakage Test for Lot 3.** Please refer to the peer reviewed Stormwater Report provided at **attachment 4.**
9. **Soakpits for Lot 3 and 4.** These are shown on sheet #2 of the updated scheme plan set at **attachment 7.**
10. **Integrated Traffic Assessment.** This has undertaken by David Wanty and is provided at **attachment 8.** The architectural plans have been updated to show the tracking curves for Lots 2, 3 and 4 which the ITA acknowledges.
11. **Gradient of right of way.** Please refer to the Long Section at **attachment 6** which confirms the gradient will not exceed 1 in 5.
12. **Dimensions of car parking spaces for existing dwelling.** The architectural plans have been updated at **attachment 9** to show there is sufficient room for two car parking spaces side by side. A 99th percentile vehicle has been used to show there is sufficient room.
13. **Further information from the Ātiawa ki Whakarongotai Charitable Trust:**
    - **Condition requiring that a future dwelling to be built on the Site is relocatable.** We do not consider this type of condition to be suitable or practicable for the proposed development which requires retaining and concrete block walls. We consider the

climate change/sea level rise scenario for the site to be of a low natural hazard risk due to the low probability of the modelled worst scenario (in terms of sea level rise and the longest timeline projection) occurring for which the Coastal Qualifying Matter Precinct.

- **Recommendations made in CGW reports.** We agree to adopt the recommendations of the CGW reports and agree to a condition to this effect.
- **Stormwater disposal.** Attenuation has been recommended as the most effective method of capturing stormwater for this site. The updated landscaping plan provided by David Goodyear at **attachment 1** will help to absorb some of the stormwater run-off for this site.
- **Sediment control measures.** We are agreeable to conditions of consent in relation to sediment and erosion control measures for the earthworks and construction phase of the project.
- **Protection or replacement of native vegetation.** Native vegetation is likely to be removed on this site to construct the access, outdoor living spaces and new houses. Vegetation will be retained or replanted where possible as per the updated landscape plan provided at **attachment 1.** This site does not contain any protected vegetation via the District Plan such as notable trees, key indigenous trees listed in schedule 2, an ecological site listed in schedule 1 or contains rare and threatened vegetation species listed in schedule 3 which would give effect to Policy 11 of the NZ Coastal Policy Statement 2010. Thus, undertaking the removal of vegetation on this site is a permitted activity under the District Plan and we do not propose to restrict this right via conditions of consent.
- **Accidental Discovery Protocol.** We agree to a condition of consent that acknowledges that the Ātiawa ki Whakarongotai ADP as set out in the Whakarongotai o te moana, Whakarongotai o te wā: Ātiawa ki Whakarongotai Kaitiakitanga Plan is the specific ADP used in the event an archaeological site or materials are discovered.

Please let me know if any clarification is required. We look forward to receiving the draft conditions for review when they are ready.

Ngā mihi,

LE White

Louise White, BREP(Hons)
Resource & Environmental Planner
Leith Consulting Ltd

Attachments:

1. **LVA Assessment and New Landscaping Plan**
2. **Assessment of new dwellings and retaining walls that are 1m in height or more against District Plan Provisions**
3. **Building plans of existing house alterations**
4. **Peer reviewed Stormwater Report (Authored by Leith Consulting and peer reviewed by CGW)**
5. **Slope Stability Assessment by CGW**
6. **Right of Way Long Section**
7. **Updated Scheme Plans**

8. **Integrated Traffic Assessment by David Wanty**
9. **Updated Architectural Plans**

ATTACHMENT 1

VISUAL EFFECTS ASSESSMENT

Proposed Subdivision Development
126-130 Rosetta Road, Raumati,

Prepared for Lawrence Fay / Leith Consulting

June 2023

david goodyear
B.A., Dip. Landscape Arch.
LANDSCAPE ARCHITECT

1.0 INTRODUCTION

This assessment of visual effects has been prepared by David Goodyear, Landscape Architect, in respect of an application by Leith Consulting for a proposed 4 lot subdivision at 126-130 Rosetta Road, Raumati. The purpose of the report is to assess the likely visual effects of the proposed development and to make recommendations for mitigation measures where appropriate.

2.0 THE SITE & ENVIRONS

Rosetta Road runs in a roughly North-South orientation, parallel to, and approximately 130m back from the coast at Raumati. The road runs between parallel North trending sand dunes flanked by generally single dwellings ranging from smaller bach- type dwellings to large family homes on individual allotments and generally located on elevated sites on both sides of the road.
Rosetta Road is well vegetated with blocks of often mature vegetation on both sides of the road. Pohutukawas are the predominant tree species but the vegetation includes a diverse range of exotic and indigenous species.

126-130 Rosetta Road, legally described as Lots 1-2 DP 18137, has been well described in application documents. The following is a brief summary.

The site itself is situated on the sand dune to the Eastern side of Rosetta Road and spans the full width of the dune.. The site is accessed by a single crossing at the South Western

Aerial Photo. KCDC Gis Records

corner of the site and a double crossing at the North Western corner which gives access to a double concrete garage located on the Northern end of the street frontage and set into the dune. Between these two access points, an approximately 1.3m high stone retaining wall , set 2m into the road reserve, retains the base of the dune.

Behind this wall, the site rises some 5m to a flatter area at the centre of the site occupied by the existing house and garage and a concrete swimming pool, The Eastern side of the site slopes steeply down towards Renown Road where a non utilised access leg connects to the street.

VEGETATION

The Rosetta Street Frontage is dominated by a close set line of 8-10m tall Pohutukawas set some 2m into the site that are likely to have been planted as a windbreak or hedge. The trees extend across the full width of the site frontage, even extending to the North end of the site where the trees grow over the roof of the existing garage. These trees are not individually good specimens as their proximity to each other has resulted in spindly, intertwined group of trees rather than individual specimens, but they do constitute a significant block of foliage that has a presence on the street..

View looking South on Rosetta Road showing the Pohutukawa screen

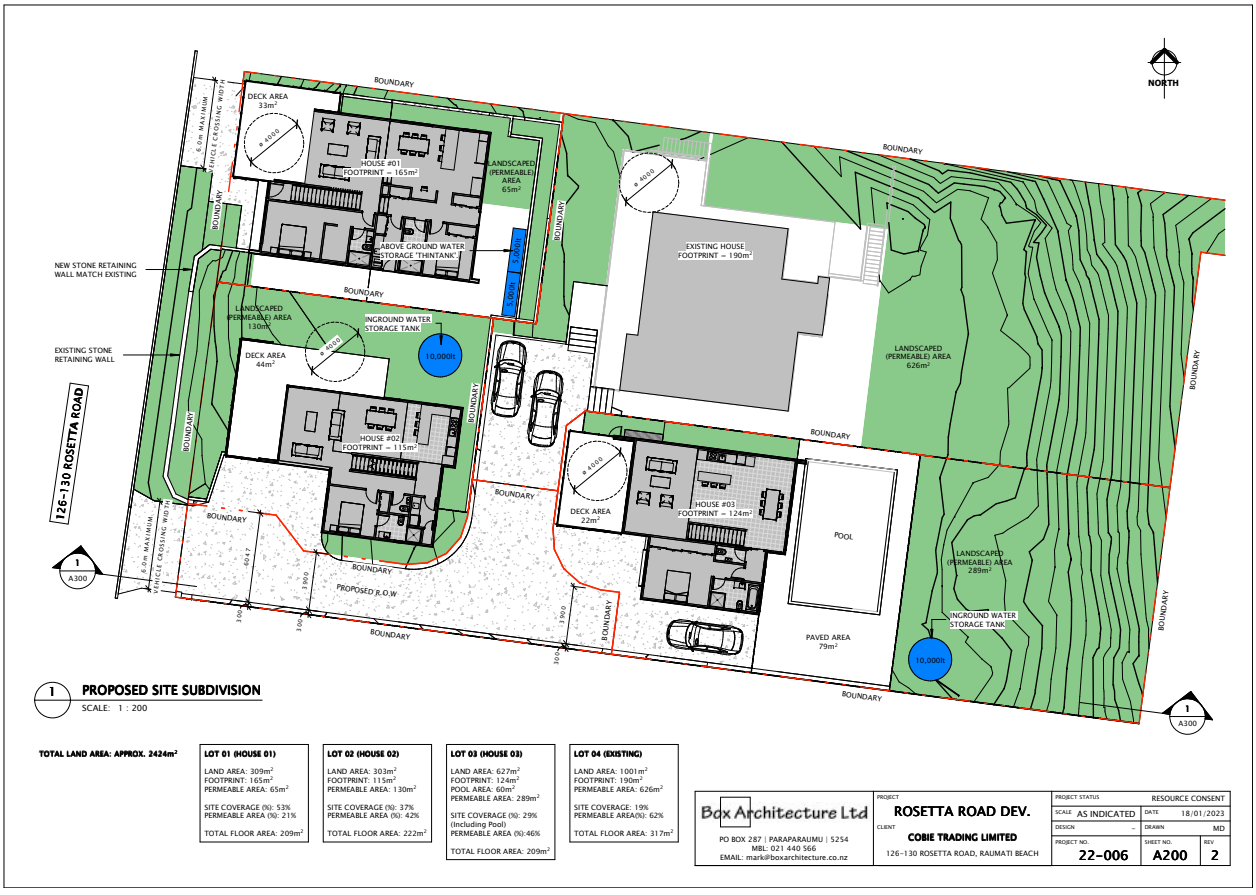
The vegetation along the frontage extends down the Northern and Southern side boundaries, again dominated by several Pohutukawas with a mixture of smaller native and exotic trees and shrubs on both sides of the boundary.

To the East of the site, the steep slopes above Renown Road are densely vegetated in a mature mixture of native and exotic species heavily infested with exotic vines that is part of an extended belt of mature vegetation that extends North and South along the leeward side of the dune.

3.0 PROPOSAL

The applicant is proposing to subdivide the property into 4 residential sections, one of which would accommodate the existing house and extend to the Eastern Boundary. Lot 1 in the NW corner of the site would replace the existing double garage with a 2 storey dwelling set into the NorthWest corner of the site. The house proposed would feature a double garage with a first floor patio above set in a prominent location in the North West corner of the site and utilising the existing double crossing. The bulk of the rest of the house would be set at a higher level behind.

Lot 2 would occupy the central portion of the front of the site. As with Lot 1, the house will have a double garage with patio above, set some 2-3m back from the front boundary with the bulk of the house set into the dune behind. Lot 3 would be located to the South of the existing house and to the immediate West of the existing pool with a similar configuration to House 2. Lot 4 would encompass the existing house and the balance of the site. The existing Southern access off Rosetta Rd would be widened to a double width driveway and extended to the boundary and will give access to Lots 2, 3 and 4. Formation of this access drive will necessitate removal of all of the existing boundary vegetation on the subject site,



Proposed Development Plan. Box Architecture. 18/1/23

although some of the plants, amongst them 2 small Totara, Camellias, a Rhododendron and a Banksia are located on the neighbouring property and would remain.

On the Rosetta Road frontage, the garage and deck of the proposed house 2 would be located practically on the line of the trunks of the existing Pohutukawa screen, so these trees will not be able to be retained.

4.0 VISUAL EFFECTS

Due to the nature of the topography and existing vegetation, views to the subject site are limited to those from close distances, from the street and from adjoining properties.

FROM THE STREET

Currently, the existing Pohutukawa screen that extends across the Western street Frontage and around to the Northern and Southern side boundaries creates a near total screen of the site. The only opening is the narrow driveway entrance to the SE corner flanked by Pohutukawas on each side. The only visible structure on the site from the street is the double garage at the road edge in the NW corner.

The proposed development, which will involve the removal of the existing vegetation to the front of the site represents a significant change to the appearance of the site, exposing views in to the site and to the proposed dwellings. Houses 1 and 2 would be particularly visible, located as they would be towards the front of the site, with House 1 set right at the edge of the road reserve, while house 2 would be set some 2m back from the front boundary but also elevated above the road which would increase its apparent height and significance.

Views to House 3 from the street would be largely screened by house 2 in front, although the widening of the driveway creates a view shaft up to the house and the thinning of the boundary vegetation on the subject site will allow views from the South West, albeit filtered by the remaining vegetation along the neighbouring side of the boundary.
Views up to the existing house from the street would be substantially screened by the proposed houses 1 and 2.

The widening of the Southern access to create the new driveway and vehicle manouevring space extends the hard surfacing right to the boundary. This creates a large expanse of hard paving edged with a low retaining wall and a 40m long stretch of boundary fence on one side, with the bulk of the 2 houses with double garage doors facing the space on the other side.
The trees located on the neighbouring site would remain, and provide an intermittent screen to views from properties to the South and from the road looking North East.

FROM No. 134 ROSETTA ROAD

View from in front of No.134 towards existing double garage

The house at No. 134 is located on the flatter, higher portion of the site, close to the boundary and the existing house on the subject site, and generally facing towards the NorthWest. The 2 houses are separated with a screen of mature vegetation that will remain.

In the NW corner of the subject site, House 1 would replace the existing double garage. House 1 has a deck that would be located tight to the front boundary and some 600mm off the Northern boundary. This deck would overlook the front portion of No.134 but this section of that site is occupied by driveway that zigzags up the slope and associated planting areas and there should be no privacy issues or adverse visual impacts

FROM No. 122 ROSETTA RD

The house at No. 122 is located on a back lot accessed by ROW along the Southern boundary of the subject site. The house itself is sited well back on the site, opposite and further East of the existing pool with screening vegetation and a garage on the boundary. The proposed house 2 on the subject site would be located some 10 - 11m from the house itself on No.122 As with the boundary situation at the Rosetta Road end of the boundary, some of the vegetation would be removed from the subject site side of the boundary, but much will remain on the neighbouring side of the boundary and this, combined with the distance between the houses would mitigate any privacy issues.

View from the driveway of No.122 showing existing boundary planting

FROM RENOWN RD

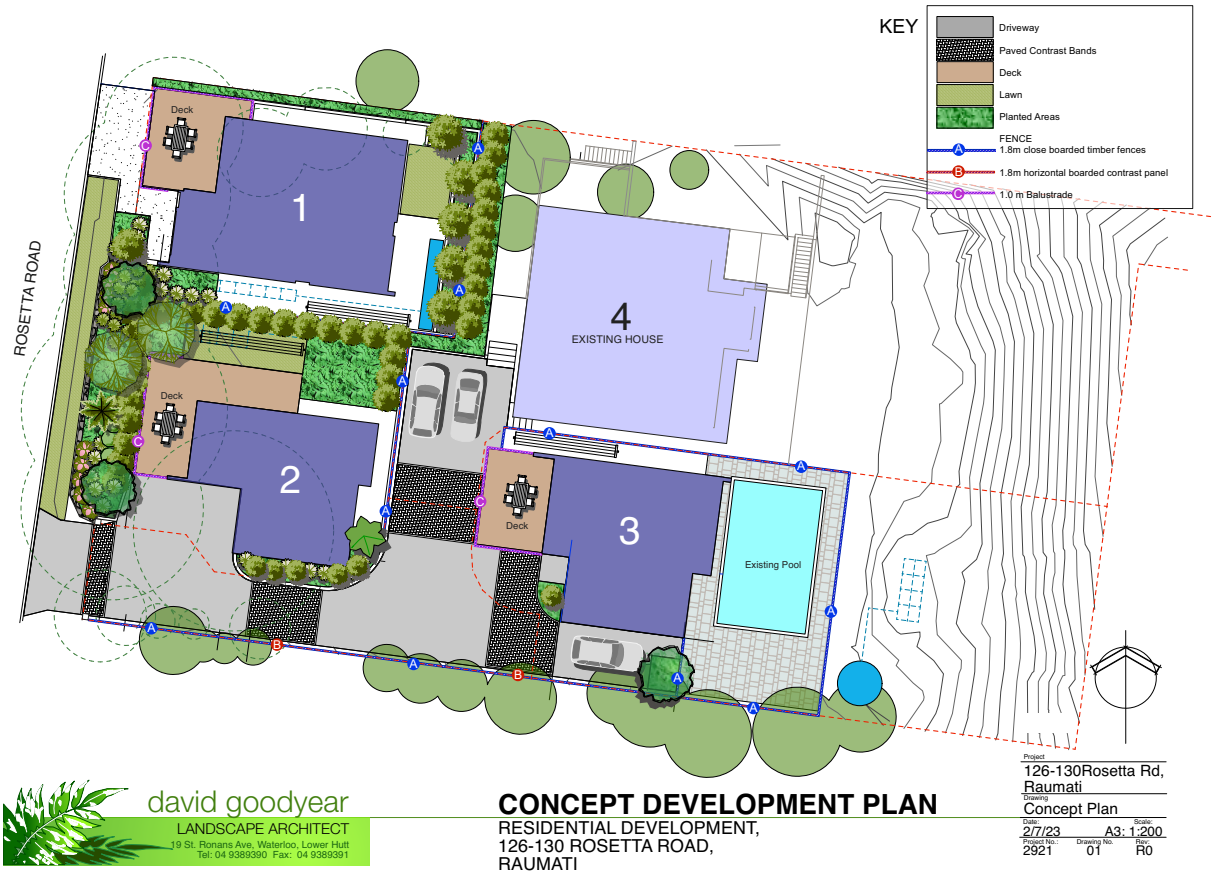
Views to the existing house from Renown Road are completely obscured by the steep East facing slope.of the back of the dune and the dense vegetation that clothes it. As the development proposal does not propose changes to the bank and its cover, there would be no visual impact on views from this direction.

5.0 MITIGATION

The proposed landscape plans attached to this report show the landscape and planting measures proposed to mitigate the adverse visual effects associated with the proposed development.

One of the most significant visual effects of the proposed development is likely to be those associated with the removal of the Pohutukawa screen across the street frontage. These trees form a significant feature of the site and their replacement will be a large component of the visual changes to the Rosetta Road frontage resulting from the development.

While their replacement is not possible due to the reduced amount of space available, the landscape plan proposes replanting of the bank using massed plantings of lush native, coastal tolerant species. The planting space available would extend from the back of the stone retaining wall on the road reserve to the deck/garage wall of House 2, a distance of some 4+m. This is probably inadequate and too close to the building for a replacement of the Pohutukawa screen, and would likely also create unacceptable shading effects for the proposed house, would prevent views out and hinder any passive surveillance opportunities to surrounding areas. Instead, a multi layered planting is proposed with plant species that step up from wall cascaders at the street edge to tall shrubs/ smalltrees (3-8m) at the back beneath a canopy of trees. A Pohutukawa is proposed at the driveway edge to screen house 2 and narrow the visual width of the driveway. Other trees proposed include Ngaio between houses 1 and 2 to visually separate the buildings, and lighter foliaged Kowhai and Nikau in the centre to allow light in/views out while still filtering views to the house.



Landscape Development Plan. David Goodyear, Landscape Architect 2/7/23

Planting in front of Lot 1 would include hedge planting down the Northern boundary of House 1 to soften the building edge and serve as a backdrop to to the neighbour's bank planting. The planting bed at the front of house 1 incorporates a Puka at the base of the bank together with the Ngaio and Kowhai on the bank above to soften the side of the building

The images on the following page show an impression of the proposed planting with about 5-10 years growth superimposed onto the Architectural perspective views from Rosetta Road.

On the Southern boundary, the widening of the vehicle access to the boundary and the removal of the trees on that boundary creates an expanse of unbroken hard surfacing and a 40m long exposed boundary fence with views of House 2 and up the driveway to House 3. Trees on the neighbouring property would likely remain and provide some filtering of views and boundary demarcation between the properties.

The vehicle circulation requirements offers limited scope for new planting to replace the boundary trees removed and to soften the Southern boundary. In order to break up and soften the expanse of hard paving, it is proposed to incorporate contrasting paving bands at intervals with matching contrast panels in the fence to break up the hard landscape elements of the the driveway space and to separate the drive into sections associated with each of the houses.

3D VIEW - HOUSE 02

SCALE: 1 : 1

3D VIEW - HOUSE 01

SCALE: 1 : 1

6.0 PLANNING CONTEXT

The subject site is located within the Beach Residential Precinct of the General Residential Zone. Appendix 3 of the District Plan sets out the Special Character Area Guidelines for the Beach Residential Precinct. Guidelines relating to the landscaping and visual impact of developments in this zone are as follows

GRZ-P4	Beach Residential Precincts

Subdivision, use and *development* in the Beach Residential Precincts will be undertaken in a manner that protects the valued character and qualities of these areas in accordance with Appendix 3 Special Character Areas Design Guidelines.

Where new *subdivision* or *development* is proposed in the Beach Residential Precincts, specific consideration will be given to the extent to which the proposal:

1. contributes to the collective identity of the local *environment*;
2. reinforces an attractive, defined and coherent streetscape character and is responsive to specific local *conditions*;
3. is sympathetic to and maintains the integrity of the existing landscape, landform and vegetation;
4. is compatible in scale with its built context;
5. is coherently designed and of good design quality; and
6. retains mature vegetation, reinforces existing planting patterns and integrates *buildings* into the existing landscape setting.

GRZ-P12	Landscaping

Landscaping will be required for *non-residential activities* and intensive residential *development* in the *Residential Zones* to enhance residential amenity, while promoting *water* conservation and biodiversity and allowing for the natural infiltration of surface *waters* through permeable treatments.
Landscaping will be located and designed in accordance with the following principles:

1. the visual impact of large *buildings* will be reduced by appropriate screening and planting;
2. service areas, *loading* areas and *outdoor storage* areas will be screened;
3. on-site *outdoor living spaces* will be defined and enhanced by *landscaping*;
4. *sunlight* access and passive surveillance to adjoining areas will not be unreasonably restricted;
5. public *infrastructure* and services will not be damaged or blocked;
6. planting of locally *indigenous vegetation* will be encouraged; and permeable surfaces will be provided for the natural infiltration of surface *waters*.

The GPRZ-P4 Guidelines cover the general overall development goals to achieve developments that are sympathetic in scale and form to the existing environment and streetscape. While this development may be a little more intense than is normal in the area, and houses 2 and especially 1 are closer to the Road than is common, the buildings proposed would be set into the slope of the dune with excavation confined largely to the building footprint so as to be retained and concealed by the building itself. Outdoor spaces are generally provided by decked areas to minimise additional excavation for outdoor living areas. The driveway servicing houses 2,3 and 4 generally follows the existing slope with minimal level changes.

Vegetation: The proposed removal of vegetation on the Rosetta Road frontage would be contrary to the guidelines in GPRZ-P4 regarding the retention of mature vegetation. Unfortunately, retention of the existing Pohutakawa screen is incompatible with the development proposed due to the amount of the site that the Pohutukawas occupy. The visual effect of the removal of these trees is not necessarily to completely open up views into the site as replacement planting is proposed as described.

The planting proposed in mitigation, while not being a replacement for the vegetation removed and not recreating the total screening of the site,, seeks to fulfill the other guidelines as outlined in GRZ-P12 for landscaping.
The planting proposed uses native species of a sufficient scale to soften and filter views, and to reduce the visual impact of the buildings. Boundary planting between buildings is incorporated to separate them visually and to integrate the houses into the streetscape and also to define living and service areas . Species selection uses native coastal tolerant species chosen to respond to the requirements to balance screening with preserving sunlight access and views to neighbouring areas.

PLAN CHANGE 2

The Council has publicly notified proposed changes to the District Plan, known as Plan Change 2 (PC2)- Intensification (Intensification Planning Instrument). This incorporates changes in relation to national direction on the Medium Density Residential Standards. The amendments to the subdivision and landscaping guidelines are as follows.

4.10 Amend policy GRZ-P4 as follows:

GRZ-P4	Beach Residential Precincts

~~*Subdivision*, use and *development* in the Beach Residential Precincts will be undertaken in a manner that protects the valued character and qualities of these areas in accordance with Appendix 3 Special Character Areas Design Guidelines.~~

~~Where new *subdivision* or *development* is proposed in the Beach Residential Precincts, specific consideration will be given to the extent to which the proposal:~~

1. ~~contributes to the collective identity of the local *environment*;~~
2. ~~reinforces an attractive, defined and coherent streetscape character and is responsive to specific local conditions;~~
3. ~~is sympathetic to and maintains the integrity of the existing landscape, landform and vegetation;~~
4. ~~is compatible in scale with its built context;~~
5. ~~is coherently designed and of good design quality; and~~
6. ~~retains mature vegetation, reinforces existing planting patterns and integrates *buildings* into the existing landscape setting.~~

Subdivision, use and *development* in the Beach Residential Precincts (excluding the Waikanae Beach Residential Precinct) will give consideration to:

1. Maintaining, where practicable, the intactness of existing dune landforms;
2. Retaining, where practicable, existing mature *trees* and areas of extensive vegetation; and
3. The relationship between built form and the landscape and streetscape setting, having regard to (1) and (2).

4.15 Amend policy as GRZ-P12 follows:

GRZ-P12	Landscaping

Landscaping will be required for *non-residential activities* and ~~intensive~~ residential development in the *Residential Zones* to enhance residential amenity, while promoting *water* conservation and biodiversity and allowing for the natural infiltration of surface *waters* through permeable treatments. Landscaping will be located and designed in accordance with the following principles:

1. the visual impact of large *buildings* will be reduced by appropriate screening and planting;
2. service areas, loading areas and *outdoor storage* areas will be screened;
3. on-site *outdoor living spaces* will be defined and enhanced by *landscaping*;
4. *sunlight* access and passive surveillance to adjoining areas will not be unreasonably restricted;
5. public *infrastructure* and services will not be damaged or blocked;
6. planting of locally *indigenous vegetation* will be encouraged; and
7. permeable surfaces will be provided for the natural infiltration of surface *waters*.

GRZ-P12 is almost unchanged. The more significant changes to the guidelines occur with GRZ-P4 where the matters for consideration are reduced to 3, covering retention of existing topography and landform, retention of existing mature trees and extensive areas of vegetation and a more general clause about the relationship between proposed structures and the existing landscape setting.

1. This is a more specific clause targeting the retention of the dune landform and as discussed, the proposed development is designed to avoid unnecessary excavation and preserve as much as possible the existing dune form.
2. The retention of existing vegetation is still a matter to be considered and probably not fulfilled as discussed, although in this case it could be considered that the retention of the existing Pohutukawas along the Rosetta Road frontage is “not practicable” for the development proposed.
3. The planting and landscape measures proposed to integrate the development into the existing landscape and streetscape setting are in response to this guideline.

9.0 Conclusion

To summarise, the application is for a 4 lot subdivision on land at 126-130 Rosetta Road and construction of dwellings on the subdivided lots. Subdivision developments in the Beach Residential Precinct are subject to the Special Character Area Guidelines for the Beach Residential Precinct.

The development, although not always in accordance with the Special Character Area Design Guidelines, particularly with regard to vegetation retention does seek to integrate the proposed dwellings into the existing dune landform with minimal earthworks.

The visual effects of the development on surrounding properties to the North, South and East are considered to be less than minor. The main visual effects of the development involve views to the site’s Rosetta Road frontage where proximity of the two front houses to the street, changes to the main vehicle access and removal of the existing Pohutukawa screen create possible adverse visual effects.

To mitigate these, planting and landscape measures are proposed, designed to filter and soften views to the new houses, create separation between the buildings and the street while still preserving access to sunlight and views out. The drive and entry area of the site will be broken up with the use of contrasting materials and textures to articulate the spaces and create interest. The resulting development is not considered therefore to be out of character with the local environment and to generally comply with the Design Guidelines for the Special Character Area.

david goodyear
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19 St. Ronans Ave, Waterloo, Lower Hutt
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CONCEPT DEVELOPMENT PLAN

RESIDENTIAL DEVELOPMENT,
126-130 ROSETTA ROAD,
RAUMATI

Project
126-130Rosetta Rd, Raumati
Drawing
Concept Plan
Date: 7/8/23
Scale: A3: 1:200
Project No.: 2921
Drawing No. 01
Rev: R2

PLANTING KEY

Key	Plant Name
AcaIP	Acaena inermis 'Purpurea'
AleEx	Alectryon excelsus
ArtMB	Arthropodium cirratum 'Matapouri Bay'
AstBa	Astelia banksii
AstCh	Astellia chatamica 'Silver Spear'
CopPK	Coprosma repens 'Poor Knights'
CopRR	Coprosma 'Red Rocks'
CorGG	Corokia 'Geenty's Green'
CyaMed	Cyathea medullaris
GriBM	Griselinia littoralis 'Broadway Mint'
GrLuc	Griselinia lucida
LepRD	Leptospermum 'Red Damask'
LibPe	Libertia peregrinans
MacEx	Macropiper excelsum
MerSi	Meryta sinclairii
MetMP	Metrosideros excelsa 'Maori Princess'
MueAs	Muehlenbeckia astonii
MueAx	Muehlenbeckia axillaris
MyoLa	Myoporum laetum
PhoYW	Phormium 'Yellow Wave'
PimPr	Pimelia prostrata
PitFF	Pittosporum ten. 'Frankie's Folly'
PitSI	Pittosporum ralphii 'Stephens Island'
PsdCr	Pseudopanax crassifolius
PsdCW	Pseudopanax 'Cyril Watson'
RhoSa	Rhopalostylis sapida
SopCh	Sophora chathamica

david goodyear
LANDSCAPE ARCHITECT
19 St. Ronans Ave, Waterloo, Lower Hutt
Tel: 04 9389390 Fax: 04 9389391

PLANTING PLAN

RESIDENTIAL DEVELOPMENT,
126-130 ROSETTA ROAD,
RAUMATI

Project
126-130Rosetta Rd, Raumati
Drawing
Planting Plan
Date: 7/8/23
Scale: A3: 1:200
Project No.: 2921
Drawing No. 02
Rev: R2

Plant List - 126-130 Rosetta Road

ID	Qty	Botanical Name	Common Name	Scheduled Size	Remarks
AcaIP	5	Acaena inermis 'Purpurea'	Bidibidi	PB5	
AleEx	1	Alectryon excelsus	Titoki / New Zealand Oak	PB95	
ArtMB	67	Arthropodium cirratum 'Matapouri Bay'	Rengarenga, Rock Lily	PB5	
AstBa	12	Astelia banksii	Small silver flax	PB5	
AstCh	17	Astellia chatamica 'Silver Spear'	Chatham Is. Astelia, Silver Flax	PB5	
CopPK	19	Coprosma repens 'Poor Knights'		PB5	
CopRR	5	Coprosma 'Red Rocks'		PB5	
CorGG	43	Corokia 'Geenty's Green'	korokio	PB5	
CyaMed	1	Cyathea medullaris	black tree fern, mamaku	PB40	
GriBM	39	Griselinia littoralis 'Broadway Mint'	Broadleaf (Griselinia)	PB5	
GrLuc	3	Griselinia lucida	Puka	PB5	
LepRD	5	Leptospermum 'Red Damask'	Manuka	PB5	
LibPe	8	Libertia peregrinans	Creeping New Zealand Iris	PB5	
MacEx	6	Macropiper excelsum	kawakawa; pepper tree	PB5	
MerSi	1	Meryta sinclairii	Puka	PB40	
MetMP	1	Metrosideros excelsa 'Maori Princess'	pohutakawa	PB95	
MueAs	6	Muehlenbeckia astonii	Bush Pohuehue	1m	
MueAx	4	Muehlenbeckia axillaris	Pohuehue	PB5	
MyoLa	1	Myoporum laetum	Ngaio	PB95	
PhoYW	13	Phormium 'Yellow Wave'	Yellow Wave New Zealand Flax	PB5	
PimPr	11	Pimelia prostrata	NZ Daphne	PB5	
PitFF	19	Pittosporum ten. 'Frankie's Folly'	Dwarf Kohuhu	PB5	
PitSI	5	Pittosporum ralphii 'Stephens Island'		PB5	
PsdCr	4	Pseudopanax crassifolius	lancewood; horoeka	PB40	
PsdCW	6	Pseudopanax 'Cyril Watson'		PB40	
RhoSa	1	Rhopalostylis sapida	Nikau	PB95	
SopCh	2	Sophora chathamica	Coastal Kowhai	PB95	

SOFT WORKS BRIEF SPECIFICATION

PREPARATION:

STANDARD OF WORK
Work shall be carried out in accordance with the best trade practice by competent tradespersons conforming with the relevant NZ standards.

Any asphalt, concrete, hardcore or other unsuitable or waste material shall be excavated and removed from site.

EXISTING VEGETATION
Existing areas of native vegetation able to be retained shall be identified prior to starting clearance work and protected from construction and herbicide overspraying. Where existing vegetation to be retained is adjacent to areas of construction activity, install a temporary glowmesh irridescent fence around the perimeter of the vegetation to be retained which is to remain in place for the duration of the works or for each separable stage.

Existing vegetation identified for removal shall be removed mechanically, including the bulk of the root ball where possible. Plants that are too large to be dug out shall be stump ground to below ground level

GROUNDWORKS
Excavation shall be carried out where necessary to achieve either of the following soil profiles:

1. Where existing site soils are suitable, preparation shall consist of rotary hoeing to a minimum depth of 300mm, incorporating fertiliser and a min.100mm deep layer of planting compost.
2. Where no suitable existing soil exists (new planters, cleared areas, tops of retaining walls, etc., or where existing soil is contaminated by spilled cement, oil, etc.
   * 600mm of topsoil with 50mm planting compost incorporated
   * 75mm of mulch (to be maximum of 25mm below finished levels of surrounding kerbs and paving.)
   Total depth of excavation 700mm below surrounds
3. TREE PITS
   Tree pits for specimen trees (PB40 and above) shall be excavated 1000mm wide x 1000mm deep and backfilled with a 50/50 topsoil/compost mix

The bottom of the pit shall be broken up an additional 300mm to facilitate root penetration, air movement and free drainage.

The subgrade of new planting shall be firm but free draining. Where excessive compaction exists, the subgrade shall be broken up to a depth sufficient to ensure free drainage through the underlying material.

PLANTING COMPOST
Planting Compost shall comprise suitable humus-forming material such as leaf mould, spent mushroom compost, composted bark or other suitable organic material.

SHRUBS AND GROUNDCOVERS
Shall be supplied in minimum PB5 container size. Shrubs shall be strong, well rooted and have a good bushy form.

SPECIMEN TREES
shall be supplied in minimum PB95 or EL45 grade unless otherwise instructed by the Principal.

PLANTING:
Planting operations shall generally be carried out during the period from 1 April to 30 September.

Planting holes shall be dug to at least twice the diameter and one and a half times the depth of the root ball and the sides and bottom of the planting hole broken up to allow root penetration into the existing soil. The plants shall be set upright to the same depth that they were growing at in the container and backfilled with a 50/50 mixture of excavated soil and planting compost, with incorporated fertiliser.

Water all planted areas immediately after planting to ensure that the entire root zone is thoroughly saturated.

After watering, a 75mm deep consolidated layer of shredded bark shall be spread over all plant beds and over each tree pit.
Stake all trees with two stakes to ensure no rocking of the root ball. Wooden tree stakes shall be used for trees and shall be straight 1500x50x50mm H4 treated Pinus radiata (or equivalent approved) stakes. Stakes shall be pointed at one end and set not less than 500mm above ground level, and shall be firm on completion. Reinforced hessian webbing tree ties shall be positioned to provide firm support but allow some trunk movement.

MAINTENANCE:
DEFECTS LIABILITY PERIOD
The Defects Liability Period will extend from the date of Practical Completion of the Works for a period of twelve (12) months.

MAINTENANCE SCHEDULE SUMMARY:
All planted areas shall be maintained for a period of twelve (12) months after the date of Practical Completion. Maintenance operations shall include minimum regular monthly visits to carry out watering as necessary, weeding, pruning for form and cutting back of weed species, and any other operations necessary to assure good plant growth and attain a tidy weed free appearance.

All chemical application shall be carried out by qualified trained personnel and according to the Growsafe Code of Practice for Safe Use of Pesticides and Herbicides, NZS8409: 'The Agrichemical Users Code of Practice' and any Manufacturers directions.
All spraying operations shall be carried out in windless, dry conditions, when rain is not imminent for at least 12 hours and at times which minimise possible hazards or disruption to the public, animals, or other beneficial fauna. Care shall be taken to prevent spray drifting onto non-target areas or plants.

Mulch depth shall be maintained around the plants for the duration of the maintenance period and replenished or redistributed as necessary to maintain the original mulch depth.

REPLACEMENTS
The Contractor shall replace at his own expense any plants which are lost through whatever cause other than vandalism up to the end of the Defects liability Period. All replacement stock shall be to the same standard as described in this specification.

FINAL COMPLETION
Final Completion shall be certified at the end of the Defects Liability Period. At Final Completion, all failed plants (other than vandalised material) shall have been replaced and all other defects made good to the Principal's reasonable satisfaction. Mulch shall be left at a minimum of 75mm deep across all mulched beds and all stakes and ties properly positioned and tightened. The site shall be left tidy and weed free. The final weedkiller application shall be with a translocated weedkiller, unless otherwise instructed by the Principal.

david goodyear
LANDSCAPE ARCHITECT
19 St. Ronans Ave, Waterloo, Lower Hutt
Tel: 04 9389390 Fax: 04 9389391

PLANTING SCHEDULE

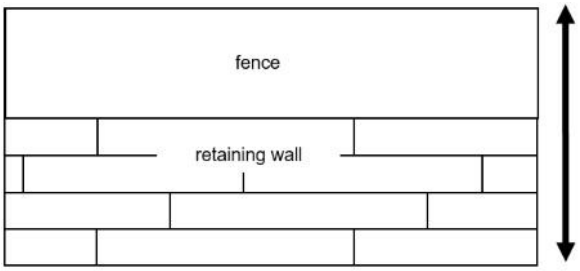
RESIDENTIAL DEVELOPMENT,
126-130 ROSETTA ROAD,
RAUMATI

Project
126-130Rosetta Rd, Raumati
Drawing
Planting Schedule
Date: 7/8/23
Scale: A3: 1:200
Project No.: 2921
Drawing No. 03
Rev: R2

ATTACHMENT 2

Assessment of proposed dwellings in relation to current lot boundaries and retaining walls over 1m in height against the District Plan Provisions (Item 2 and 4 of RFI)

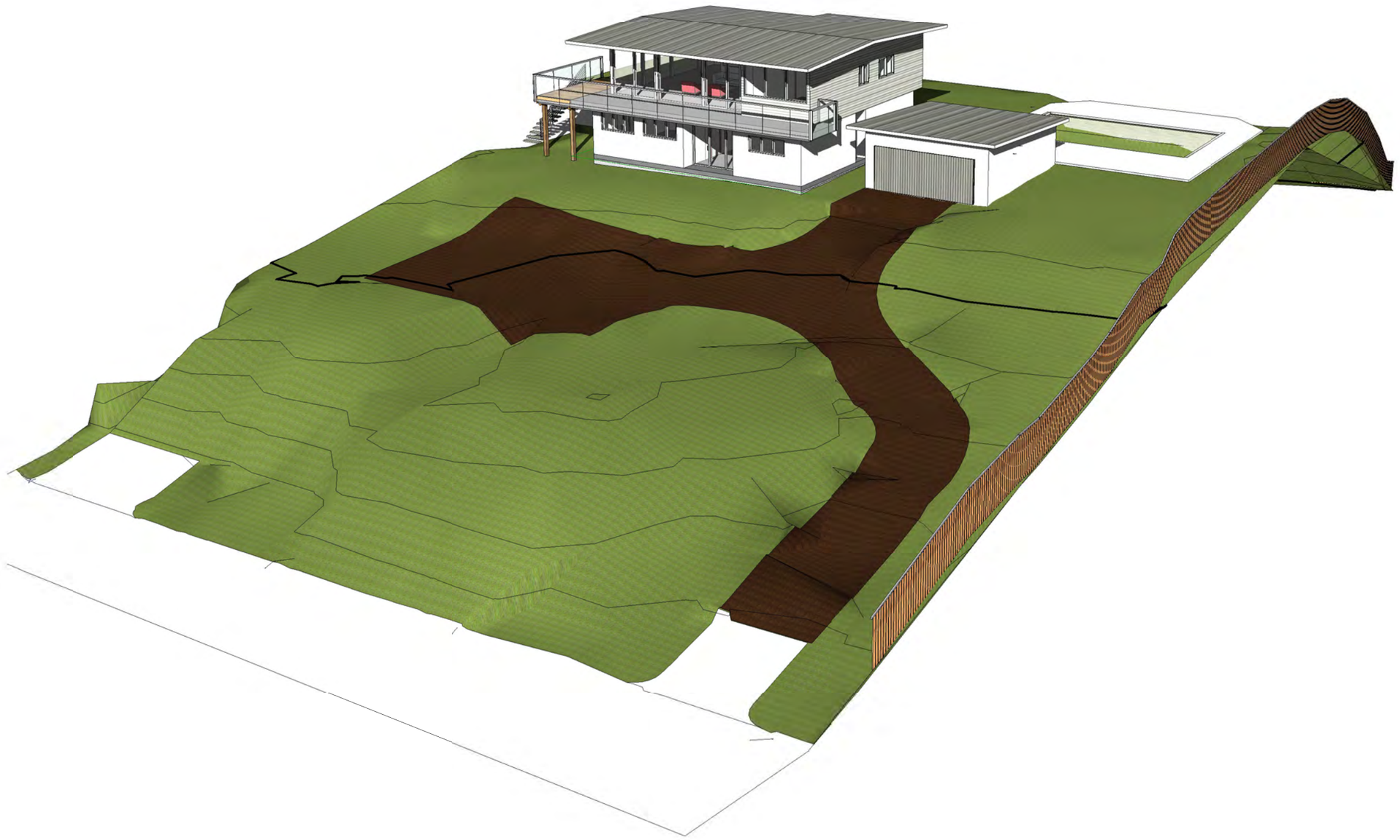
Part 3: Area Specific Matters- Residential Zones		
Permitted Activity **GRZ-R1: Any activity that is a permitted activity under rules in this chapter**	**Standards** 1. The activity must not cause offensive or objectionable odour, dust or smoke at or beyond the boundary of the site on which it is occurring. 2. Each allotment must have a permeable surface area that is not covered by buildings, paving or other impermeable objects of not less than 30% of the total allotment area. 3. Any lighting must be directed so that the spill of light is contained within the boundaries of the site on which the activity occurs. Light level from the activity must not exceed 10 lux, when measured 1.5 metres inside the boundary of any other site located in the Residential Zones or Rural Zones. This standard does not apply to street lighting on legal roads.	**Complies- the activity will not create offensive or objectionable odour, dust or smoke** **Complies: The parent allotment (Lot 1 and Lot 2) of 2,423m² will have around 45.5% permeable area.** **All lighting will be contained within the application site**
Permitted Activity **GRZ-R3:**	**Standards** Height (measured above original ground level) 1. The maximum height of any fence or wall on a boundary shall be 2 metres, except: a. in the front yard, where the maximum height shall be 1.8 metres; b. in the front yard in the Waikanae Beach Precinct where the maximum height shall be 1.8 metres if it is at least 50% visually permeable otherwise the maximum height shall be 1.2 metres; c. along any boundary which adjoins any Natural Open	**Complies:** **House 01 will require retaining walls up to 2m in height with a timber fence up to 1.2m atop these retaining walls bringing the total combined height along the northern boundary of up to 3.2m as measured from the proposed ground level after excavation.**

	Space or Open Space Zone (excluding the Private Recreation and Leisure Precinct), esplanade or any access strip, where the maximum height shall be 1.8 metres. 2. For the purposes of calculating maximum height under standard (1) above where a fence is erected atop a retaining wall, the height shall be the combined distance measured vertically from the base of the retaining wall to the top of the fence.  **Note:** For the avoidance of doubt, the standards for fences and walls do not apply to seawalls that are constructed for natural hazard mitigation purposes. In addition, any wall used as an internal partition or external surface of any building shall be excluded from this rule.	**As measured from the original ground level, the total combined height will be between approximately 0.2m to 1.8m in height as the depth of the earthwork cut occurring along this northern boundary differs in places in order to establish the building platform. The original ground level also changes along this elevation as it slopes up from the road boundary to the east.** **Retaining walls in-between house 01 and house 02 will be between 0.4 to 0.6m measures in height and may have timber fencing of up to 1m atop these retaining walls.** **Retaining walls to the south and east of house 02 will be between 0.4 to 0.6m measures in height and may have timber fencing of up to 1m atop these retaining walls.**
Permitted Activity **GRZ-R6: New buildings, and any minor works, additions or alterations to any building**	**Standards** **Maximum number of residential units** 2. For any allotment in the General Residential Zone which is not in a focused infill precinct, no more than one residential unit may be erected, except that:	**Does not comply. The parent lot (Lot 1 and 2) will contain 4 residential dwellings temporarily whilst subdivision and**

		building potentially occur concurrently.
	Minor residential units	**N/A- no minor residential units are proposed**
	Coverage 5. The maximum building coverage of any allotment shall be 40%, except in the Beach Residential Precinct where it shall be 35%	**Complies:** **The parent allotment will have building coverage of approximately 28.6%.**
	Floor area ratio Any allotment in the Beach Residential Precinct shall have a maximum floor area ratio of 0.6:1.0, excluding the Beach Residential Precinct at Waikanae Beach where it shall be 0.5:1.0.	**Complies:** **Combined GFA of all four houses in relation to the parent lot area expressed as ratio:** **0.39:1.0**
GRZ-R6	**Standards** ii. each residential unit or retirement unit must be separated by a distance not less than 4.5 metres, except that this shall not apply to any attached residential units;	**All houses comply with this requirement except for House 03 and House 04 (existing house) which will have a separation distance from each other of approximately 3.3m. For amenity purposes, the internal breach of 1.2m is considered less than minor as House 03 has been designed to have small windows along this aspect to protect the amenity of house 04. The breach is occurring on House 04's southern aspect which does not contain any outdoor living along this**

		elevation for which could be shaded or overlooked (privacy concerns) by House 03.

ATTACHMENT 3



PLISHKE HOUSE DECK

RAUMATI

COBIE TRADING LIMITED

Rev. Description	Rev. Date

i4C
Property Development & Architectural Services
info@i4c.co.nz
+64.27.39.38.361

PRESENTATION

A000

@A3 08/08/2022

PROJECT:

REPLACE DEMOLISHED LEAKING FRONT DECK AND TIMBER DECK STRUCTURE

REMOVE AND REPLACE FRONT LARGE WINDOW AND DOOR SLIDER

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PROJECT - VIEW

A005

@A3 08/08/2022

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IMAGES - EXISTING

A010

@A3 08/08/2022

LOT 00 - EXISTING:
LAND AREA: 2430M2 MORE OR LESS

FOOTPRINT: 188M2

TOT. FL. ARE: 317M2

4BR + 3 BATHROOM

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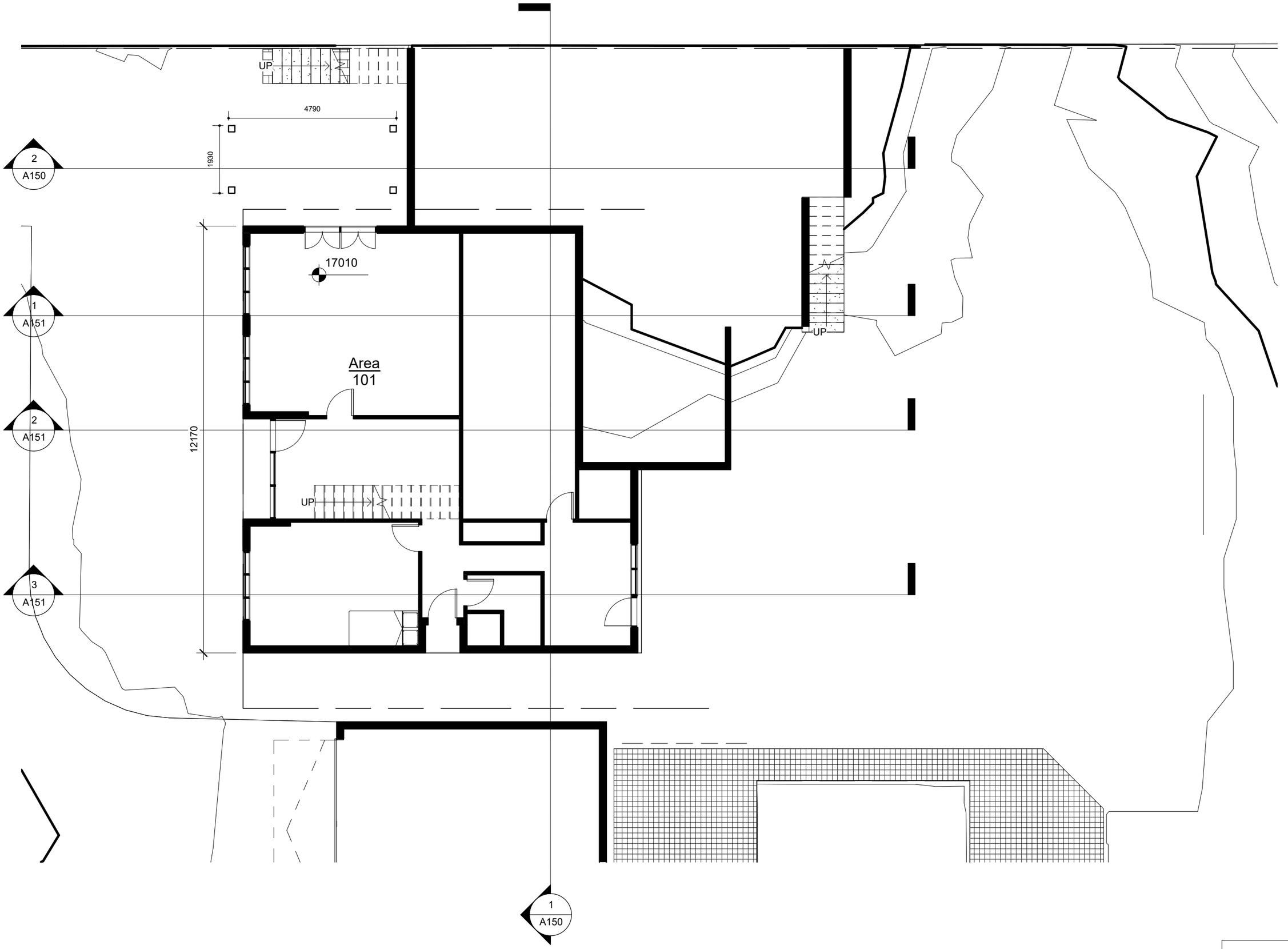
SITE PLAN A050

1 : 200 @A3 08/08/2022



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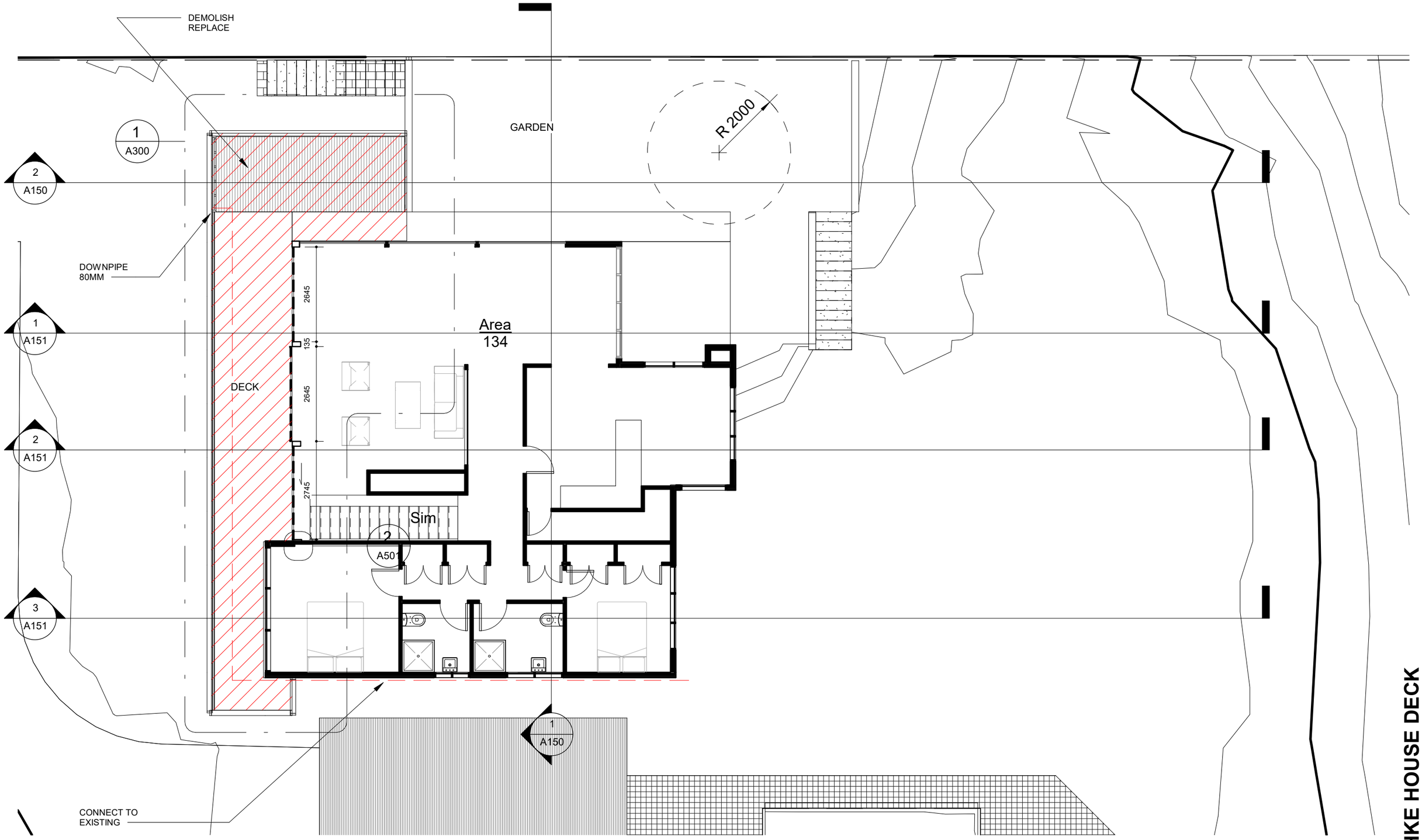
EXISTING - PLAN L0 A105

1 : 100 @A3 08/08/2022



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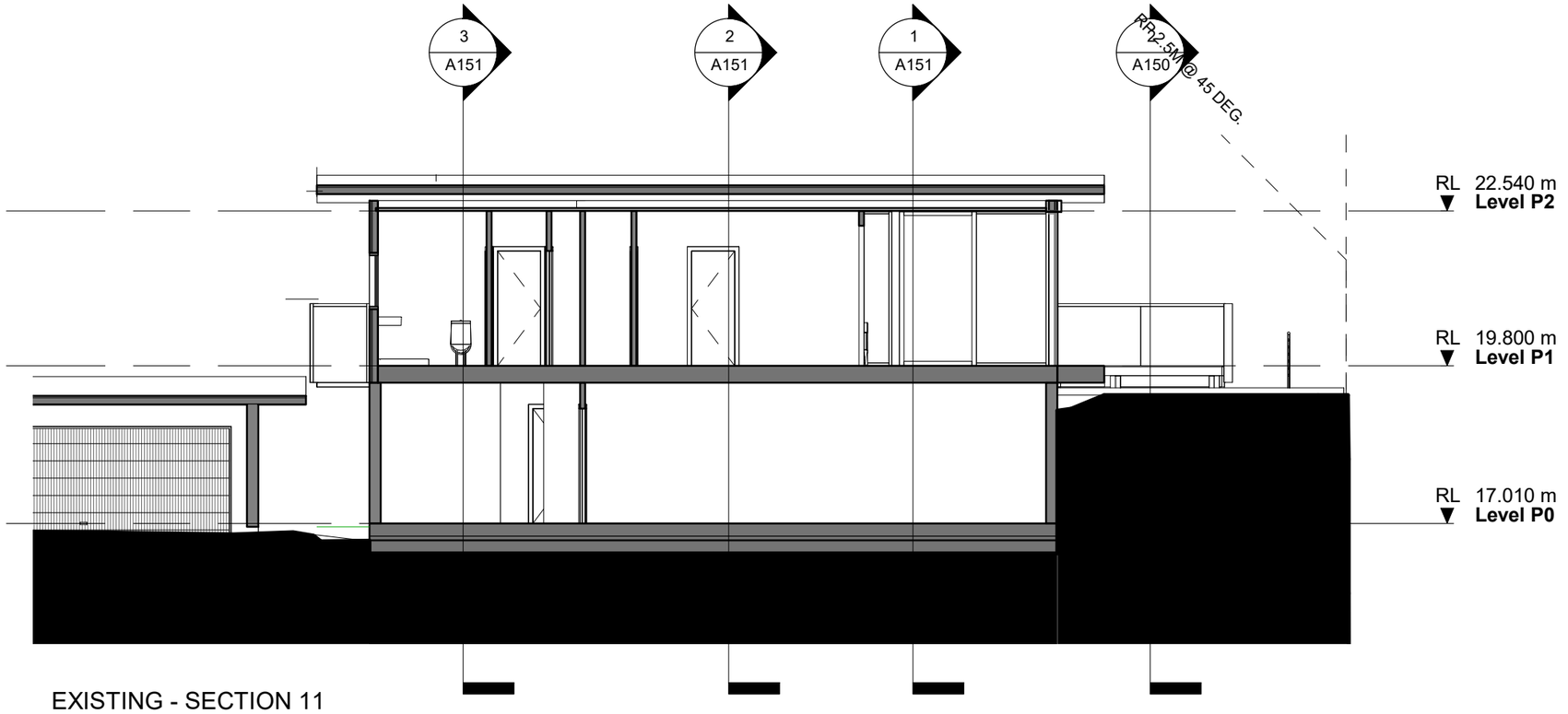
EXISTING - PLAN L1

A110

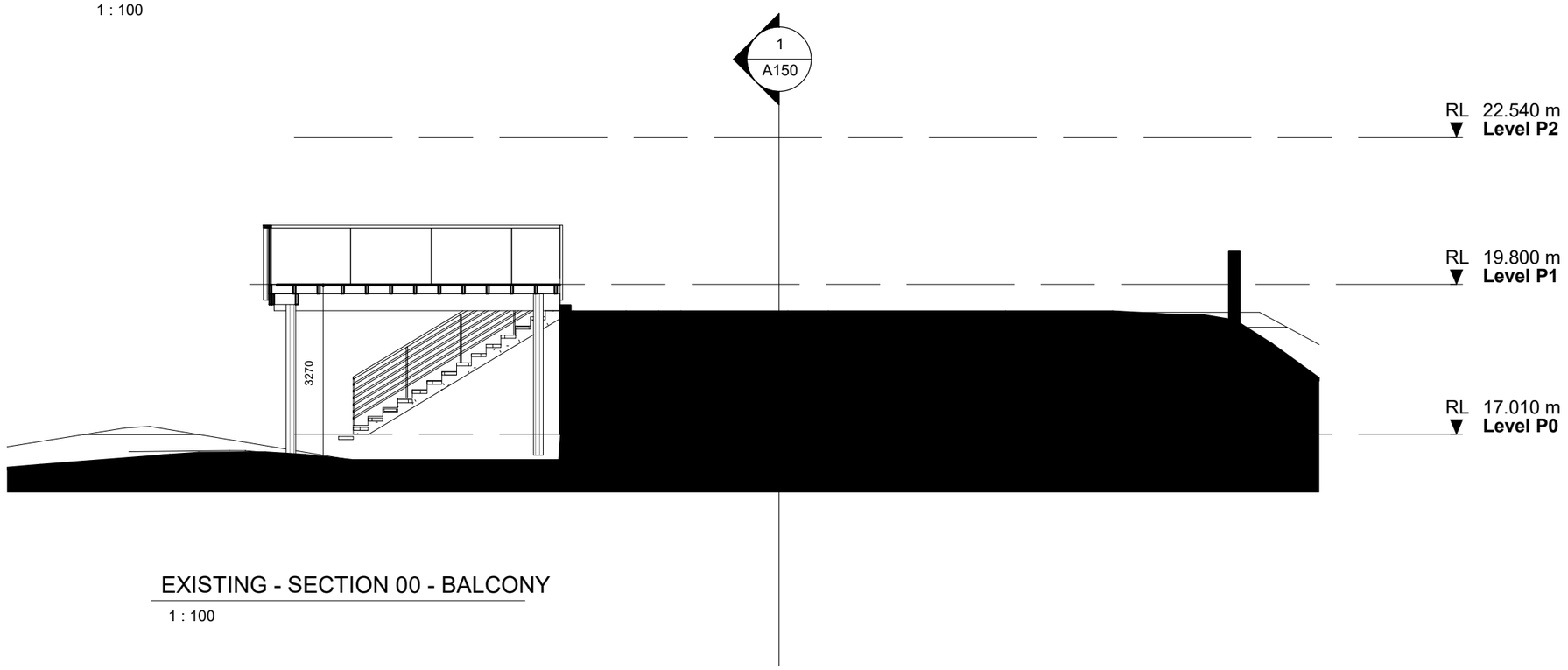
1 : 100 @A3

08/08/2022



EXISTING - SECTION 11

1 : 100



EXISTING - SECTION 00 - BALCONY

1 : 100

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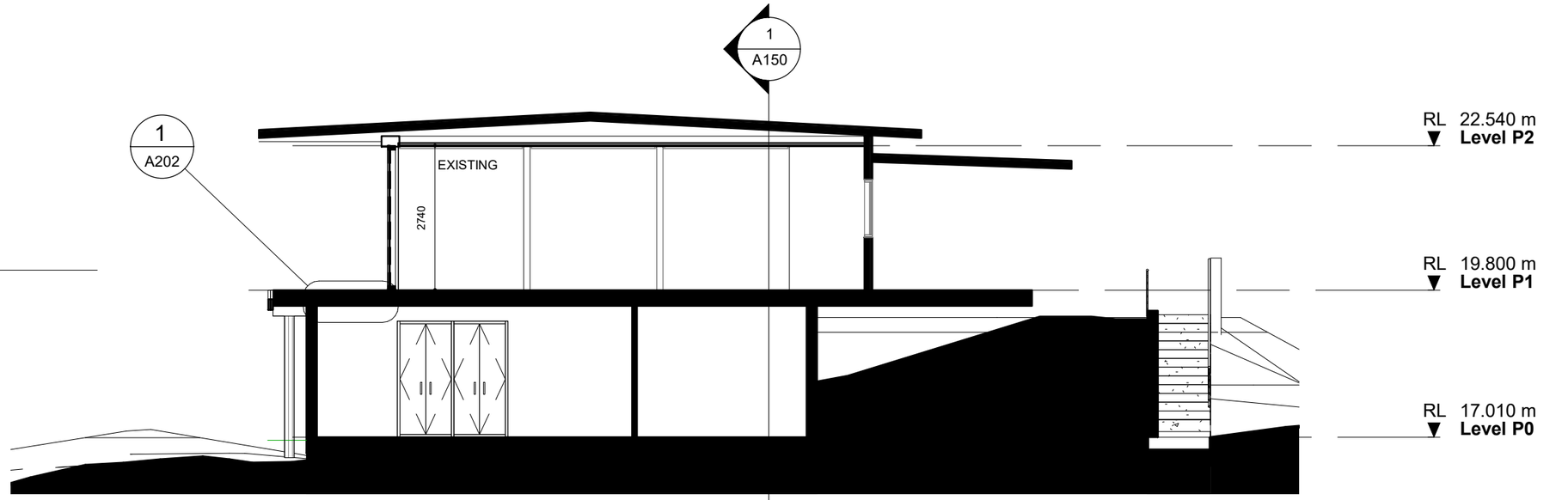
EXISTING - SECTIONS A150

1 : 100 @A3 08/08/2022

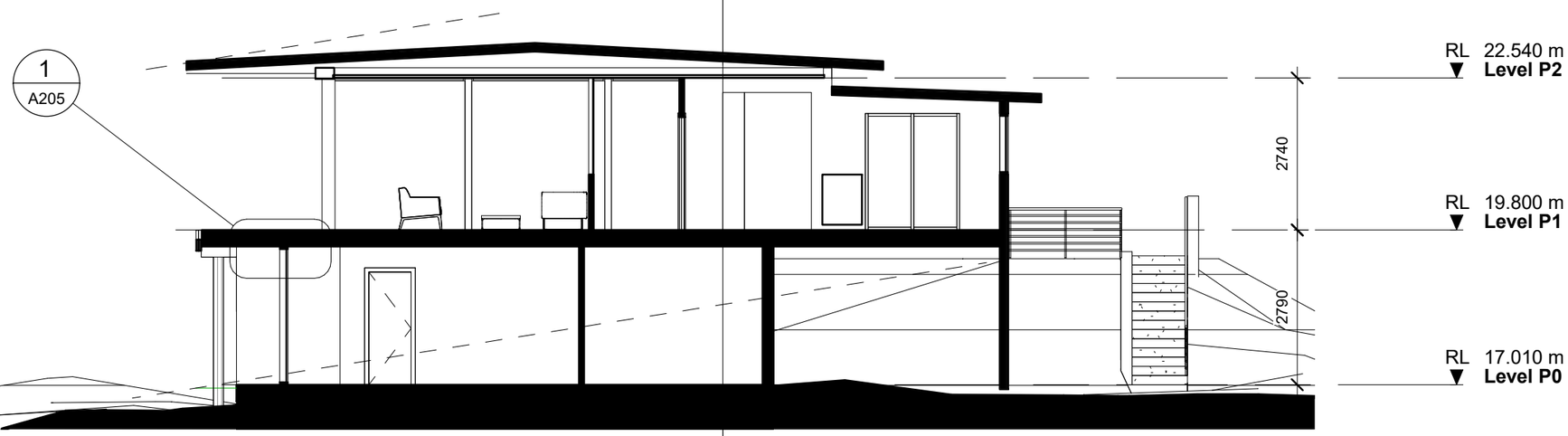
SECTION 01

1 : 100



SECTION 02

1 : 100



SECTION 03

1 : 100

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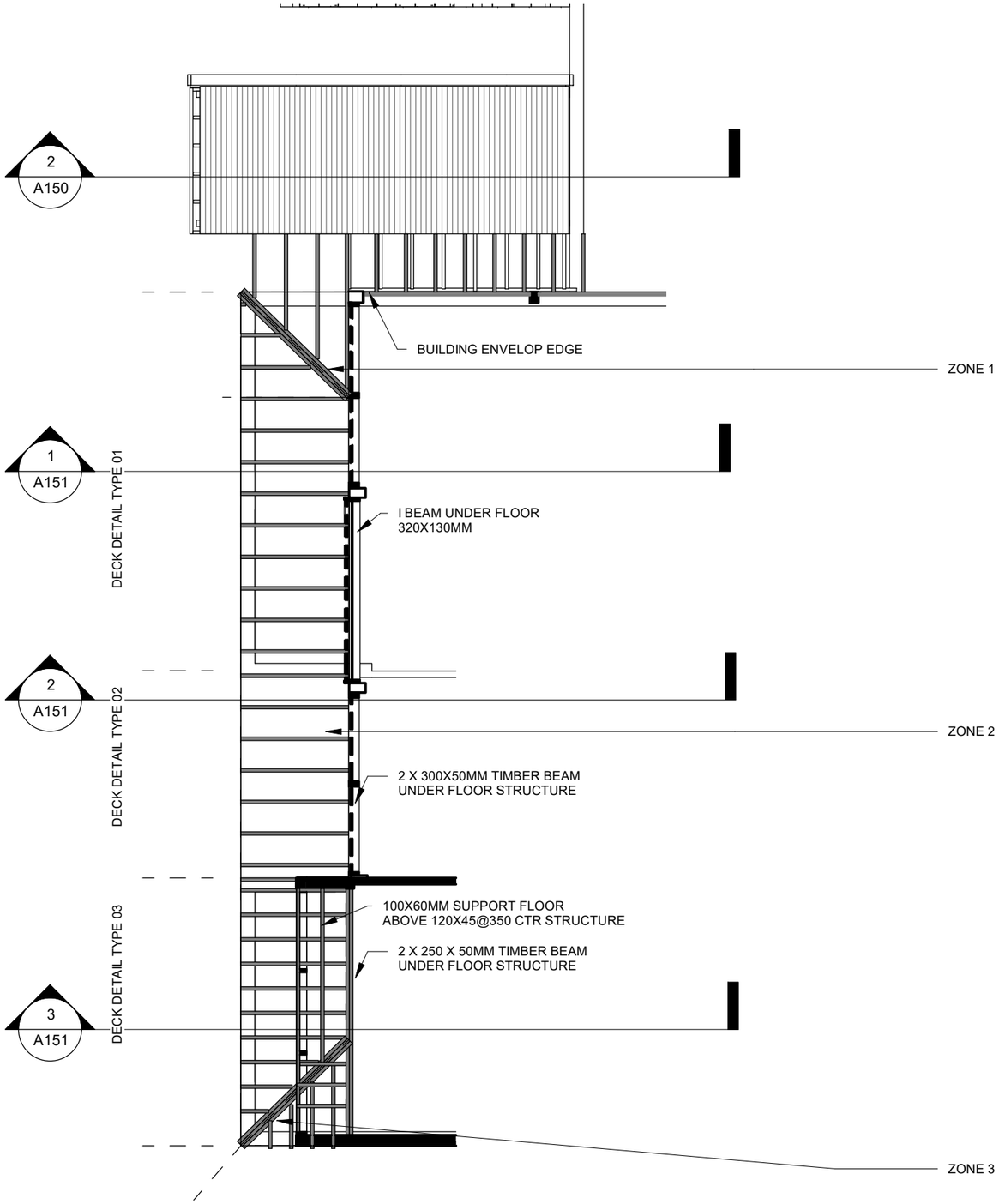
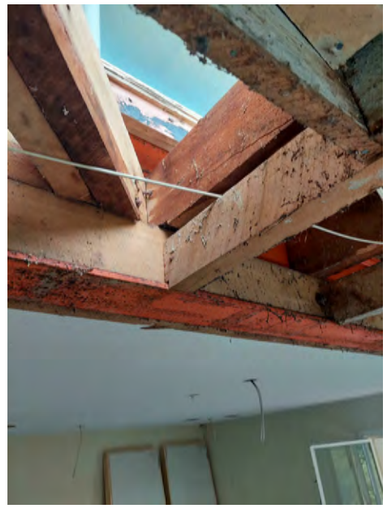
EXISTING - SECTIONS

A151

1 : 100 @A3 08/08/2022





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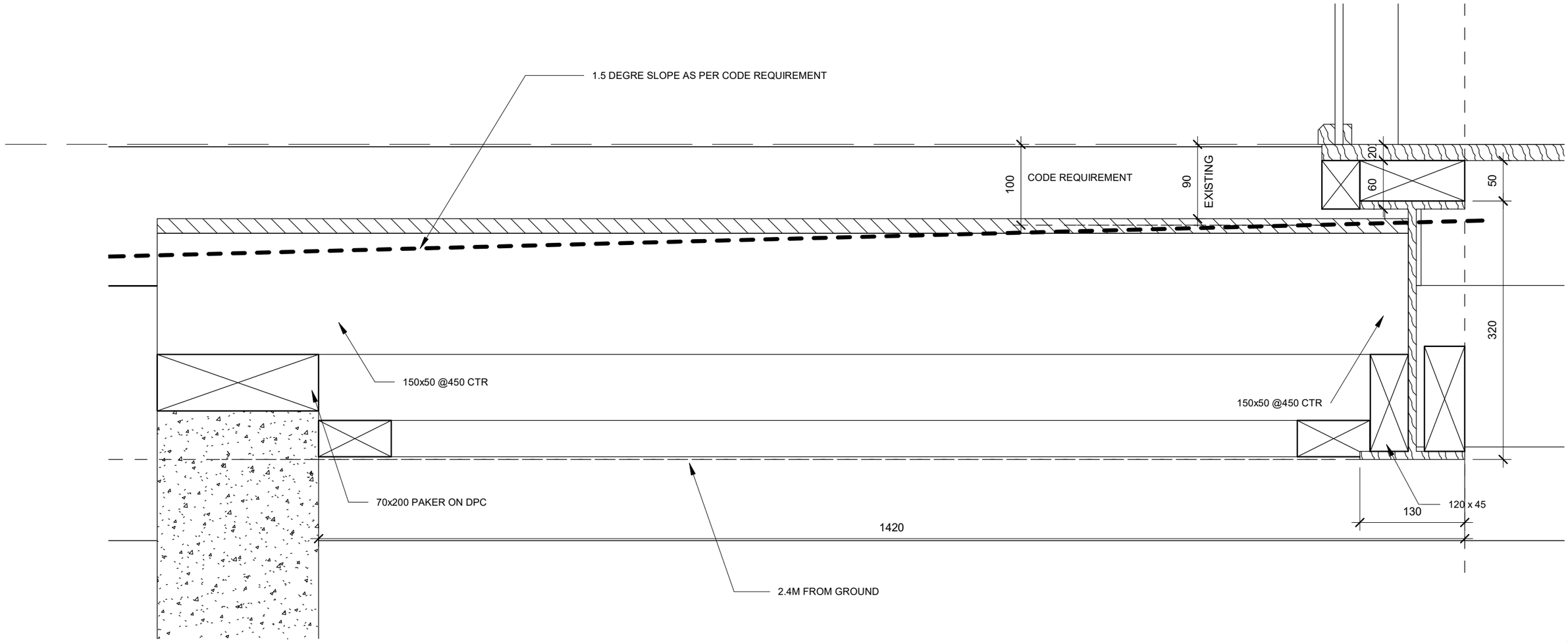
EXT. DETAIL - STRUCTURE PLAN

A200

1 : 75 @A3

08/08/2022

VERIFY ALL DIMENSIONS ON SITE PRIOR TO STARTING WORK. REPORT ANY DISCREPANCY TO ARCHITECT, PRIOR TO AFFECTED WORK PROCEEDING. IF ANY FURTHER INFORMATION IS REQUIRED, REFER TO ARCHITECT. DO NOT SCALE FROM DRAWINGS.



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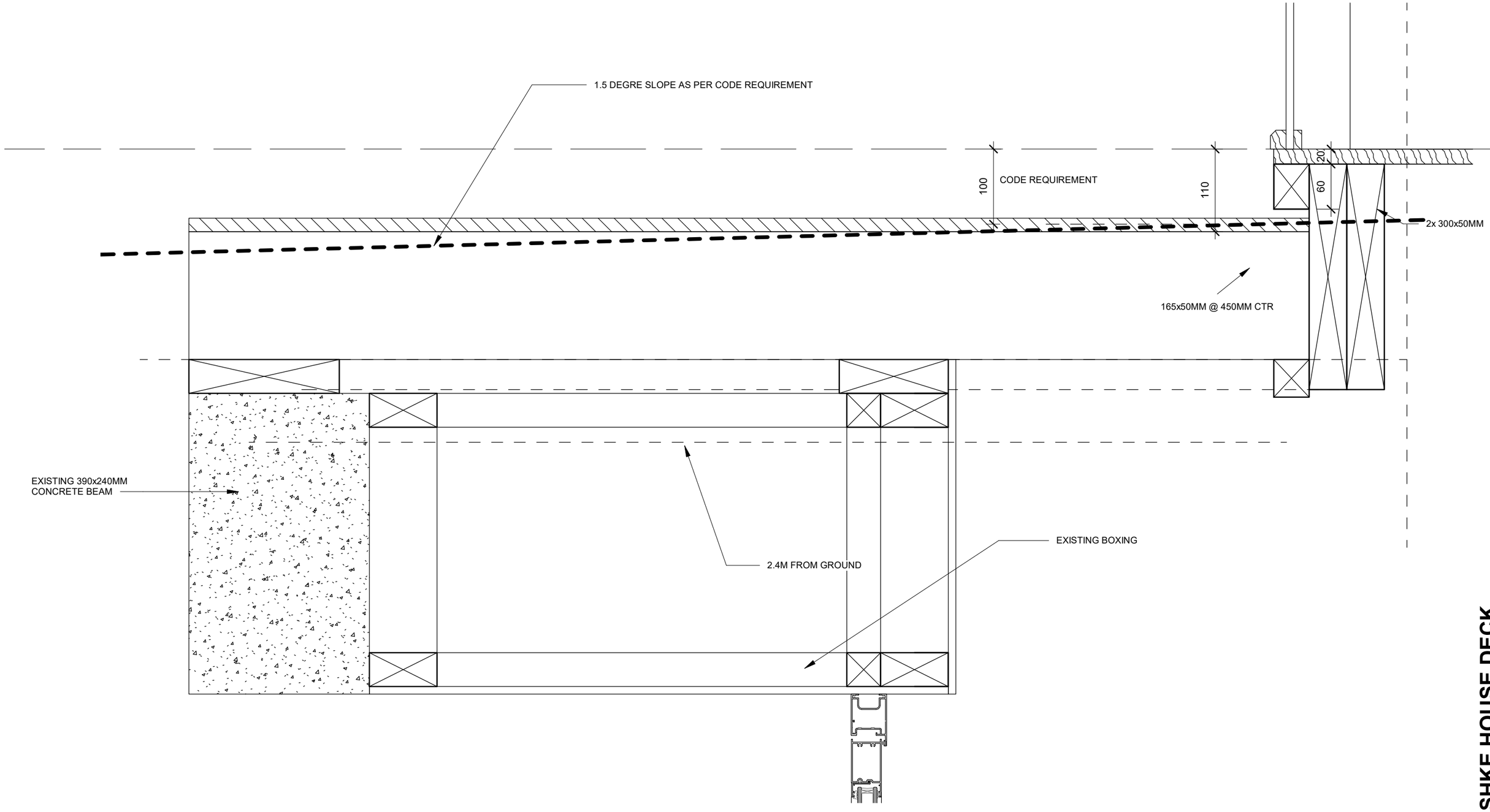
EXIST. DECK DETAIL - ZONE 01 A202

1 : 5 @A3 08/08/2022



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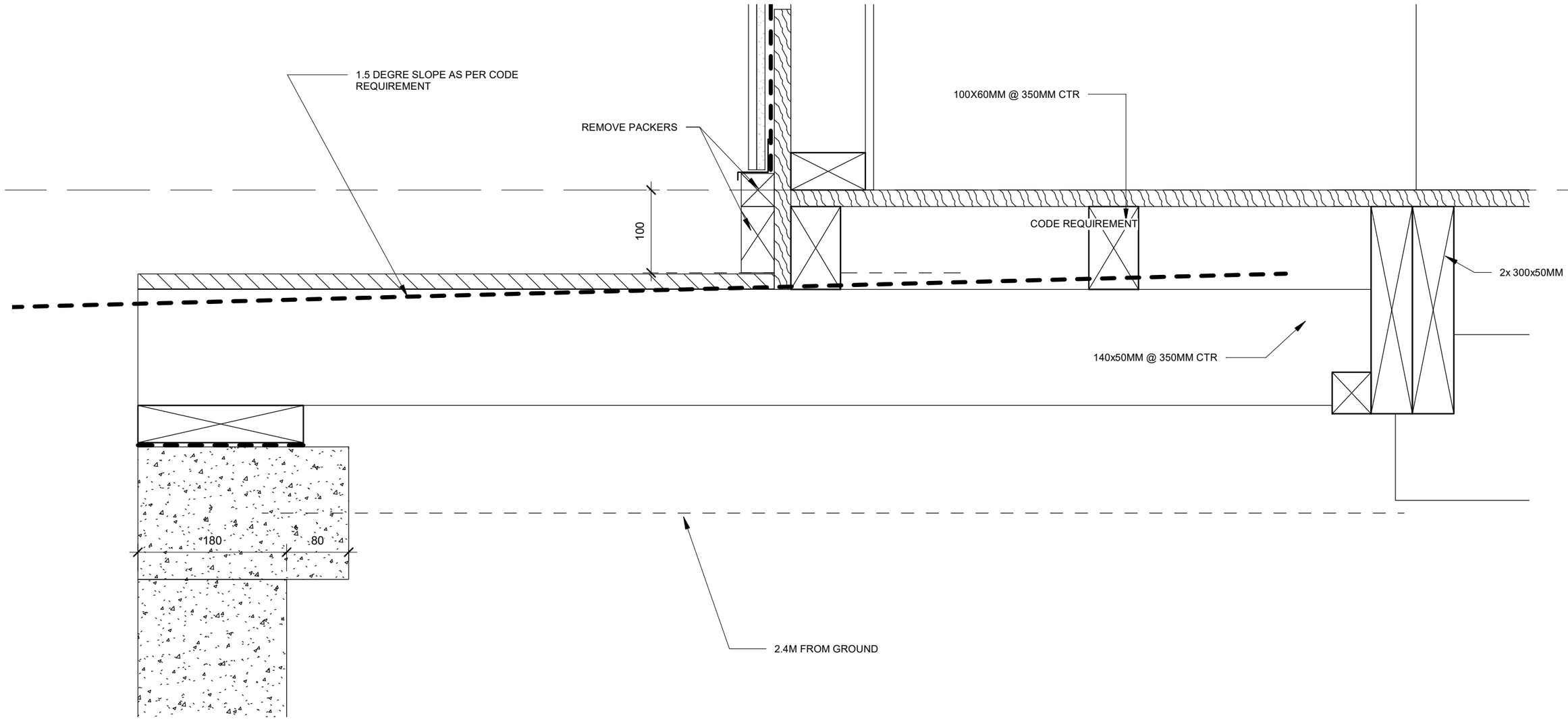
EXST. DECK DETAIL - ZONE 02

A205

1 : 5 @A3 08/08/2022



EXISTING - DECK 03

1 : 5

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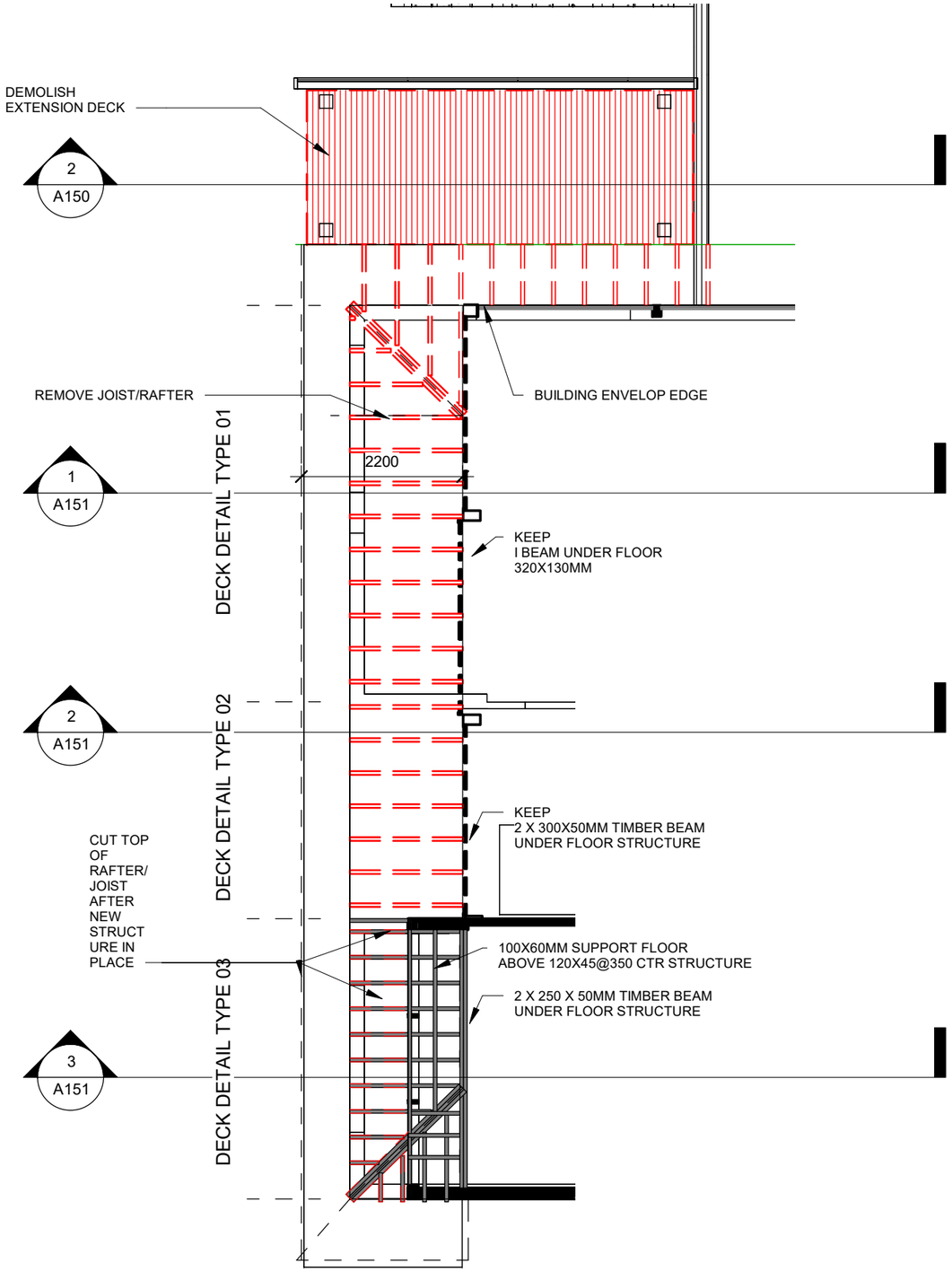
EXST. DECK DETAIL - ZONE 03 A210

1 : 5 @A3 08/08/2022



.DEMOLITION DECK STRUCTURE

1 : 75

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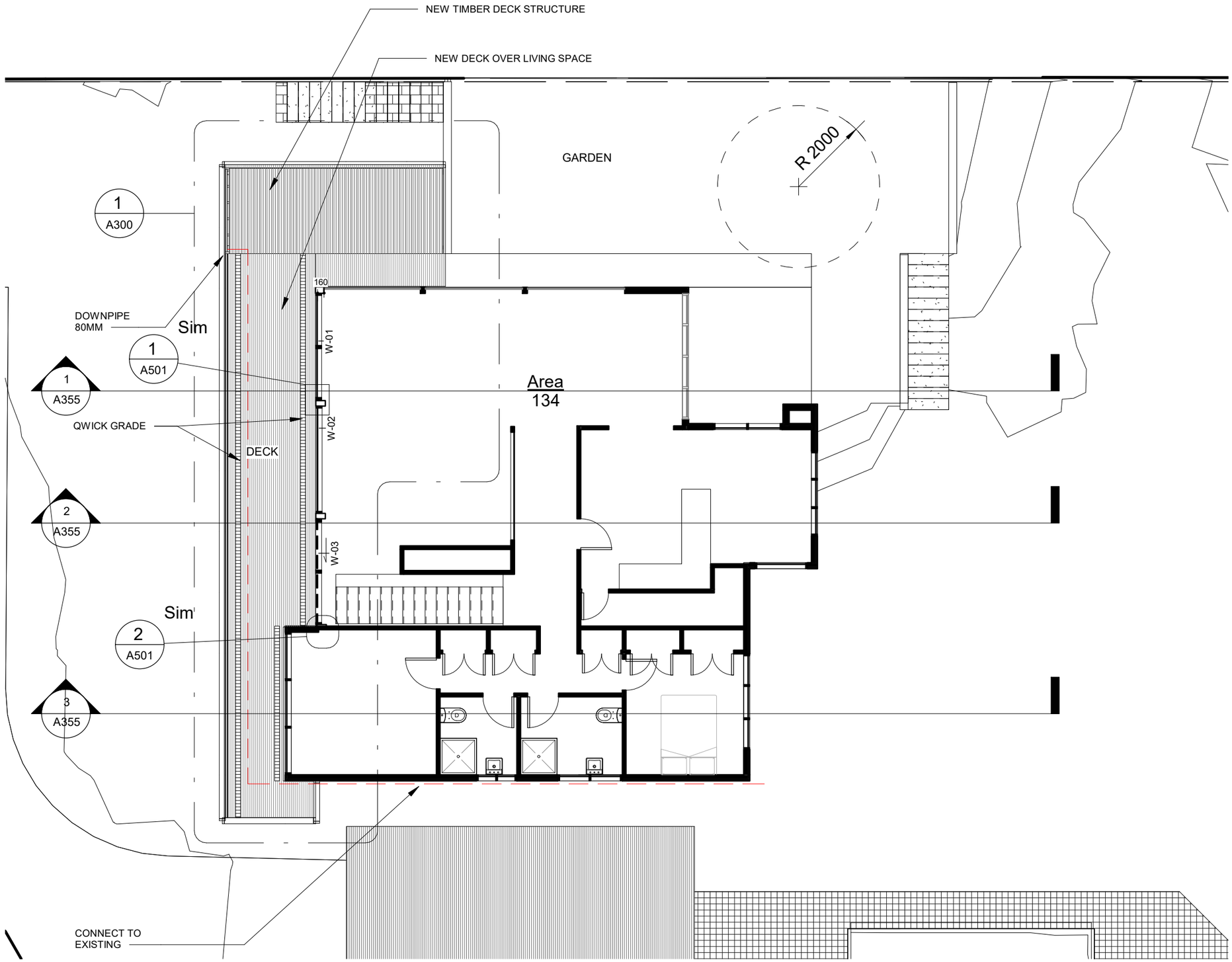
Rev. Description	Rev. Date

DEMO - DECK A300

1 : 75 @A3 08/08/2022



ROOF AREA: 30M2

SIZE SPOUTING

RAUMATI SOUTH - SAY MAXIMUM 170MML/H
FLOW LOAD FACTOR: 2.92
ROOF AREA : 30M2

FLOW CAPACITY MAX: 30x2.92=87.6L/MIN
MIN GUTTER AREA: (62.4/0.0016)^0.8=
6,176.00MM2

GUTTER CHOICE:
1 /METAL CRAFT BOX GUTTER 125 OR
EQUIVALENT HAS A CAPACITY OF 8,345MM2
2/ MARLEY - OVATION HAS A CACITY OF
13,834MM2

SIZE DOWNPIPE IN ACCORDANCE TO
NZBC E1 / TABLE 5:

ROOF PITCH: 1.5 DEGREE
ROOF AREA: 30M2

MINIMUM INTERNAL SIZE :
80MM DIAMETER

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PRJ - DECK A330

1 : 100 @A3 08/08/2022

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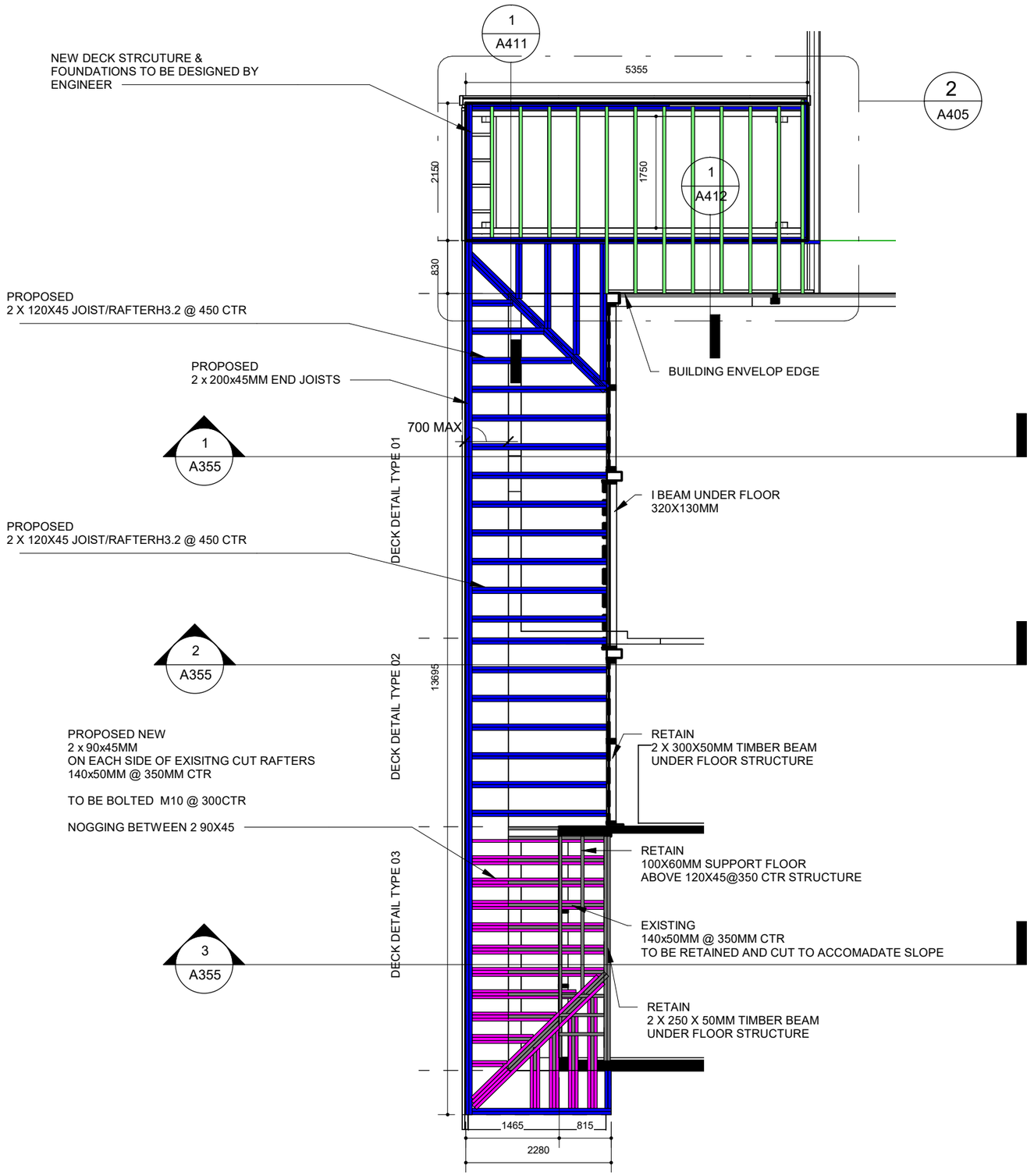
PRJ - ELEVATION A340

1 : 100 @A3 08/08/2022



PLISHKE HOUSE DECK

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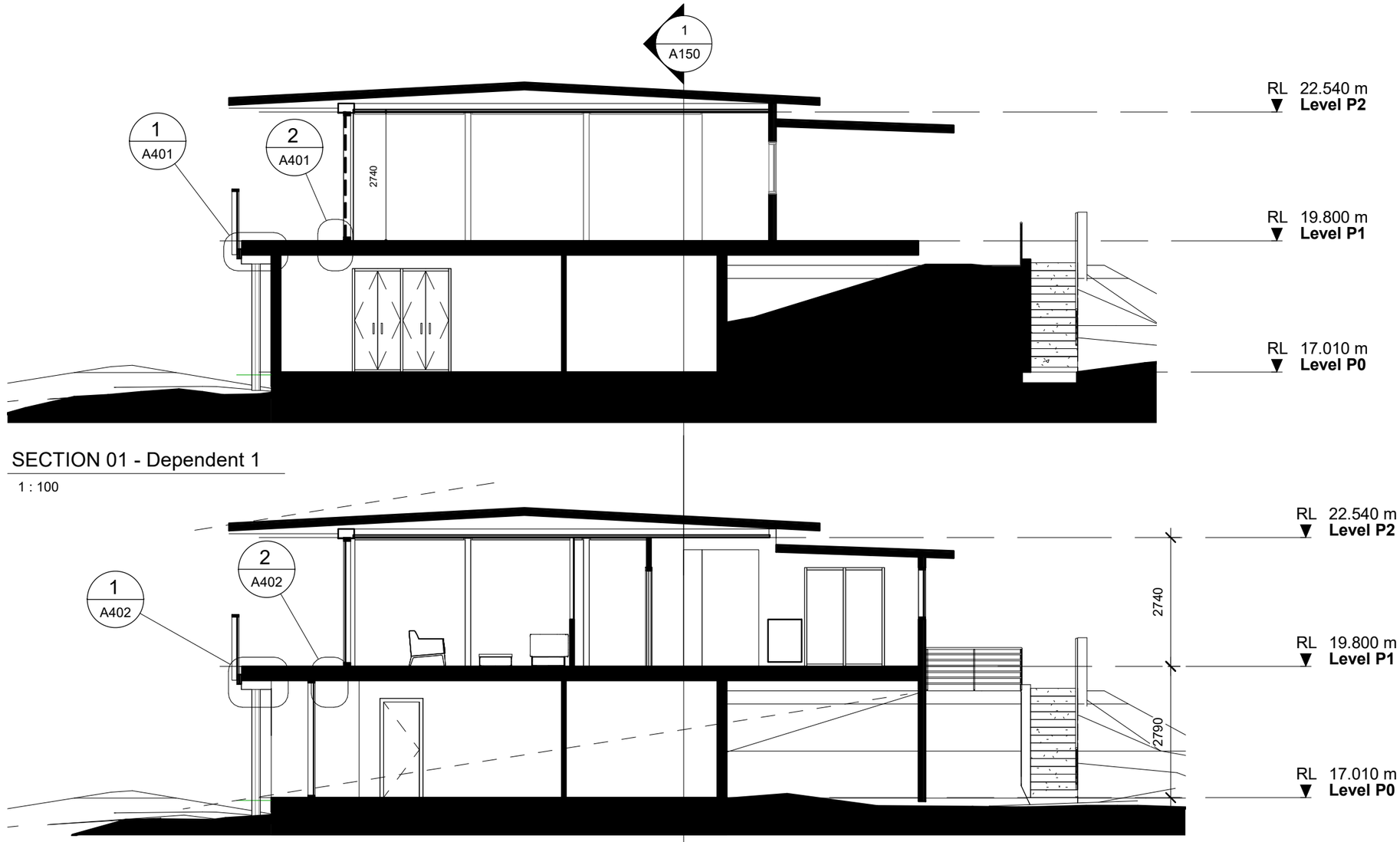
PRJ - DECK STRUCTURE A350

1 : 75 @A3 08/08/2022



1 SECTION 01 - Dependent 1

1 : 100

2 SECTION 02 - Dependent 1

1 : 100

3 SECTION 03 - Dependent 1

1 : 100

PLISHKE HOUSE DECK

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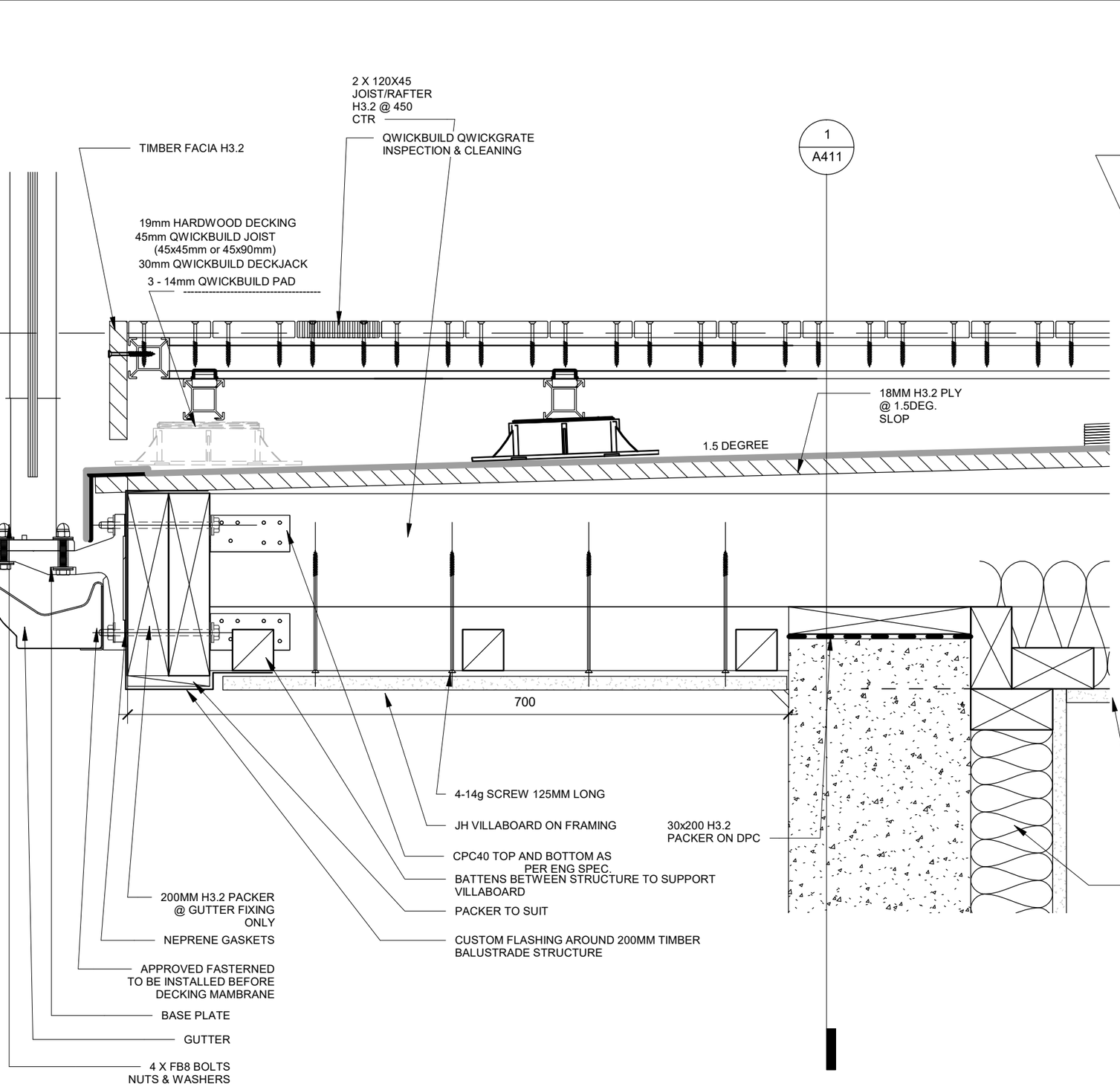
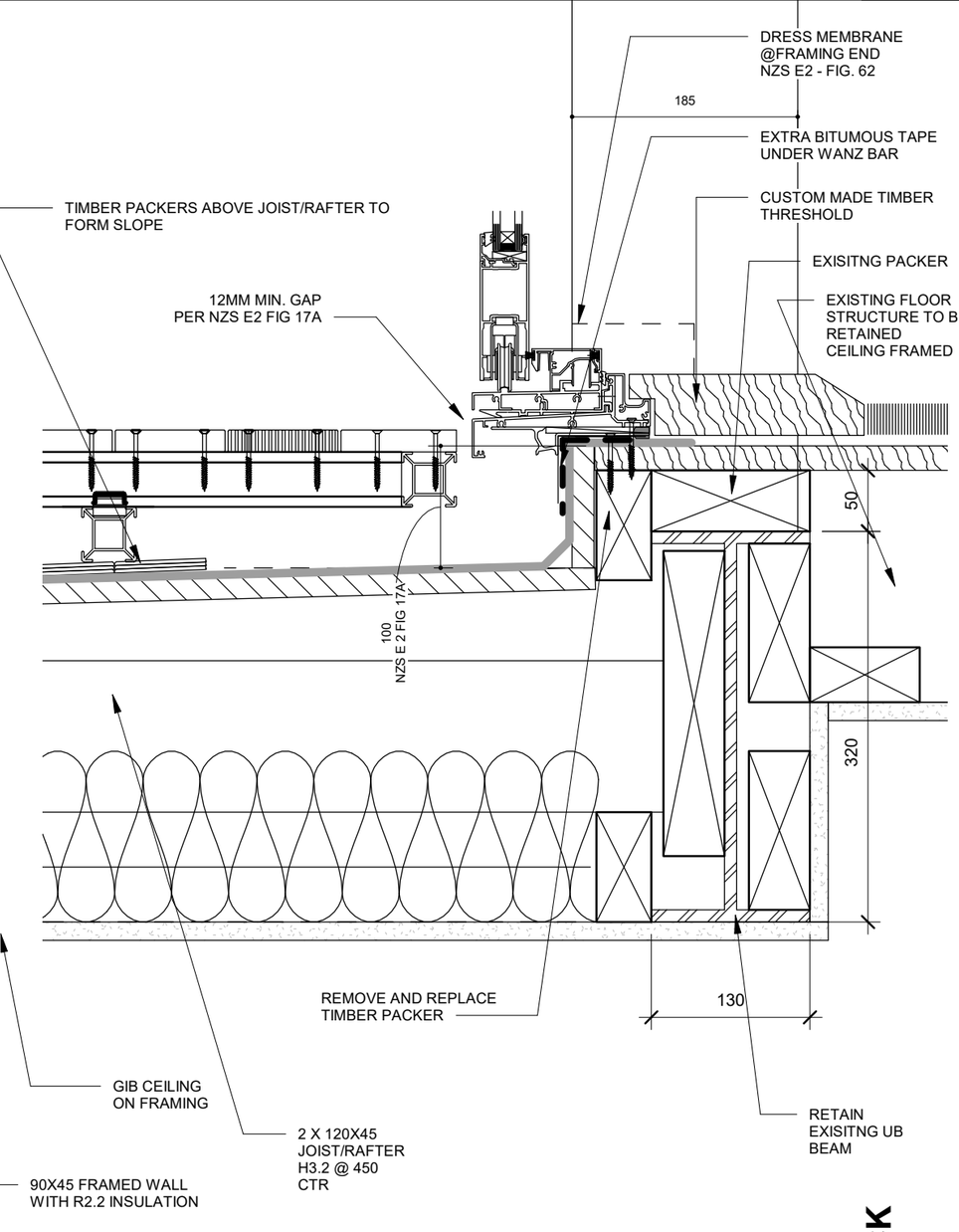
PRJ - SECTIONS A355

1 : 100 @A3 08/08/2022



.PRJ - DECK ZONE 01 - A

1 : 5



.PRJ - DECK ZONE 01 - B

1 : 5

SPECIFICATIONS:
DECK MEMBRANE: SIKA ROOF I-CURE 22 - TO BE INSTALLED AS PER MANUFACTURER SPECIFICATIONS
INSULATION: PINK BATT CEILING R3.2 - 115MM

NOTES:
DO NOT SCALE

CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK

CONTRACTORS AND SUB CONTRACTORS: TO ENSURE ALL RESTRICTED BUILDING WORKS ARE TO BE CARRIED OUT BY APPROVED LISCENSED BUILDING PRACTITIONERS

CLADDING/MEMBRANE & WINDOWS TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS IN PARTICULAR FIXINGS AND GROUND/DECK CLEARANCE

REFER TO NZBC, CLAUSE E2/AS1, EXTERNAL MOISTURE: THIRD EDITION FOR CLARITY

PLISHKE HOUSE DECK

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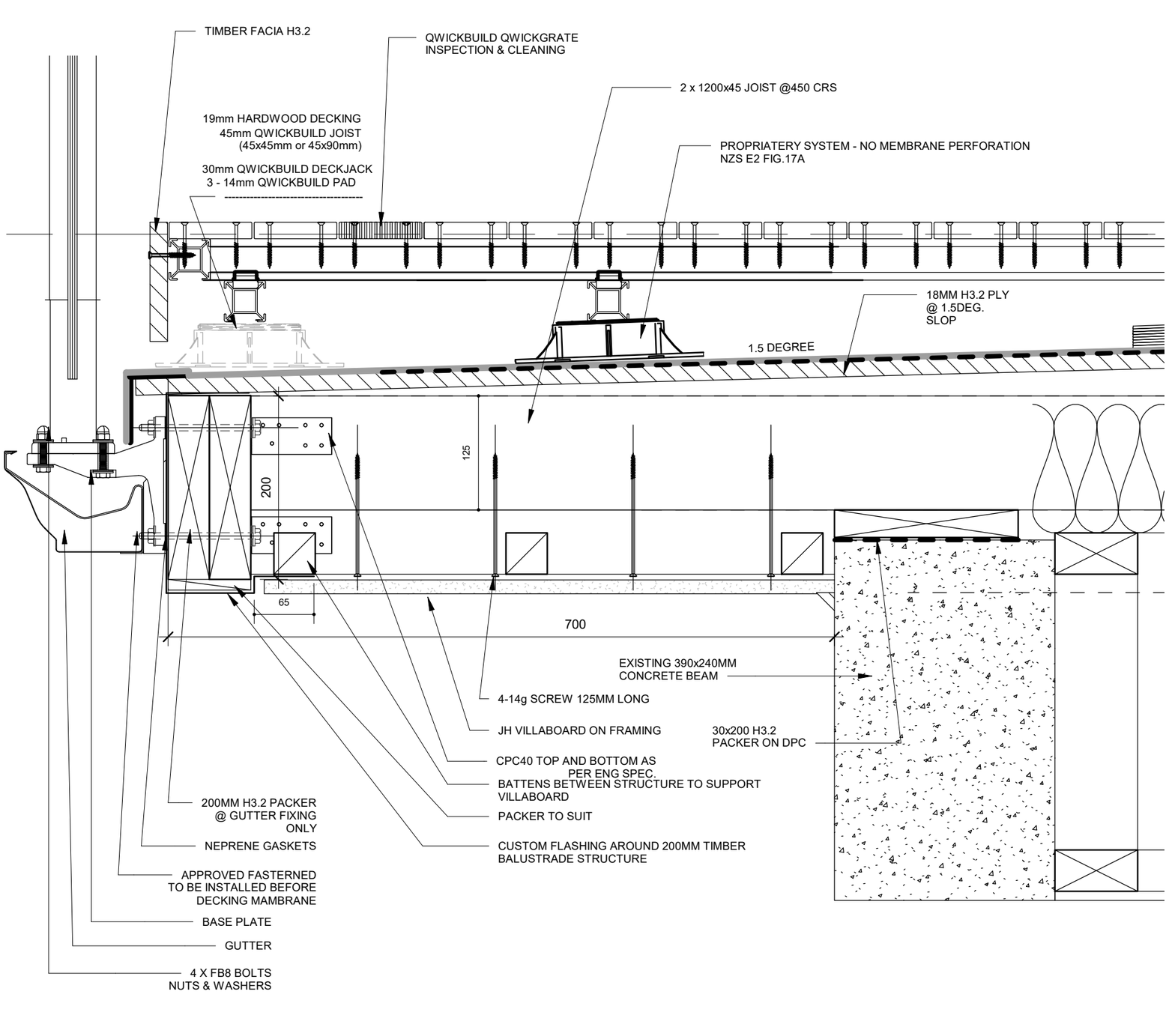
PRJ - DETAIL -DECK ZONE 01

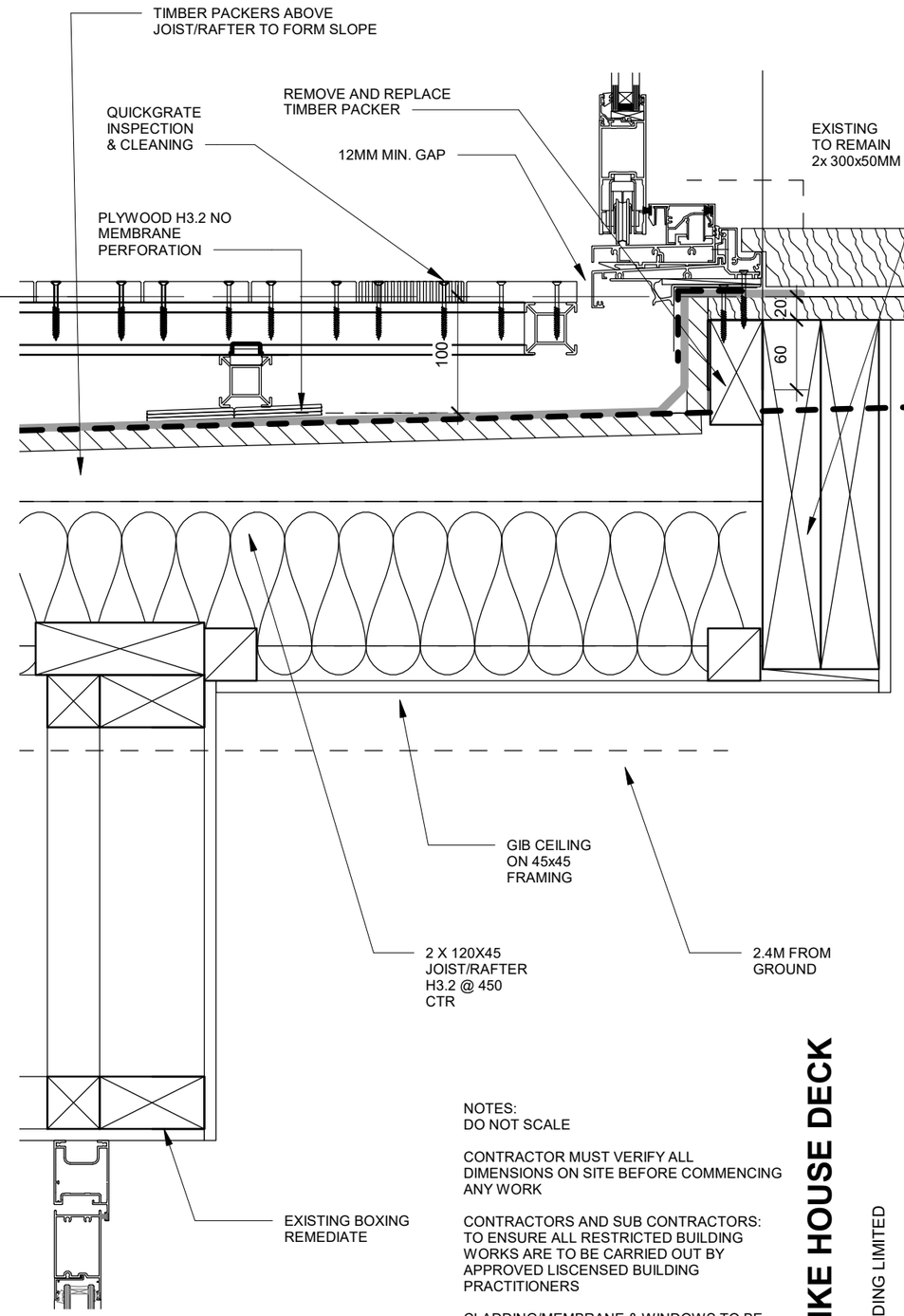
A401

1 : 5 @A3 08/08/2022



.PRJ - DECK ZONE 02 - A

1 : 5



.PRJ - DECK ZONE 02 - B

1 : 5

SPECIFICATIONS:
DECK MEMBRANE: SIKA ROOF I-CURE 22 - TO BE INSTALLED AS PER MANUFACTURER SPECIFICATIONS
INSULATION: PINK BATT CEILING R3.2 - 115MM

NOTES:
DO NOT SCALE

CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK

CONTRACTORS AND SUB CONTRACTORS: TO ENSURE ALL RESTRICTED BUILDING WORKS ARE TO BE CARRIED OUT BY APPROVED LISCENSED BUILDING PRACTITIONERS

CLADDING/MEMBRANE & WINDOWS TO BE INSTALLED TO MANUFACTURERS REQUIREMENTS IN PARTICULAR FIXINGS AND GROUND/DECK CLEARANCE

REFER TO NZBC, CLAUSE E2/AS1, EXTERNAL MOISTURE: THIRD EDITION FOR CLARITY

PLISHKE HOUSE DECK

RAUMATI

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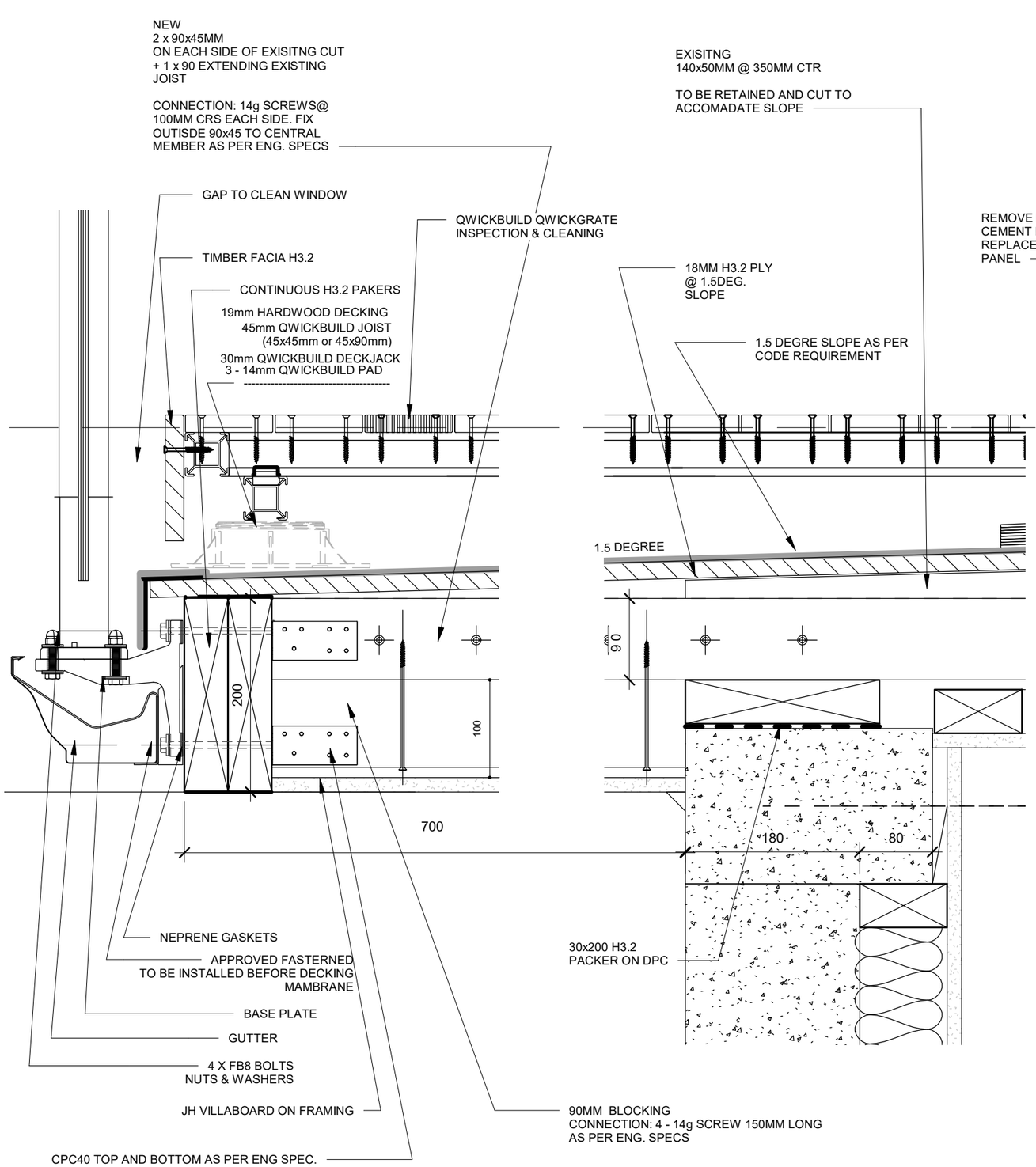
PRJ - DETAIL -DECK ZONE 02 A402

1 : 5 @A3 08/08/2022



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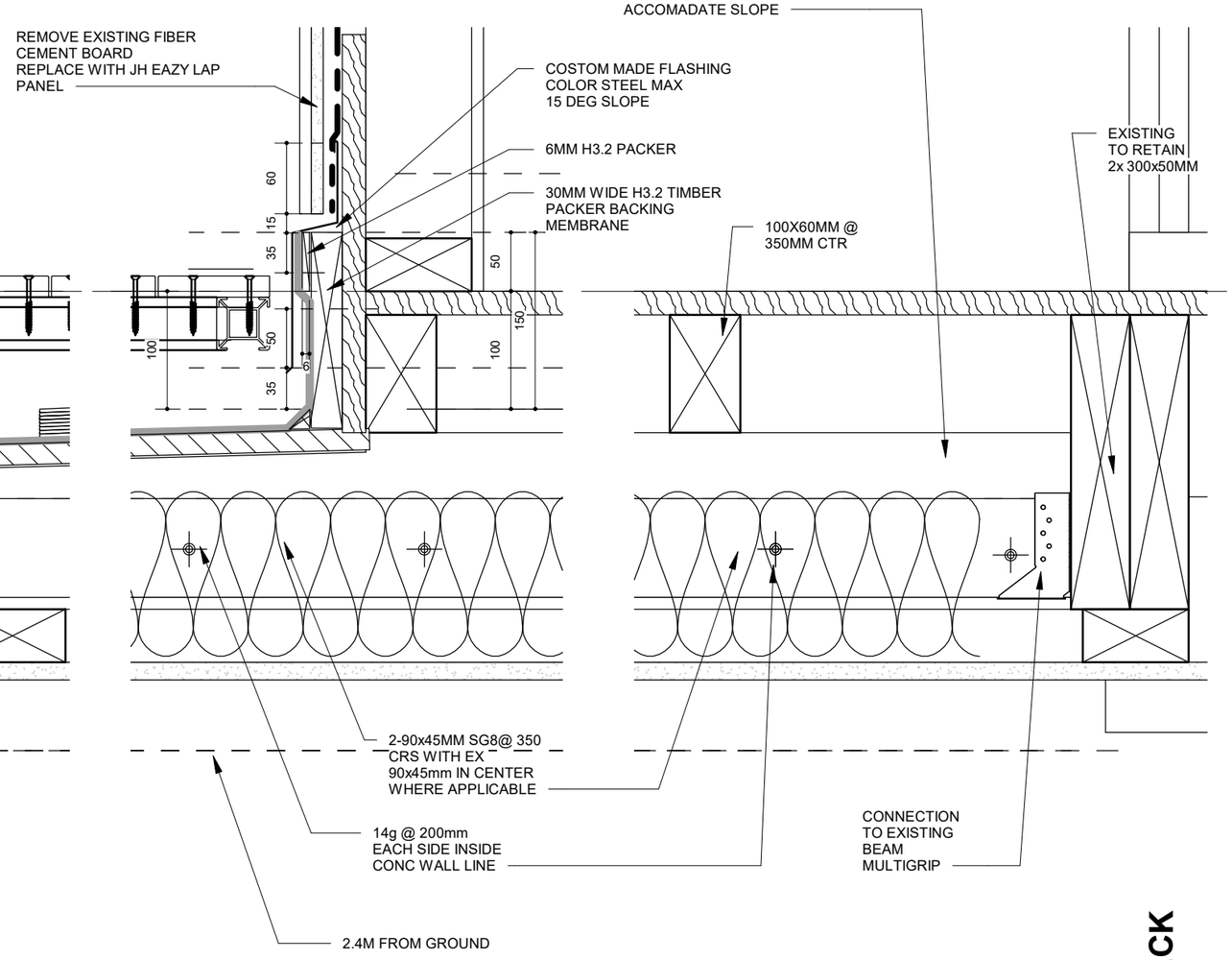

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SPECIFICATIONS:
DECK MEMBRANE: SIKA ROOF I-CURE 22 - TO BE INSTALLED AS PER MANUFACTURER SPECIFICATIONS
INSULATION: PINK BATT CEILING R3.2 - 115MM

NOTES:
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PRJ - DETAIL -DECK ZONE 03 A403

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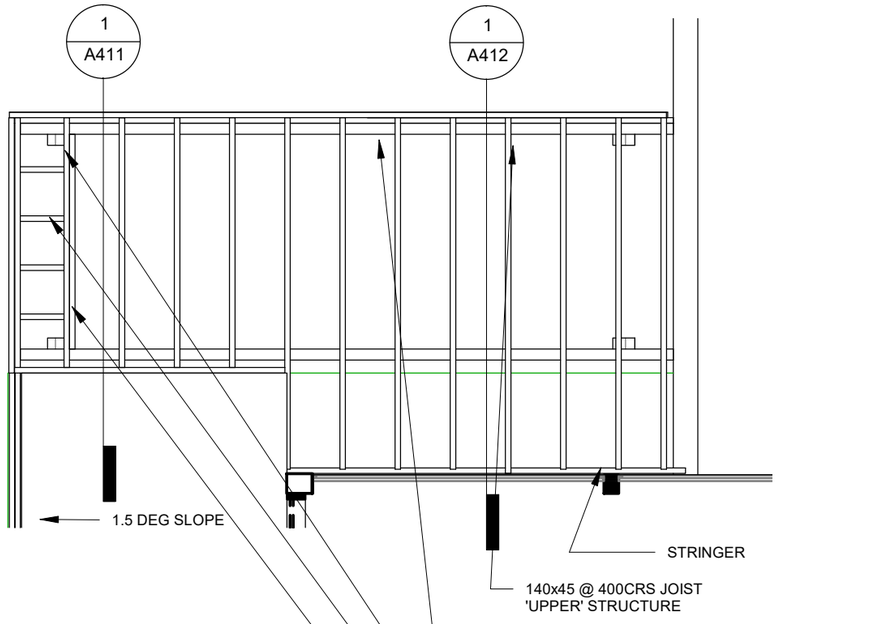
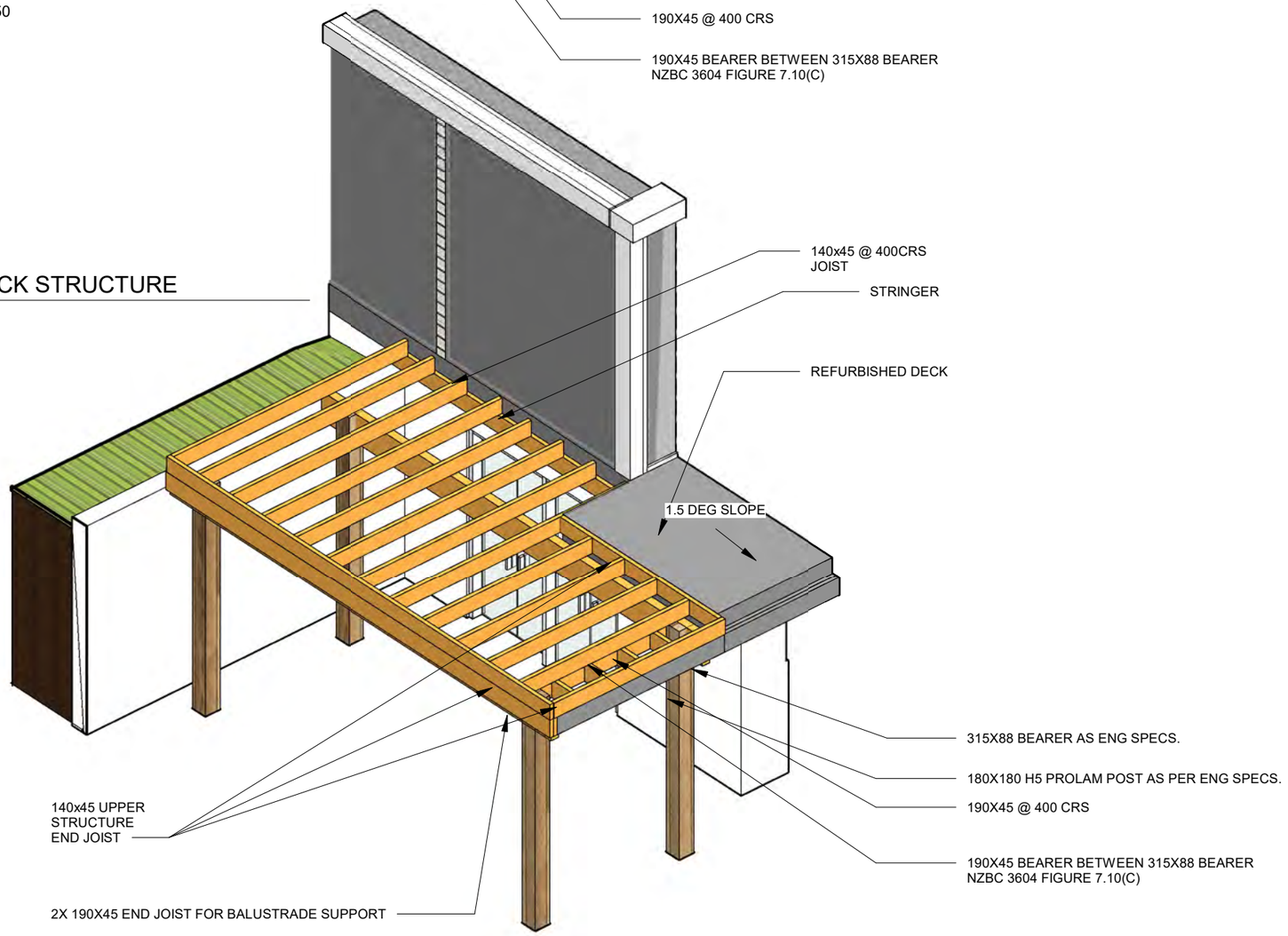


2 . PRJ - TIMBER DECK STRUCTURE

1 : 50



1 DECK STRUCTURE

SECTION 7 – FLOORS **NZS 3604:2011**

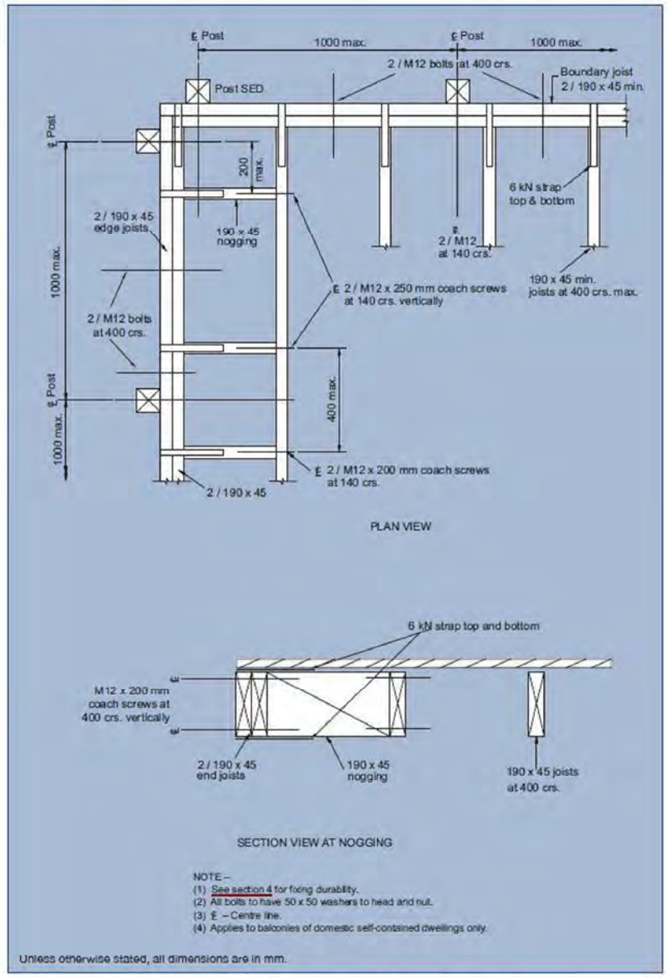


Figure 7.10(c) – Face-fixed post support detail for cantilever balustrade (see 7.4.1.3)

NZ3604

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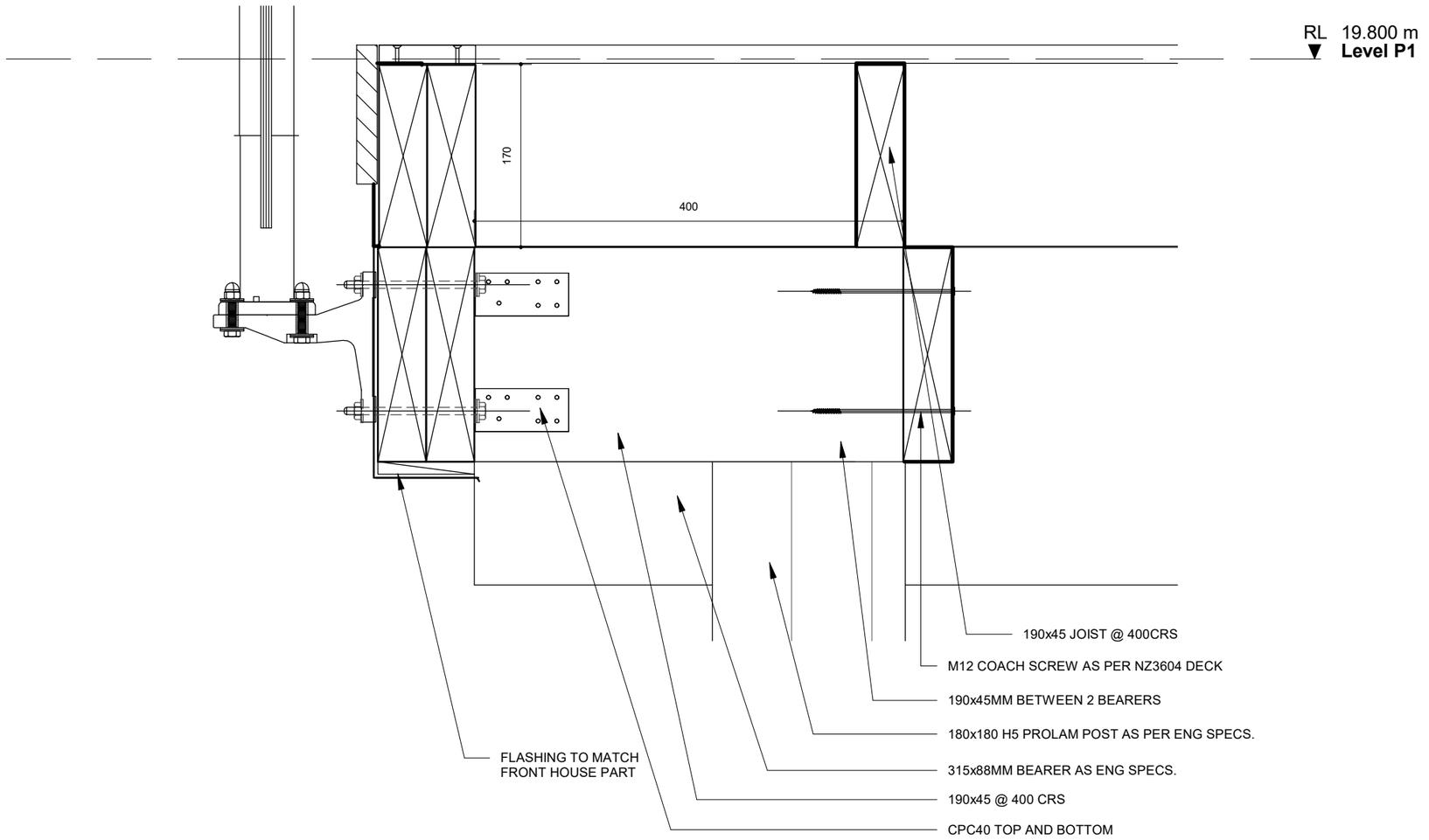
PRJ - DETAIL - DECK ZONE TIMBER DECK A405

1 : 50 @A3 08/08/2022



1 .DETAIL - TIMBER DECK

1 : 5

NOTES:
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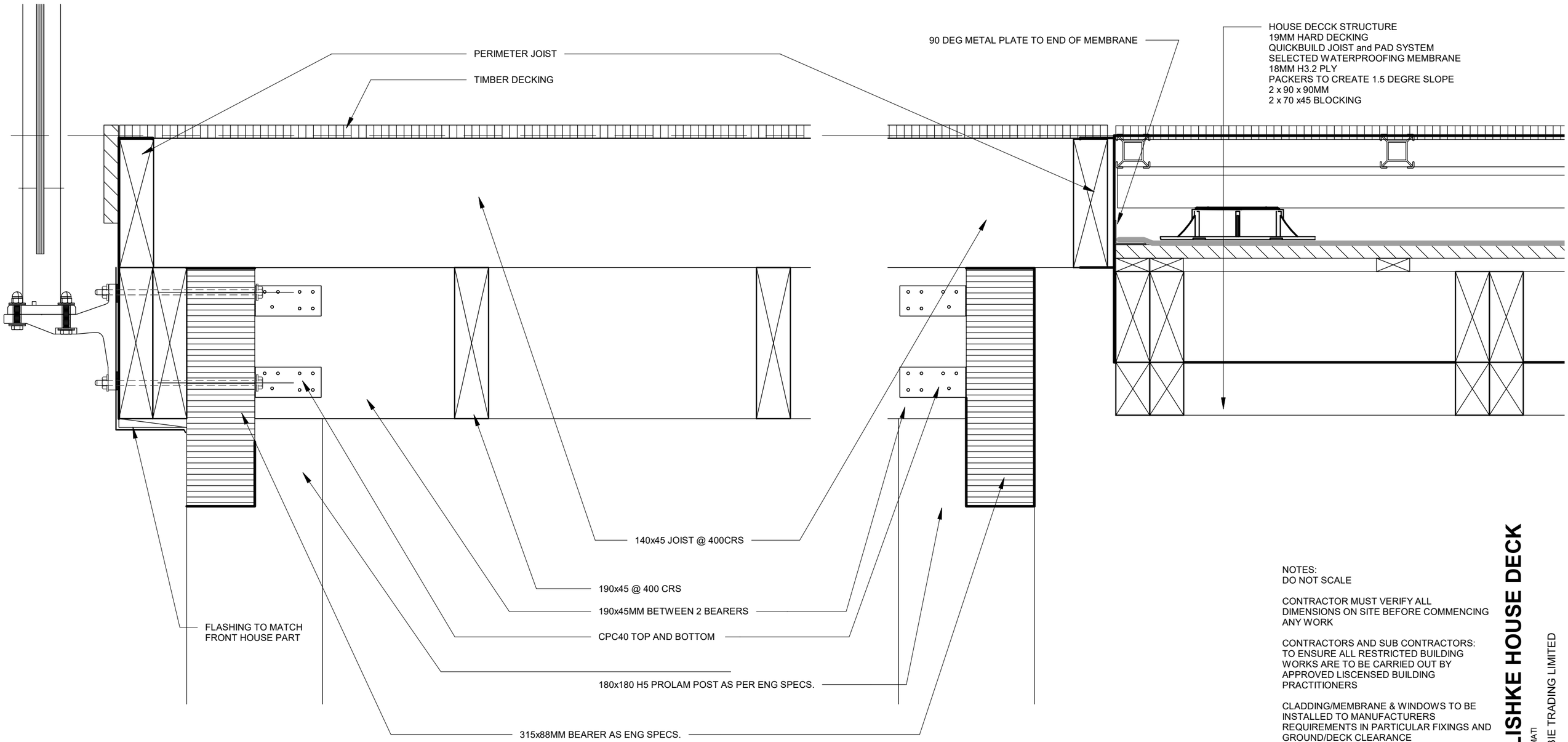
PRJ - DETAIL - DECK ZONE TIMBER DECK

A410

1 : 5 @A3 08/08/2022



1 .PRJ - DECK TIMBER

1 : 5

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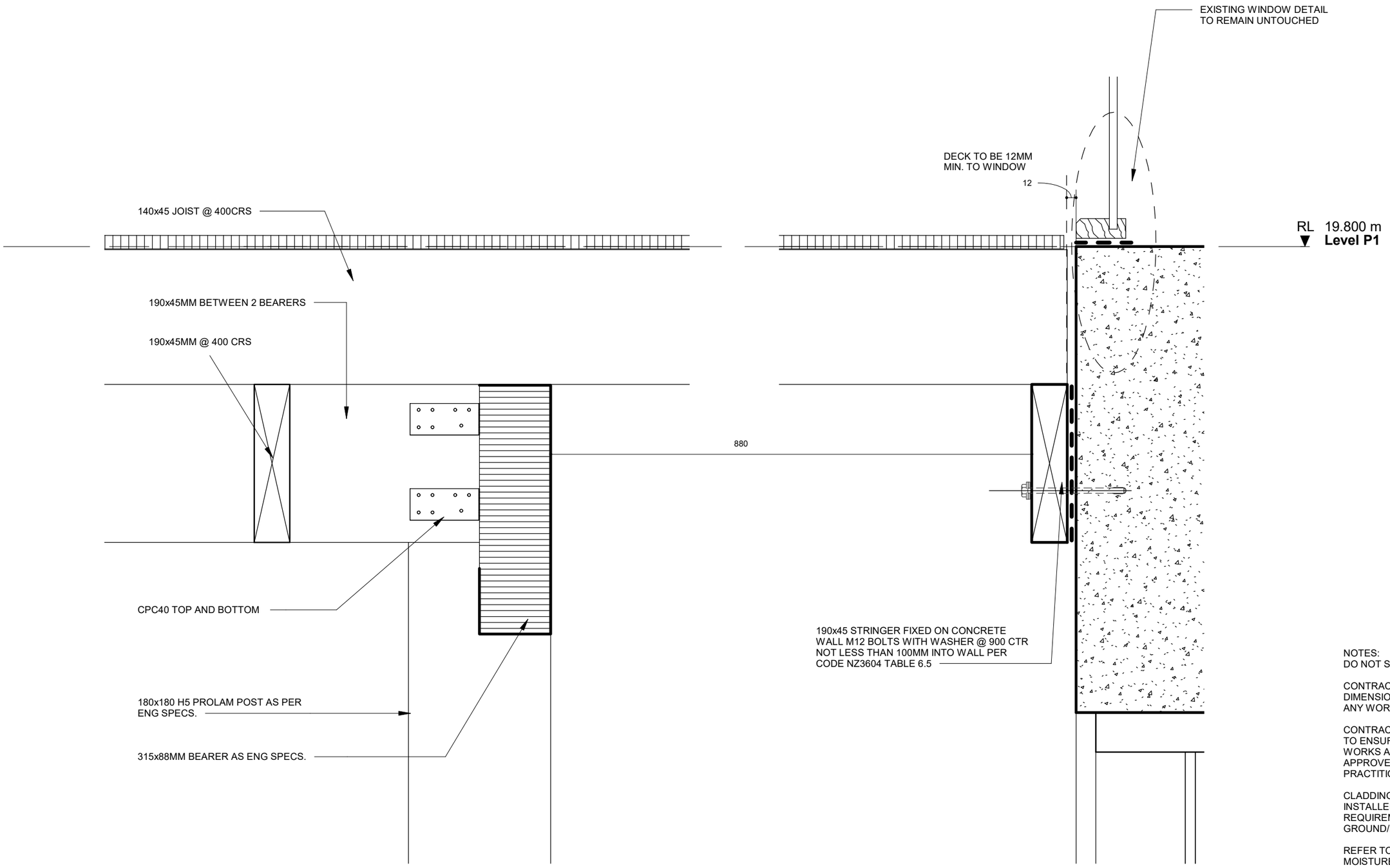
PRJ - DETAIL - DECK ZONE TIMBER DECK A411

1 : 5 @A3 08/08/2022



NOTES:
DO NOT SCALE

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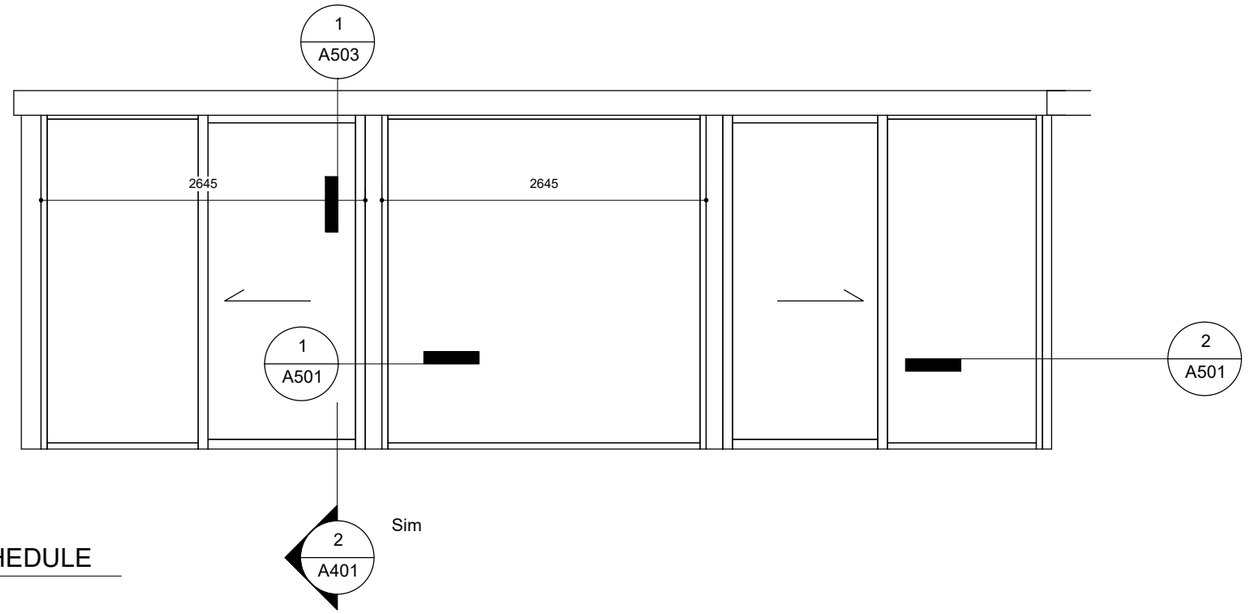
PRJ - DETAIL - DECK ZONE TIMBER DECK

A412

1 : 5 @A3 08/08/2022



1 WINDOW SHEDULE

1 : 50

NOTE:
WINDOW EXACT SIZE TO BE MEASURED ON SITE

NOTE:
ALL EXTERNAL WINDOWS AND DOORS TO BE GLASED.

ALL GLAZING TO BE DOUBLE GLAZED

GLAZING TO BE IN ACCORDANCE WITH NZS 4223

JOINERY MANUFACTURER TO SUPPLY DWG OF ALL JOINERY UNITS & SMAPLE SELECTIONS TO DESIGNER FOR REVIEW & APPROVAL.

EXTERNAL JOINERY VIEWVED FROM EXTERIOR

REFER TO FLOOR PLANS FOR ALL DOOR SWINGS.
MANUFACTURER TO SUIT.

GLASS TYPE & GAUGE TO BE CONFIRMED BY JOINERY MANUFACTURER PRIOR TO MANUFACTURE OF ANY JOINERY

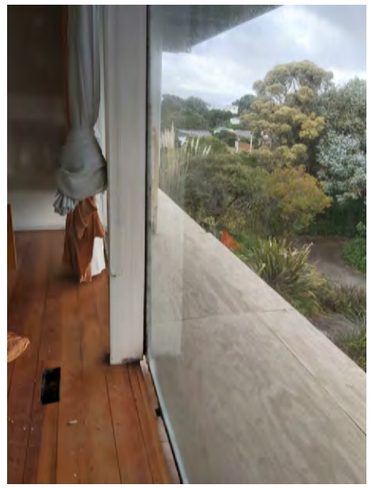
JOINERY MANUFACTURE TO ENSURE WEATHERTIGHT DETAILS OF ALL JOINERY

DIMENSIONS TO BE CHECKED ON SITE PRIOR TO FABRICATION. THESE DRAWINGS ARE INTERED TO CLEARLY INDICATE THE PROPORTIONS OF THE ITEM. ANY INCONSISTENCIES TO BE REVIEWS WITH DESIGNER PRIOR TO MANUFACTURE.

ALL ITEMS TO COMPLY WITH ALL RELEVANT CLAUSES OF NZBC AND APPROVED STANDARDS.

JOINERY MANUFACTURER TO ENSURE THE JAMB / REVEAL ARE SIZED TO ALLOW FOR CAVITY SYSTEM & EXTERIOR CLADDING SYSTEM

SG: SAFETY GLASS



WINDOWS - EXISTING

PLISHKE HOUSE DECK

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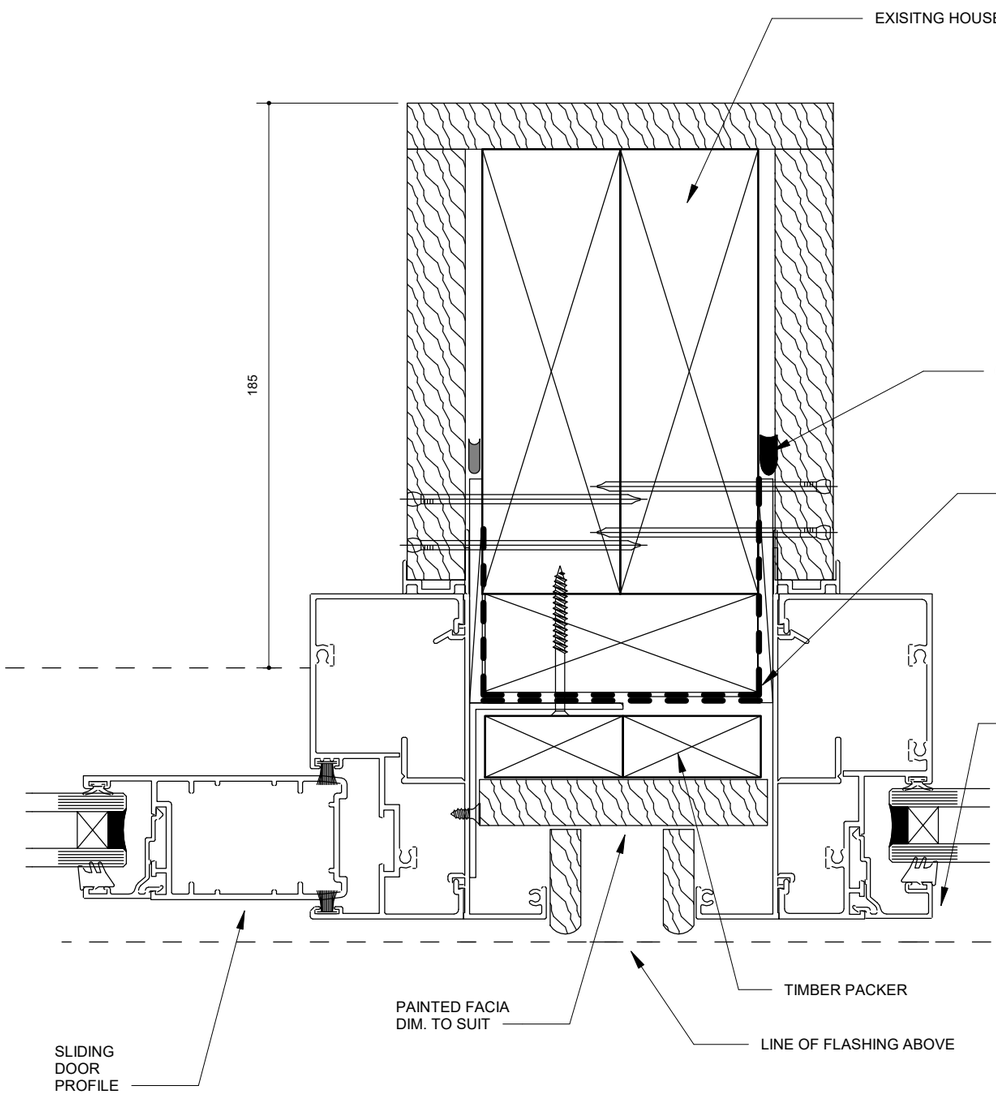
WINDOW SCHEDULE

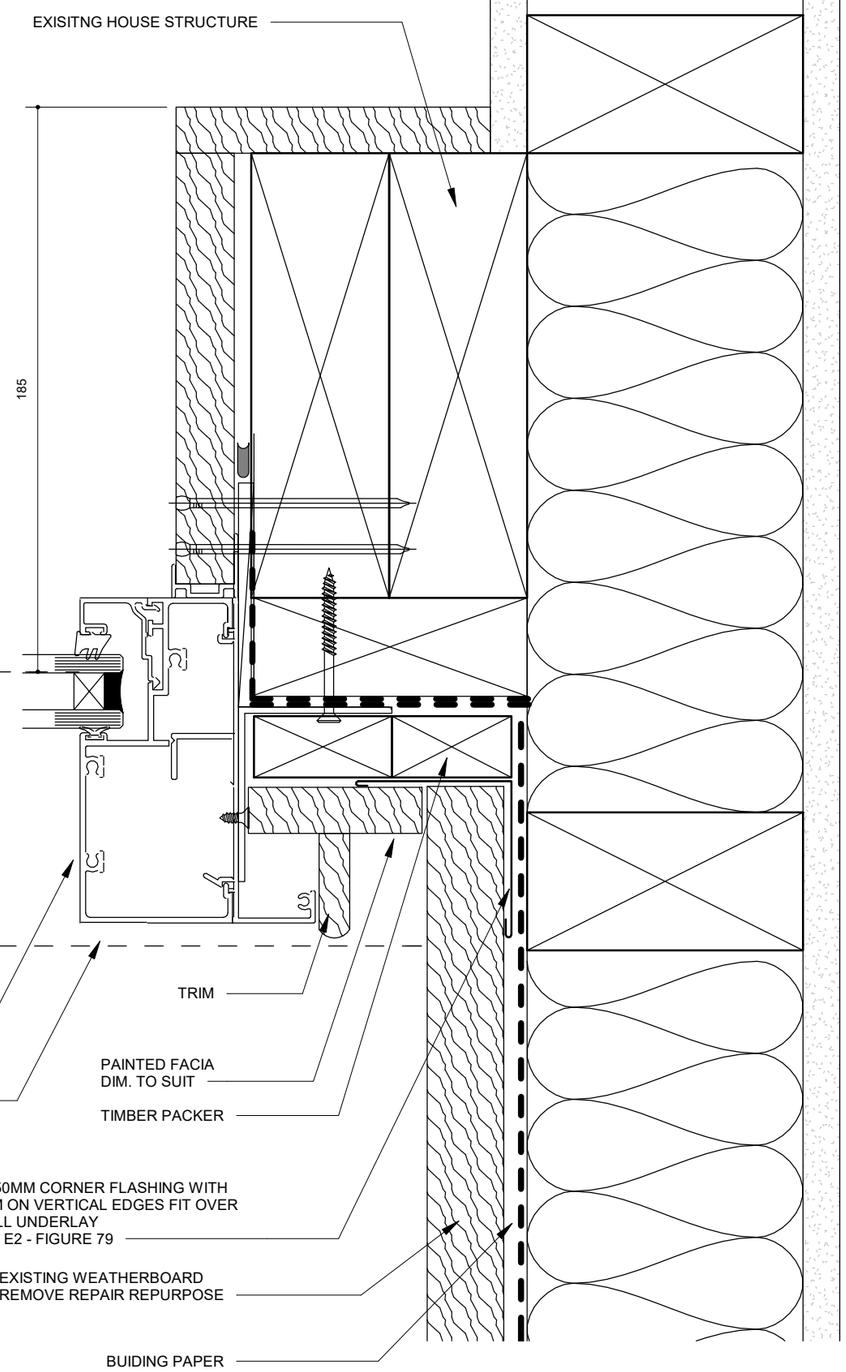
A500

1 : 50 @A3 08/08/2022



1 DETAIL - DOOR SLIDER JAMB

1 : 2



2 DETAIL - WINDOW JAMB @ CORNER CLADDING

1 : 2

NOTES:
DO NOT SCALE

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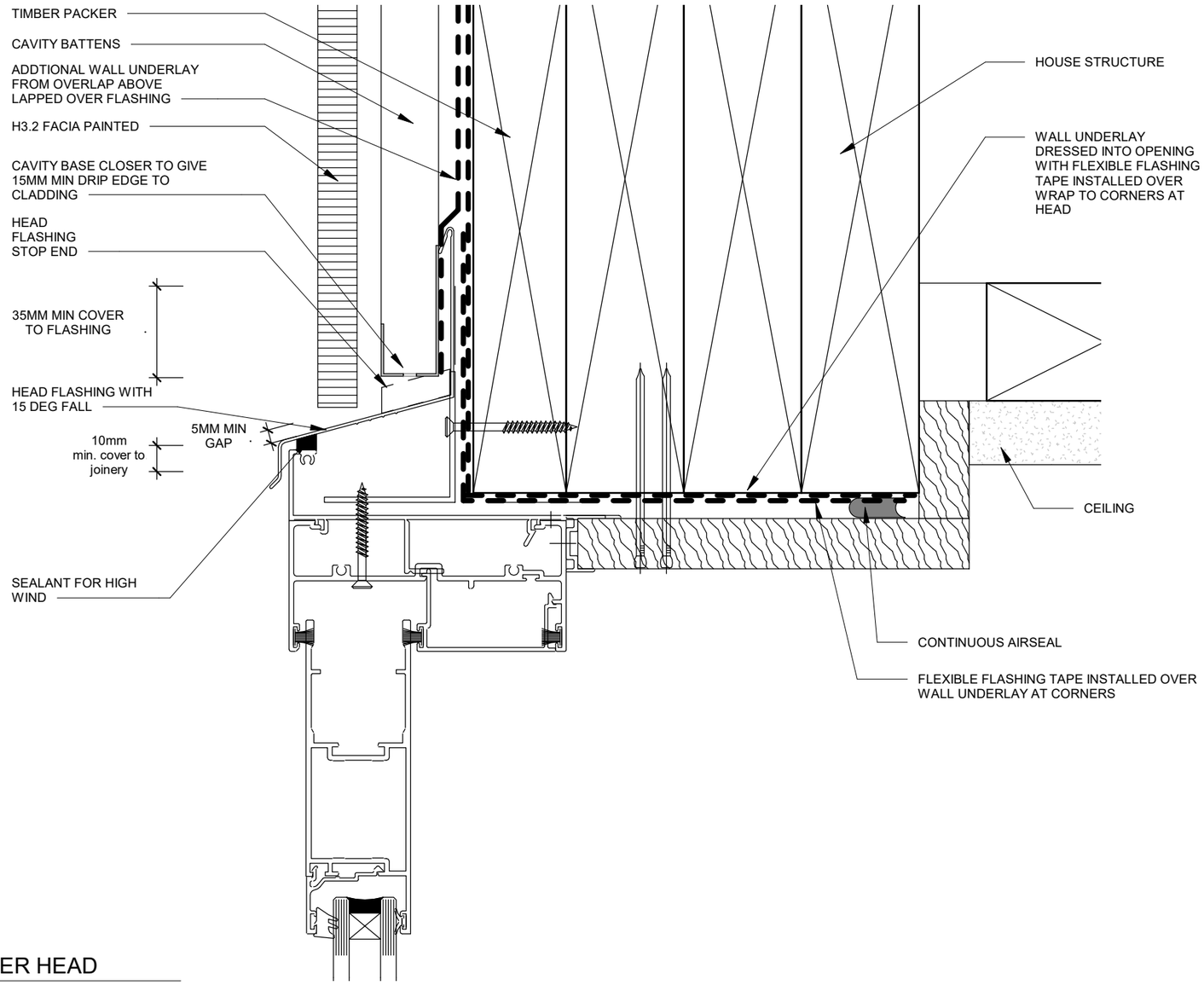
DETAIL - DOOR SLIDER & FIXED WINDOW JAMB - DIAGRAM

A501

1 : 2 @A3 08/08/2022

NZS E2 FIG. 86

HIGH WIND FIG 71(C)



1 DEATIL - DOOR SLIDER HEAD

1 : 2

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Rev. Description	Rev. Date

DETAIL - DOOR SLIDER HEAD

A503

1 : 2 @A3 08/08/2022

ATTACHMENT 4

CGW Ref: 21118-LET-C-001-A
Date: 11 August 2023

Leith Consulting Ltd
12 Ihakara Street
Paraparaumu

Attention: Monique Leith

Dear Monique,

RE: 21118 – 126-130 Rosetta Road, Raumati Residential Subdivision - Stormwater Disposal Design Peer Review

1. Introduction

CGW have been engaged by Leith Consulting to carry out a peer review of the Conceptual Stormwater Disposal Report for a residential subdivision development at 126-130 Rosetta Street, Raumati (Report Version 3, dated 15 June 2023).

The following data sources have been used for the analysis:

- Kapiti Coast District Council Land Development Minimum Requirements 2022 (KCDC-LDMR:2022)
- The Building Code E1: Surface Water

2. Report Commentary

The report is well structured and easy to follow. A few design considerations are proposed below.

2.1 Natural Hazards (Report Section 3.2)

The KCDC Flood Hazards Map indicates a ponding area east of the site which is not mentioned in the report. The development will contribute additional runoff to this area, so KCDC may request on-site attenuation of the 1% AEP Storm Event, additional to the current attenuation proposal.

2.2 Proposed Right-of-Way (Report Section 5)

It is recommended to note that the proposed driveway will not have any attenuation

devices due to site constraints; however, the unattenuated coverage will remain nearly the same when compared to the existing driveway, so stormwater runoff directed to Rosetta Road is unchanged. Additionally, it is recommended to control the discharge through a drainage system directed to a kerb outlet.

We recommend using a strip drain for steeper sections of driveway where a catchpit may be ineffective.

We recommend adding in a table to summarise the breakdown:

Table 1: Unattenuated Driveway Coverages

Description	Area (m^2)
EXISTING	
Existing Driveway	274
PROPOSED	
Proposed Right-of-Way	165
Proposed Driveway for Lot 3	57
Existing Driveway for Lot 4	53
Total	275

2.3 Proposed Lots 1,2 and 3 (Report Section 5)

2.3.1 Proposed Lot 1

Please note that this garage will be removed.

We agree omitting the vegetated roof area from the calculations as a conservative measure. Although vegetated roof areas are not considered pervious as these can only absorb ~5mm of rainfall, it is a good approach to omit this from existing coverage areas.

We recommend adding in a table to summarise the breakdown:

Table 2: Proposed Lot 1 Coverages

Description	Area (m^2)	Considered for Attenuation (m^2)
Proposed Roof Areas (attenuated)	198	198
Proposed Driveway (over-mitigated)	30	30
Total	228	228

2.3.2 Proposed Lot 2

We recommend adding in a table to summarise the breakdown:

Table 3: Proposed Lot 2 Coverages

Description	Area (m^2)	Considered for Attenuation (m^2)
Proposed Roof Areas (attenuated)	159	159
Proposed Driveway (over-mitigated)	31	31
Total	190	190

2.3.3 Proposed Lot 3

We recommend adding in a table to summarise the breakdown:

Table 4: Proposed Lot 3 Coverages

Description	Area (m^2)	Considered for Attenuation (m^2)
Existing Garage (to be removed)*	52	0
Existing Pool with existing soakage system	60	0
Existing Paving at pool with existing soakage system	76	0
Proposed Roof Areas (attenuated)	144	144
Proposed Driveway (Refer to ROW Section)	57	0
Total	337	144

**Excluded from total*

2.4 Recommendations (Report Section 7)

The report notes that the 1% AEP Storm Event was also considered; however, attenuation measures are only provided for the 10% AEP Storm Event.

2.5 Attenuation Calculations (Report Appendix 1)

Based on the Geotech Testing Results and soakage rate, the soils can be classified as high soakage soils in terms of the Building Code E1; however, due to the slopes, we recommend using a run-off coefficient of **0.3**. The 0.35 used in the report is more suited to soils with low soakage rates.

3. Conclusions

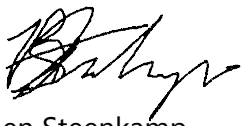
We recommend considering the comments in the above review.

It is recommended to provide a concept site plan with tank details to provide further clarification to the report.

Further clarification is recommended on the disposal points for each site.

Yours faithfully,

Prepared by

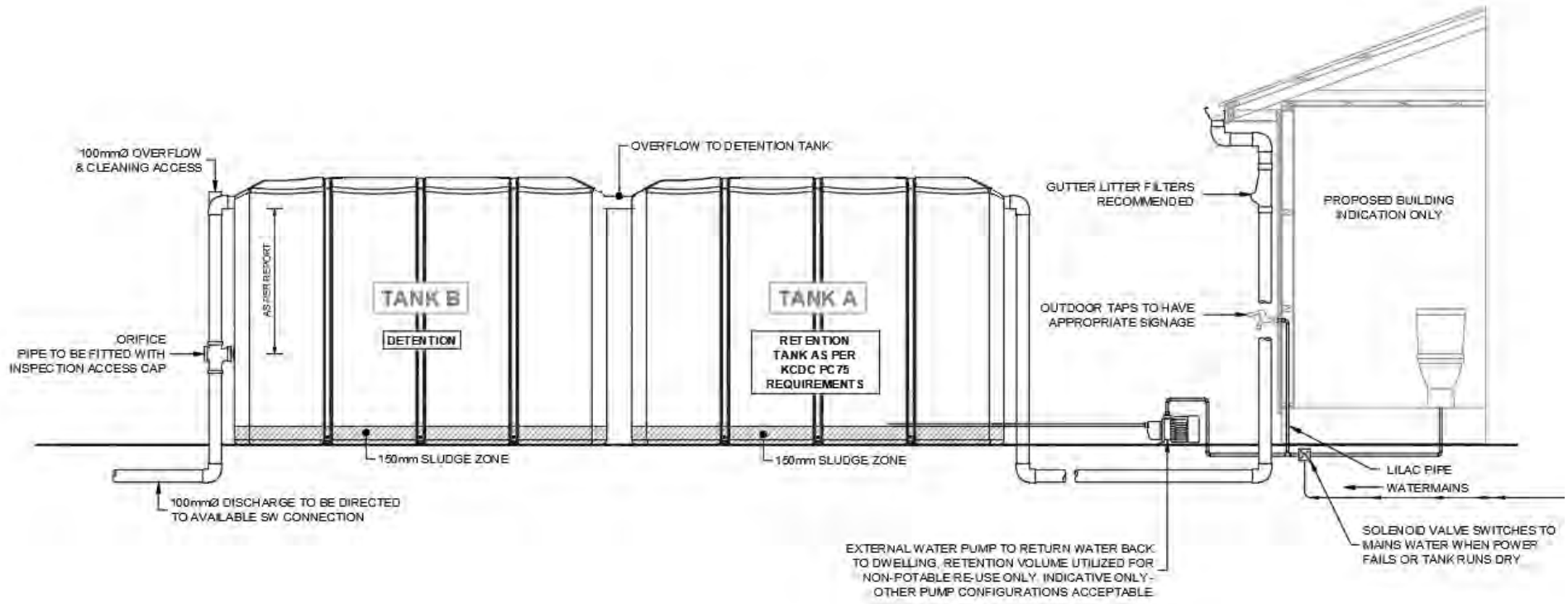


Ben Steenkamp
Senior Civil Engineer
CPEng, BEng Civil, BSc (Geology), CMEngNZ

Approved

Stephen Whyte
Principal Civil Engineer
MEng CPEng CMEngNZ IntPE(NZ)

4. Appendix A – Concept Tank Detail



LEITH CONSULTING

Land Surveying | Environmental Planning

Conceptual Stormwater Disposal Report

Residential Subdivision Development

126-130 Rosetta Road, Raumati Beach

Version 4

24 August 2023

TABLE OF CONTENTS

Version:	Date of Issue:	Purpose:	Authorised By:
1	21 January 2022	Issued for resource consent application	T Mills
2	22 February 2023	Issued for resource consent application	T Mills
3	15 June 2023	Lot 3 System Revised	T Mills
4	24 August 2023	Incorporating CGW comments	T Mills

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1 INTRODUCTION

This Conceptual Stormwater Disposal Report has been prepared to accompany an application for resource consent for a proposed 4-lot residential subdivision of 126-130 Rosetta Road, Raumati Beach.

This purpose of this report is to outline potential methods and options for disposing the additional stormwater runoff generated by roof and impervious areas associated with the development.

2 REFERENCE DOCUMENTATION

The conceptual stormwater options discussed in this report and shown on the plans appended to the Assessment of Environmental Effects have been designed with reference to the following documentation:

- NZS4404:2010 – New Zealand Standard for Land Development and Subdivision Infrastructure
- Kāpiti Coast District Council – Subdivision and Development Principles and Requirements 2012
- Ministry of Business, Innovation & Employment – Acceptable Solutions and Verification Methods For New Zealand Building Code Clause E1 Surface Water
- Kāpiti Coast Rainwater and Greywater Code of Practice Guidelines
- Kāpiti Coast District Council on-site detention tank calculator
- CGW Consulting Engineers Limited assessment dated 31 March 2021 titled 'Geotechnical Site Suitability Report – 126-130 Rosetta Road, Raumati'
- Box Architecture Limited Architectural Plans titled 'Rosetta Road Dev.' sheets 'A000-A630' dated 18 January 2023.

3 SITE ANALYSIS

3.1 Site Description and Proposal

The site is located within the dune area of Raumati Beach and, as such, comprises of undulating topography. The site has two road frontages, the primary frontage with a driveway from Rosetta Road to the west and a second unutilised frontage from Renown Road to the east. The topography of the site rises from Rosetta Road at 10.0m AMSL to a centrally located plateau at approximately 17.0m AMSL then falls rapidly to Renown Road at approximately 7.0m AMSL.

The main house is situated at the centre of the site, with a garage and pool to the south and several ancillary buildings surrounding. There is also a double garage positioned directly on the Rosetta Road frontage. The site currently has numerous impervious areas which are to be removed or retained in accordance with the scheme plan included in the Assessment of Environmental Effects.

The applicant is seeking to subdivide the property into four new residential lots with Lot 1 to be accessed directly off Rosetta Road and Lots 2-4 to be accessed via a right of way along the southern boundary.

A detailed description of the site is included within the Assessment of Environmental Effects. Geotechnical conditions are described in the assessment prepared by CGW Consulting Engineers titled 'Geotechnical Site Suitability Report – 126-130 Rosetta Road, Raumati' dated 31 March 2021.

3.2 Natural Hazards

The eastern road frontage onto Renown Road is subject to the KCDC Q100 flood extend and is also subject to a Fill Control designation. This development does not propose to direct any additional runoff into this catchment or to undertake earthworks within the Fill Control area.

While the Rosetta Road frontage is not within the KCDC Q100 flood extent, this area feeds into an area to the south which is affected by this designation.

3.3 Groundwater Conditions

The geotechnical assessment reports that the water table was not encountered during testing. This aligns with our field observations, detailed in Section 4 of this report.

3.4 Design Considerations

Stormwater disposal from new dwellings and impervious areas on Lots 1, 2 and 3 have been designed to cater for a 1% AEP storm event as the secondary flow path feeds to the KCDC Q100 flood extent on Rosetta Road to the south of the site as outlined in Section 3.2 above.

The new dwellings proposed on Lots 1-3 are to have 10,000 litre rainwater storage tanks or a combination of a 4,000 litre rainwater storage tank and a greywater re-use irrigation system in accordance with KCDC's Plan Change 75.

Onsite test results and details of the above conceptual design are outlined in Sections 4 and 5 below.

4 PERCOLATION TESTING

4.1 Methodology

An onsite percolation test was conducted on 10 May 2021 to ascertain the soakage rate in the likely vicinity of a right of way soakpit. The test was undertaken in the location shown on Figure 1 below, with the base of the augered hole at approximately 11.4m AMSL.

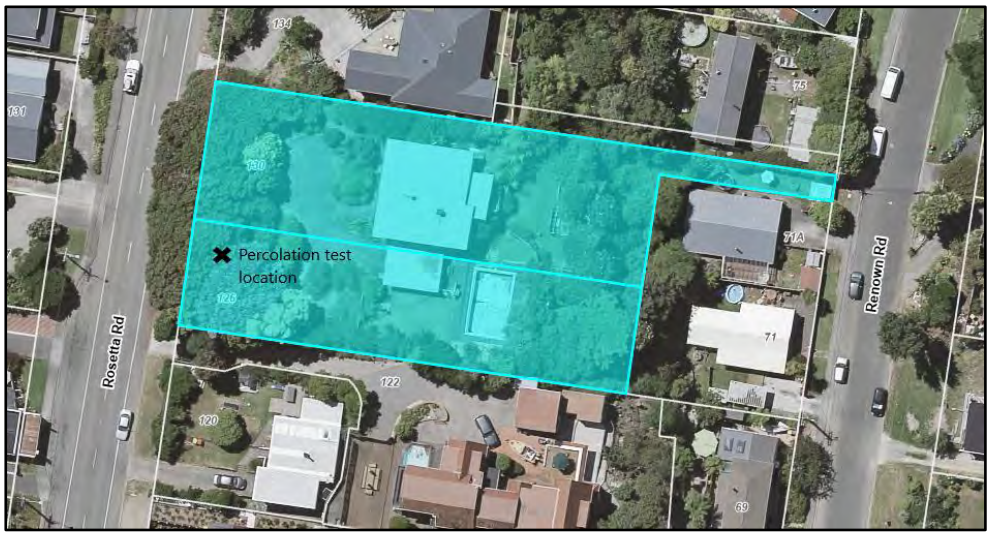


Figure 1 - Percolation test location

The percolation test was conducted using the falling head method whereby a sleeve was inserted into a hand augered hole and the rate of drainage was recorded at regular time intervals. Soil extracted during augering comprised of sand material and topsoil - refer Figures 2 and 3 below. The water table was not encountered during hand augering.

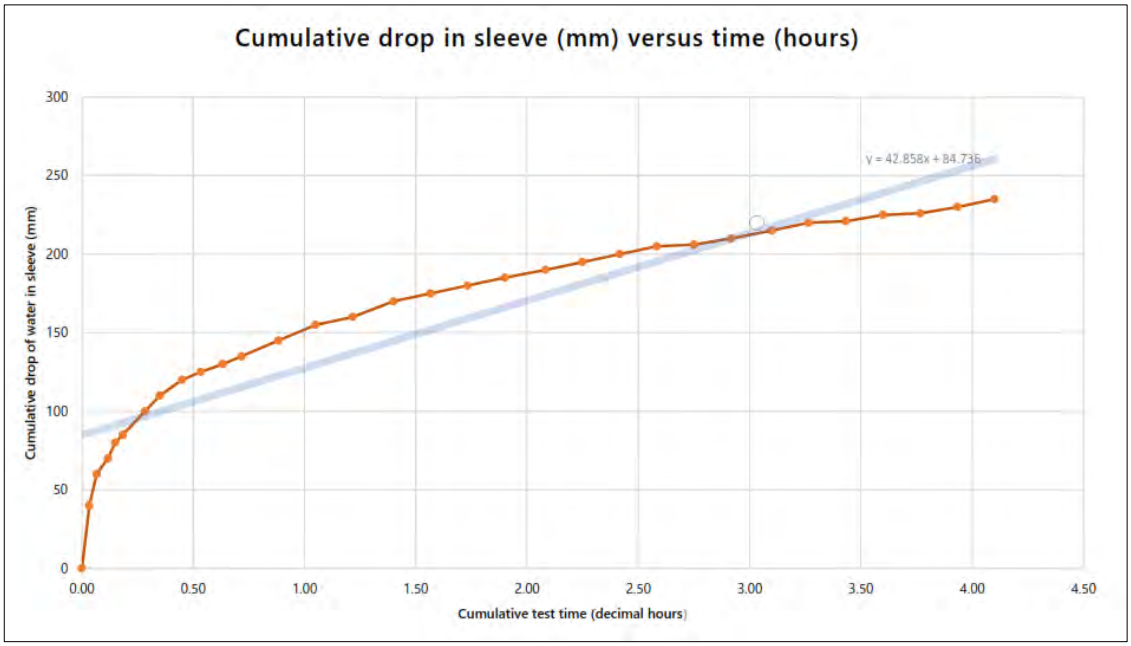
4.2 Test Results

Figure 2 - Soil extracted during hand augering

Figure 3 – Percolation test (looking south-west)

Percolation test results are graphed in Figure 4 and summarised below:

Figure 4 - Percolation test results



Soakage test results	
Raw soakage rate (from onsite testing)	43mm/hour (refer Figure 4 above)
Design soakage rate (with Factor of Safety*)	11mm/hour (Raw soakage rate x 0.25*)

* as required by the KCDC Subdivision and Development Principles and Requirements (2012) Clause 4.3.7.9.

A design soakage rate of **11mm/hour** is insufficient to allow stormwater disposal by way of soakpits within this area. Therefore, attenuation is required in order to achieve hydraulic neutrality.

It is noted that the soakage rate observed above may not necessarily represent potential percolation rate elsewhere within the site as testing was undertaken at the low point of the dune. From previous experiences on similar sites, percolation rates are typically faster in areas of higher elevation.

5 CONCEPTUAL DESIGN

5.1 Proposed Right of Way

The site currently has a 274m² sealed driveway which includes a turning area and access to the existing garage. Stormwater captured on this driveway currently drains directly into Rosetta Road. This driveway is to be removed in its entirety and re-aligned as a 165m² formed right of way along the southern boundary of the site with 110m² of contributing driveways from Lots 3 and 4.

It is proposed that runoff from the right of way and contributing driveways of Lots 3 and 4 be discharged directly to Rosetta Road, offsetting the existing pre-development runoff. To avoid the existing sheet flow over the vehicle crossing, a street catchpit and strip drain is proposed at the road boundary with a 100mmØ outlet pipe feeding directly into the kerb and channel within Rosetta Road.

In summary, the proposed right of way will not have any attenuation devices due to site constraints. However, the unattenuated coverage will remain nearly the same when compared to the existing driveway. Thus stormwater runoff directed to Rosetta Road is unchanged – refer to Table below:

Unattenuated Driveway Coverages	
Description	**Area (m²)**
EXISTING	
Existing Driveway	274
PROPOSED	
Proposed Right of Way	165
Proposed Driveway for Lot 3	57
Proposed Driveway for Lot 4	53
Total	**275**

5.3 Proposed Lots 1, 2 and 3

5.3.1 Proposed Lot 1

Proposed Lot 1 is situated in the north-western corner of the site. Measuring approximately 309m², Lot 1 currently encompasses an existing double garage with a vegetated roof to be removed on the Rosetta Road frontage and a portion of the existing driveway. As per Sheet A200 of Box Architecture Ltd.'s drawings titled "Rosetta Road Dev" dated 18 January 2023, a new 165m² dwelling with a 33m² decked garage roof and an additional 30m² of unattenuated impervious areas are proposed. As the existing garage roof area is vegetated, it has not been considered when determining net additional impervious areas. Therefore, the net impervious areas proposed on Lot 1 are assessed as **198m² roof area** and **30m² paved area** as summarised in the table below:

Proposed Lot 1 Coverages		
Description	**Area (m²)**	**Considered for Attenuation (m²)**
Proposed Roof Areas (attenuated)	198	198
Proposed Driveway (over-mitigated)	30	30
Total	**228**	**228**

5.3.2 Proposed Lot 2

Proposed Lot 2 measures approximately 303m² and is bounded by Lot 1 to the north and the right of way to the south. As per Sheet A200 of Box Architecture Ltd.'s drawings titled "Rosetta Road Dev" dated 18 January 2023, a new 115m² dwelling with a 44m² decked garage roof and an additional 31m² of unattenuated impervious areas are proposed. No existing impervious areas have been used to offset calculations for an attenuation tank on Lot 2 and, as such, the net impervious areas proposed are assessed as **159m² roof area** and **31m² paved area** as summarised in the table below:

Proposed Lot 2 Coverages		
Description	**Area (m²)**	**Considered for Attenuation (m²)**
Proposed Roof Areas (attenuated)	159	159
Proposed Driveway (over-mitigated)	31	31
Total	**190**	**190**

5.3.3 Proposed Lot 3

Proposed Lot 3 measures approximately 810m² which includes 183m² of right of way and 57m² of driveway directly discharged to Rosetta Road (as discussed in Section 5.1), resulting in a net area of 570m² to assess the proposal upon. Lot 3 currently contains an existing 52m² double garage to be removed along with a 60m² pool and 76m² of surrounding paved areas which are to remain. Perusal of the KCDC building file indicates that overflow from the pool (and surrounding concrete areas) currently drains into a soakpit located within the eastern half of the proposed Lot – refer Figure 5 below. It is proposed that this soakpit remains so long as it is only used as existing, and no additional runoff be directed into it.

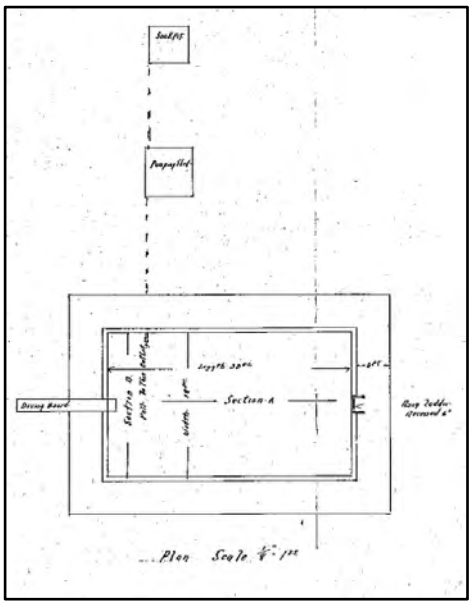


Figure 5 – Swimming pool details (Source: Building file)

As per Sheet A200 of Box Architecture Ltd.'s drawings titled "Rosetta Road Dev" dated 18 January 2023, a new 124m² dwelling with a 22m² deck over garage is proposed while keeping the 76m² of impervious areas associated with the existing pool. The net increase in impervious areas within Lot 3 is assessed as **144m² roof area** as per the table below, noting that approximately 57m² of new driveway has been offset against the existing driveway discussed in Section 5.1 and will be discharged directly to Rosetta Road.

Proposed Lot 3 Coverages		
Description	**Area (m²)**	**Considered for Attenuation (m²)**
Existing Garage (to be removed)*	52	0
Existing Pool with existing soakage system	60	0
Existing Paving at pool with existing soakage system	76	0
Proposed Roof Areas (attenuated)	144	144
Proposed Driveway (Refer Section 5.1)	57	0
Total	**337**	**144**

* *Excluded from total*

5.3.4 Attenuation Tank Design

Onsite attenuation tanks are proposed for the overflow from the 10,000 litre PC75 roof water tank or 4,000 litre grey-water re-use tank on each of Lots 1, 2, and 3. It is envisaged that Promax Slimline water tanks (or similar) could be used to provide the attenuation storage. The attenuation tank calculations have been undertaken assuming that runoff from driveways and other impermeable surfaces will be discharged directly into the system and roof run-off has been over-attenuated to compensate.

Tank calculations have been undertaken using the Kāpiti Coast District Council on-site detention tank calculator with the results included at Appendix One. The orifices of each attenuation tank are proposed to discharge to a kerb adaptor in the right of way or directly to Rosetta Road at the restricted rates summarised below:

Lot number	Min storage volume	Max discharge (Q100 event)	Max discharge (Q2 event)	Orifice diameter
Lot 1	4,680 litres	1.3 litres/second	0.8 litres/second	21mm
Lot 2	4,180 litres	1.0 litres/second	0.6 litres/second	18mm
Lot 3	2,810 litres	1.2 litres/second	0.7 litres/second	20mm

5.4 Proposed Lot 4

Proposed Lot 4 is the largest allotment in this development. At approximately 1001m², it will include the existing 190m² dwelling with access from the proposed right of way to the west of proposed Lot 3.

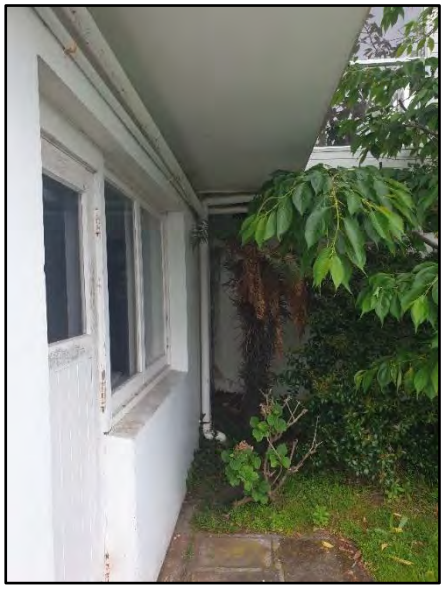


Figure 6 – Downpipe junction on eastern face of dwelling

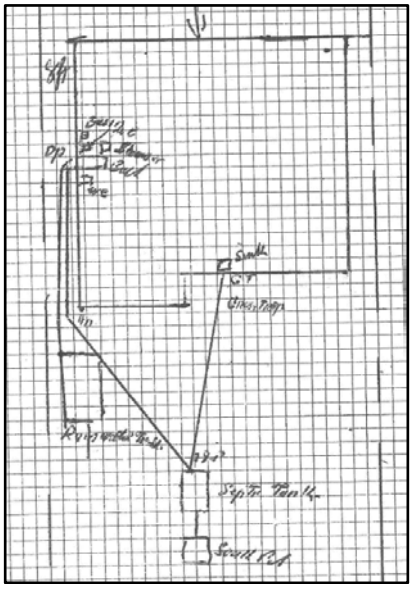
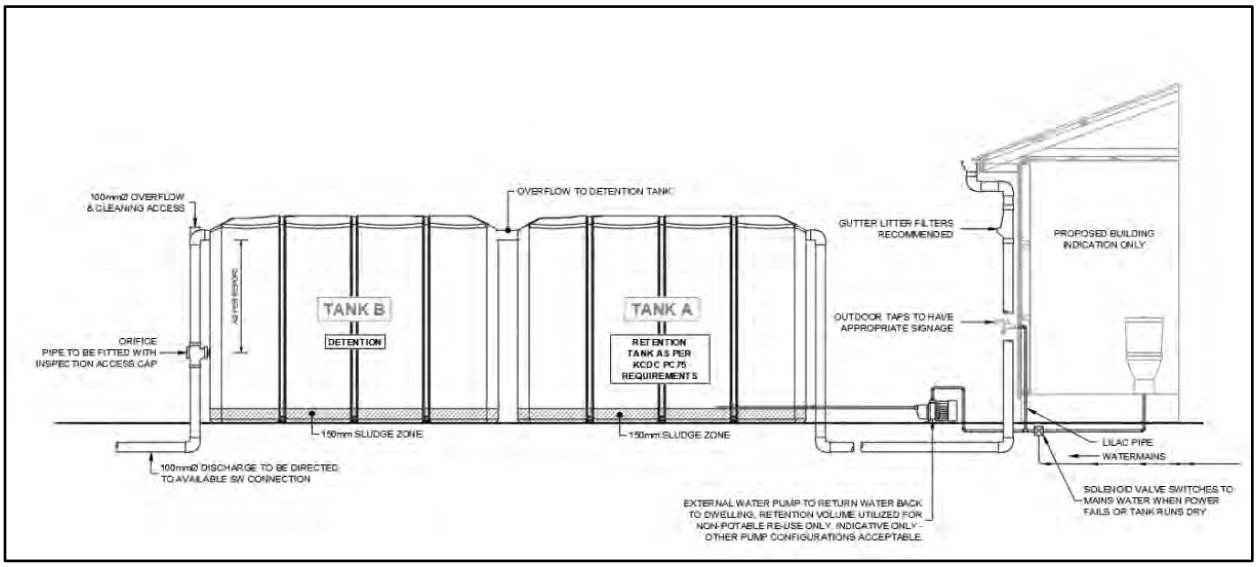


Figure 7 – Original Drainage Plan (Source: KCDC Building File)

The drainage plan from Council's building file, along with on-site inspections indicates that all downpipes drain to the rear of the existing building and feed into a rainwater tank which overflows to a soakpit. Figures 6 and 7 below show this downpipe junction along with the original drainage plan. It is proposed that this existing system remains as is.

5.5 Conceptual Design Summary

1. Stormwater runoff from the proposed right of way and private driveways for Lots 3 and 4 has been offset against the existing impermeable driveway and is to be routed to a standard kerb and channel following the southern boundary to a sump and 100mmØ bubble-up outlet to the kerb within Rosetta Road.
2. Stormwater runoff from new dwellings on proposed Lots 1, 2 and 3 are to be attenuated based on roof areas to be confirmed at the building consent stage. For preliminary design purposes, the indicative values are detailed in Sections 5.2.1, 5.2.2 and 5.2.3 and are sourced from Sheet A200 of Box Architecture Ltd.'s drawings titled "Rosetta Road Dev" dated 18 January 2023. These attenuation tanks are over-sized to allow the proposed driveways to be discharged directly to the kerb and are required in addition to the 10,000-litre rainwater re-use or 4,000-litre greyware re-use tanks necessitated by Plan Change 75. Overflow from the attenuation tanks are to be routed to kerb adaptors via stormwater laterals constructed to the boundary of each Lot. A conceptual tank layout is shown below:



3. Overflow from the existing concrete area and pool on proposed Lot 3 is to continue to be discharged into the existing system.
4. The existing system on Lot 4 is currently within the confines of the Lot as shown in Section 5.4 and is proposed to remain as.
5. Alternative methods of disposal may be assessed at the time of engineering approval and are to be subject to Council approval.

6 OPERATION, MAINTENANCE AND ACCESS

The owners of each allotment are to be responsible for the maintenance of stormwater devices with that allotment. It is also envisaged it will be the collective responsibility of the allotments contributing to and utilising any stormwater devices situated within easements to collective share inspection and maintenance obligations.

6.1 Soakage Devices

The primary requirement of a soakage device is that it maintains the soakage rates at or above those used during design. Clogging of the device by sediment will reduce soakage rates and therefore proactive inspections and maintenance should be undertaken periodically. Maintenance is likely to include (but is not limited to) the following:

- Clearing out of driveway sumps/silt traps
- Maintaining devices in accordance with the manufacturer's instructions
- Recording of dates in which inspections and maintenance have occurred

During dwelling construction, it shall be the responsibility of the builder to inspect and maintain soakage devices and sumps at least fortnightly or after a significant rainfall event. There is a greater likelihood of sediment laden stormwater entering the device(s) during construction and the builder shall install and maintain protection measures to prevent soil and debris from entering sumps.

6.2 Attenuation Tanks

Tanks are to be maintained in accordance with the manufacturer's recommendations. Where required, entry into confined spaces should only be undertaken by a suitably qualified person and all should be undertaken in accordance with A/NZS 2865:2001 Safe Working in a Confined Space.

7 RECOMMENDATIONS

This report has been prepared to support an application for subdivision consent and through conceptual design, has outlined potential methods to dispose of the additional stormwater runoff generated by the development in a 1% AEP rainfall event.

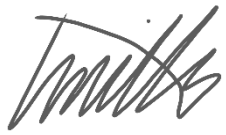
Designs are preliminary and shall be verified once further details of buildings and impervious areas are confirmed. It will be the responsibility of future owners to provide certified calculations verifying the sizing of systems within each lot relative to the parameters used in this report at the time of building consent, once roof and impervious areas are confirmed. It is anticipated that a consent notice will be recorded on the titles of these allotments to ensure this requirement is accounted for during the building consent phase and complied with on an ongoing basis. Alternative designs may be considered but will need to be supported by relevant calculations, technical specifications and/or additional testing if required.

8 LIMITATIONS

This document has been prepared for resource consent approval purposes only and is to be refined during the detailed engineering design phase and submitted to Council for acceptance and approval prior to works commencing onsite. If required, specific sizing will be undertaking as part of detailed design.

The content of this report is based on the information available at the time of writing. Sub-surface conditions have been ascertained from a discrete test location and do not necessarily represent of conditions in other areas of the site. The base of any excavations will need to be inspected at the time of construction to verify that the soil characteristics are consistent with the assumptions made in this conceptual design.

Prepared by:



_____

Tom Mills, BSurv, MSSNZ
Licensed Cadastral Surveyor
Leith Consulting Ltd

APPENDIX ONE: ATTENUATION TANK CALCULATIONS

STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN 24-Aug-23

100 YEAR ARI STORM with 2 YEAR ARI STORM OUTLET

PROPOSED LOT 1

309 m2 Lot with 198m² house plus 30m² impervious

NAME	KAP-0460	Calcs By	TEM
ADDRESS	126-130 Rosetta Road, Raumati Beach		
PHONE		Date	24-Aug-23

NOTE:
Only fill in the blue (unprotected) cells

DATA

Depth of Tank	1.85	*m*
2 Year Isoheyt Value	80	*mm*
100 Year Isoheyt Value	165	*mm*
Time of Concentration	10	*min. (10,15,20,30,60)*

	Area (m²)	`C'	CA (m²)
Site Area	309		
1. EXISTING SITE COVERAGE			
Existing Roof	0	0.9	0.0
Existing Paved	0	0.85	0.0
Existing Garden	309	0.35	108.2
TOTAL Existing Area	309		**108.2**
2. PROPOSED DEVELOPMENT			
Additional/Reduced Roof	198	0.9	178.2
Additional/Reduced Paved	30	0.85	25.5
Additional/Reduced Lawn/Garden	-228	0.35	-79.8
TOTAL Addition Area (should be zero)	0		**123.9**
3. REMAINING UNDRAINED AREA	(Not routed thru detention tank after development)		
Undrained Roof Area (Normally Zero)	0	0.9	0.0
Undrained Paved Area (Normally Zero)	30	0.85	25.5
Undrained Lawn/Garden Area	81	0.35	28.4
TOTAL Extg Not to Tank Area	111		**53.9**

NOTE A "#DIV/0!" message appearing in a cell means that data has been entered incorrectly

NOTE The sum of the existing areas must equal the `Site Area'

* NOTE If pre-development lawn areas are reduced a negative number is required to be entered.

CONTROL DATA

Existing `C'	0.30		*(`CA'extg/Site Area)*
Developed `CA' to OSD tank	178	*(m²)*	*(`CA'extg+`CA'adds-`CA'undr)*
Additional Area	0	*(m²)*	*(`A'add)*

0.00 0 0

RUNOFF DATA	for 2 year		for 100 Year	
Intensity I	52.80	*mm/hr*	108.9	*mm/hr*
Allowable Qmax whole site	1.59		3.27	
Lost Flows	0.79		1.63	
Allowable Qmax from tanks =	0.8	*l/s*	1.64	*l/s*
Allowable Qave from tanks =	0.5	*l/s*	1.1	*l/s (Qmax * 0.65)*

Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES

d=	20.7	mm	
Q100 outflow=	1.270035646	for h=	1.85
Q100ave	0.8		
Q=	0.797194687	for h in Q2	0.7289013
Qave	0.5	Q2	

Rainfall Intensities (mm)

MIN	Normalised Rainfall Depth(I/I_{24})	2 Yr(mm/hr)	100 yr(mm/hr)
10	0.11	52.8	108.9
15	0.14	44.8	92.4
20	0.16	38.4	79.2
30	0.19	30.4	62.7
60	0.26	20.8	42.9
120	0.35	14.0	28.9
180	0.46	12.3	25.3
240	0.51	10.2	21.0
300	0.56	9.0	18.5
360	0.60	8.0	16.5
420	0.64	7.3	15.1
480	0.68	6.8	14.0
540	0.71	6.3	13.0
600	0.75	6.0	12.4
660	0.78	5.7	11.7
720	0.81	5.4	11.1

STORAGE (2 year)

time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)	
10	8.8	1568	310.90593	1257	*inflow=`CA'dev*depth*
15	11.2	1996	466.35889	1529	*outflow=Qave*time*
20	12.8	2281	622	1659	*diff=inflow-outflow*
30	15.2	2709	933	1776	
60	20.8	3707	1865	1841	
120	28.0	4990	3731	1259	
180	36.8	6558	5596	961	
240	40.8	7271	7462	0	
300	44.8	7983	9327	0	
360	48.0	8554	11193	0	
420	51.2	9124	13058	0	
480	54.4	9694	14923	0	
540	56.8	10122	16789	0	
600	60.0	10692	18654	0	
660	62.4	11120	20520	0	
720	64.8	11547	22381	0	
			Max=	1841	

STORAGE (100 Year)

time (min)	depth (mm)	inflow (l)	100 yr outflow (l)	Storage (100 yr) (l)
10	18.2	3234	495.3139018	2739
15	23.1	4116	743	3373
20	26.4	4704	991	3714
30	31.4	5587	1486	4101
60	42.9	7645	2972	4673
120	57.8	10291	5944	4347
180	75.9	13525	8916	4610
240	84.2	14996	11888	3108
300	92.4	16466	14859	1606
360	99.0	17642	17831	0
420	105.6	18818	20803	0
480	112.2	19994	23775	0
540	117.2	20876	26747	0
600	123.8	22052	29719	0
660	128.7	22934	32691	0
720	133.7	23816	35663	0
			Max=	4673

SUMMARY

Tank Volume	4680.0	litres
100 Year Max Discharge	1.3	l/s
2 Year Max Discharge	0.8	l/s
Orifice Diameter	21	mm

STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN 24-Aug-23

100 YEAR ARI STORM with 2 YEAR ARI STORM OUTLET

PROPOSED LOT 2

303 m2 Lot with 159m² house plus 31m² impervious

NAME	KAP-0460	Calcs By	TEM
ADDRESS	126-130 Rosetta Road, Raumati Beach		
PHONE		Date	24-Aug-23

NOTE:
Only fill in the blue (unprotected) cells

DATA

Depth of Tank	1.85	*m*
2 Year Isoheyt Value	80	*mm*
100 Year Isoheyt Value	165	*mm*
Time of Concentration	10	*min. (10,15,20,30,60)*

	Area (m²)	`C'	CA (m²)
Site Area	303		
1. EXISTING SITE COVERAGE			
Existing Roof	0	0.9	0.0
Existing Paved	0	0.85	0.0
Existing Garden	303	0.35	106.1
TOTAL Existing Area	303		**106.1**
2. PROPOSED DEVELOPMENT			
Additional/Reduced Roof	159	0.9	143.1
Additional/Reduced Paved	31	0.85	26.4
Additional/Reduced Lawn/Garden	-190	0.35	-66.5
TOTAL Addition Area (should be zero)	0		**103.0**
3. REMAINING UNDRAINED AREA	(Not routed thru detention tank after development)		
Undrained Roof Area (Normally Zero)	0	0.9	0.0
Undrained Paved Area (Normally Zero)	31	0.85	26.4
Undrained Lawn/Garden Area	113	0.35	39.6
TOTAL Extg Not to Tank Area	144		**65.9**

NOTE A "#DIV/0!" message appearing in a cell means that data has been entered incorrectly

NOTE The sum of the existing areas must equal the `Site Area'

* NOTE If pre-development lawn areas are reduced a negative number is required to be entered.

CONTROL DATA

Existing `C'	0.30		*(`CA'extg/Site Area)*
Developed `CA' to OSD tank	143	*(m²)*	*(`CA'extg+`CA'adds-`CA'undr)*
Additional Area	0	*(m²)*	*(`A'add)*

0.00 0 0

RUNOFF DATA	for 2 year		for 100 Year	
Intensity I	52.80	*mm/hr*	108.9	*mm/hr*
Allowable Qmax whole site	1.56		3.21	
Lost Flows	0.97		2.00	
Allowable Qmax from tanks =	0.6	*l/s*	1.22	*l/s*
Allowable Qave from tanks =	0.4	*l/s*	0.8	*l/s (Qmax * 0.65)*

Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES

d=	18.0	mm	
Q100 outflow=	0.952775286	for h=	1.85
Q100ave	0.6		
Q=	0.589454267	for h in Q2	0.7080941
Qave	0.4	Q2	

Rainfall Intensities (mm)

MIN	Normalised Rainfall Depth(I/I_{24})	2 Yr(mm/hr)	100 yr(mm/hr)
10	0.11	52.8	108.9
15	0.14	44.8	92.4
20	0.16	38.4	79.2
30	0.19	30.4	62.7
60	0.26	20.8	42.9
120	0.35	14.0	28.9
180	0.46	12.3	25.3
240	0.51	10.2	21.0
300	0.56	9.0	18.5
360	0.60	8.0	16.5
420	0.64	7.3	15.1
480	0.68	6.8	14.0
540	0.71	6.3	13.0
600	0.75	6.0	12.4
660	0.78	5.7	11.7
720	0.81	5.4	11.1

STORAGE (2 year)

time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)	
10	8.8	1259	229.88716	1029	*inflow=`CA'dev*depth*
15	11.2	1603	344.83075	1258	*outflow=Qave*time*
20	12.8	1832	460	1372	*diff=inflow-outflow*
30	15.2	2175	690	1485	
60	20.8	2976	1379	1597	
120	28.0	4007	2759	1248	
180	36.8	5266	4138	1128	
240	40.8	5838	5517	321	
300	44.8	6411	6897	0	
360	48.0	6869	8276	0	
420	51.2	7327	9655	0	
480	54.4	7785	11035	0	
540	56.8	8128	12414	0	
600	60.0	8586	13793	0	
660	62.4	8929	15173	0	
720	64.8	9273	16549	0	
			Max=	1597	

STORAGE (100 Year)

time (min)	depth (mm)	inflow (l)	100 yr outflow (l)	Storage (100 yr) (l)
10	18.2	2597	371.5823617	2226
15	23.1	3306	557	2748
20	26.4	3778	743	3035
30	31.4	4486	1115	3371
60	42.9	6139	2229	3909
120	57.8	8264	4459	3805
180	75.9	10861	6688	4173
240	84.2	12042	8918	3124
300	92.4	13222	11147	2075
360	99.0	14167	13377	790
420	105.6	15111	15606	0
480	112.2	16056	17836	0
540	117.2	16764	20065	0
600	123.8	17709	22295	0
660	128.7	18417	24524	0
720	133.7	19125	26754	0
			Max=	4173

SUMMARY

Tank Volume	4180.0	litres
100 Year Max Discharge	1.0	l/s
2 Year Max Discharge	0.6	l/s
Orifice Diameter	18	mm

STORMWATER ON-SITE DETENTION TANK (OSD) DESIGN 24-Aug-23

100 YEAR ARI STORM with 2 YEAR ARI STORM OUTLET

PROPOSED LOT 3

570 m2 Lot with 159m² house plus 31m² impervious**

**240m² discharged directly to Rosetta Road and not included in these calculations (Gross Lot size = 810m²)

NAME	KAP-0460	Calcs By	TEM
ADDRESS	126-130 Rosetta Road, Raumati Beach		
PHONE		Date	24-Aug-23

NOTE:
Only fill in the blue (unprotected) cells

DATA

Depth of Tank	1.85	*m*
2 Year Isoheyt Value	80	*mm*
100 Year Isoheyt Value	165	*mm*
Time of Concentration	10	*min. (10,15,20,30,60)*

	Area (m²)	`C'	CA (m²)
Site Area	570		
1. EXISTING SITE COVERAGE			
Existing Roof	0	0.9	0.0
Existing Paved	70	0.85	59.5
Existing Garden	500	0.35	175.0
TOTAL Existing Area	570		**234.5**
2. PROPOSED DEVELOPMENT			
Additional/Reduced Roof	144	0.9	129.6
Additional/Reduced Paved	0	0.85	0.0
Additional/Reduced Lawn/Garden	-144	0.35	-50.4
TOTAL Addition Area (should be zero)	0		**79.2**
3. REMAINING UNDRAINED AREA	(Not routed thru detention tank after development)		
Undrained Roof Area (Normally Zero)	0	0.9	0.0
Undrained Paved Area (Normally Zero)	70	0.85	59.5
Undrained Lawn/Garden Area	356	0.35	124.6
TOTAL Extg Not to Tank Area	426		**184.1**

NOTE A "#DIV/0!" message appearing in a cell means that data has been entered incorrectly

NOTE The sum of the existing areas must equal the `Site Area'

* **NOTE If pre-development lawn areas are reduced a negative number is required to be entered.**

CONTROL DATA

Existing `C'	0.30		*(`CA'extg/Site Area)*
Developed `CA' to OSD tank	130	*(m²)*	*(`CA'extg+`CA'adds-`CA'undr)*
Additional Area	0	*(m²)*	*(`A'add)*

0.00 0 0

RUNOFF DATA	**for 2 year**		**for 100 Year**	
Intensity I	52.80	*mm/hr*	108.9	*mm/hr*
Allowable Qmax whole site	3.44		7.10	
Lost Flows	2.70		5.57	
Allowable Qmax from tanks =	0.7	*l/s*	1.53	*l/s*
Allowable Qave from tanks =	0.5	*l/s*	1.0	*l/s (Qmax * 0.65)*

Orifice Calculation - PROTECTED DO NOT ENTER ANY FIGURES

d=	20.0	mm	
Q100 outflow=	1.178661342	for h=	1.85
Q100ave	0.8		
Q=	0.73993761	for h in Q2	0.7290946
Qave	0.5	Q2	

Rainfall Intensities (mm)

MIN	Normalised Rainfall Depth(I/I_{24})	2 Yr(mm/hr)	10 yr(mm/hr)
10	0.11	52.8	108.9
15	0.14	44.8	92.4
20	0.16	38.4	79.2
30	0.19	30.4	62.7
60	0.26	20.8	42.9
120	0.35	14.0	28.9
180	0.46	12.3	25.3
240	0.51	10.2	21.0
300	0.56	9.0	18.5
360	0.60	8.0	16.5
420	0.64	7.3	15.1
480	0.68	6.8	14.0
540	0.71	6.3	13.0
600	0.75	6.0	12.4
660	0.78	5.7	11.7
720	0.81	5.4	11.1

STORAGE (2 year)

time (min)	depth (mm)	inflow (l)	outflow (l)	storage (l)	
10	8.8	1140	288.57567	852	*inflow=`CA'dev*depth*
15	11.2	1452	432.8635	1019	*outflow=Qave*time*
20	12.8	1659	577	1082	*diff=inflow-outflow*
30	15.2	1970	866	1104	
60	20.8	2696	1731	964	
120	28.0	3629	3463	166	
180	36.8	4769	5194	0	
240	40.8	5288	6926	0	
300	44.8	5806	8657	0	
360	48.0	6221	10389	0	
420	51.2	6636	12120	0	
480	54.4	7050	13852	0	
540	56.8	7361	15583	0	
600	60.0	7776	17315	0	
660	62.4	8087	19046	0	
720	64.8	8398	20773	0	
			Max=	1104	

STORAGE (100 Year)

time (min)	depth (mm)	inflow (l)	100 yr outflow (l)	Storage (100 yr) (l)
10	18.2	2352	459.6779233	1893
15	23.1	2994	690	2304
20	26.4	3421	919	2502
30	31.4	4063	1379	2684
60	42.9	5560	2758	2802
120	57.8	7484	5516	1968
180	75.9	9837	8274	1562
240	84.2	10906	11032	0
300	92.4	11975	13790	0
360	99.0	12830	16548	0
420	105.6	13686	19306	0
480	112.2	14541	22065	0
540	117.2	15183	24823	0
600	123.8	16038	27581	0
660	128.7	16680	30339	0
720	133.7	17321	33097	0
			Max=	2802

SUMMARY

Tank Volume	**2810.0**	**litres**
100 Year Max Discharge	**1.2**	**l/s**
2 Year Max Discharge	**0.7**	**l/s**
Orifice Diameter	**20**	**mm**

CGW Ref: 21118-LET-C-001-A
Date: 11 August 2023

Leith Consulting Ltd
12 Ihakara Street
Paraparaumu

Attention: Monique Leith

Dear Monique,

RE: 21118 – 126-130 Rosetta Road, Raumati Residential Subdivision - Stormwater Disposal Design Peer Review

1. Introduction

CGW have been engaged by Leith Consulting to carry out a peer review of the Conceptual Stormwater Disposal Report for a residential subdivision development at 126-130 Rosetta Street, Raumati (Report Version 3, dated 15 June 2023).

The following data sources have been used for the analysis:

- Kapiti Coast District Council Land Development Minimum Requirements 2022 (KCDC-LDMR:2022)
- The Building Code E1: Surface Water

2. Report Commentary

The report is well structured and easy to follow. A few design considerations are proposed below.

2.1 Natural Hazards (Report Section 3.2)

The KCDC Flood Hazards Map indicates a ponding area east of the site which is not mentioned in the report. The development will contribute additional runoff to this area, so KCDC may request on-site attenuation of the 1% AEP Storm Event, additional to the current attenuation proposal.

2.2 Proposed Right-of-Way (Report Section 5)

It is recommended to note that the proposed driveway will not have any attenuation

devices due to site constraints; however, the unattenuated coverage will remain nearly the same when compared to the existing driveway, so stormwater runoff directed to Rosetta Road is unchanged. Additionally, it is recommended to control the discharge through a drainage system directed to a kerb outlet.

We recommend using a strip drain for steeper sections of driveway where a catchpit may be ineffective.

We recommend adding in a table to summarise the breakdown:

Table 1: Unattenuated Driveway Coverages

Description	Area (m^2)
EXISTING	
Existing Driveway	274
PROPOSED	
Proposed Right-of-Way	165
Proposed Driveway for Lot 3	57
Existing Driveway for Lot 4	53
Total	275

2.3 Proposed Lots 1,2 and 3 (Report Section 5)

2.3.1 Proposed Lot 1

Please note that this garage will be removed.

We agree omitting the vegetated roof area from the calculations as a conservative measure. Although vegetated roof areas are not considered pervious as these can only absorb ~5mm of rainfall, it is a good approach to omit this from existing coverage areas.

We recommend adding in a table to summarise the breakdown:

Table 2: Proposed Lot 1 Coverages

Description	Area (m^2)	Considered for Attenuation (m^2)
Proposed Roof Areas (attenuated)	198	198
Proposed Driveway (over-mitigated)	30	30
Total	228	228

2.3.2 Proposed Lot 2

We recommend adding in a table to summarise the breakdown:

Table 3: Proposed Lot 2 Coverages

Description	Area (m^2)	Considered for Attenuation (m^2)
Proposed Roof Areas (attenuated)	159	159
Proposed Driveway (over-mitigated)	31	31
Total	190	190

2.3.3 Proposed Lot 3

We recommend adding in a table to summarise the breakdown:

Table 4: Proposed Lot 3 Coverages

Description	Area (m^2)	Considered for Attenuation (m^2)
Existing Garage (to be removed)*	52	0
Existing Pool with existing soakage system	60	0
Existing Paving at pool with existing soakage system	76	0
Proposed Roof Areas (attenuated)	144	144
Proposed Driveway (Refer to ROW Section)	57	0
Total	337	144

**Excluded from total*

2.4 Recommendations (Report Section 7)

The report notes that the 1% AEP Storm Event was also considered; however, attenuation measures are only provided for the 10% AEP Storm Event.

2.5 Attenuation Calculations (Report Appendix 1)

Based on the Geotech Testing Results and soakage rate, the soils can be classified as high soakage soils in terms of the Building Code E1; however, due to the slopes, we recommend using a run-off coefficient of **0.3**. The 0.35 used in the report is more suited to soils with low soakage rates.

3. Conclusions

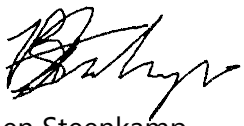
We recommend considering the comments in the above review.

It is recommended to provide a concept site plan with tank details to provide further clarification to the report.

Further clarification is recommended on the disposal points for each site.

Yours faithfully,

Prepared by

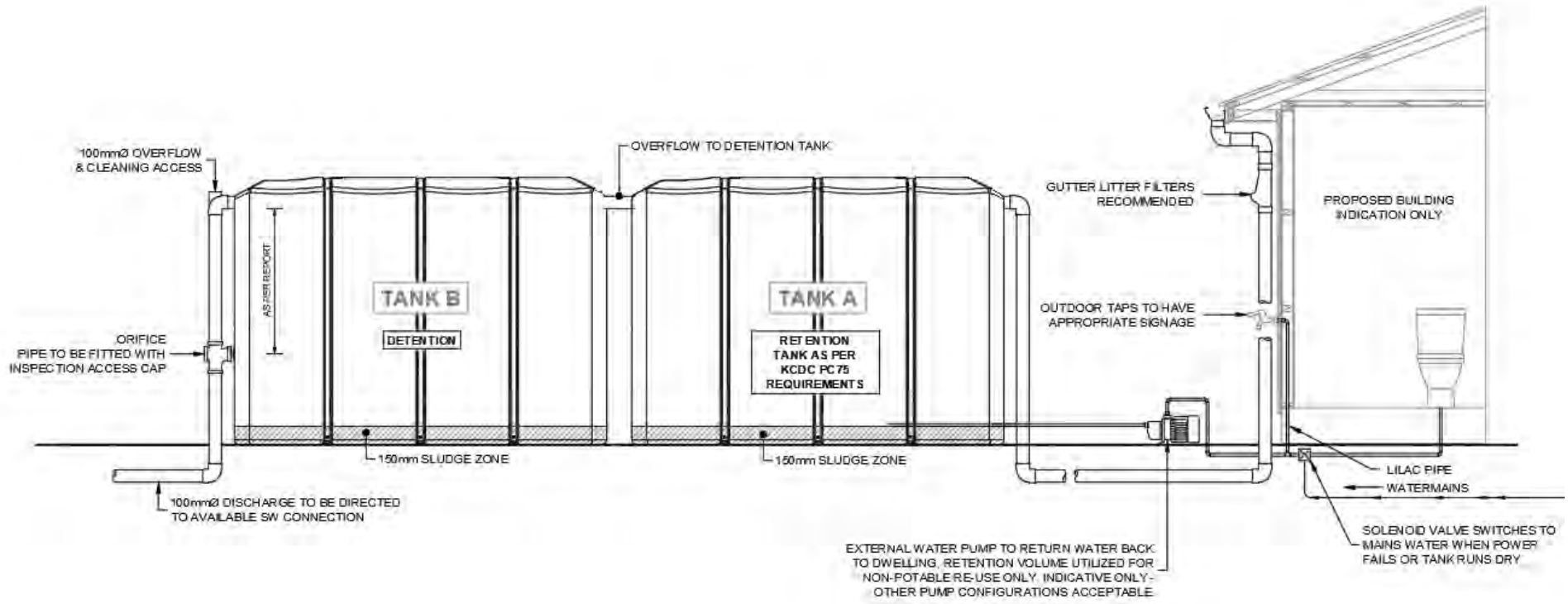


Ben Steenkamp
Senior Civil Engineer
CPEng, BEng Civil, BSc (Geology), CMEngNZ

Approved

Stephen Whyte
Principal Civil Engineer
MEng CPEng CMEngNZ IntPE(NZ)

4. Appendix A – Concept Tank Detail



ATTACHMENT 5

Geotechnical Site Suitability Report

126-130 Rosetta Road, Raumati, Paraparaumu

Lawrence Fay c/ Leith Consulting

Document Number: 21118-RPT-G-001-C

Date: 15 August 2023

Prepared by

Tom Van Deelen

Engineering Geologist

BSc, MEngNZ

Approved by

Robert Smith

Principal Geotechnical Engineer

CMEngNZ CPEng IntPE(NZ) / APEC Engineer

Contents

Executive Summary

Table 1: Executive Summary			
Project		Site Address	126-130 Rosetta Road, Raumati
		Consent Application	Resource/ Building Consent
		Consent Authority	Kapiti Coast District Council
Site Assessment	Geotechnical Hazard Assessment	Liquefaction Risk	TC1
		Lateral Spreading Risk	TC1
		Slope Stability Risk	Quantitatively Assessed
		Setbacks/No Build Areas	N/A
		Groundwater Level	Not encountered within the investigated depths.
		Site Subsoil Classification	Class D – Deep or Soft Soils
		AS2870:2011 Expansive Soils Classification	Class A – Non-Expansive
		HAIL Assessment	Not Part of CGW scope
Foundation Assessment & Recommendations		Geotechnical Ultimate Bearing Capacity 200 kPa Depth	0.4 – 2.0 m bgl
		Foundation Recommendations	TC1 foundations
		Additional Key Considerations	In-ground wall at eastern margin
		Further Geotechnical Review Required	Geotechnical Drawing Review of Foundation Drawings

1. Introduction

CGW Consulting Engineers (CGW) have been engaged by Lawrence Fay C/- Leith Consulting (client) to undertake a site investigation and site suitability assessment for a new proposed residential subdivision at 126-130 Rosetta Road, Raumati (site).

The purpose of this investigation is to assess the suitability of the site for residential development and provide design recommendations for foundations that comply with the New Zealand Building Code. We will provide a geotechnical analysis confirming bearing capacity, ground conditions and a quantitative assessment of the liquefaction risk for the site suitable for both subdivision and building consenting purposes.

The report summarises our findings and recommendations and may be used to support a subdivision and/ or building consent to Kapiti Coast District Council (KCDC). Our limitations are presented within Appendix A of this report.

2. Proposed Development

It is understood the client is proposing to develop a 4 Lot subdivision while retaining the existing dwelling as part of the proposed Lot 3. Access to the proposed lots will be from Rosetta Road along the existing driveway in the south western corner of the site. Figure 1 below shows the preliminary proposed development layout.

Figure 1: Proposed Development, provided by Leith Consulting, 18 January 2023.

3. Scope of Works

Our scope of works, as per the signed short form agreements dated 4th March 2021 and 11th June 2023, are as follows:

- Two CPT tests to 10 m or refusal.
- Shallow investigations using machine excavated test pits, hand auger boreholes, and Scala Penetrometer tests;
- Slope measurements and slope stability modelling;
- Preparation of a geotechnical assessment report with recommendations regarding liquefaction potential, slope stability, and foundation design.

4. Site Information

4.1 Site Description

The site, 126-130 Rosetta Road, Raumati is located approximately 3.5 km south west of Paraparaumu Town Centre and is legally described as Lots 1 and 2 DP 19137 CT 824/62.

Topographically the site is situated on a north-trending sand dune, including a west facing slope, relatively flat area in the centre of the site, and a moderately steep to steep slope in the eastern extent of the site. From the survey information provide site levels appear to vary between Reduced Level (RL) 11 in the west to RL 19 in the centre and then down to RL 8 in the east.

Access to the site is from Rosetta Road, however a narrow section of the property can be accessed from Renown Road in the east. Access to the existing dwelling is from Rosetta Road, as the Renown Road extent of the property is steep.

The site is approximately 130 m east of Raumati beach, and the lower eastern extent of the site is in a KCDC Fill Control Area due to flooding risk.

An existing dwelling is situated in the centre of the site, along with a large swimming pool. The western and eastern portions of the site appear heavily vegetated from aerial imagery. A concrete/ stone retaining wall approximately 1.2 m high spans the length of the western property boundary alongside Rosetta Road.

4.2 Published Geology

According to GNS mapping of the Wellington region (2000), the site is underlain by beach deposits (Q1d), described as '*active dunes*'.

Mapping indicates the closest major active fault is the Ohariu Fault. It is mapped approximately 5 km north east of the site and trends north east, with a recurrence interval of 2000<3500 years.

Greater Wellington Regional Council (GWRC) liquefaction mapping of the Wellington region indicates the site as having 'high' liquefaction potential.

4.3 NZGD Review

A review of the New Zealand Geotechnical Database (NZGD) identified no ground investigations within 300 m of the site.

4.4 Property Review

A review of the KCDC hazard mapping and GIS database indicate the following:

- The site is zone as beach residential;
- The eastern extent of the site is mapped within a KCDC flood extent;
- The eastern extent of the site is mapped within a fill control area.

5. CGW Site Walkover and Investigation

A CGW engineering geologist attended the site on 15th March 2021 and 7th July 2023 and undertook a site walkover including both shallow and deep site investigations across the site.

5.1 CGW Site Walkover

During the site walkover the following was observed:

- The eastern portion of the site slopes down to the east at approximately 25° to 35°.
- The north-western and eastern portions of the site are densely vegetated with trees and bushes.
- The eastern boundary could not be accessed due to the vegetation.
- A double underground garage is present in the north-western corner of the site and its internal concrete wall is retaining up to approximately 2.5 m to 3.0 m of uphill slope.
- An approximately 1.2 m high concrete and stone retaining wall is present along the western boundary of the site.
- An underground pump house is present immediately east of the existing swimming pool, which is to be removed.
- On the northern side of the dwelling, a 2.1 m high concrete retaining wall is present.

Figure 2: Existing dwelling and pool, looking north east.

5.2 CGW Site Specific Investigations

CGW site specific investigations comprised:

- Two cone penetrometer tests (CPT) to final depths of between 8.56 m and 10.43 m bgl, where refusal was met due to anchor failure.
- Two machine excavated test pits to final depths of between 1.9 m to 2.1 m bgl in target material.
- Five hand auger boreholes to a target depth of 3.0 m bgl.
- Eight Scala penetrometer tests to target depth of 3.0 m bgl.
- Three geological cross-sections (A-A', B-B', and C-C').

The site investigations were undertaken by a CGW engineering geologist who set out the investigation locations, supervised the sub-contractor and carried out in-situ testing. A visual tactile classification of the soils encountered during the investigation was carried in accordance with the NZGS guidelines (2005). Scala penetrometer testing was completed in accordance with NZS 4402:1988 Test 6.5.2.

Testing locations are indicated on the plan within Appendix B. Investigation logs are presented in Appendix C.

6. Ground Model

Ground conditions are summarised from the CGW investigations at the site.

6.1 Subsurface Conditions

Table 2 below present the soils conditions encountered at the site, including Soil Behaviour Type (SBT) inferred by the CPT analysis software.

Table 2: Site Ground Model			
Soil Type	**Depth to base of layer (m bgl)**	**Thickness (m)**	**Relative Density / Consistency**
TOPSOIL (where encountered) – fine sandy SILT to silty fine SAND	0.1 - 0.4	0.1 - 0.4	--
NON-ENGINEERED FILL – silty fine SAND, GRAVEL	0.4 - 0.5	0.2 – 0.3	Very loose to medium dense
DUNE DEPOSITS – fine to medium SAND	>10.4	Not determined	Very loose to dense

6.2 Groundwater

Groundwater was not encountered within the shallow or deep investigations completed by CGW. Groundwater conditions and levels may vary in response to environmental factors including seasonal variations or weather events.

6.3 Site Subsoil Classification

We consider that the site subsoil category in terms of NZS1170.5 Clause 3.1.3 is Class D (deep or soft soils) based on the following:

- Shallow site specific investigations indicate dune deposits.
- Geology mapping of the Wellington region (2000).
- Clause 3.1.3 and Table 3.2 of NZS1170.5:2004.

7. Liquefaction and Lateral Spreading Hazard

Considering the CPT testing did not encounter groundwater, within the 10.4m investigated depth, liquefaction is unlikely to occur. We consider liquefaction induced settlements would be expected to be nil to minor. Liquefaction induced lateral spreading is not likely to occur. The liquefaction outputs are presented in Appendix D.

7.1 Expected Future Land Performance

Although not developed for non-residential building or construction outside of Canterbury, the MBIE Canterbury earthquake guidance provides a useful benchmark in classifying the liquefaction risk to a property and is now being used more widely across New Zealand.

The MBIE Guidelines provide broad classifications of land for future land performance based on index values of expected settlements. Given in Table 3 below is a summary of expected future land performance criteria for the site based on

MBIE Technical Category and our analysis of the deep geotechnical data collected from the site.

Table 3 - Expected Future Land Performance Categories								
Technical Category	**Expected SLS Land Settlement (mm)**		**Expected ULS Land Settlement (mm)**		**Expected Global Lateral Movement (mm)**		**Expected ULS Lateral Stretch (mm)**	
TC1	0 -15	✓	0 – 25	✓	Nil	✓	Nil	✓
TC2	0 – 50		0 – 100		<300 (Minor to moderate)		<50 (Minor)	
TC3	>50		>100		300 – 500 (Major)		0 – 200 (Minor to Moderate)	

Our liquefaction analysis indicates that liquefaction-induced ground subsidence is generally consistent with an MBIE Technical Category TC1 land performance designation.

8. Slope Stability Analysis

Slope stability analysis of three slope transects (A-A', B-B', and C-C') have been undertaken to better quantify the stability of the sloping ground under existing conditions and conditions under the proposed development. The computer programme SLIDE Version 7 for soil slope stability analysis, developed by Rocscience Inc. was used for our slope stability calculations. Stability of slip surfaces was assessed using Bishops Simplified method of vertical slice limit equilibrium. The modelled site stratigraphy has been inferred from site-specific testing data and site features, and the soil properties include Mohr-Coulomb effective stress shear strength and Drained/ Undrained parameters.

We have undertaken a back analysis of the three slope transects to validate the soil parameters assumed prior to developing our developed slope stability sections.

The slope profiles (A-A', B-B', and C-C') that have been used for the slope stability analysis were measured on site and are considered the worst-case profile in relation to the proposed development.

Four different soil conditions were modelled to determine possible failure mechanisms at the site, these include:

- Normal groundwater – with an estimated groundwater level of approximately 4.0 m bgl (a conservative groundwater level has been used for modelling purposes).
- Extreme groundwater – worst case groundwater conditions, to account for significant rainfall events.
- Seismic SLS event – where a PGA of 0.13 g is assigned to the site to model a serviceability limit state type earthquake.
- Seismic ULS event – where a PGA of 0.68 g is assigned to the site to model an ultimate limit state type event.

Values for the peak ground acceleration (PGA) were determined for the site following the guidelines in the Earthquake Geotechnical Engineering Practice Module 1 (revised Nov 2021) as follows for structures with an Importance Level of IL2.

Lower bound effective shear strength parameters used for our analysis are summarised in Table 4 below. It should be noted that these were selected on the basis of the soil description, in-situ strength testing, reference to literature, limited back analysis and our experience with similar soil types from the Kapiti area. Slope stability analysis models are presented in Appendix E.

Table 4: Design Parameters for Slope Stability Analysis

Mohr-Coulomb Effective Stress Parameters			
Soil Type	**Effective Cohesion (kPa)**	**Effective Friction Angle (°)**	**Unit Weight (kN/m³)**
Topsoil/ Non-engineered Fill	1	28	18
Engineered Fill	3	33	19
Driveway/ Road Fill	3	33	18
Upper Dune Sand (top 1.5 m)	10	35	19
Middle Dune Sand (1.5 m to 4.5 m)	15	40	20
Drained/ Undrained Parameters			
Soil Type	**Cu (kPa)**	**C/Cu Ratio**	**Phi (deg)**
Lower Dune Sand (>4.5 m)	250	0.5	35

8.1 Slope Stability Analysis and Discussion

Slope stability analysis has been undertaken using assumed circular failure surfaces for two different scenarios': the slope in its current state and the slope with the proposed development. Best practice for slope modelling in New Zealand indicates the following minimum Factors of Safety (FoS) are required when modelling slopes for lightweight buildings.

Static (normal groundwater) - >1.5

Extreme (worst credible) - >1.3

Seismic SLS Event - >1.2

Seismic ULS Event - >1.0

Table 5, 6, and 7 below presents the minimum FoS's from the analysis for the two different scenarios (Undeveloped and Developed) for transects A-A', B-B', and C-C'. The complexity of the ground conditions, the adequacy of information obtained from site investigation, the accuracy of the design parameters, such as soil friction angle and shear strength, determine the accuracy of the quantified Factor of Safety.

Table 5: Slope Stability Results – A-A'

Section	Scenario	Required FoS	Minimum FoS	Comments
Cross Section A-A' Undeveloped.	Normal Groundwater	-	2.569	Min FoS Achieved.
	Extreme Groundwater	-	2.309	Min FoS Achieved.
	Seismic SLS	-	1.812	Min FoS Achieved.
	Seismic ULS	-	0.716	Failure in the upper T.S/ Non-engineered fill layers.
Cross Section A-A' Developed. T.S/ Non-engineered replaced with engineered fill beneath	Normal Groundwater	1.5	2.590	Min FoS Achieved.
	Extreme Groundwater	1.3	2.590	Min FoS Achieved.

Table 5: Slope Stability Results – A-A'				
Section	**Scenario**	**Required FoS**	**Minimum FoS**	**Comments**
development footprint. Concrete walls used for development retaining.	Seismic SLS	1.2	2.273	Min FoS Achieved.
	Seismic ULS	1.0	0.991	FoS >1.0 achieved through development.

Table 6: Slope Stability Results – B-B'				
Section	**Scenario**	**Required FoS**	**Minimum FoS**	**Comments**
Cross Section B-B' Undeveloped.	Normal Groundwater	-	2.028	Min FoS Achieved.
	Extreme Groundwater	-	1.904	Min FoS Achieved.
	Seismic SLS	-	1.582	Min FoS Achieved.
	Seismic ULS	-	0.671	Failure in the upper T.S/ Non-engineered fill layers.
Cross Section B-B' Developed. T.S/ Non-engineered replaced with engineered fill beneath development footprint. Concrete walls used for development retaining.	Normal Groundwater	1.5	2.115	Min FoS Achieved.
	Extreme Groundwater	1.3	1.812	Min FoS Achieved.
	Seismic SLS	1.2	1.833	Min FoS Achieved.
	Seismic ULS	1.0	1.139	Min FoS Achieved.

Table 7: Slope Stability Results – C-C'				
Section	**Scenario**	**Required FoS**	**Minimum FoS**	**Comments**
Cross Section C-C' Undeveloped.	Normal Groundwater	-	0.911	Failure on steep slopes in upper soils.
	Extreme Groundwater	-	0.651	Failure on steep slopes in upper soils.
	Seismic SLS	-	0.764	Failure on steep slopes in upper soils.
	Seismic ULS	-	0.373	Failure on steep slopes in upper and mid-depth soils.
Cross Section C-C' Developed. Concrete pile placed at crest of slope. 3.5 m bgl embedment.	Normal Groundwater	1.5	0.911	FoS >1.5 achieved through development.
	Extreme Groundwater	1.3	0.716	FoS >1.3 achieved through development.
	Seismic SLS	1.2	0.764	FoS >1.2 achieved through development.
	Seismic ULS	1.0	0.365	FoS >1.0 achieved through development.

8.2 Developed Slope Model Discussion

The developed slope stability models for A-A', B-B', and C-C' are described below. The required FoS was achieved for the modelled development, and the developed slope model is described below:

- The modelled internal and retaining walls associated with the development have been modelled as engineered reinforced concrete retaining walls.
- Upon the crest of the steep slope located along the eastern extent of the proposed development, a row of in-ground retaining walls consisting of 3.5 m deep concrete reinforced or timber encased concrete piles has been placed.

- Any topsoil/ non-engineered fill underlying the proposed development has been replaced with engineered fill.
- A groundwater level of 4.0 m has been used for slope stability modelling purposes. This level is considered conservative and is likely to be deeper.

9. RMA Section 106 Suitability Assessment

9.1 Criteria

In accordance with the Resource Management Act 1991 (RMA), the site has been assessed in accordance with Section 106 for natural hazards. Section 106 states:

- *There is significant risk from natural hazards; or*
- *Sufficient provision has not been made for legal and physical access to each allotment to be created by the subdivision.*

For the purpose of subsections 1a, an assessment of the risk from natural hazards requires a combined assessment of:

- *The likelihood of natural hazards occurring;*
- *The material damage to land in respect of which consent is sought, other land or structures that would results from natural hazards;*
- *Any likely subsequent use of land in respect of which the consent is sought that would accelerate, worsen or result in material damage of the kind referred to in paragraph b.*

9.2 Assessment

The site is considered based on site mapping, site investigations and local knowledge, to not be subject to the following natural hazards:

- **Fault Rupture** – the site is not located within an identified fault hazard area by KCDC, and mapping indicates there are no mapped faults within 1.0 km.
- **Inundations (water, soil, rock debris)** – the site is not located at the base of a major slope and is not interpreted as at risk in the KCDC flood hazard map, except in the lowest eastern extent.

However, we consider the site may be subject to the following hazards, which will need to be mitigated as part of the development design:

- **Liquefaction and Settlement** – The site is considered consistent with a MBIE TC1 categorisation with regards to liquefaction risk.
- **Slope Stability** – The site has been quantitively assessed for slope instability. The eastern steep slope exhibits potential instability, particularly under an extreme groundwater and ultimate limit state seismic event. We have mitigated

this risk by modelling recommended in-ground retaining along the crest of this sloping ground to mitigate the identified slope instability risk.

In our opinion, under Section 106 of the RMA, there are no geotechnical reasons to not undertake the development, provided the developer follows the recommendations in this geotechnical report.

10. Geotechnical Engineering Recommendations

The following geotechnical recommendations are for the proposed subdivision development. If an alternative development is proposed for the site, then further site investigations may be required to be undertaken.

10.1 Foundations

Scala Penetrometer testing and CPT testing indicates the site does not meet the requirements of NZS3604 'good ground'. An ultimate bearing capacity (UBC) of 200 kPa exists at depths ranging from 0.4 m to 2.0 m within the natural soils.

The site has been assessed as being consistent with a TC1 categorisation regarding liquefaction risk (refer Section 7). We consider TC1 compliant foundations to be applicable.

Alternatively, piled foundations can also be considered. This will need to be specifically designed.

10.2 Retaining Walls

10.2.1 Internal and External Walls

Multiple internal and external retaining walls are proposed for the development. Details of the proposed walls have yet to be determined. We consider specific Engineering Design (SED) retaining walls is recommended, to be designed by a suitably qualified structural engineer.

10.2.2 In-ground Wall – Eastern Side of Property

It is recommended that an in-ground retaining wall is placed along the crest of the steep slope located along the eastern extent of site. The in-ground wall is required to be embedded a minimum of 3.5 m bgl and span the length of the eastern property boundary.

This in-ground retaining wall will need to be Specific Engineering Design (SED). Retaining wall design can rely upon the soil parameters provided in Table 4.

10.3 Earthworks

Any earthworks should be undertaken in accordance with NZS4431:2022. We recommend construction be undertaken during the drier summer months to

minimise unnecessary earthworks as a result of over disturbance of the existing subgrade. Any excavation sidewalls should be battered no steeper than 1H:1V to a maximum depth of 1.5 m. Excavations deeper than 1.5 m will need specific geotechnical input. Site preparation should generally include the following procedures:

- Remove vegetation, topsoil and soil containing significant amounts of organic material from beneath building footprints, foundations and proposed fill areas;
- Excavate where required to the design foundation levels;
- Proof roll and compact the exposed subgrade materials using a heavy roller to reveal soft or loose areas and to densify the subgrade soils, where required. Soft or loose areas which do not improve with compaction should be over excavated and replaced with compacted engineered fill; and
- Backfill where required to the design foundation levels with compacted engineered fill.

Fill should be placed in layers not exceeding 200 mm loose thickness and compacted to the recommended level prior to placing the next layer. It is recommended that granular fill should comprise of well graded crushed aggregate (AP65) and extend at least 600 mm beyond the edge of the foundations. Any sloping ground that requires filling will need to be appropriately benched to ensure the fill is keyed into the natural ground. This will need to be assessed by a geotechnical engineer prior to construction.

The recommended compaction level is a density ratio of at least 95% Standard Compaction MDD (Maximum Dry Density) as specified by NZS4431. If required, additional imported fill materials will need to be tested for geotechnical suitability/compaction criteria and be approved by CGW prior to use.

Earthworks should be supervised by a suitably qualified person and compaction levels checked and certified by field density (Nuclear Density – ND) testing or Clegg Impact Hammer testing at appropriate spacing and lift intervals.

10.4 Stormwater Control

All stormwater from dwelling roof structures and paved areas needs to be controlled and discharged into an appropriate stormwater network. No stormwater should be allowed to infiltrate or run down any excavations or sloping ground during construction where it may cause erosion and/ or excavation instability.

10.5 Pavement and Roading

All topsoil and soft organic soils should be removed from any proposed pavement areas. Following topsoil stripping, we consider the existing ground provides a suitable subgrade for the base of any proposed pavement area. We recommend

that the preliminary pavement design be based upon a (unsoaked) CBR value of 5%, which is generally applicable for the underlying soils across the site. This should be confirmed by testing in the early stages of construction.

10.6 Construction Considerations

It is recommended that the in-ground wall located at the eastern margin of site is installed first to mitigate any temporary or unforeseen slope instability risks. Additionally, it is recommended that construction is undertaken during periods of fine weather.

11. Further Geotechnical Involvement

11.1 Geotechnical Drawing Review

A geotechnical engineer familiar with the findings of this report should be engaged to review the final working drawings of the proposed development prior to submission to the Building Consent Authority; to ensure the geotechnical recommendations of this report have been interpreted and implemented correctly. Further geotechnical analysis may be warranted at this stage, subject to the specifics of the development proposal.

11.2 Construction Monitoring

A geotechnical engineer familiar with the findings of this report should be engaged to carry out observations during earthworks and foundation construction to confirm any fill material is placed correctly and certified, excavations are stable and that soil and bearing strata conditions are consistent with this report. Inspections will not be carried out prior to Council issuing the required Building Consents, and unconsented works will not be inspected.

12. References

- Begg, J.G. & Johnston, M.R. (compilers) (2000) - *Geology of the Wellington Area, Scale 1:250,000, Geological Map 10.*
- Boulanger, R.W., and Idriss, I.M., (2014) - *CPT and SPT based liquefaction triggering procedures, CGM Report 14-01, University of California, Davis, California.*
- Idriss, I.M., and Boulanger, R.W., (2008) - *Soil liquefaction during earthquakes, Earthquake Engineering Research Institute Monograph, MN012*.
- Ministry of Building, Innovation and Employment (2021) – *Module 1: Overview of the Geotechnical Guidelines.*
- New Zealand Geotechnical Society (2005) – *Field Description of Soil and Rock. Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes.*

- New Zealand Standards (2022) – *NZS4431:2022 Code of Practice for Earth Fill for Residential Development.*
- Robertson, P.K., Cabal K.L., (2012) - *Guide to Cone Penetration Testing for Geotechnical Engineering, 5th ed. Gregg Drilling & Testing, Inc.*
- Standards New Zealand. (1988) - *NZS4402.6.5.2:1988 Methods of testing soils for civil engineering purposes - Soil strength tests - Determination of the penetration resistance of a soil - Test 6.5.2 Hand method using a dynamic cone penetrometer.*
- Standards New Zealand (2011) – *NZS3604:2011 Timber Framed Buildings*
- Zhang, G, Robertson, PK & Brachman, RW (2002) - *Estimating Liquefaction-Induced Ground Settlements from CPT for Level Ground, Canadian Geotechnical Journal, vol. 39, pp. 1168 – 1180.*
- Van Dissen, R. & Heron, D. (2003) - *Earthquake Fault Trace Survey, Kapiti Coast District.*

Appendix A: Limitations

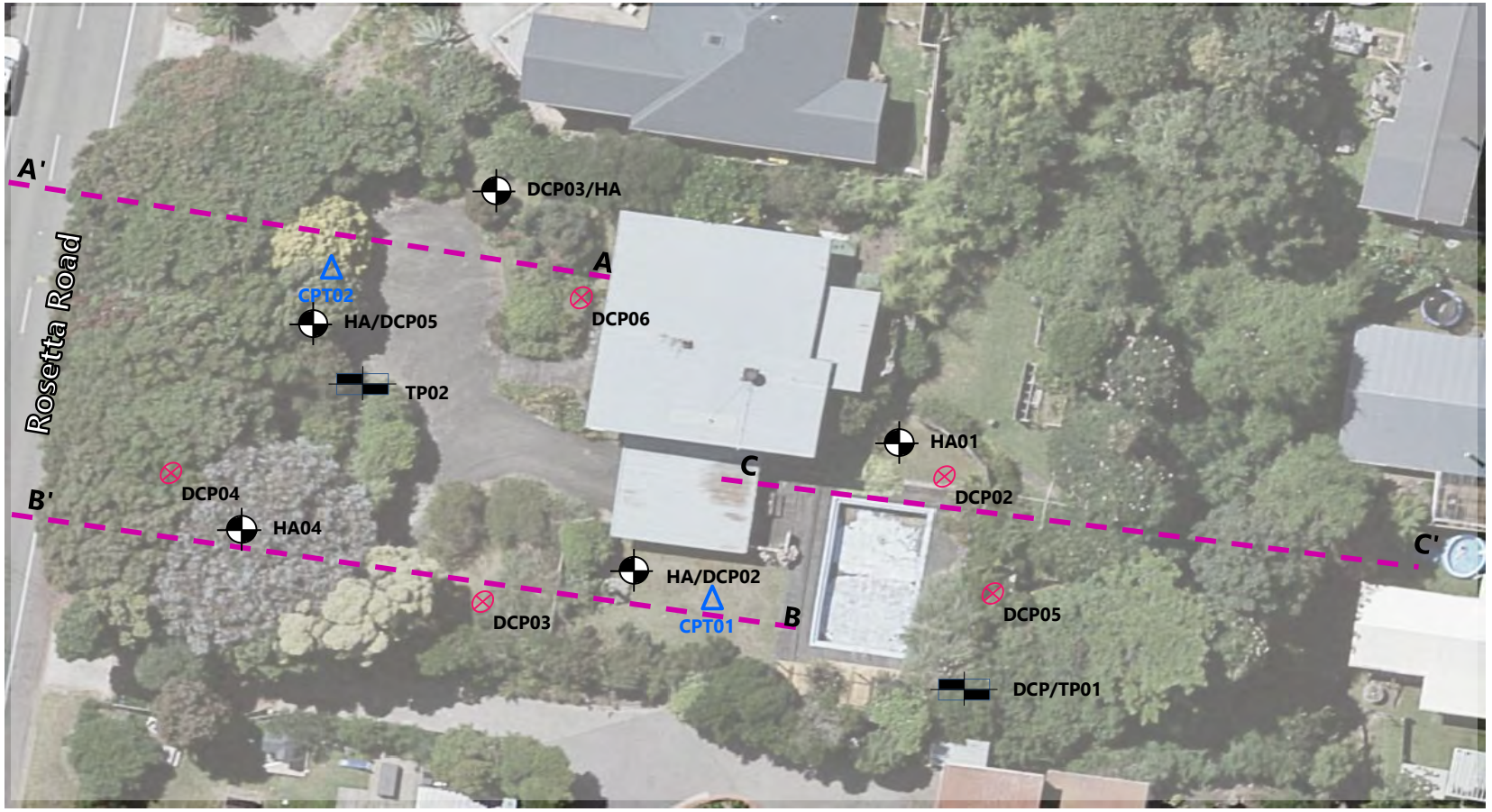
This report has been prepared solely for the benefit of our client, Lawrence Fay c/ Leith Consulting, as per our brief and an agreed consultancy agreement. The reliance by any other parties on the information or opinions contained in this report shall, without our prior agreement in writing, be at such parties' sole risk.

The conclusions and recommendations contained within this report are based on the investigations as described in detail above. The nature and continuity of subsoil conditions are inferred and it must be appreciated that actual conditions could vary considerably. Defects and unforeseen ground conditions may remain undetected which might adversely affect the stability of the site and the recommendation made herein.

This report has been prepared solely to address the issues raised in our brief, and shall not be relied on for any other purpose.

In the event the third party investigation data has been provided to us, the client acknowledges that we have placed reliance on this information to produce our report and CGW will accept no liability resulting from any errors or defect in the third party data provided to us.

Appendix B: Testing Location Plan



N

Approximate True North

Legend:

- Hand Auger Test Location
- A — A' Geological Cross Section
- Dynamic Cone Penetrometer Test Location
- Test Pit Test Location
- CPT Test Location

Notes:

1. CGW Consulting Engineers Test Location Plan adapted from KCDC online maps.
2. It should be borne in mind that locations of features are approximate only.
3. Original plan size A4.

CGW Consulting Engineers

Civil Structural Environmental Geotechnical

Nelson Ph: 548 - 8259
Christchurch Ph: 348 - 1000

DATE:	July 2023
DRAWN:	SC
SCALE:	NTS
CAD REF:	21118

Test Location Plan
126-130 Rosetta Road
Raumati
Kapiti

DRAWING NO: **21118/1**

SHEET 1 OF 1

Appendix C: Testing Data

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	HA01
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 07/07/2023	Method: Hand Auger	Logged By: SC	Scale: 1:20 Sheet 1 Of 1

Blows (per 100mm) 3 6 9	UBC (kPa) (Stockwell) 100 200 300	Samples / Testing	Level mAHD	Legend	Depth (m)	Description	Water
					0.40	Fine SAND with organics; dark brown. Very loose; moist. (TOPSOIL)	
					1.00	Fine SAND with minor silt; greyish brown. Loose to medium dense; moist. (DUNE DEPOSITS)	
					2.00		
					3.00	End Of Hole At 3.00 m	

KEY

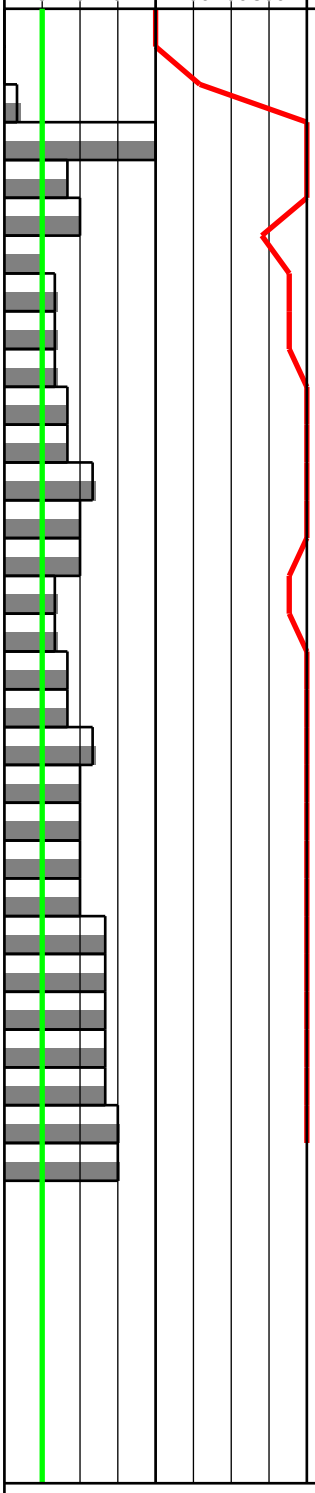
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand auger terminated
at target depth.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	HA/DCP02
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 07/07/2023	Method: Hand Auger/DCP	Logged By: SC	Scale: 1:20 Sheet 1 Of 1



Samples / Testing	Level mAHD	Legend	Depth (m)	Description	Water
			0.20	Fine SAND with some organics, trace gravel; dark brown and black. Very loose; moist; gravel, fine. (TOPSOIL)	
			0.40	Fine to medium GRAVEL with silt and sand; brown. Medium dense; moist; sand, fine. (FILL)	
			1.00	Fine SAND with some silt, trace organics and gravel; dark brownish grey. Medium dense; moist; gravel, fine. (DUNE DEPOSITS)	
			1.40	Fine SAND with some silt; brown. Medium dense to dense; moist. (DUNE DEPOSITS)	
			2.00	Fine SAND with minor silt; greyish brown. Medium dense to dense; moist. (DUNE DEPOSITS)	
			3.00	End Of Hole At 3.00 m	

KEY

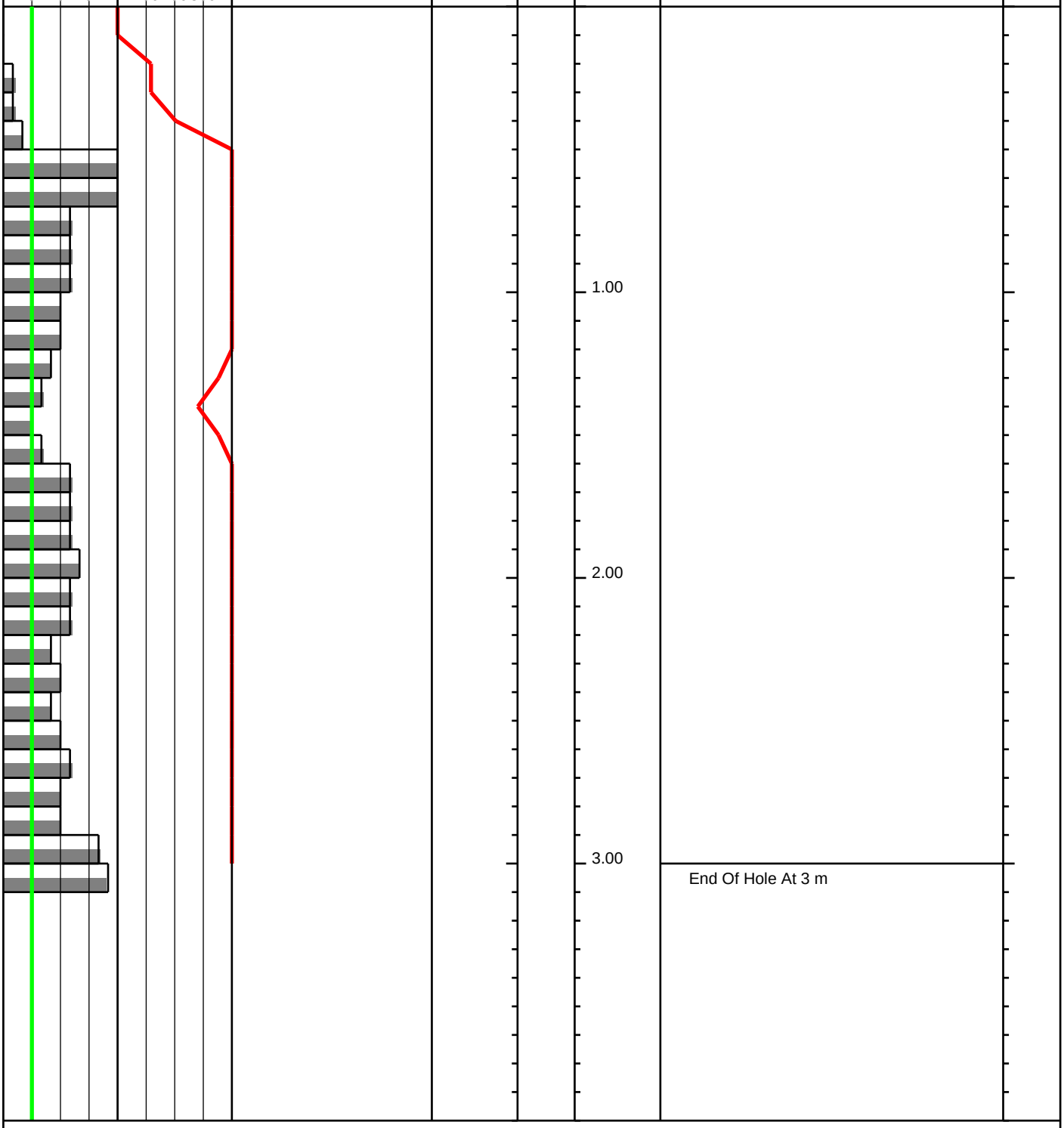
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand auger and DCP terminated at target depth.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP03
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 07/07/2023	Method:	Logged By: SC	Scale: 1:20 Sheet 1 Of 1



KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
DCP terminated at
target depth.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	HA04
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 07/07/2023	Method: Hand Auger	Logged By: SC	Scale: 1:20 Sheet 1 Of 1

Blows (per 100mm) 3 6 9	UBC (kPa) (Stockwell) 100 200 300	Samples / Testing	Level mAHD	Legend	Depth (m)	Description	Water
					0.20	Fine SAND with some organics; dark brown. Loose, moist. (TOPSOIL)	
					1.00	Fine SAND with some silt; brown. Loose to medium dense; moist. (DUNE DEPOSITS)	
					1.40	Fine SAND with minor silt; greyish brown. Loose to medium dense; moist. (DUNE DEPOSITS)	
					2.00		
					3.00	End Of Hole At 3.00 m	

KEY

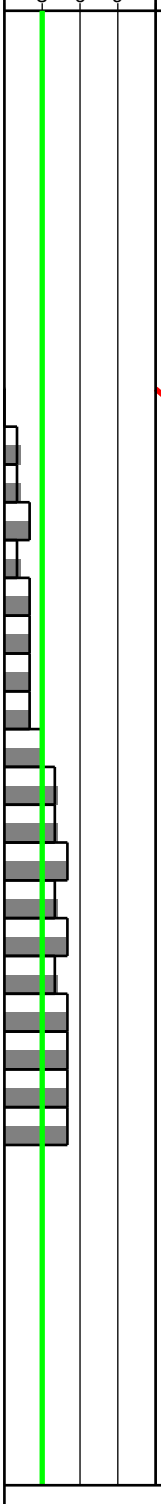
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand auger terminated
at target depth.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	HA/DCP05
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 07/07/2023	Method: Hand Auger/DCP	Logged By: SC	Scale: 1:20 Sheet 1 Of 1



Samples / Testing	Level mAHD	Legend	Depth (m)	Description	Water
			0.40	Fine to medium gravely SAND with some rootlets; greyish brown. Loose to medium dense; moist. (FILL)	
			1.00	Fine SAND with minor silt, trace gravel; dark grey. Loose to medium dense; moist; gravel, fine. (DUNE DEPOSITS)	
			1.40	Fine SAND with some silt, minor rootlets; brown. Loose; moist. (DUNE DEPOSITS)	
			2.00	Fine SAND with minor silt; brown. Loose to medium dense; moist. (DUNE DEPOSITS)	
			3.00	End Of Hole At 3.00 m	

KEY

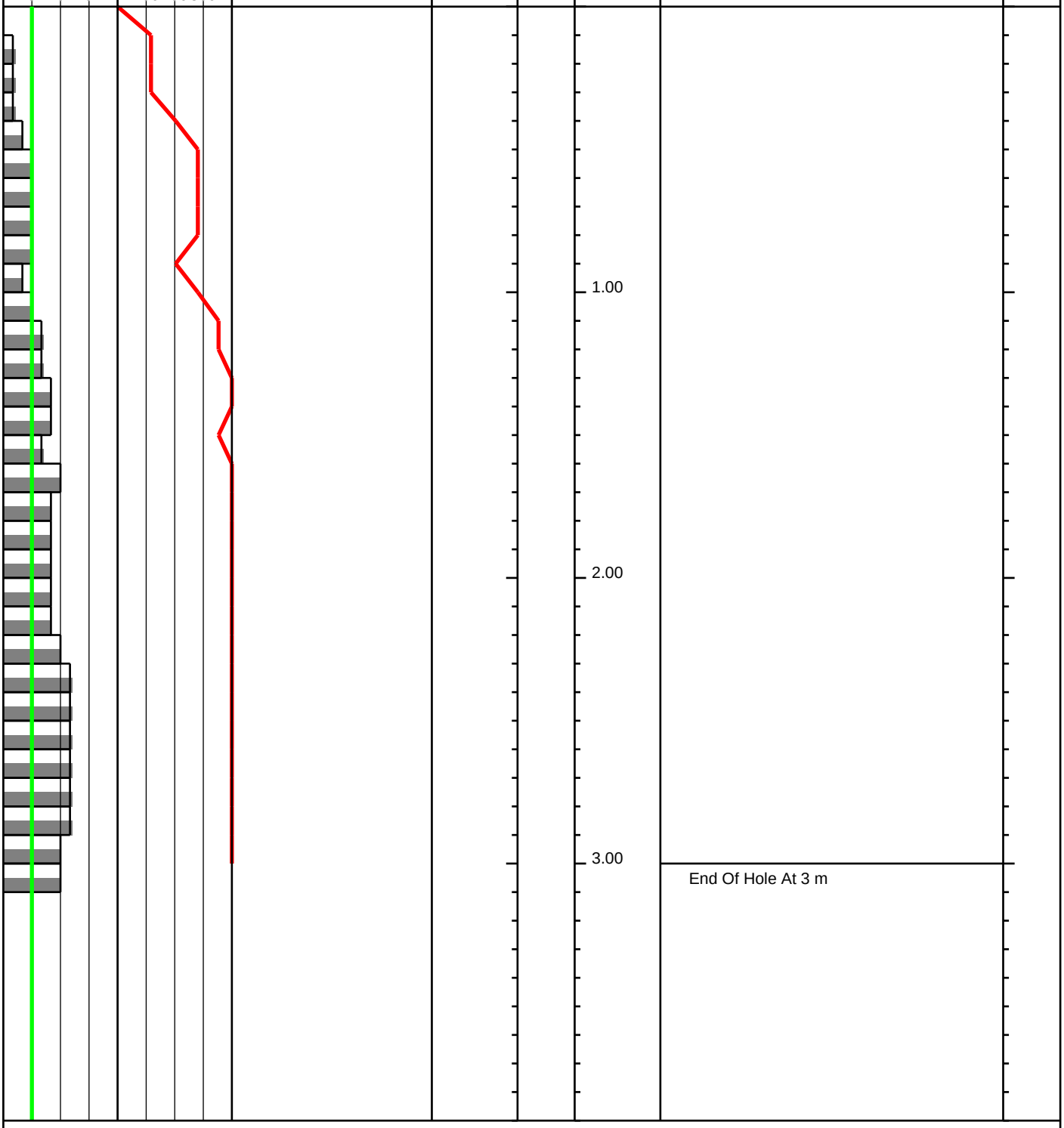
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Hand auger terminated at target depth. DCP refusal in fill, augured to 1m bgl.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP06
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 07/07/2023	Method:	Logged By: SC	Scale: 1:20 Sheet 1 Of 1



KEY

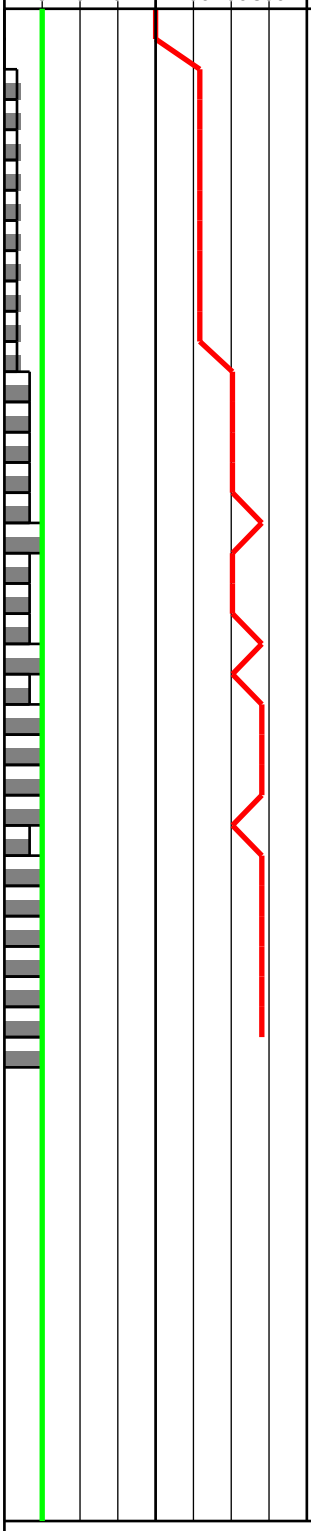
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
DCP terminated at
target depth.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP01/TP
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 15/03/2021	Method: Excavator	Logged By: SB	Scale: 1:25 Sheet 1 Of 1



Samples / Testing	Level mAHD	Legend	Depth (m)	Description	Water
				Very loose, fine to medium SAND, trace silt, trace fibrous organics; dark brownish grey; dry to moist, poorly graded. (DUNE DEPOSITS)	
			1.00	Very loose, fine to medium SAND; brownish grey; dry to moist, poorly graded. (DUNE DEPOSITS)	
			1.50	End Of Hole At 1.50 m	
			2.00		
			3.00		

KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Terminated at target depth. Hole collapse in dry sand.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	TP02
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 15/03/2021	Method: Excavator	Logged By: SB	Scale: 1:25 Sheet 1 Of 1

Blows (per 100mm) 3 6 9	UBC (kPa) (Stockwell) 100 200 300	Samples / Testing	Level mAHD	Legend	Depth (m)	Description	Water
					0.30	Silty fine SAND, trace fibrous organics; dark greyish brown; dry, poorly graded. (TOPSOIL)	
					1.00	Loosely packed, fine SAND, minor silt, trace fibrous organics; light brownish grey; dry, poorly graded. (DUNE DEPOSITS)	
					1.70	End Of Hole At 1.70 m	
					2.00		
					3.00		

KEY

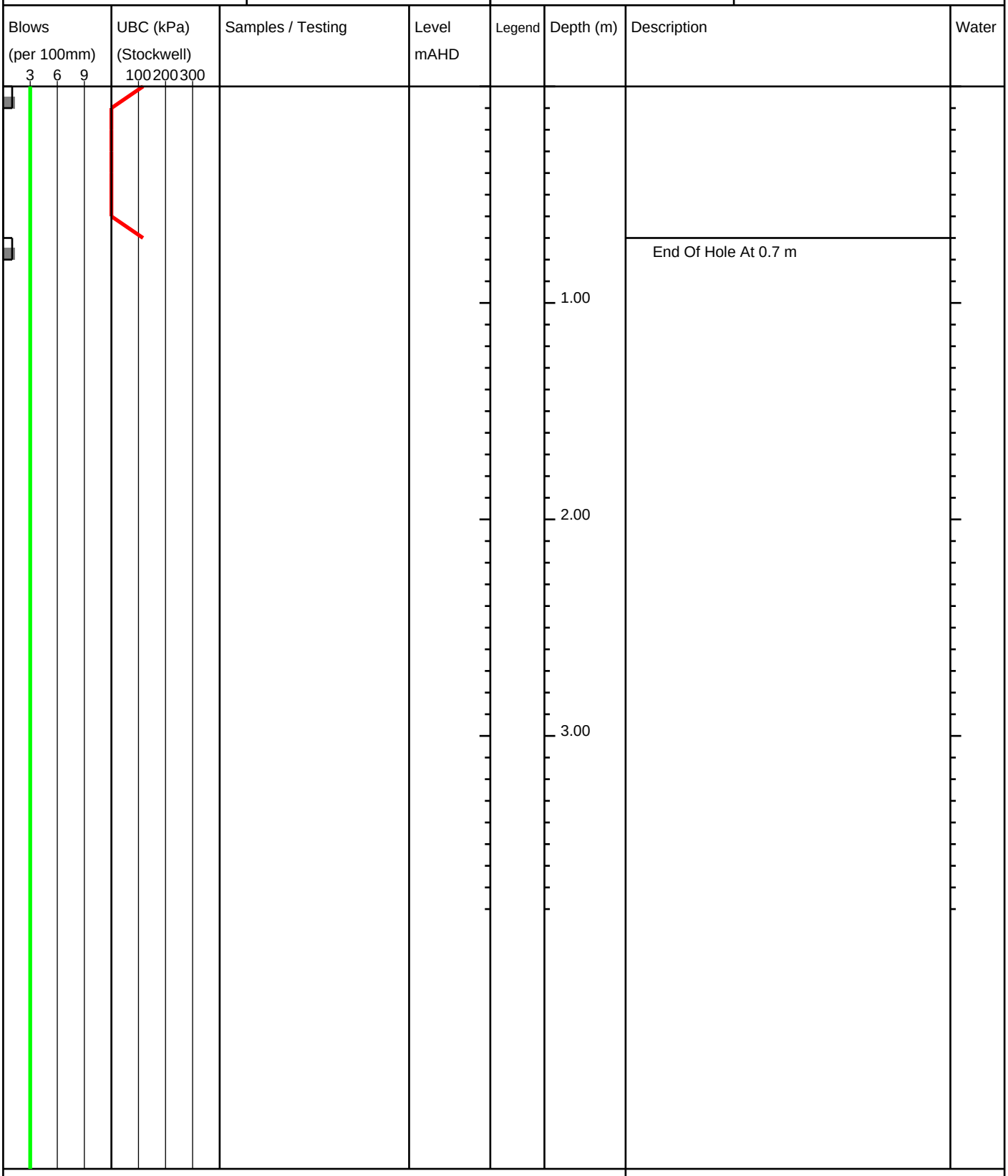
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Terminated due to hole collapse in very dry sands.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP02
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 15/03/2021	Method: DCP	Logged By: SB	Scale: 1:25 Sheet 1 Of 1



KEY

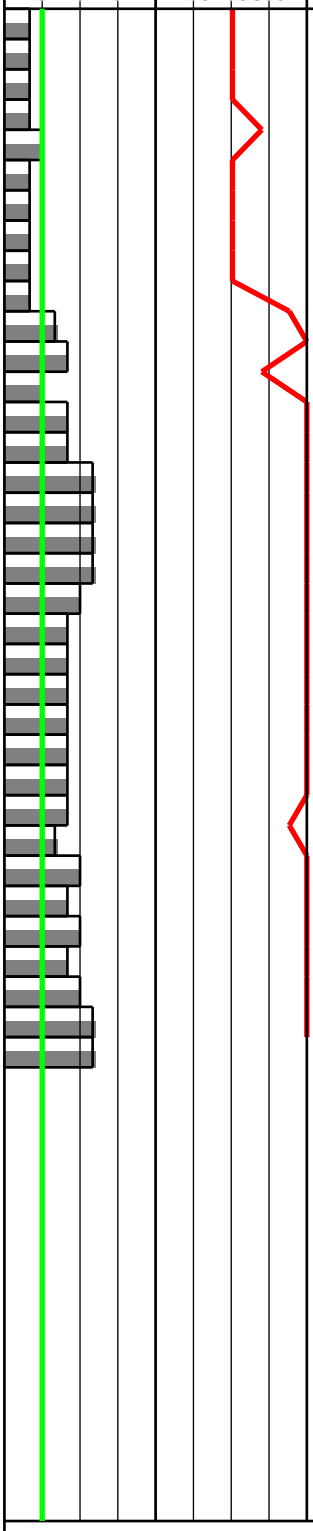
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

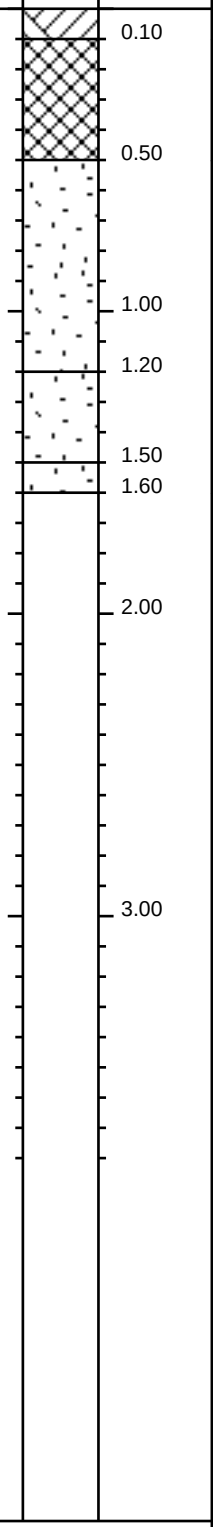
No Groundwater Encountered
Hole abandoned due to
exposed service.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP03/HA
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 15/03/2021	Method: Hand Auger/DCP	Logged By: SB	Scale: 1:25 Sheet 1 Of 1



Samples / Testing

Level mAHD



Description	Water
Fine sandy SILT, trace fibrous organics; greyish brown; dry, poorly graded. (TOPSOIL)	
Very loose, silty fine SAND, trace to minor fine gravel, trace fibrous organics; dark greyish brown; dry, poorly graded. Gravel: UW to SW, sub-angular to rounded, sandstone. (NON-ENGINEERED FILL)	
Very loose, fine SAND, some silt; blackish grey; dry, poorly graded. (DUNE DEPOSITS)	
Loose, fine SAND, minor to some silt; light brown; dry, poorly graded. (DUNE DEPOSITS)	
Medium dense, fine SAND, minor silt; brown; dry, poorly graded. (DUNE DEPOSITS)	
End Of Hole At 1.60 m	

KEY

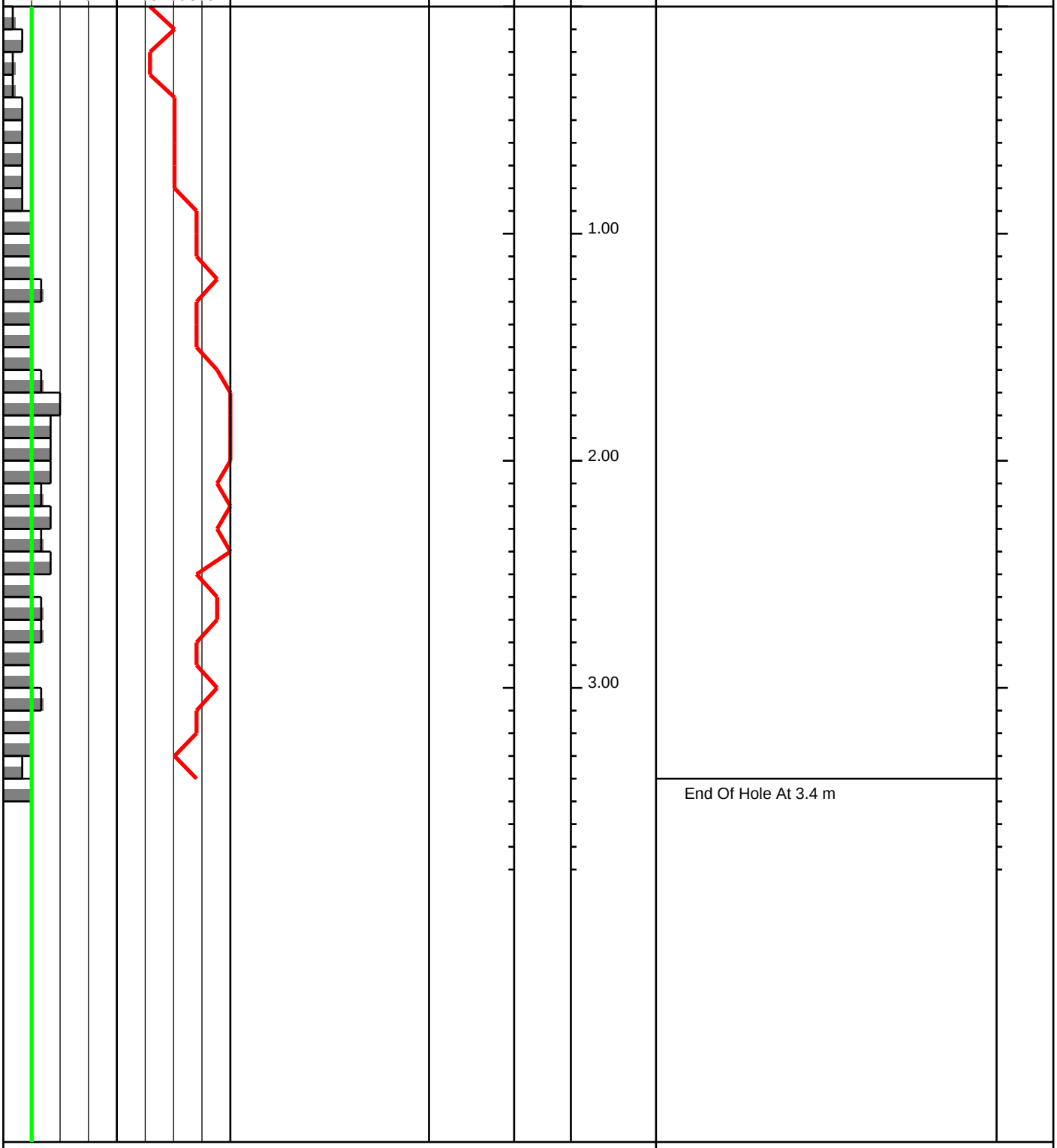
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Terminated due to hole collapse in very dry sands.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP04
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 15/03/2021	Method: DCP	Logged By: SB	Scale: 1:25 Sheet 1 Of 1



KEY

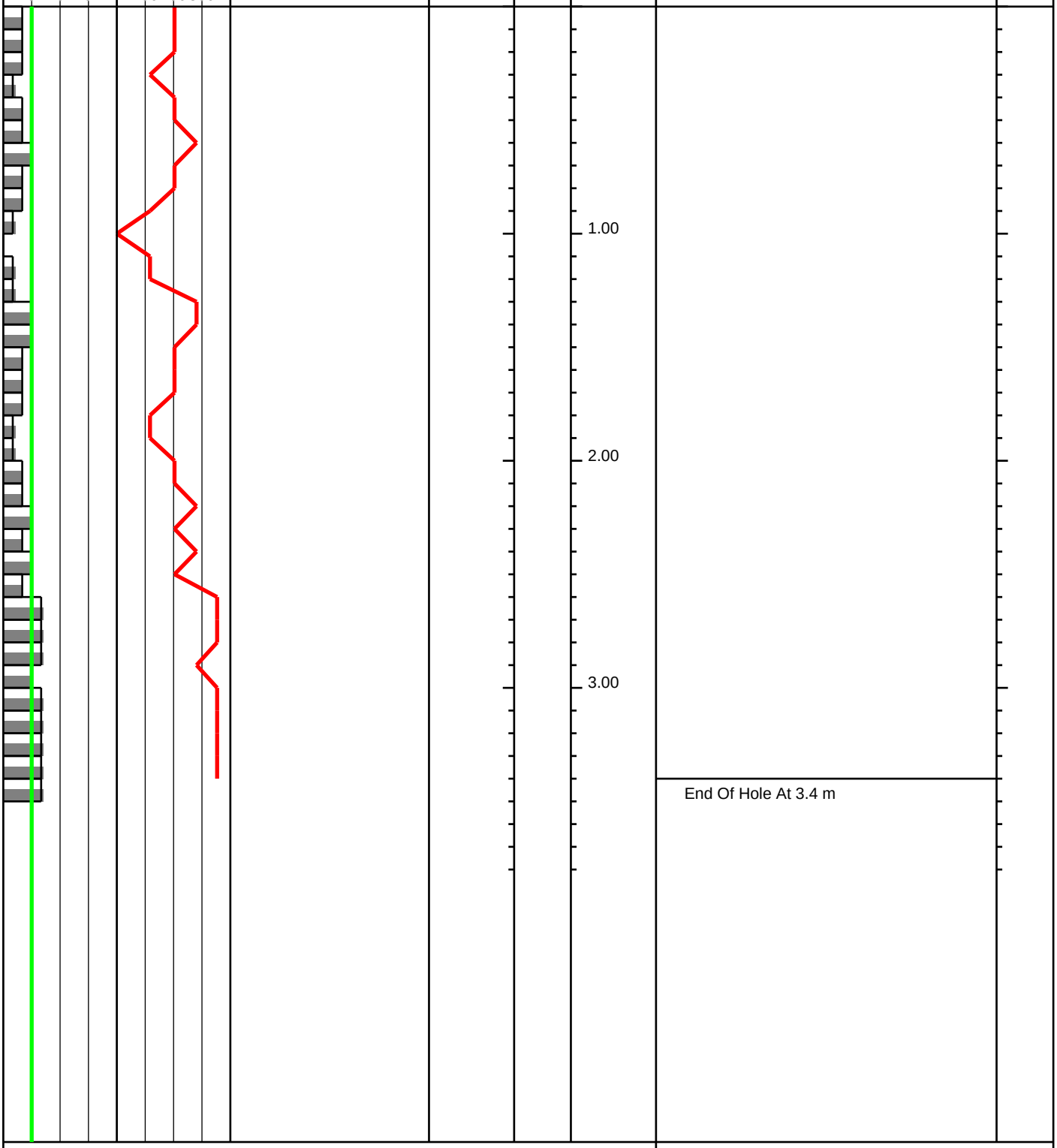
D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Terminated at target depth.

CGW Consulting Engineers	Project Title: 126-130 Rosetta Road, Raumati		
	Project Number: 21118	Client: Lawrence Fay	DCP05
	GL (mAOD):	N Coord: 0	E Coord: 0
Date: 15/03/2021	Method: DCP	Logged By: SB	Scale: 1:25 Sheet 1 Of 1



KEY

D - Disturbed Sample
B - Bulk Sample
W - Water Sample
V - Hand Shear Vane kPa

▽ - Groundwater Strike
▼ - Groundwater Level

REMARKS

No Groundwater Encountered
Terminated at target depth.

Appendix D: Liquefaction Outputs

CGW Consulting Engineers
Nelson - Wellington - Christchurch - Wanaka

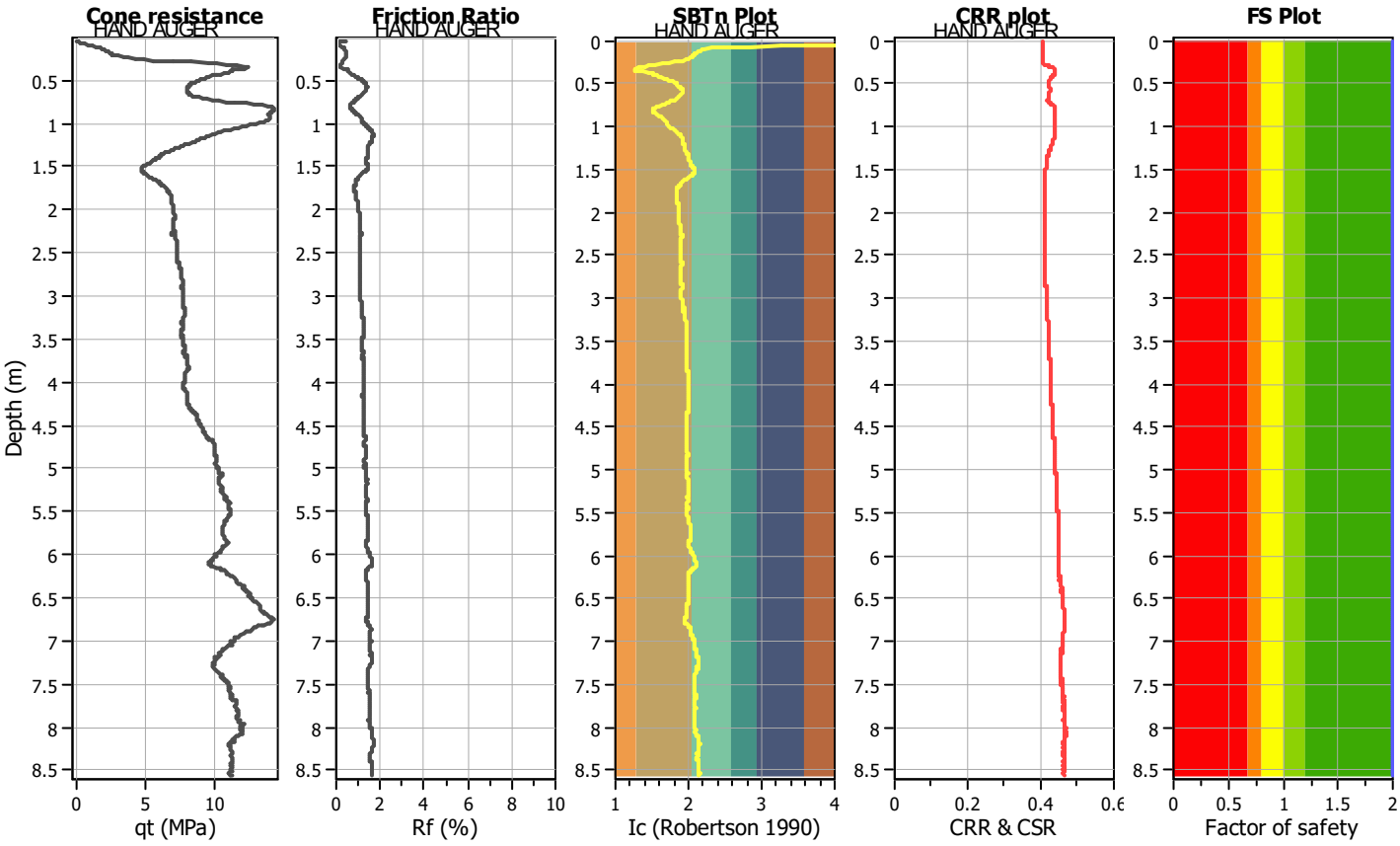
LIQUEFACTION ANALYSIS REPORT

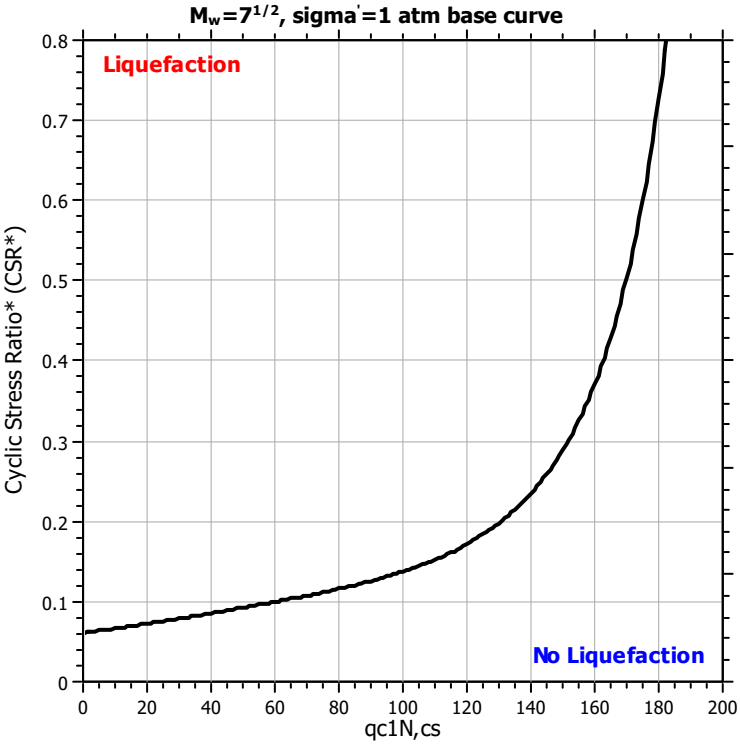
Project title : 21118 - 126-130 Rosetta Road Raumati **Location :**

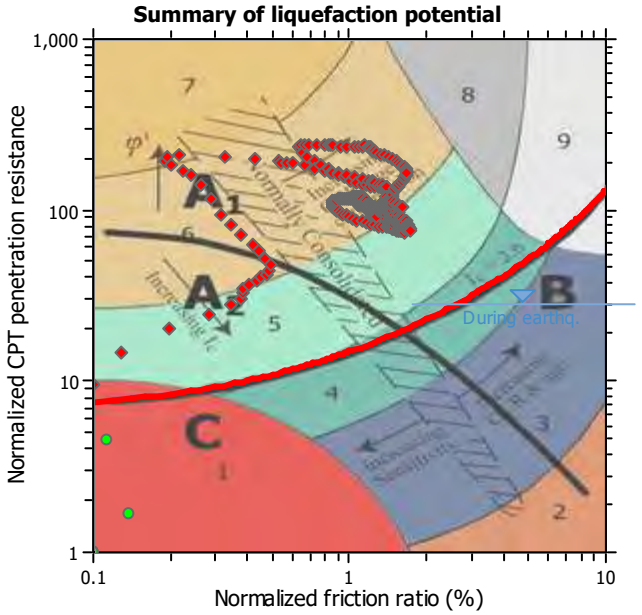
CPT file : CPT01 - ULS

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	13.50 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	13.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.70	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.68	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

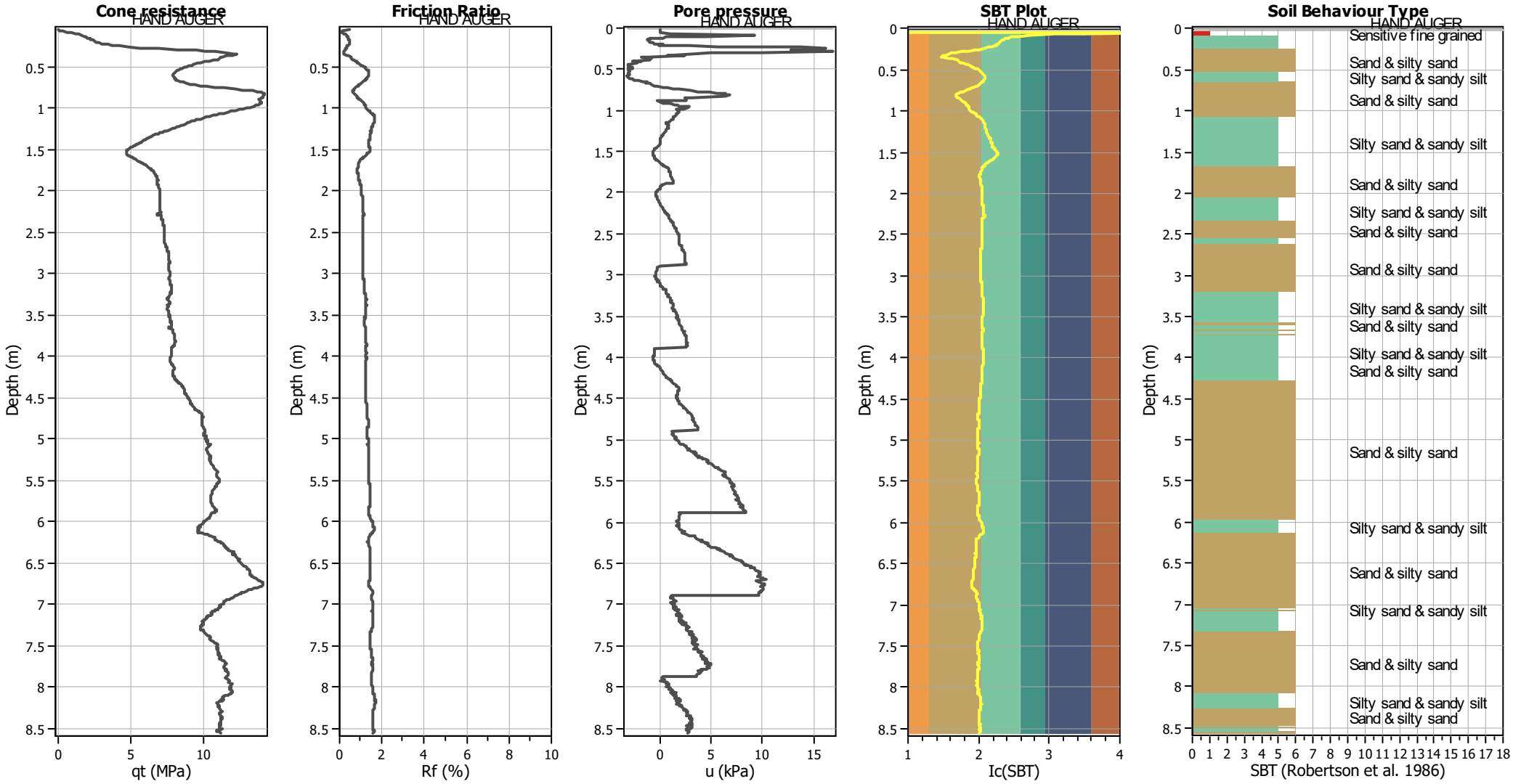






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	13.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.68	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	13.50 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

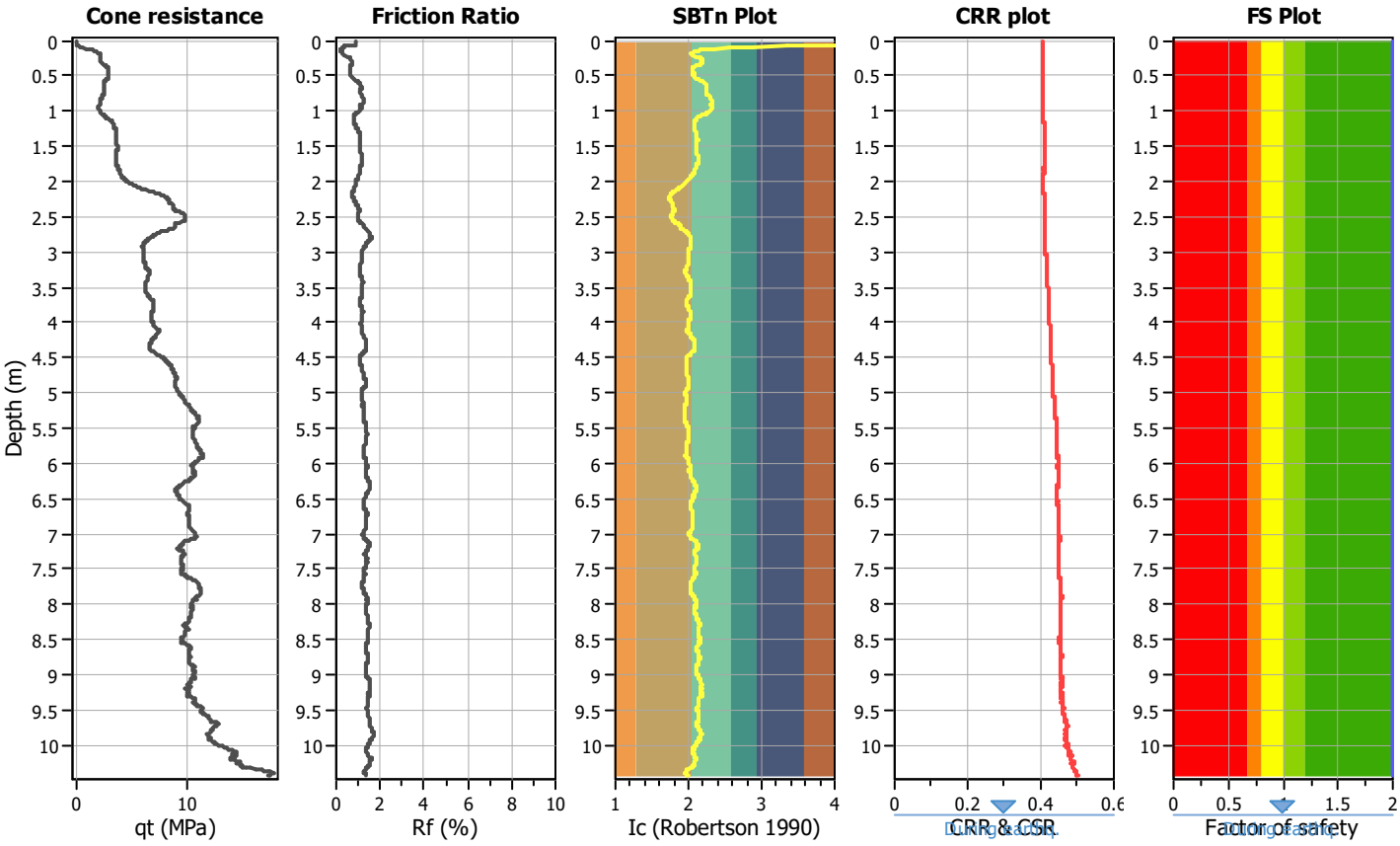
LIQUEFACTION ANALYSIS REPORT

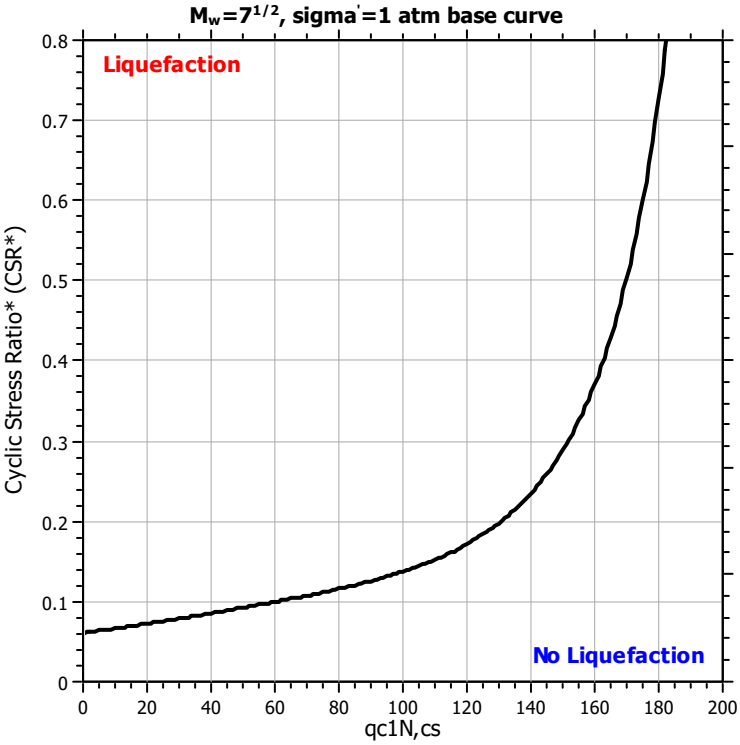
Project title : 21118 - 126-130 Rosetta Road Raumati **Location :**

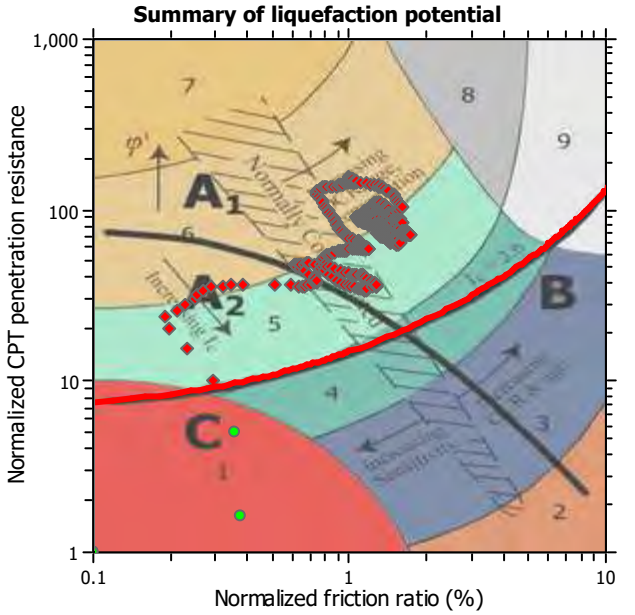
CPT file : CPT02 - ULS

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	11.50 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	11.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	7.70	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.68	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

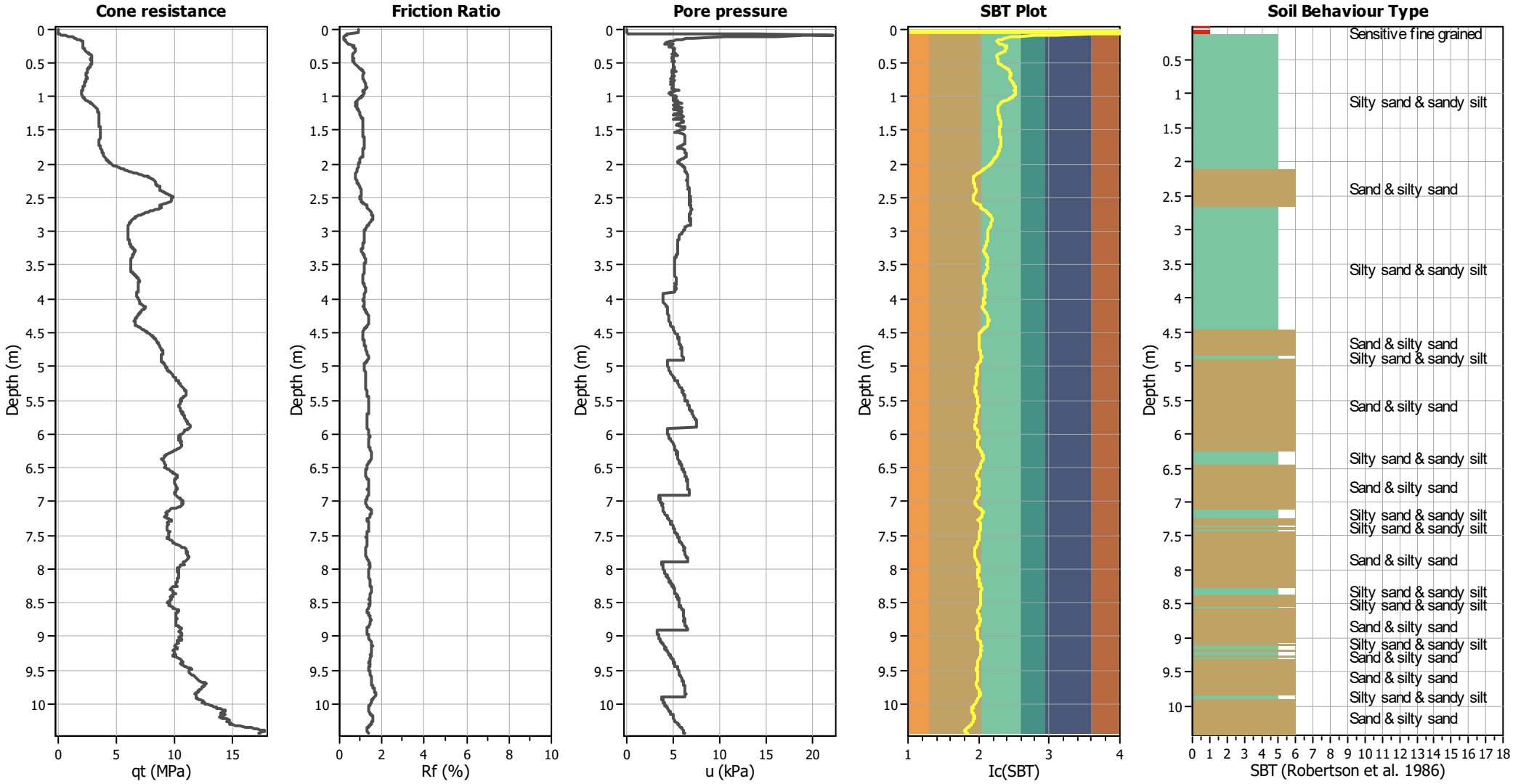






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

CPT basic interpretation plots



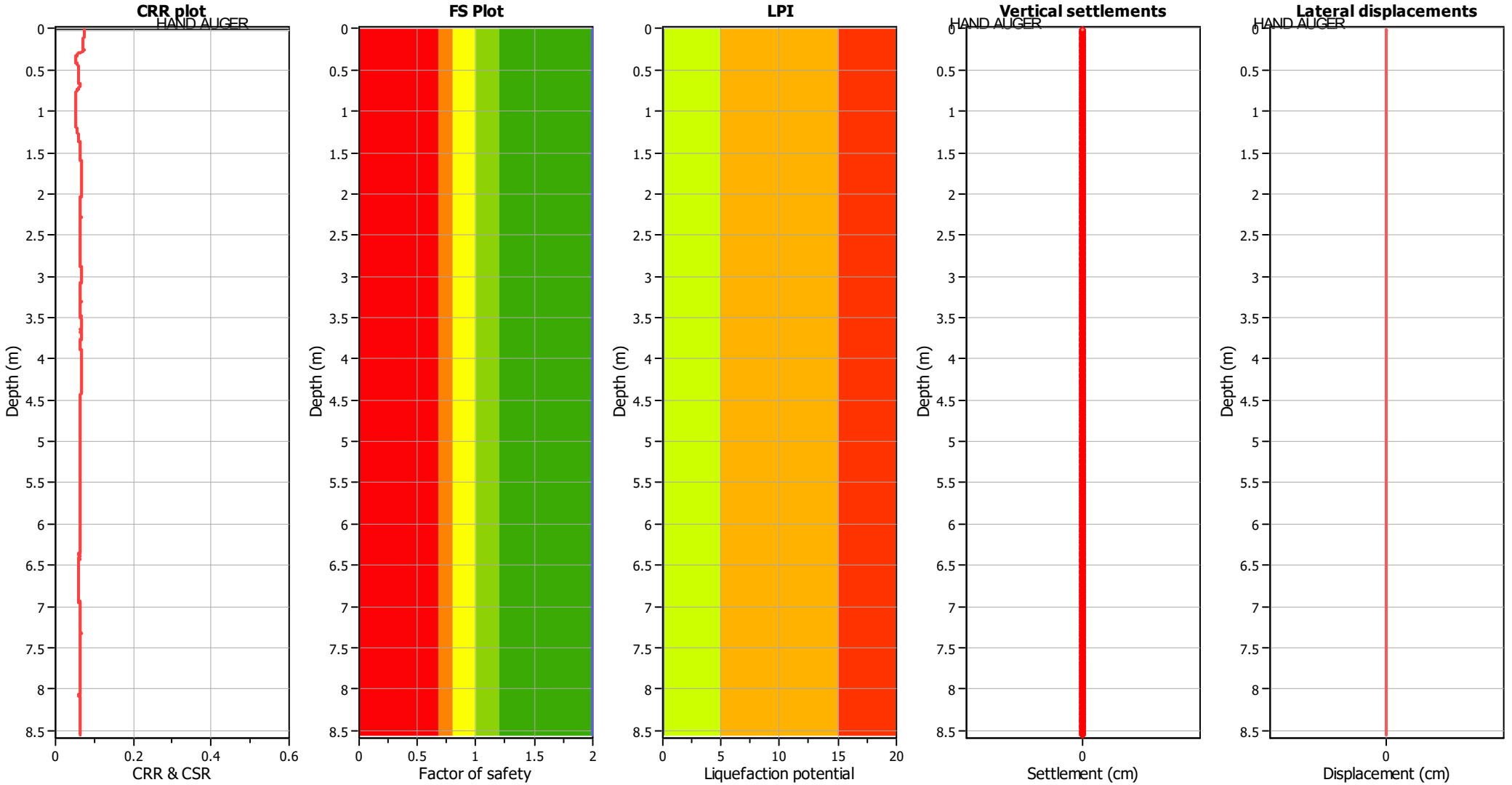
Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	11.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.68	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.50 m	Fill height:	N/A	Limit depth:	N/A

SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to
9. Very stiff fine grained

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	13.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	13.50 m	Fill height:	N/A	Limit depth:	N/A

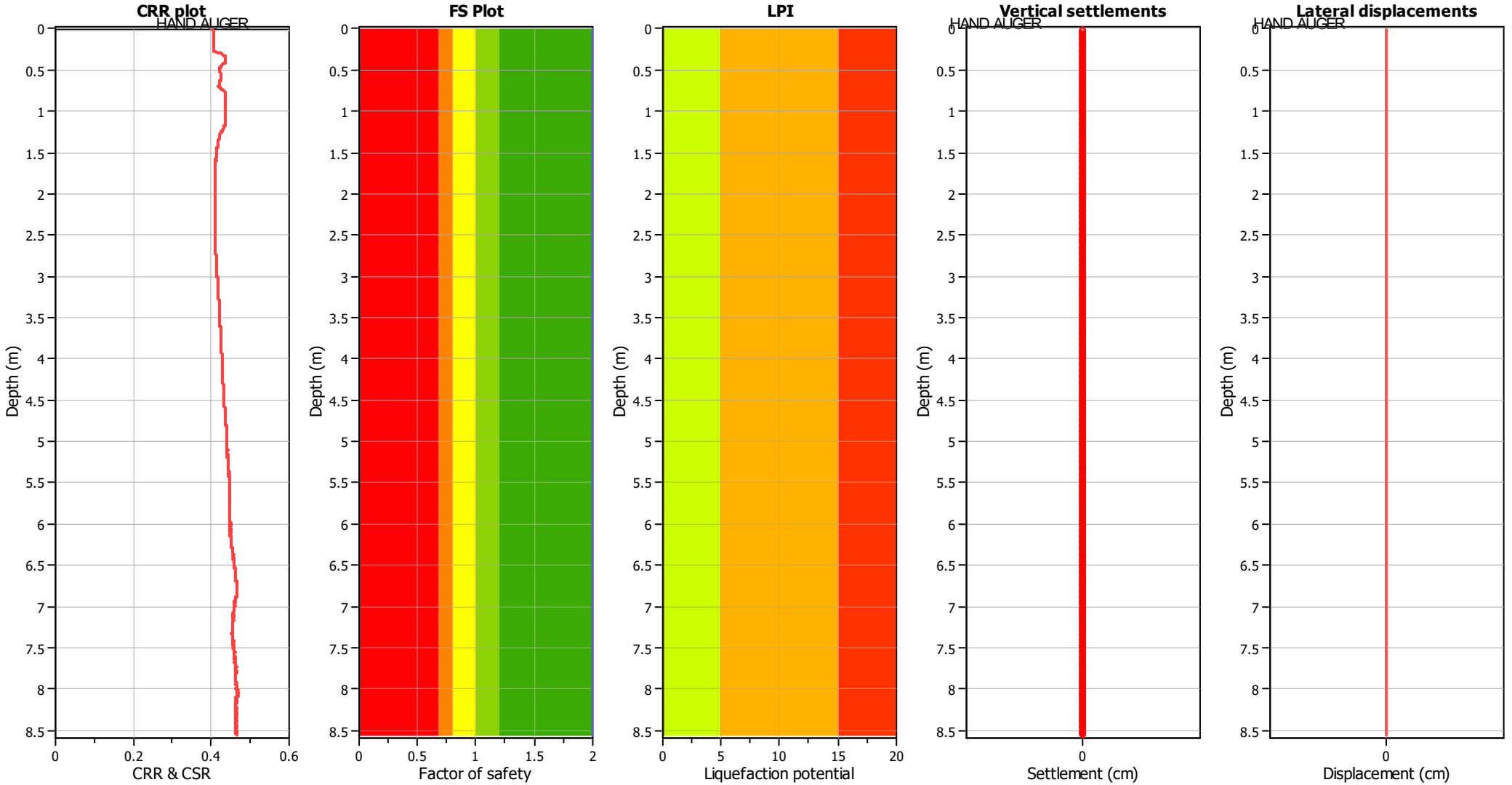
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	13.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.68	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	13.50 m	Fill height:	N/A	Limit depth:	N/A

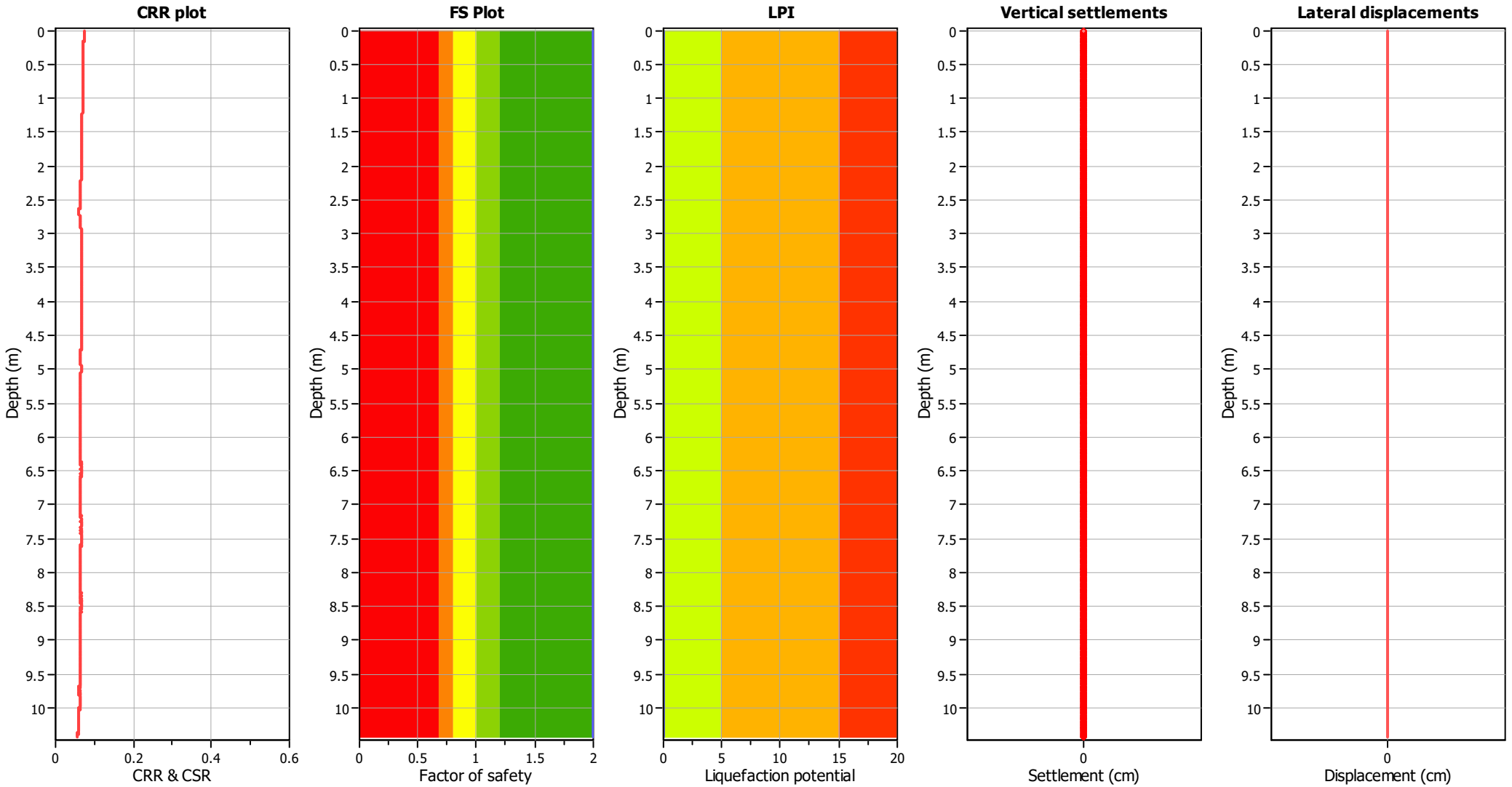
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)
Fines correction method:	B&I (2014)
Points to test:	Based on Ic value
Earthquake magnitude M_w:	6.50
Peak ground acceleration:	0.13
Depth to water table (insitu):	11.00 m

During earthq.

Depth to GWT (erthq.):	11.50 m
Average results interval:	3
Ic cut-off value:	2.60
Unit weight calculation:	Based on SBT
Use fill:	No
Fill height:	N/A

During earthq.

Fill weight:	N/A
Transition detect. applied:	No
K_σ applied:	Yes
Clay like behavior applied:	Sands only
Limit depth applied:	No
Limit depth:	N/A

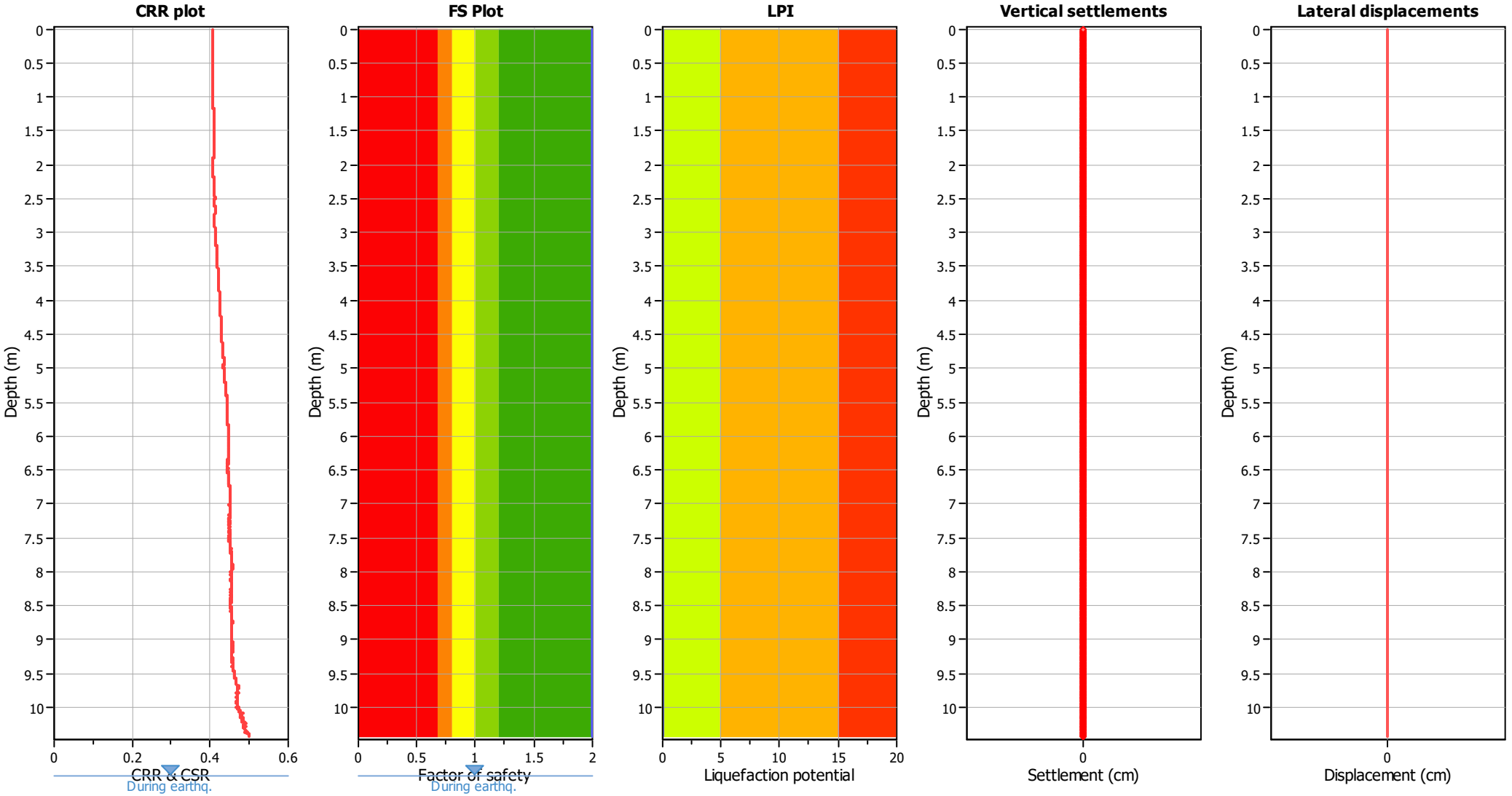
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	11.00 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K_σ applied:	Yes
Earthquake magnitude M_w:	7.70	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.68	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	11.50 m	Fill height:	N/A	Limit depth:	N/A

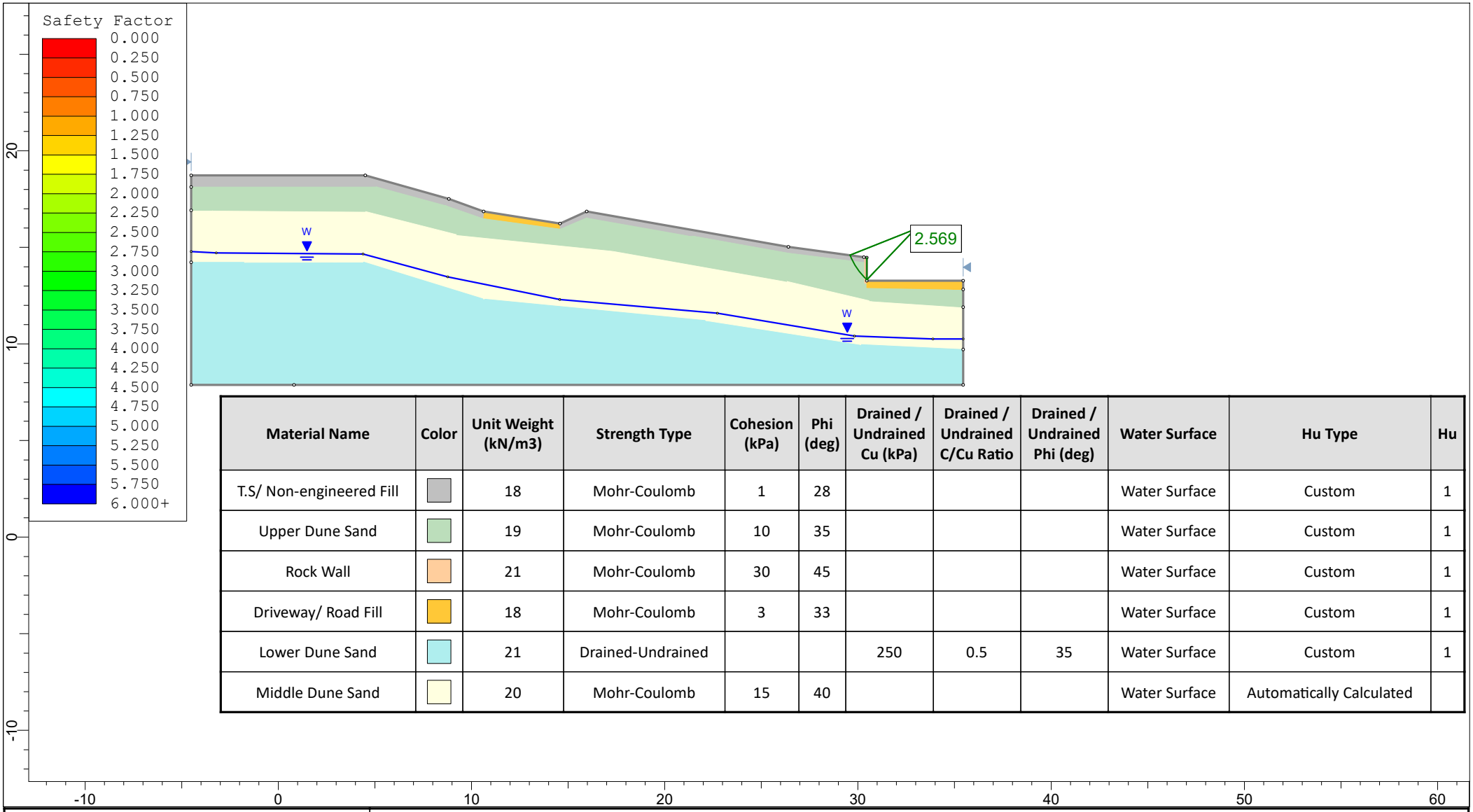
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

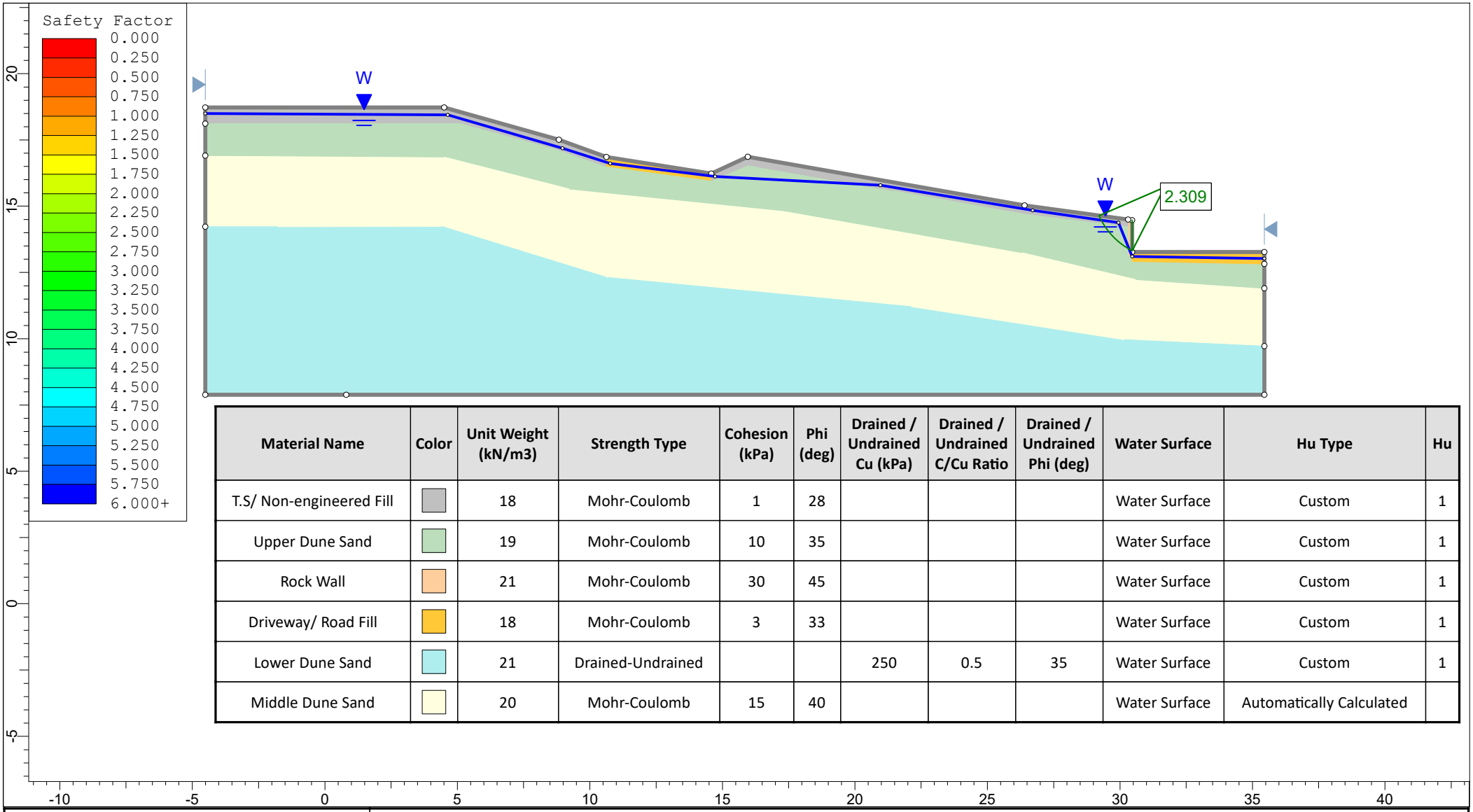
Appendix E: Slope Stability Outputs



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

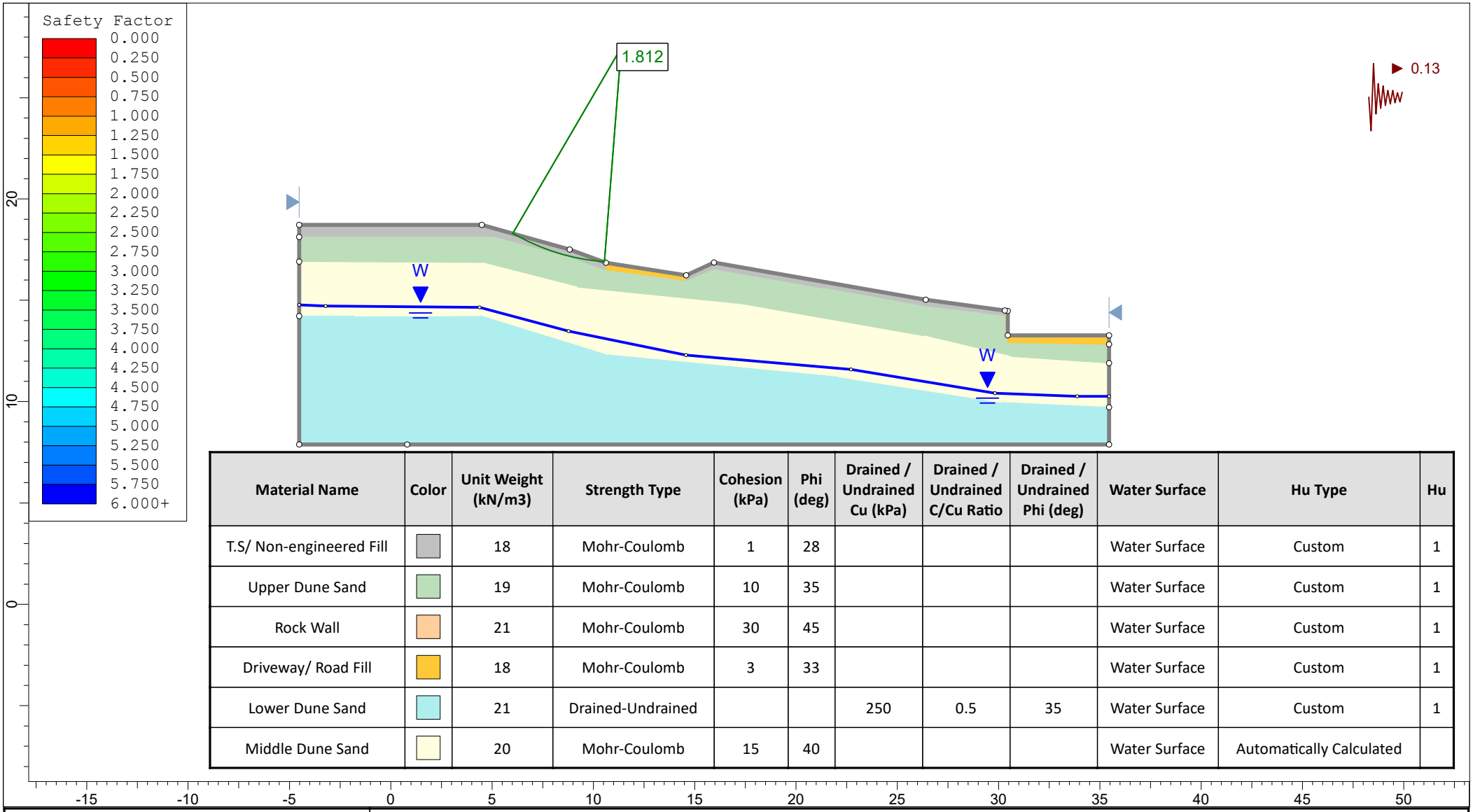
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Undeveloped Normal Groundwater		
Drawn By	TVD	*Scale* 1:274	*Company* CGW
Date	17/07/2023, 9:27:53 AM	*File Name*	21118 A-A' Undeveloped NGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

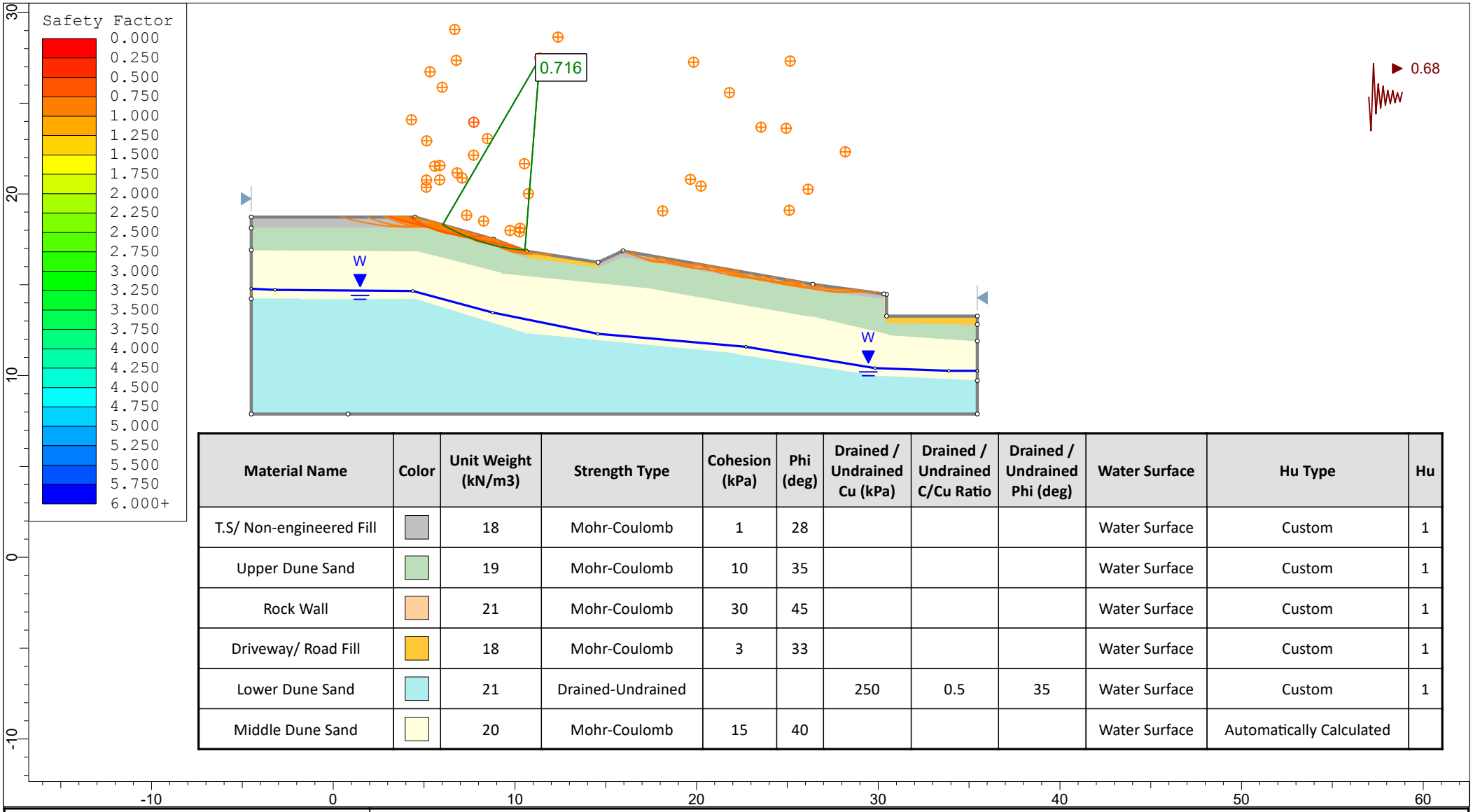
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Undeveloped Extreme Groundwater		
Drawn By	TVD	*Scale* 1:200	*Company* CGW
Date	17/07/2023, 9:27:53 AM	*File Name*	21118 A-A' Undeveloped EGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

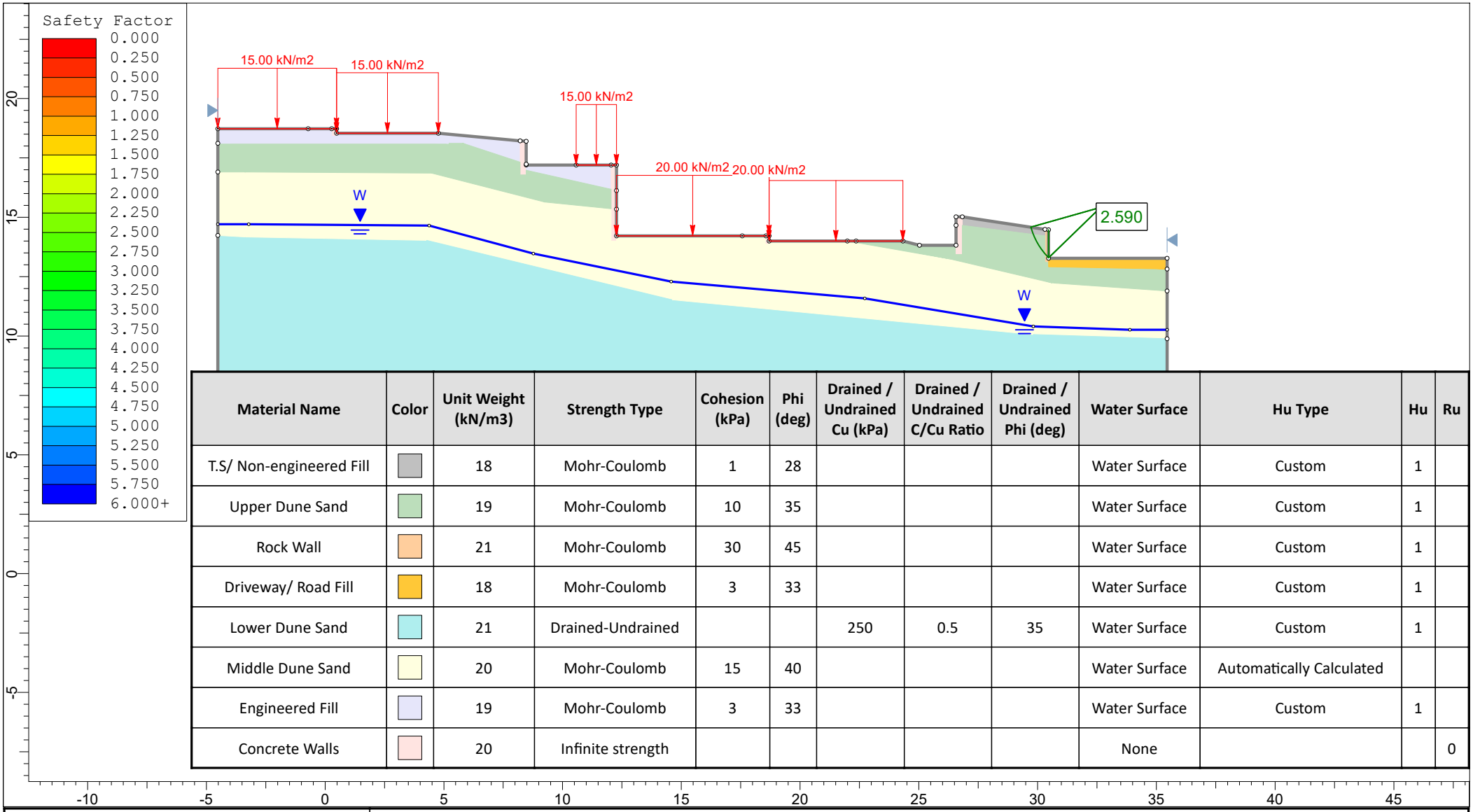
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Undeveloped Serviceability Limit State		
Drawn By	TVD	Scale 1:261	Company CGW
Date	17/07/2023, 9:27:53 AM		File Name 21118 A-A' Undeveloped SLS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

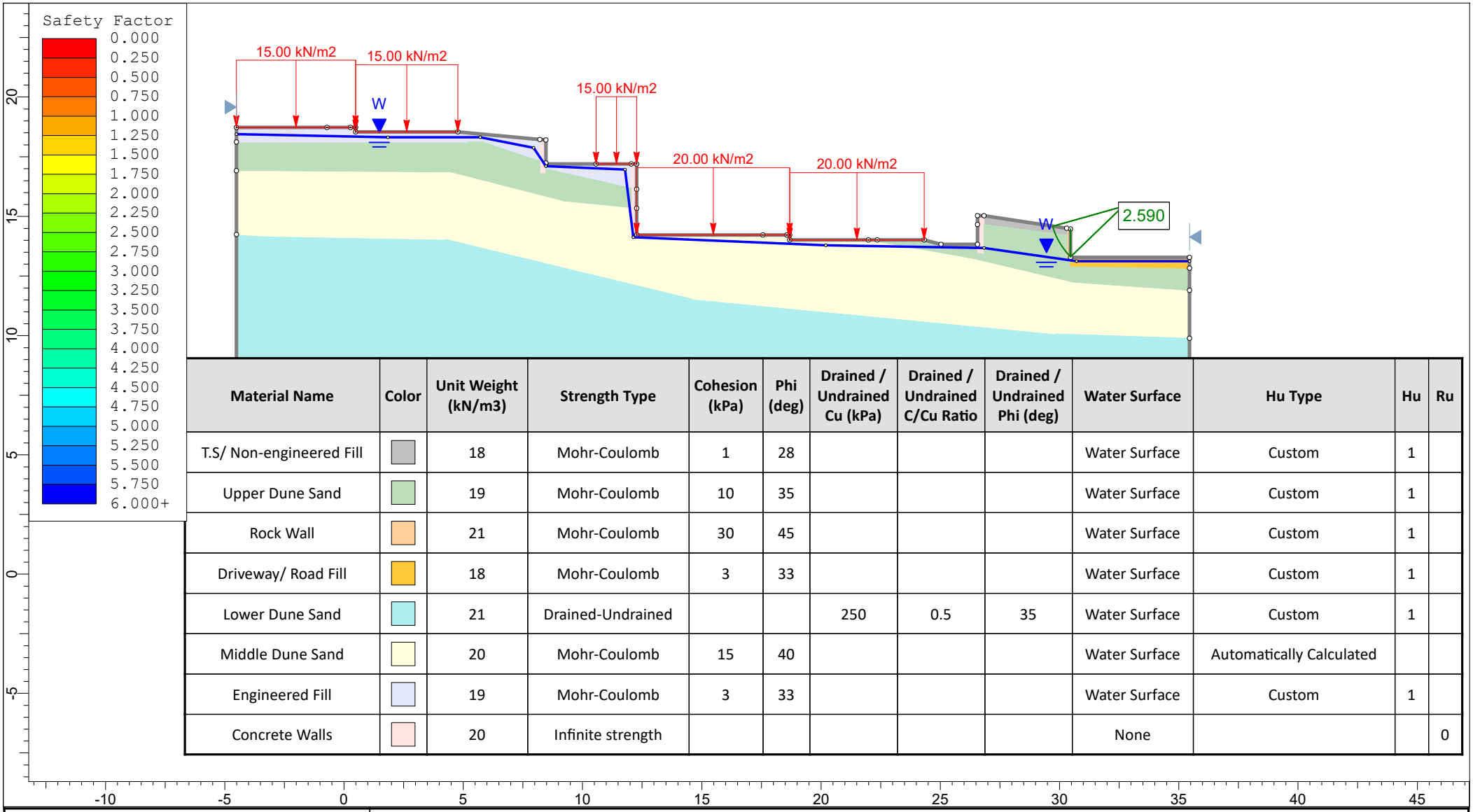
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Undeveloped Ultimate Limit State		
Drawn By	TVD	Scale 1:291	Company CGW
Date	17/07/2023, 9:27:53 AM		File Name 21118 A-A' Undeveloped ULS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Concrete Walls		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

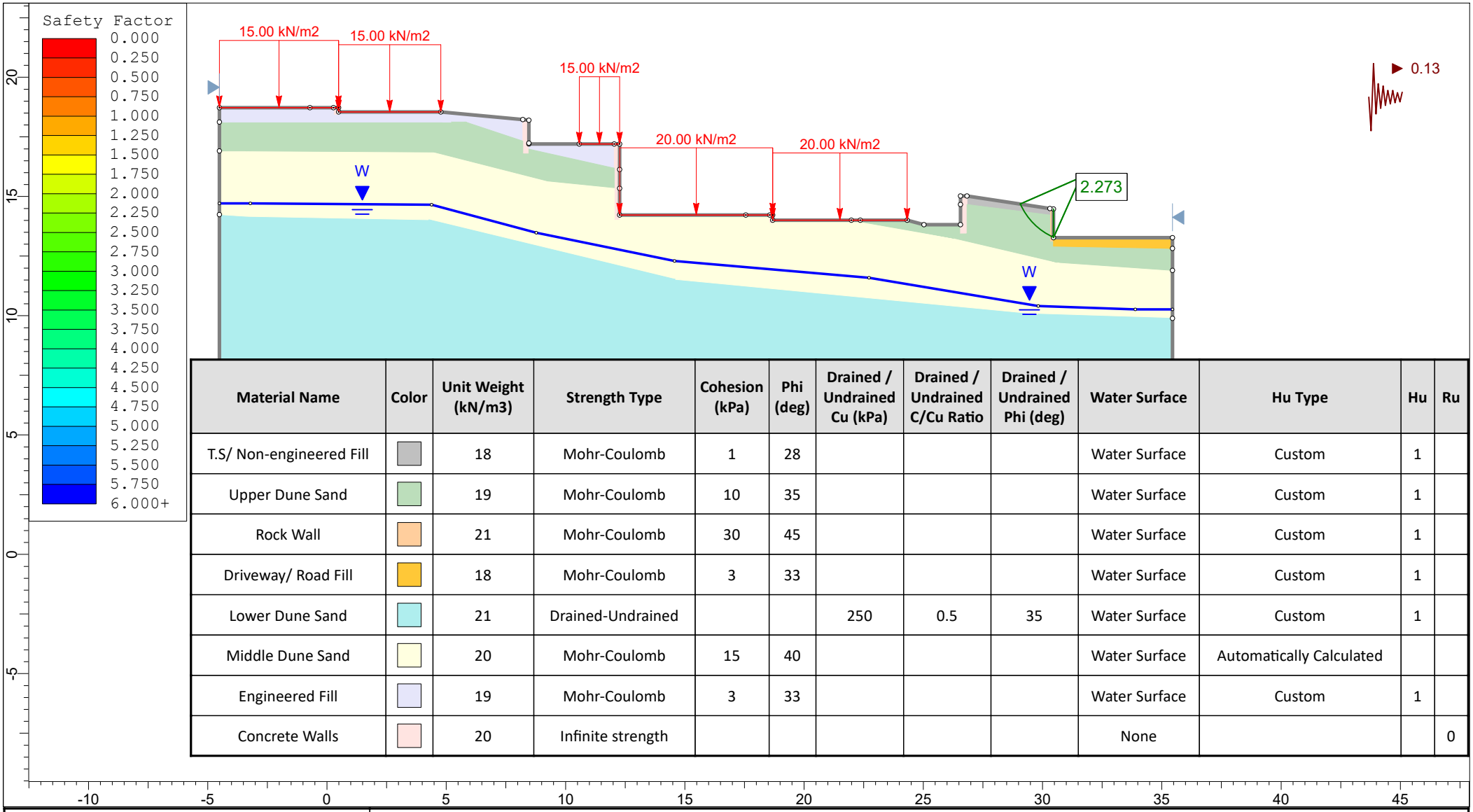
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Developed Normal Groundwater		
Drawn By	TVD	*Scale* 1:223	*Company* CGW
Date	17/07/2023, 9:27:53 AM	*File Name*	21118 A-A' Developed NGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Concrete Walls		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

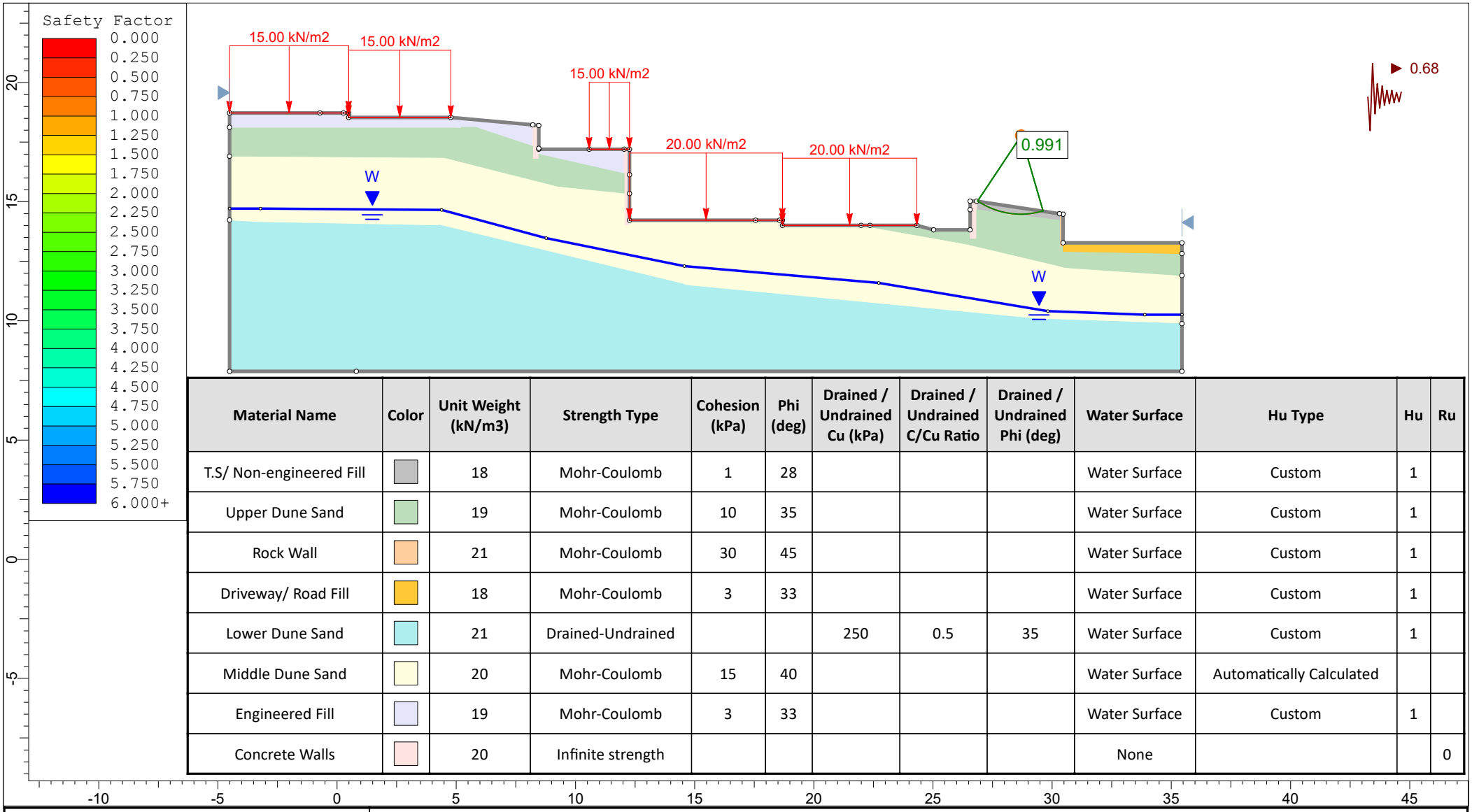
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Developed Extreme Groundwater		
Drawn By	TVD	*Scale* 1:222	*Company* CGW
Date	17/07/2023, 9:27:53 AM	*File Name*	21118 A-A' Developed EGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Concrete Walls		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

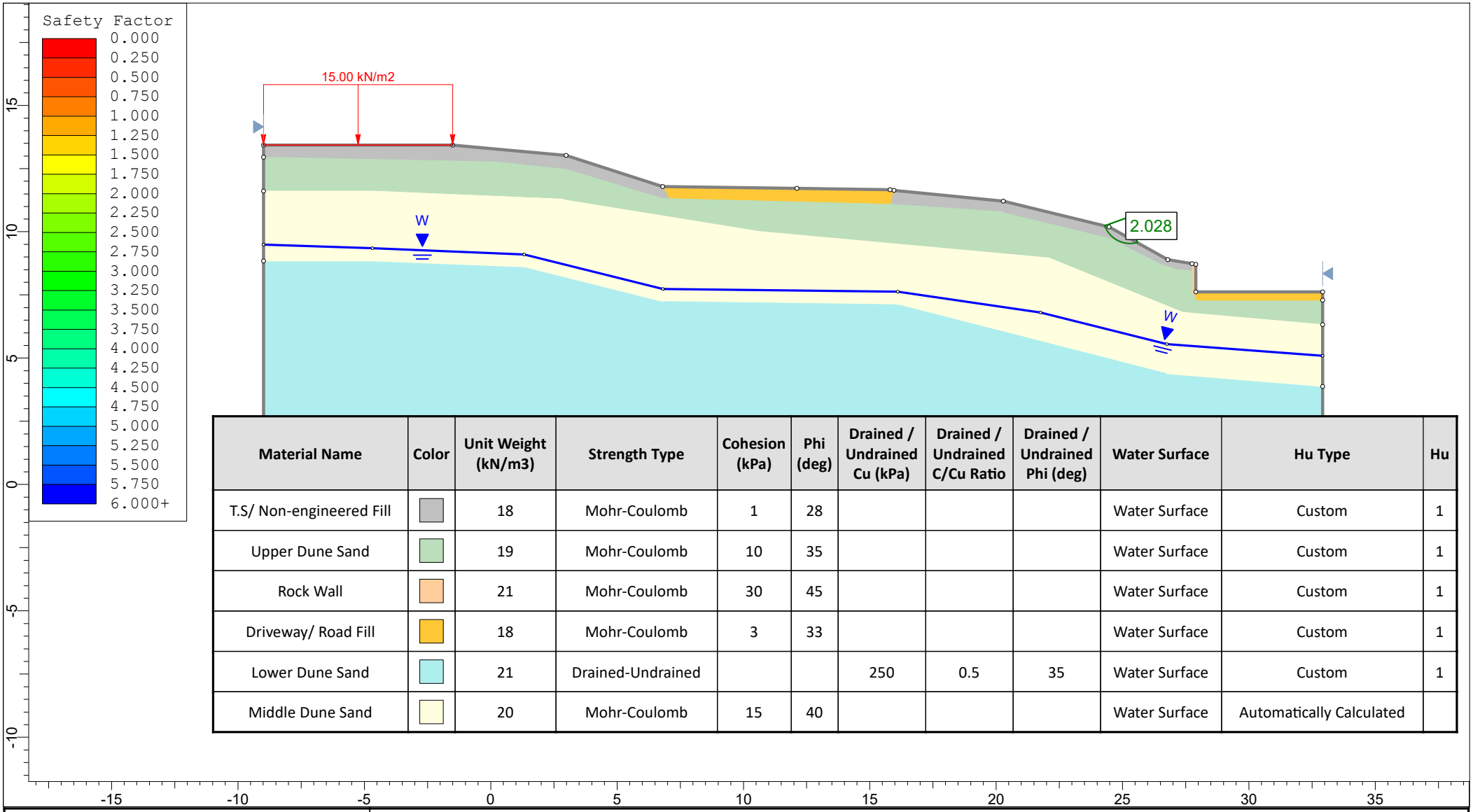
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Developed Serviceability Limit State		
Drawn By	TVD	*Scale* 1:222	*Company* CGW
Date	17/07/2023, 9:27:53 AM	*File Name*	21118 A-A' Developed SLS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Concrete Walls		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

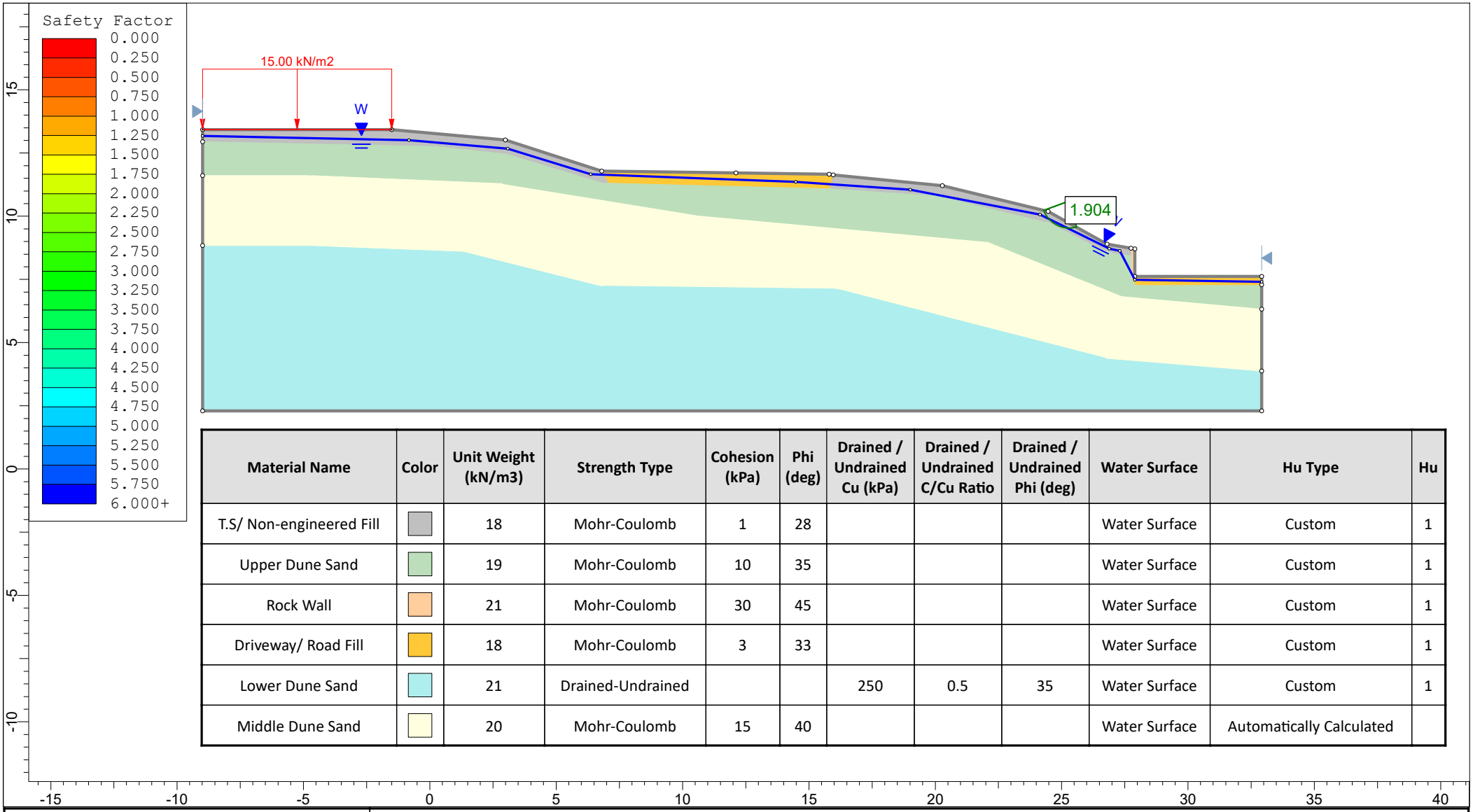
Project	21118 - 126 - 130 Rosetta Road, Raumati South		
Analysis Description	A-A' Developed Ultimate Limit State		
Drawn By	TVD	*Scale* 1:222	*Company* CGW
Date	17/07/2023, 9:27:53 AM	*File Name*	21118 A-A' Developed ULS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

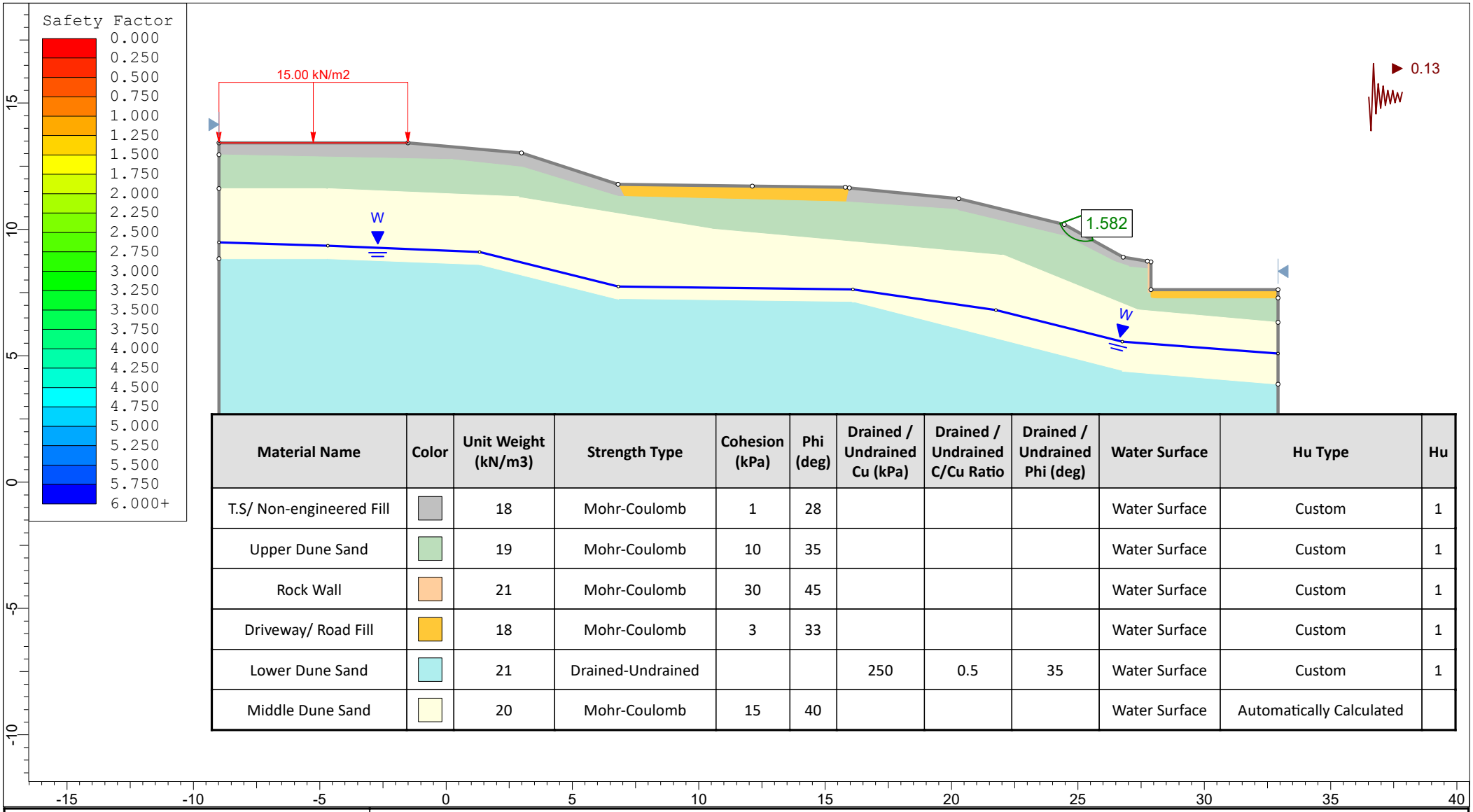
Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Undeveloped Normal Groundwater		
Drawn By	TVD	*Scale* 1:209	*Company* CGW
Date	21/07/2023, 11:48:16 AM	*File Name*	21118 B-B' Undeveloped NGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

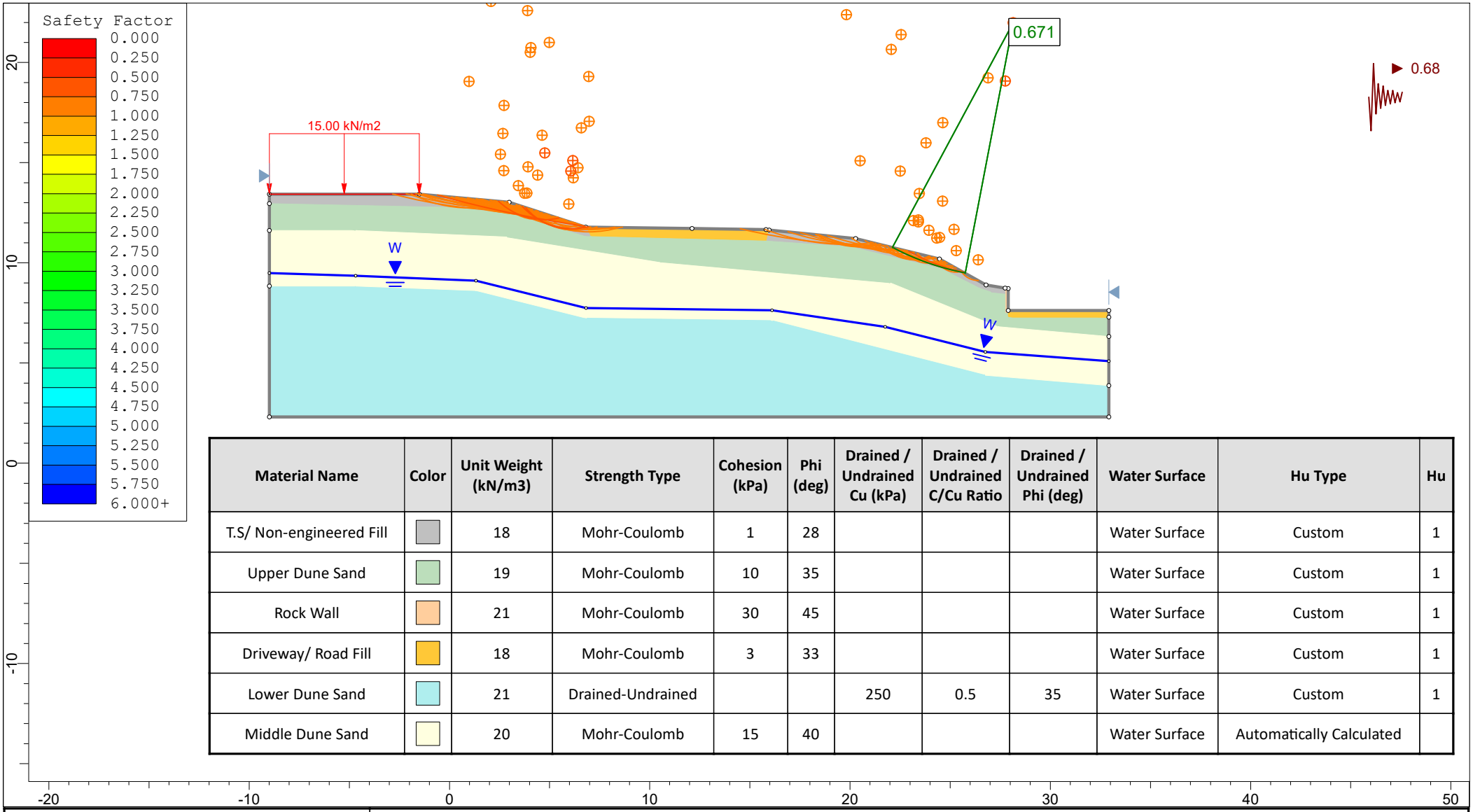
Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Undeveloped Extreme Groundwater		
Drawn By	TVD	*Scale* 1:209	*Company* CGW
Date	21/07/2023, 11:48:16 AM	*File Name*	21118 B-B' Undeveloped EGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

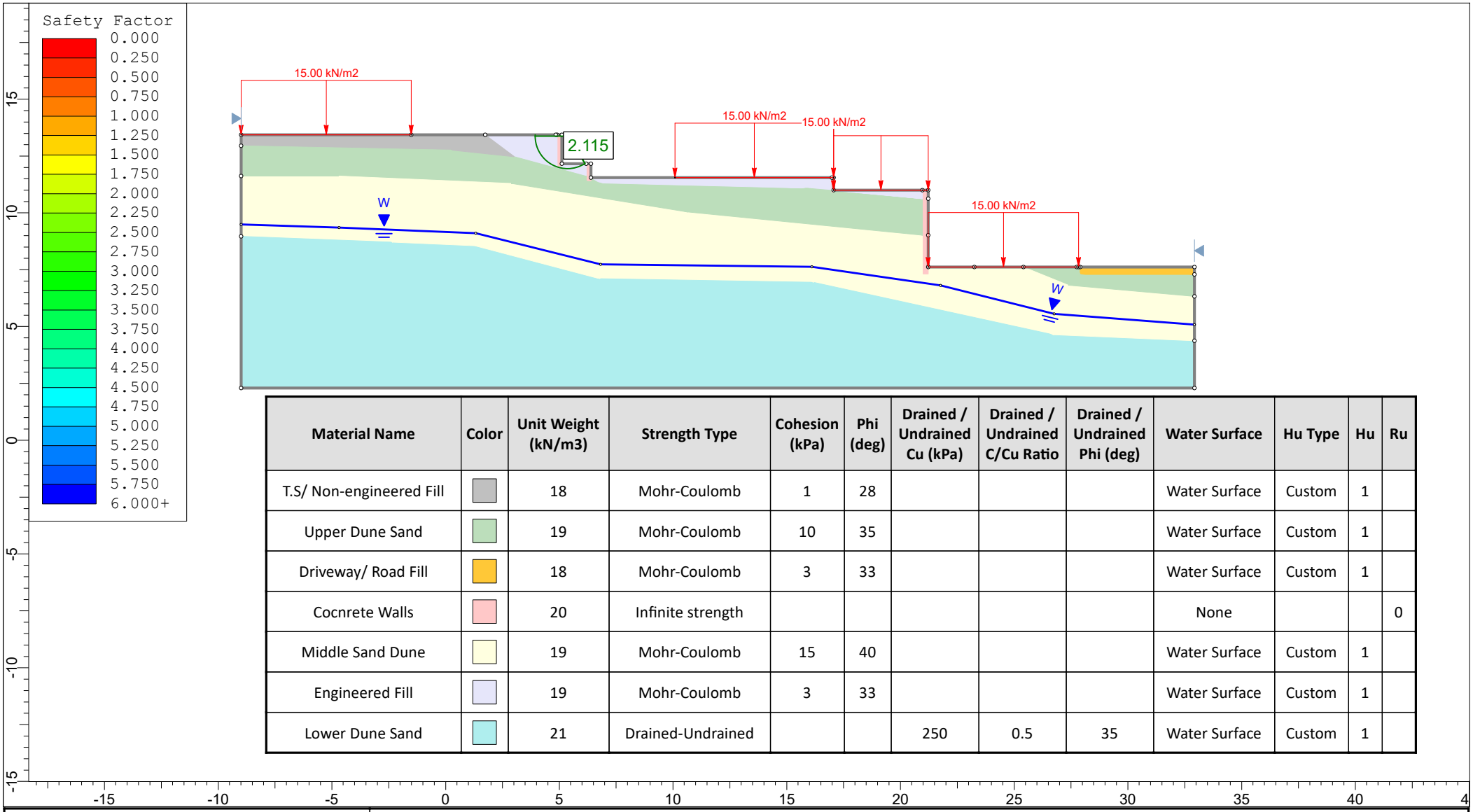
Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Undeveloped Serviceability Limit State		
Drawn By	TVD	*Scale* 1:209	*Company* CGW
Date	21/07/2023, 11:48:16 AM	*File Name*	21118 B-B' Undeveloped SLS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1
Rock Wall		21	Mohr-Coulomb	30	45				Water Surface	Custom	1
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated	

SLIDEINTERPRET 6.039

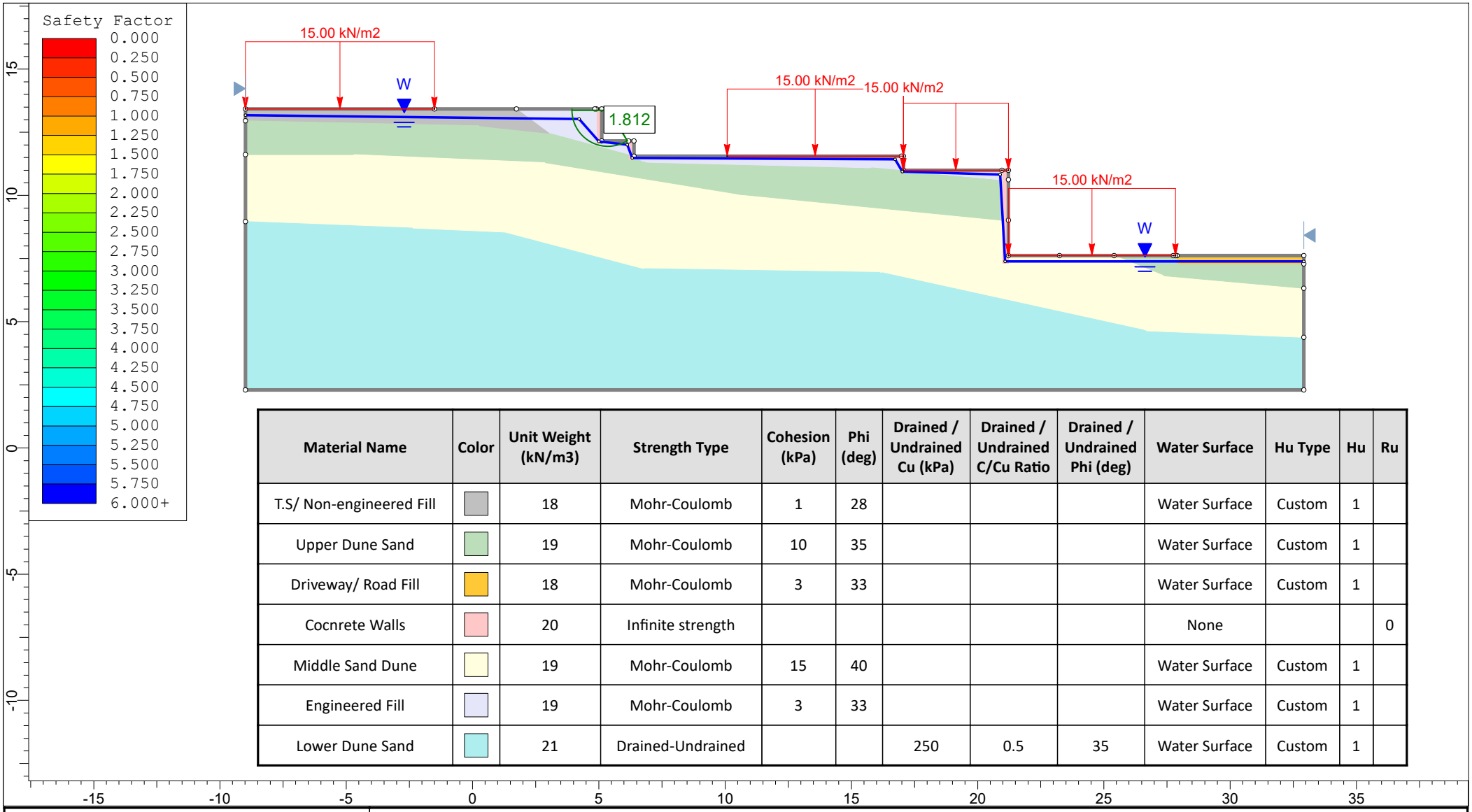
Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Undeveloped Ultimate Limit State		
Drawn By	TVD	*Scale* 1:264	*Company* CGW
Date	21/07/2023, 11:48:16 AM	*File Name*	21118 B-B' Undeveloped ULS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Cocnrete Walls		20	Infinite strength						None			0
Middle Sand Dune		19	Mohr-Coulomb	15	40				Water Surface	Custom	1	
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	

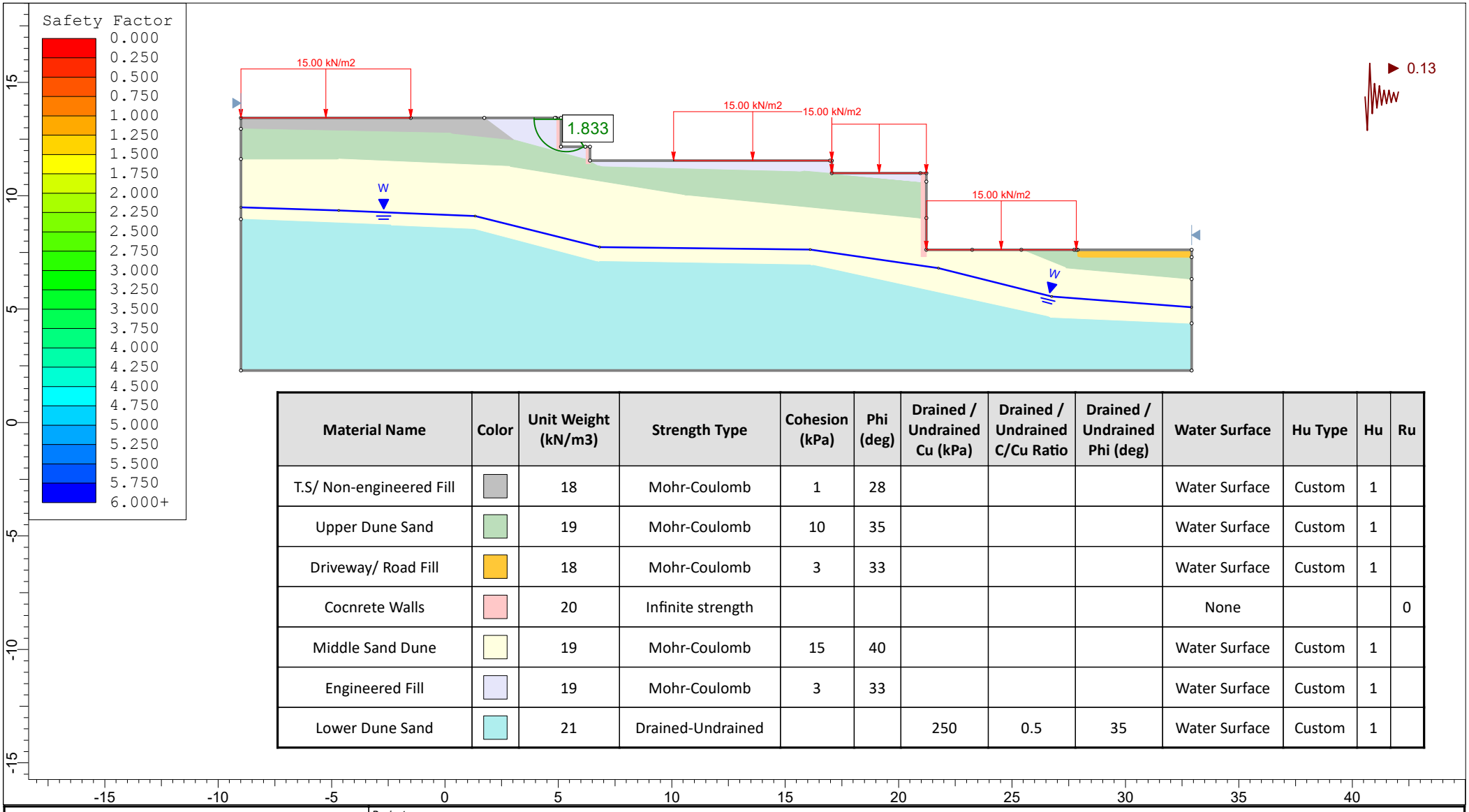
SLIDEINTERPRET 6.039

Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Developed Normal Groundwater		
Drawn By	TVD	*Scale* 1:233	*Company* CGW
Date	21/07/2023, 11:48:16 AM	*File Name*	21118 B-B' Developed NGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Cocnrete Walls		20	Infinite strength						None			0
Middle Sand Dune		19	Mohr-Coulomb	15	40				Water Surface	Custom	1	
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	

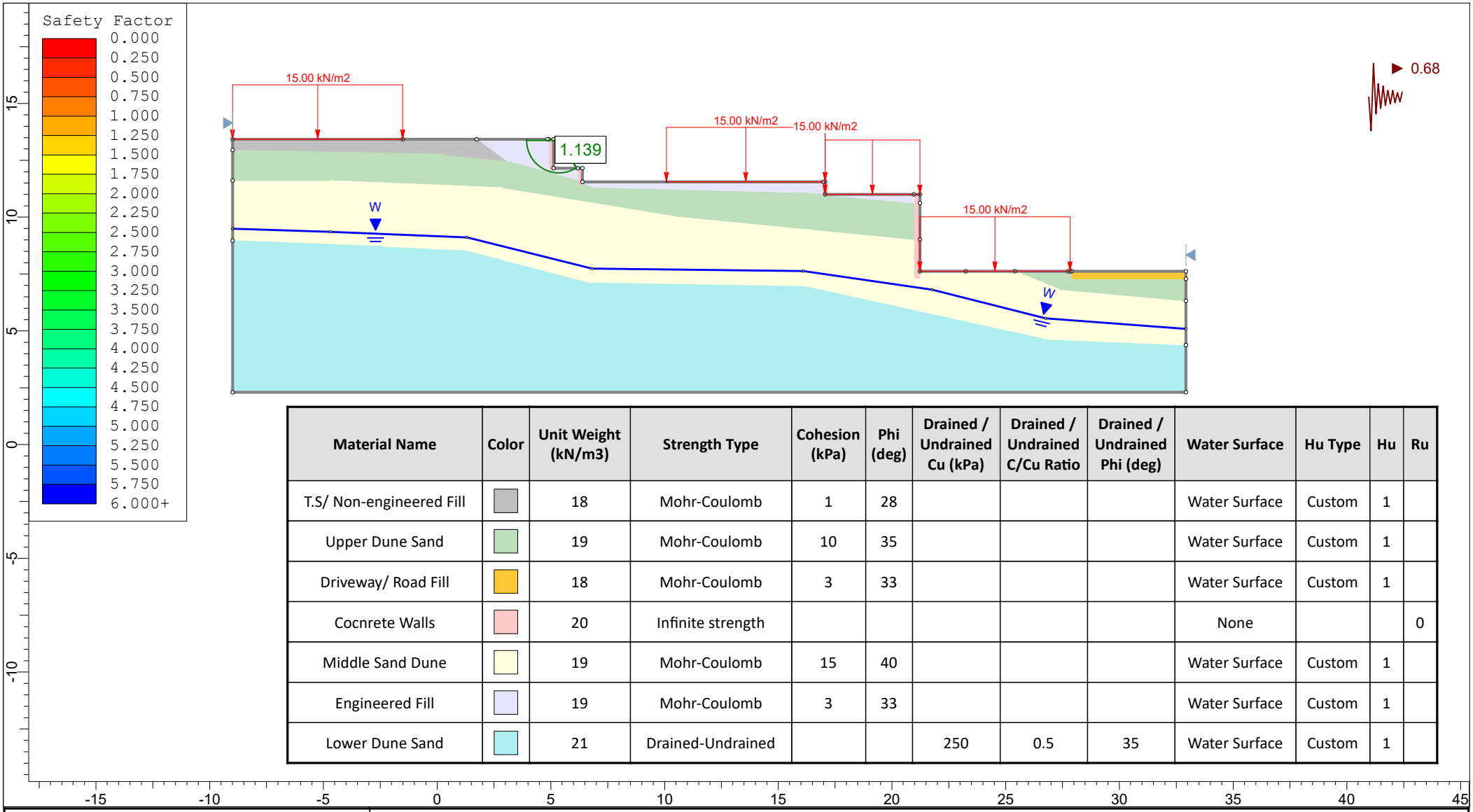
	Project	21118 - 126-130 Rosetta Road, Raumati South	
	Analysis Description	B-B' Developed Extreme Groundwater	
	Drawn By: TVD	Scale: 1:209	Company: CGW
SLIDEINTERPRET 6.039	Date: 21/07/2023, 11:48:16 AM		File Name: 21118 B-B' Developed EGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Cocnrete Walls		20	Infinite strength						None			0
Middle Sand Dune		19	Mohr-Coulomb	15	40				Water Surface	Custom	1	
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	

SLIDEINTERPRET 6.039

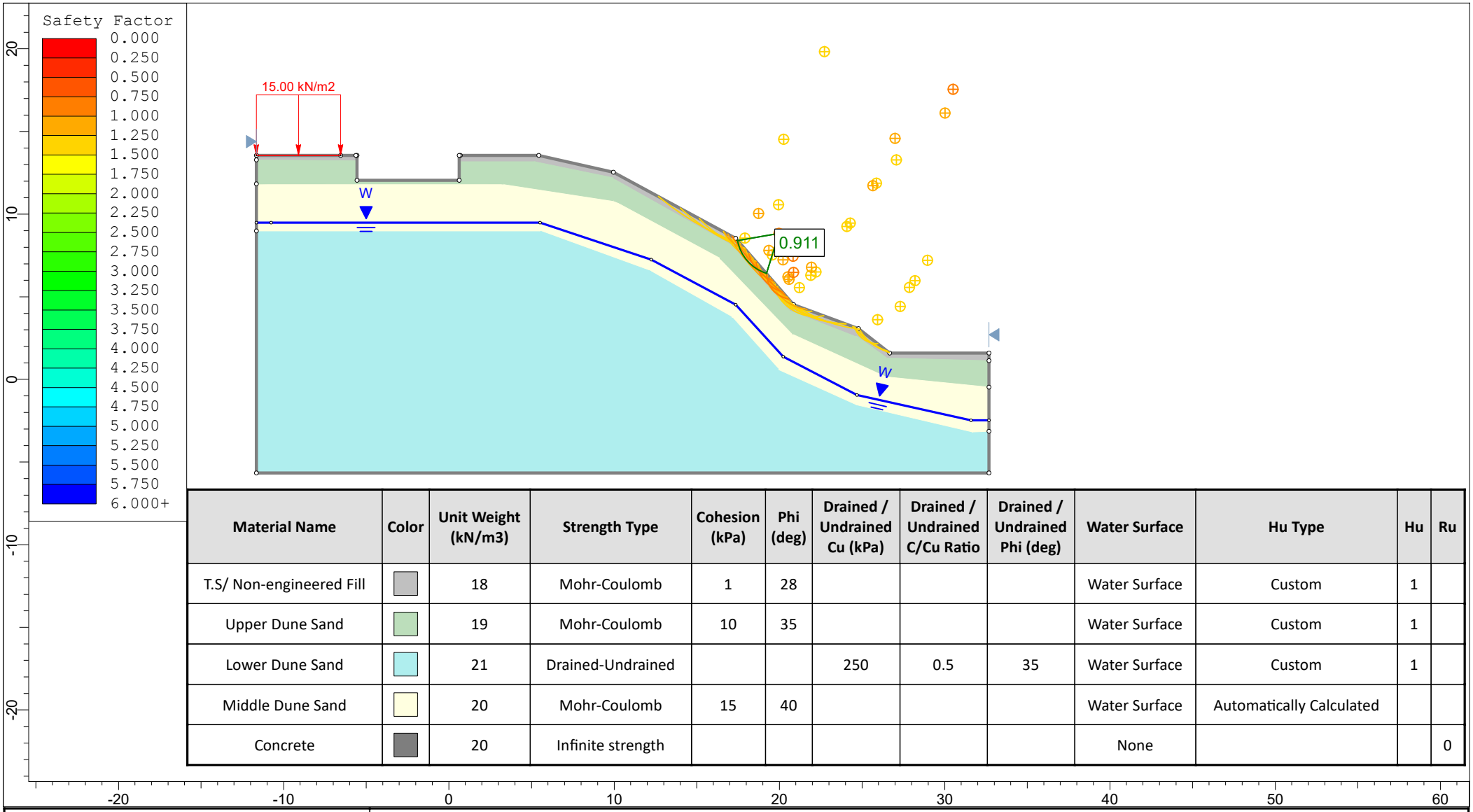
Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Developed Serviceability Limit State		
Drawn By	TVD	*Scale* 1:233	*Company* CGW
Date	21/07/2023, 11:48:16 AM	*File Name*	21118 B-B' Developed SLS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Driveway/ Road Fill		18	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Cocnrete Walls		20	Infinite strength						None			0
Middle Sand Dune		19	Mohr-Coulomb	15	40				Water Surface	Custom	1	
Engineered Fill		19	Mohr-Coulomb	3	33				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	

SLIDEINTERPRET 6.039

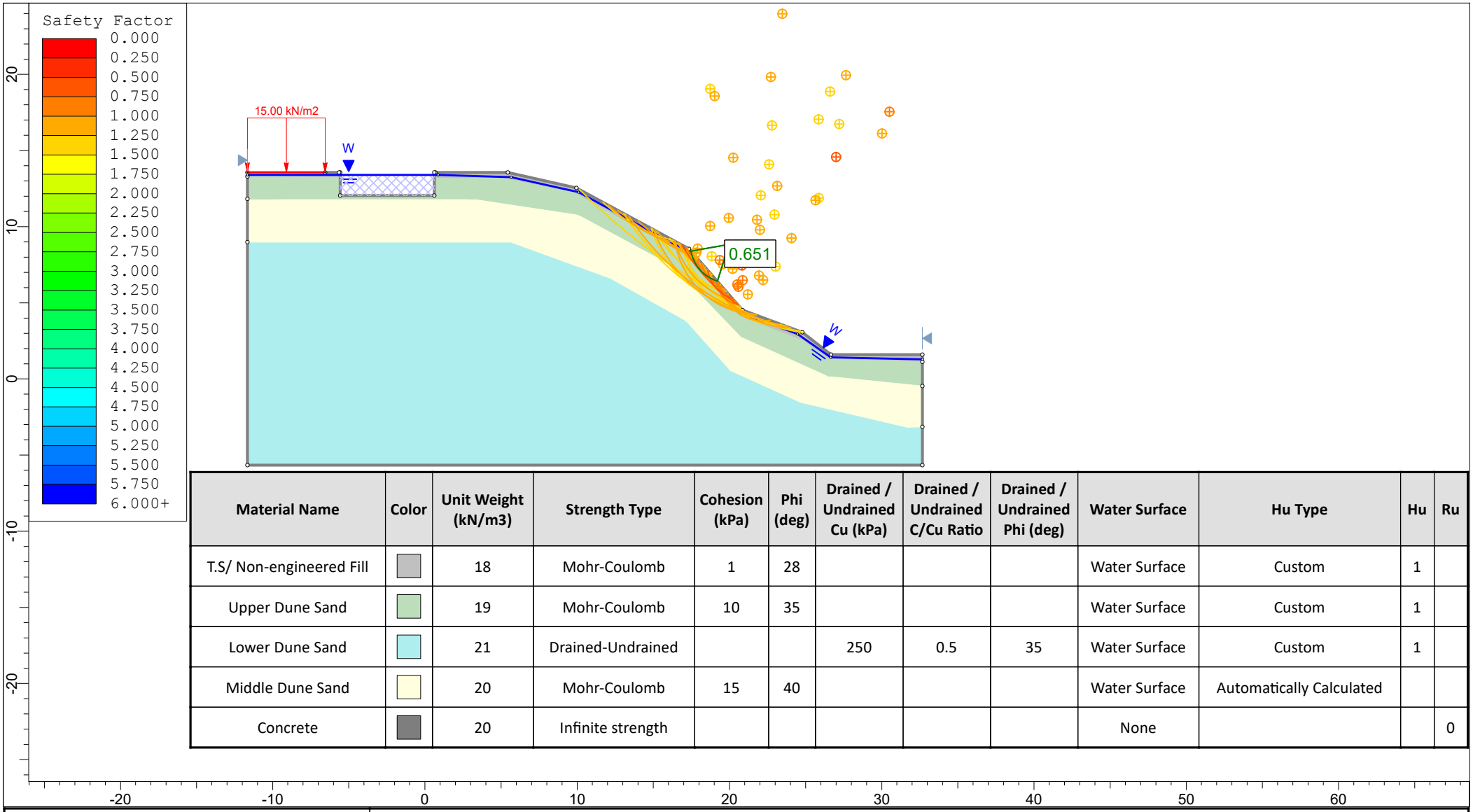
Project	21118 - 126-130 Rosetta Road, Raumati South		
Analysis Description	B-B' Developed Ultimate Limit State		
Drawn By	TVD	Scale	1:233
Company	CGW		
Date	21/07/2023, 11:48:16 AM	File Name	21118 B-B' Developed ULS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

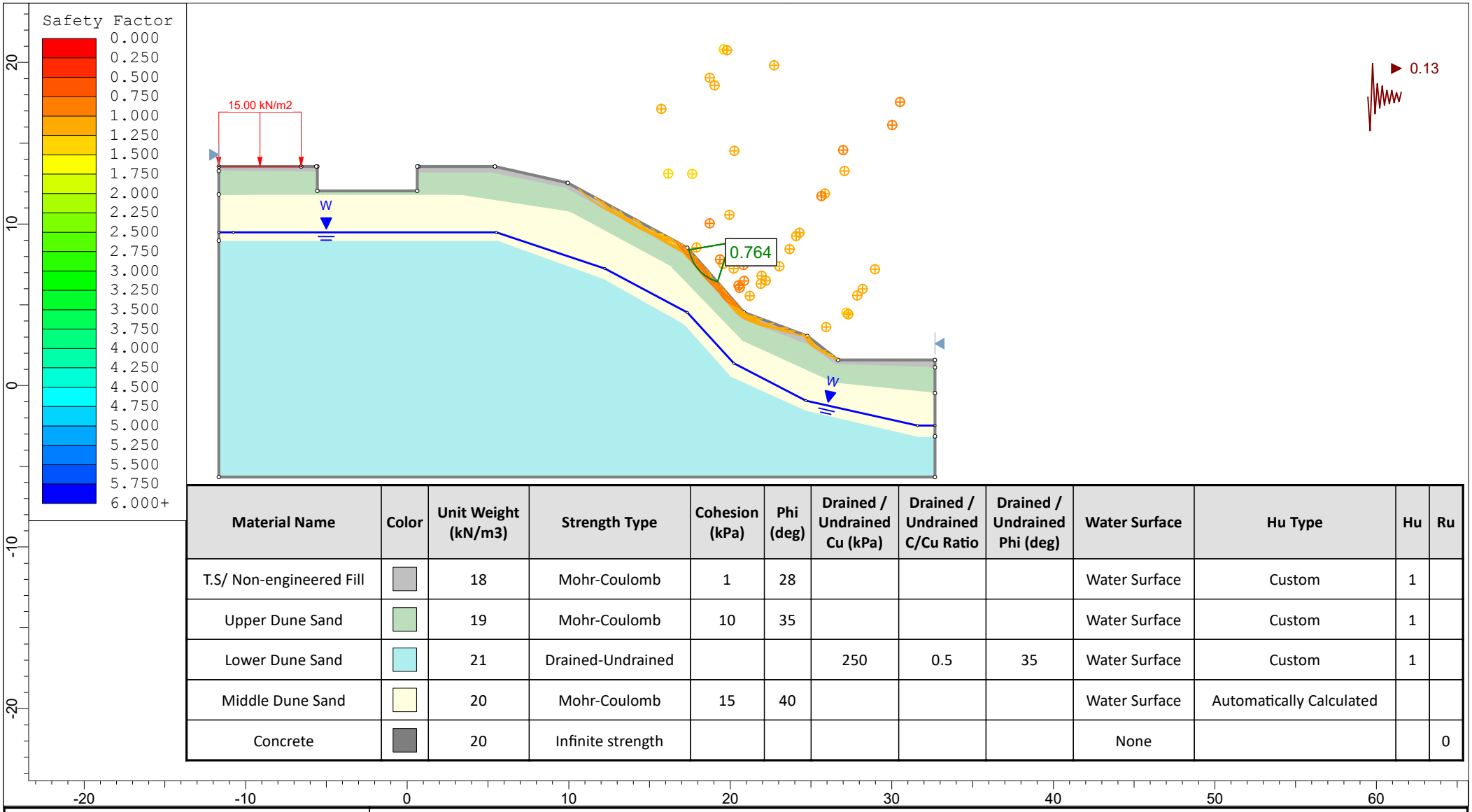
Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Undeveloped Normal Groundwater		
Drawn By	TVD	*Scale* 1:320	*Company* CGW
Date	26/07/2023, 3:13:37 PM	*File Name*	21118 - C-C' Undeveloped NGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

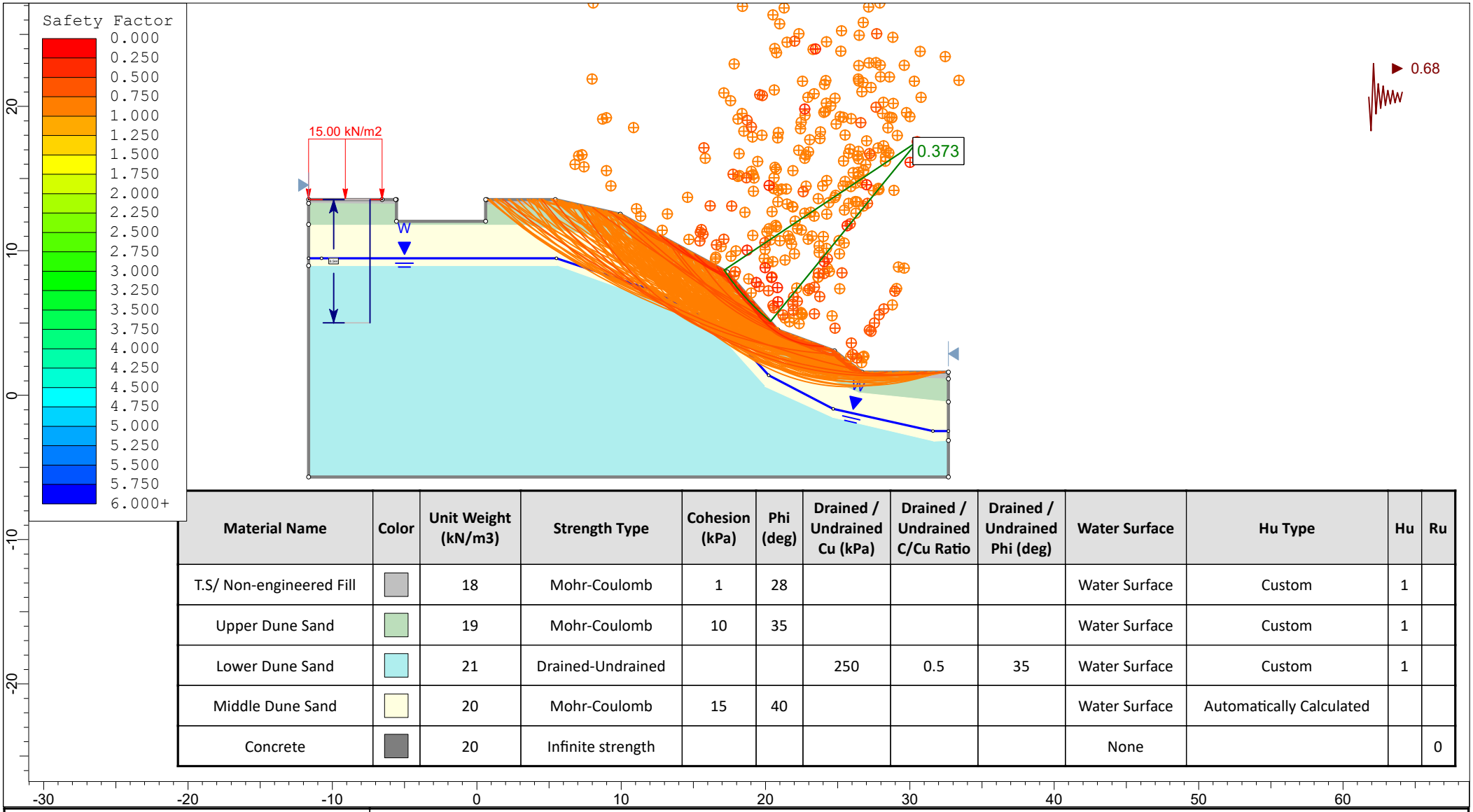
Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Undeveloped Extreme Groundwater		
Drawn By	TVD	*Scale* 1:348	*Company* CGW
Date	26/07/2023, 3:13:37 PM	*File Name*	21118 - C-C' Undeveloped EGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

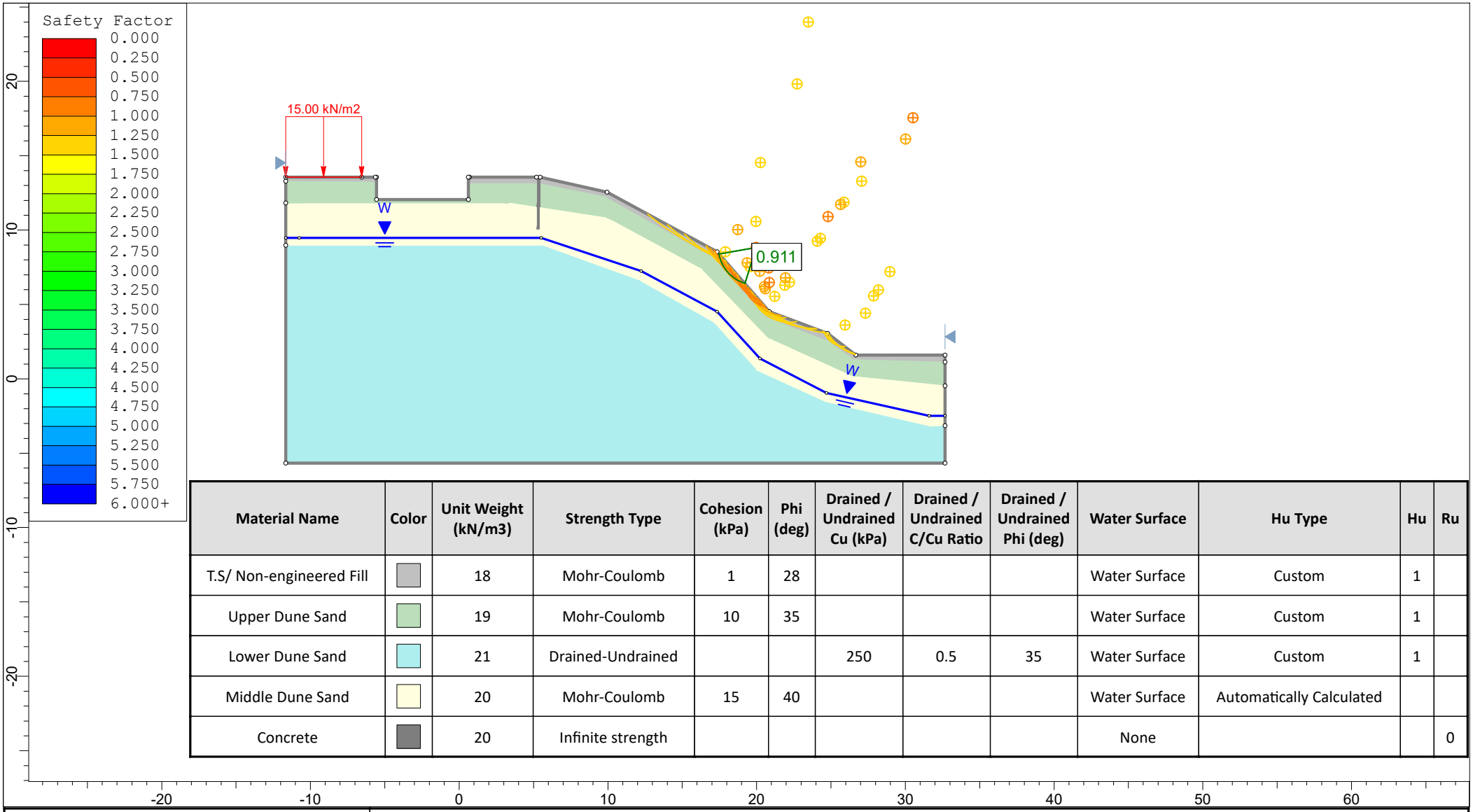
Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Undeveloped Serviceability Limit State		
Drawn By	TVD	*Scale* 1:327	*Company* CGW
Date	26/07/2023, 3:13:37 PM	*File Name*	21118 - C-C' Undeveloped SLS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

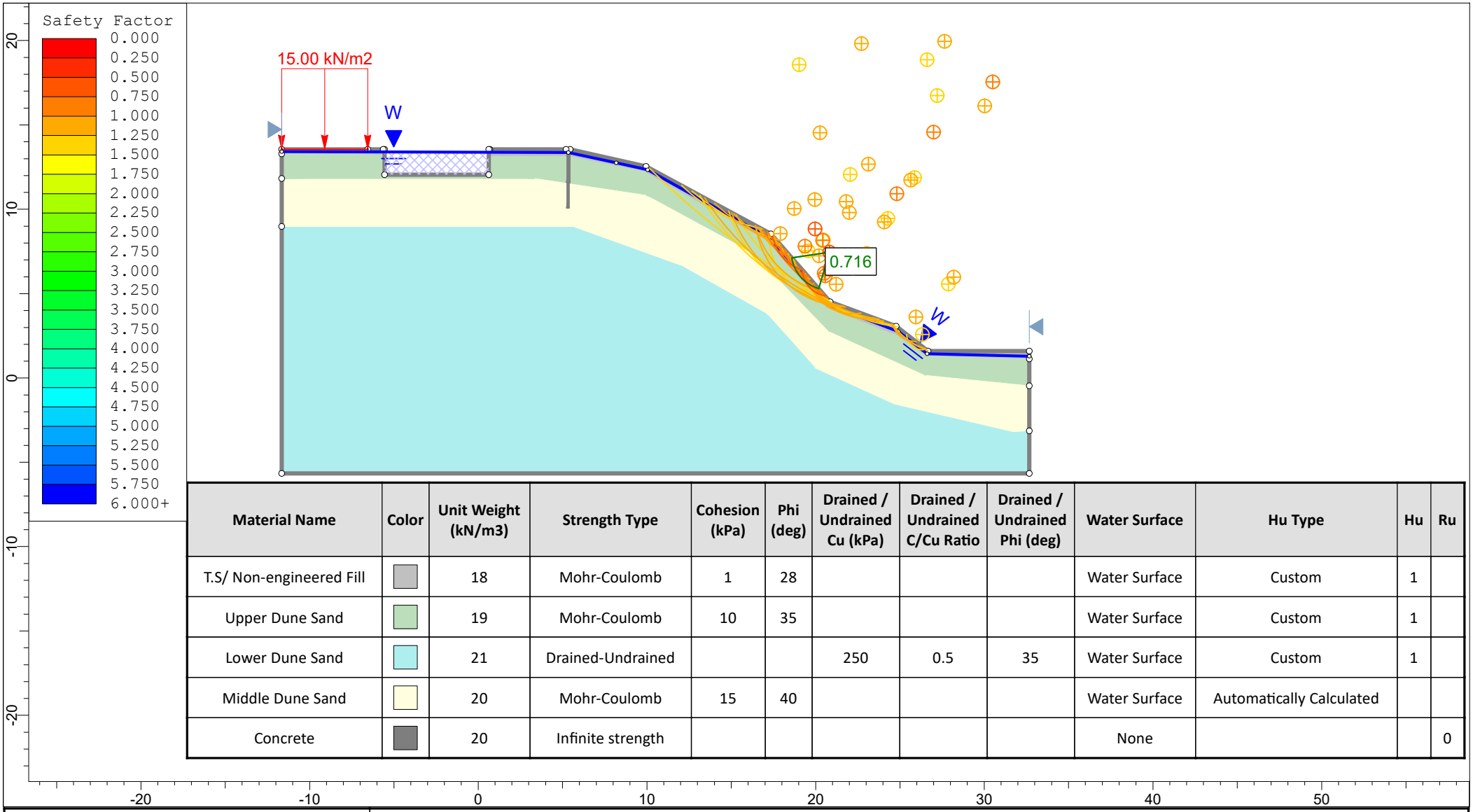
Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Undeveloped Ultimate Limit State		
Drawn By	TVD	*Scale* 1:367	*Company* CGW
Date	26/07/2023, 3:13:37 PM	*File Name*	21118 - C-C' Undeveloped ULS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

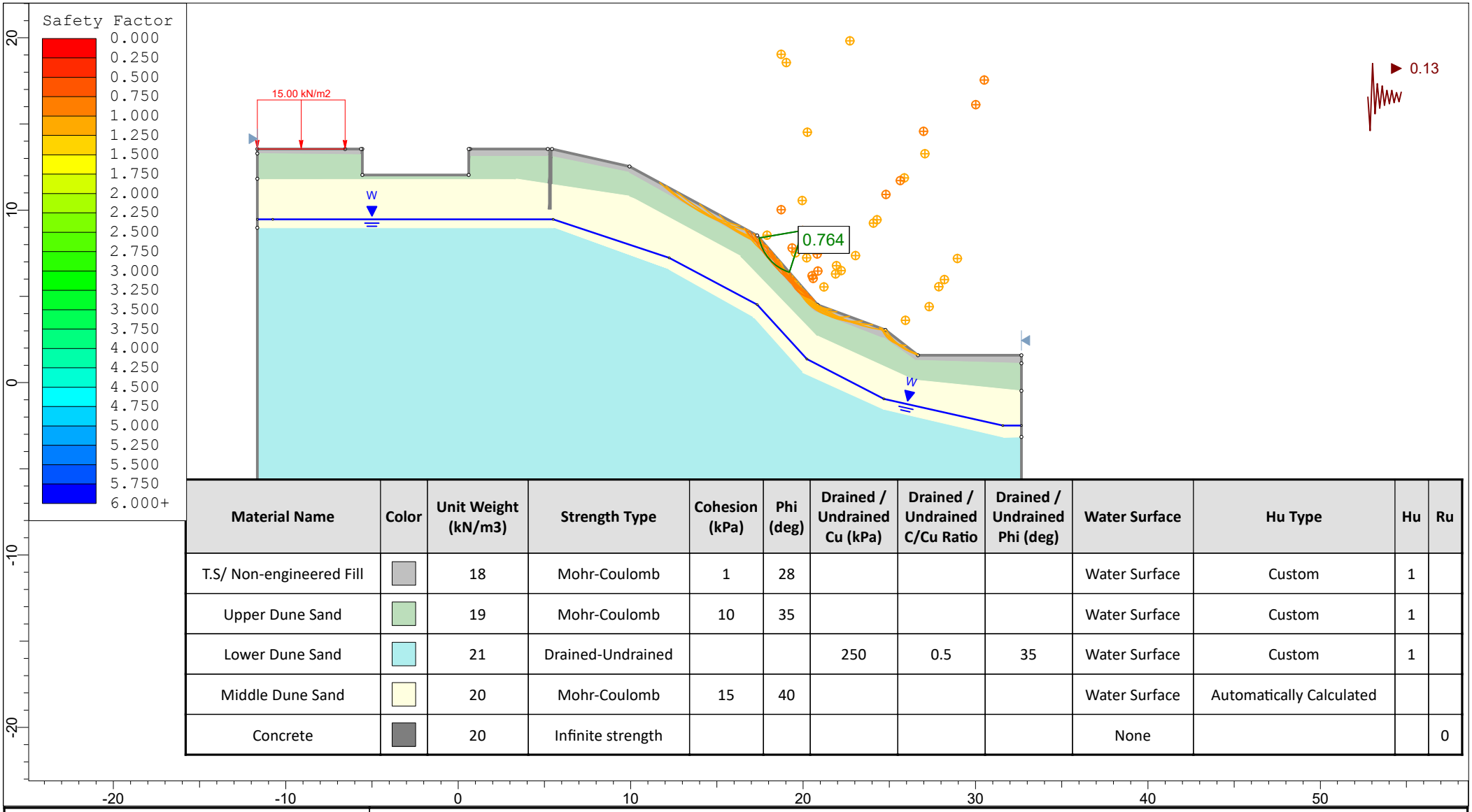
Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Developed Normal Groundwater		
Drawn By	TVD	Scale	1:356
Company	CGW		
Date	26/07/2023, 3:13:37 PM	File Name	21118 - C-C' Developed NGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

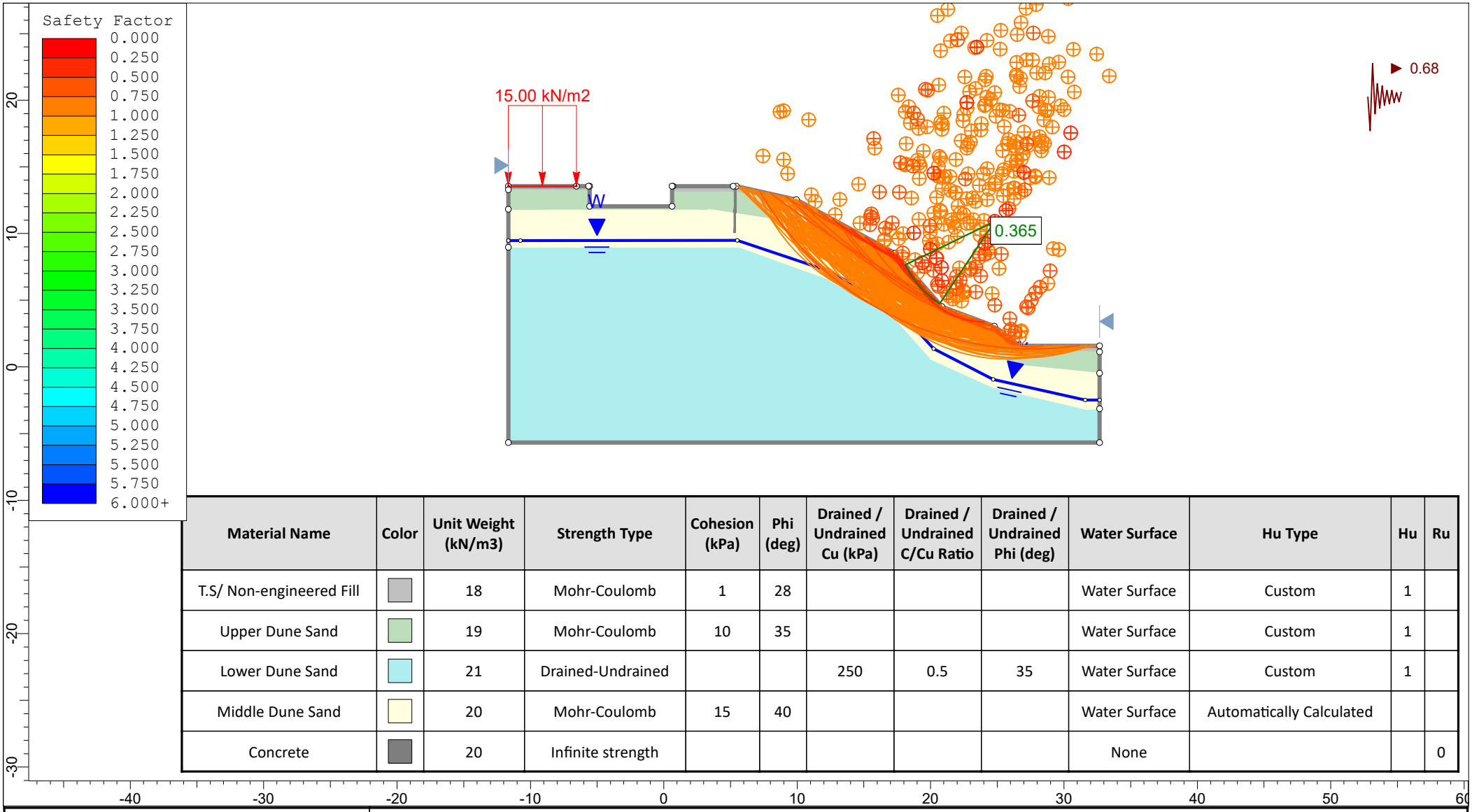
Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Developed Extreme Groundwater		
Drawn By	TVD	*Scale* 1:314	*Company* CGW
Date	26/07/2023, 3:13:37 PM	*File Name*	21118 - C-C' Developed EGW.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Developed Serviceability Limit State		
Drawn By	TVD	Scale	1:307
Company	CGW		
Date	26/07/2023, 3:13:37 PM	File Name	21118 - C-C' Developed SLS.slim



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Drained / Undrained Cu (kPa)	Drained / Undrained C/Cu Ratio	Drained / Undrained Phi (deg)	Water Surface	Hu Type	Hu	Ru
T.S/ Non-engineered Fill		18	Mohr-Coulomb	1	28				Water Surface	Custom	1	
Upper Dune Sand		19	Mohr-Coulomb	10	35				Water Surface	Custom	1	
Lower Dune Sand		21	Drained-Undrained			250	0.5	35	Water Surface	Custom	1	
Middle Dune Sand		20	Mohr-Coulomb	15	40				Water Surface	Automatically Calculated		
Concrete		20	Infinite strength						None			0

SLIDEINTERPRET 6.039

Project	21118 - 126 - 130 Rosetta Road, Raumati		
Analysis Description	C-C' - Developed Ultimate Limit State		
Drawn By	TVD	*Scale*	1:397
Company	CGW		
Date	26/07/2023, 3:13:37 PM	*File Name*	21118 - C-C' Developed ULS.slim

Appendix F: Statement of Professional Opinion

Statement of Professional Opinion on the Suitability of Land for Subdivision

ISSUED BY: CGW Consulting Engineers

(Geotechnical engineering firm or suitably qualified Geoprofessional)

TO: Kapiti District Council

(Territorial authority)

TO BE SUPPLIED TO: Lawrence Fay

(Owner/Developer)

IN RESPECT OF: Proposed Residential Subdivision

(Description of infrastructure/land development)

AT: 126-130 Rosetta Road, Raumati, Paraparaumu

(Address)

I Robert Bruce Smith on behalf of

(Geoprofessional)

CGW Consulting Engineers

(Geotechnical engineering firm)

hereby confirm:

1. I am a suitably qualified and experienced Geoprofessional employed by CGW Consulting Engineers and the geotechnical firm named above was retained by the owner/developer as the Geoprofessional on the above proposed development.

2. The geotechnical assessment report, dated 15/08/2023 has been carried out in accordance with the Ministry of Business, Innovation and Employment *Part D - Guidelines for the geotechnical investigation and assessment of subdivisions in the Canterbury region*, specifically in relation to liquefaction assessment.

(i) Details of and the results of my/the site investigations.

(ii) A liquefaction and lateral spreading assessment.

(iii) An assessment of rockfall and slippage, including hazards resulting from seismic activity.

(iv) An assessment of the slope stability and ground bearing capacity confirming the location and appropriateness of building sites.

(v) Recommendations proposing measures to avoid, remedy or mitigate any potential hazards on the land subject to the application, in accordance with the provisions of Section 106 of the Resource Management Act 1991.

3. In my professional opinion, not to be construed as a guarantee, I consider that Council is justified in granting consent incorporating the following conditions:

(i) __SED TC1 Foundations be allowed for.

(ii) __An in-ground wall be designed and constructed to mitigate the identified slope stability hazard_____

4. This professional opinion is furnished to the territorial authority and the owner/developer for their purposes alone, on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any building. It is limited to those items referred to in clause 2 only.

5. This statement shall be read in conjunction with the geotechnical report referred to in clause 2 above, and shall not be copied or reproduced except in conjunction with the full geotechnical completion report.

6. Liability under this statement accrues to the geotechnical firm only and no liability shall accrue to the individual completing this statement.

7. The geotechnical engineering firm issuing this statement holds a current policy of professional indemnity insurance of no less than $_200,000.00_____

(Minimum amount of insurance shall be commensurate with the current amounts recommended by ENGINEERING NEW ZEALAND, ACENZ, NZTA, INGENIUM.)

_____R. Smith_____ Date:___15-08-23_____

(Signature of engineer, for and on behalf of CGW Consulting Engineers)

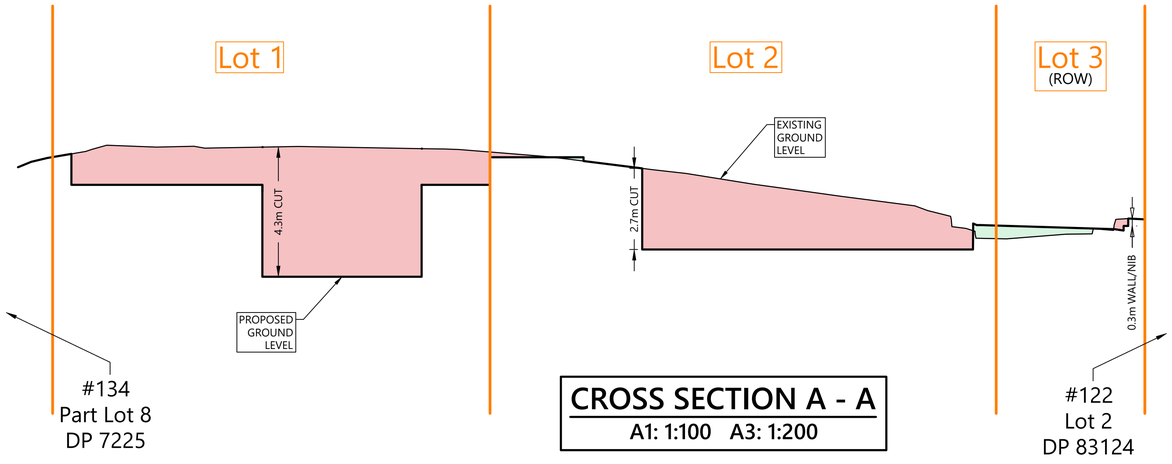
Qualifications and experience

_____CMEngNZ CPEng IntPE(NZ) / APEC Engineer_____

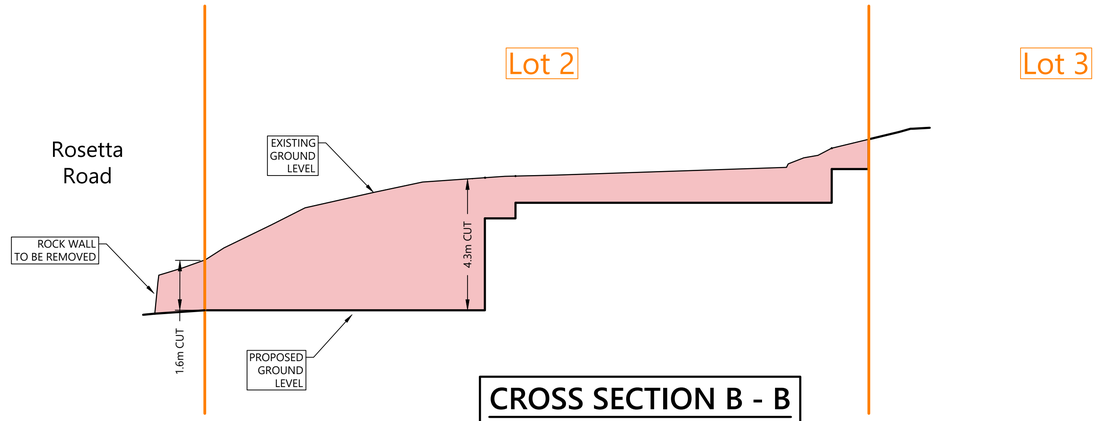
_____

This form is to accompany Form 9 – Resource Management Act 1991 (Application for a Resource Consent (Subdivision))

ATTACHMENT 6



CROSS SECTION A - A
A1: 1:100 A3: 1:200



CROSS SECTION B - B
A1: 1:100 A3: 1:200

DETAILS:

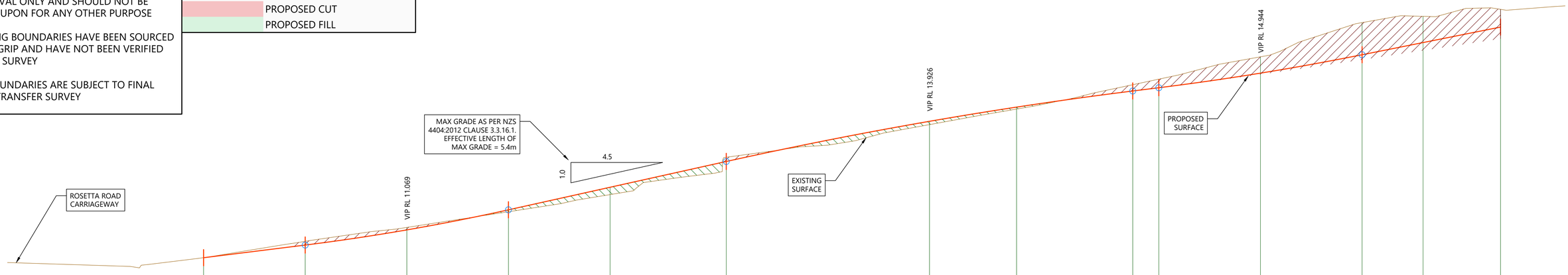
THIS PLAN IS FOR RESOURCE CONSENT APPROVAL ONLY AND SHOULD NOT BE RELIED UPON FOR ANY OTHER PURPOSE

EXISTING BOUNDARIES HAVE BEEN SOURCED FROM GRIP AND HAVE NOT BEEN VERIFIED BY SITE SURVEY

ALL BOUNDARIES ARE SUBJECT TO FINAL LAND TRANSFER SURVEY

LEGEND:

- PROPOSED BOUNDARY
- PROPOSED CUT
- PROPOSED FILL



VERTICAL CURVE LENGTH (m) / VERTICAL CURVE RADIUS (m)			VC 5 R 51.37									VC 10 R 102.86								VC 5 R 66.67				
VERTICAL GEOMETRY GRADE (%) / VERTICAL GEOMETRY LENGTH (m)		12.5% 5					22.2% 12.86									12.5% 8.14					20% 5.91			
DATUM RL = 7.900																								
FINISHED SURFACE LEVEL	10.445	10.757	11.130	11.625	12.180	12.815	13.805	14.154	14.551	14.632	14.991	15.444	15.744	16.125										
EXISTING SURFACE LEVEL	10.445	10.848	11.191	11.578	12.000	12.918	13.723	14.106	14.706	14.843	15.393	16.235	16.390	16.562										
CUT / FILL DEPTH	-0.000	-0.092	-0.061	0.047	0.180	-0.103	0.082	0.048	-0.155	-0.211	-0.402	-0.791	-0.646	-0.437										
CONTROL LINE CHAINAGE	0	2.5	5	7.5	10	12.858	17.858	20	22.858	23.5	26	28.5	30	31.906										

LONG SECTION C - C
A1: 1:50 A3: 1:100

AMENDMENT:	DATE:	APPROVED:
A: SITE COVERAGES	20-01-2022	SDP
B: SW OUTLETS, SW EASEMENT	21-01-2022	SDP
C: RE-ISSUE FOR RCA	09-03-2023	TEM

LEITH CONSULTING
Land Surveying | Environmental Planning
WWW.LEITHCONSULTING.CO.NZ

PROJECT: 4 LOT SUBDIVISION
LOT 1 & 2 DP 18137
126-130 ROSETTA ROAD

CLIENT: LAWRENCE FAY

TITLE: SCHEME PLAN - EARTHWORKS SECTIONS

SCALE: A1: VARIES A3: VARIES

DRAWING SET NO: KAP-0460-SCH

SHEETS: 4 OF 4 REVISION: C

STATUS: FOR RCA APPROVAL

SURVEYED:	JLL	10-02-2021
DRAWN:	SDP	14-01-2022
DESIGNED:	SDP	14-01-2022
CHECKED:	JLB	18-01-2022
APPROVED:	JLB	18-01-2022

ATTACHMENT 7

DETAILS:

THIS PLAN IS FOR RESOURCE CONSENT APPROVAL ONLY. LEITH CONSULTING LTD ACCEPT NO RESPONSIBILITY FOR THE USE OF THIS PLAN FOR ANY OTHER PURPOSE.

SITE BOUNDARIES HAVE BEEN DETERMINED BY SURVEY CALCULATION

LEGEND:

BOUNDARY
EASEMENT

N

Rosetta Road

Renown Road

#134
Part Lot 8
DP 7225

#75 Renown Road
Part Lot 7
DP 7225

69.0

25.3

3.7

#71 Renown Road
Lot 3
DP 18137

#75 Renown Road
Part Lot 7
DP 7225

69.0

21.7

14.3

18.8

2.9

4.00m Ø

EXISTING DOUBLE GARAGE TO BE REPLACED (DECK OVER)

12m

diam.

circle

Lot 1
309m²
BUILDING FOOTPRINT: 165m²
SITE COVERAGE: 53%

PROPOSED HOUSE 1
Refer: BOX Architecture Ltd drawings
"ROSETTA ROAD DEV" dated 18-01-2023
Sheets A400-A430

18m

ROOFLINE OF EXISTING DWELLING TO REMAIN

EXISTING DWELLING

Lot 4
TOTAL: 1001m²
DWELLING: 190m²
SITE COVERAGE: 19%

LOT 2
DP 18137
WN824/62

EXISTING BUILDING TO BE REMOVED

15m

DECK

Lot 2
303m²
BUILDING FOOTPRINT: 115m²
SITE COVERAGE: 38%

PROPOSED HOUSE 2
Refer: BOX Architecture Ltd drawings
"ROSETTA ROAD DEV" dated 18-01-2023
Sheets A500-A530

15.0

10.9

1.6

39.7

16.0

4.4

5.8

2.5

6.0

3.0

6.9

1.4

DECK OVER GARAGE

Lot 3
810m²
ROW: 183m²
NET: 627m²
BUILDING FOOTPRINT: 124m²
POOL: 60m²
SITE COVERAGE: 29%

PROPOSED HOUSE 3
Refer: BOX Architecture Ltd drawings
"ROSETTA ROAD DEV" dated 18-01-2023
Sheets A600-A630

EXISTING POOL AND ASSOCIATED STRUCTURES TO REMAIN

LOT 1
DP 18137
WN824/62

EXISTING DECK TO BE REMOVED

EXISTING BUILDING TO BE REMOVED

29.6

35.8

#122
Lot 2
DP 83124

#71 Renown Road
Lot 3
DP 18137

NOTES:

ALL BOUNDARIES, AREAS & DIMENSIONS ARE SUBJECT TO RESOURCE CONSENT APPROVAL, COUNCIL s223 CERTIFICATION AND LINZ LAND TRANSFER SURVEY APPROVAL.

ADDITIONAL EASEMENTS MAY BE REQUIRED AT TIME OF FINAL LAND TRANSFER SURVEY

AMENDMENT:	DATE:	APPROVED:
A: SITE COVERAGES	20-01-2022	SDP
B: SW OUTLETS, SW EASEMENT	21-01-2022	SDP
C: RE-ISSUE FOR RCA	09-03-2023	TEM

PROPOSED EASEMENTS IN GROSS:

PURPOSE:	SHOWN:	SERVIENT TENEMENT: (BURDENED LAND)	GRANTEE:
Right to drain sewage		Lot 3	Kapiti Coast District Council
Right to convey telecommunications			Chorus New Zealand Limited
Right to convey gas			First Gas Limited
Right to convey electricity			Electra Limited

PROPOSED EASEMENTS:

PURPOSE:	SHOWN:	SERVIENT TENEMENT: (BURDENED LAND)	DOMINANT TENEMENT: (BENEFITED LAND)
Right of way, right to drain water and sewage, right to convey water, gas, electricity and telecommunications (as required)		Lot 3	Lots 2 and 4

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PROJECT: 4 LOT SUBDIVISION
LOT 1 & 2 DP 18137
126-130 ROSETTA ROAD

CLIENT: LAWRENCE FAY

TITLE: SCHEME PLAN - LEGAL

SCALE: A1: 1:100 A3: 1:200

DRAWING SET NO: KAP-0460-SCH

SHEETS: 1 OF 4

REVISION: C

STATUS: FOR RCA APPROVAL

SURVEYED:	JLL	10-02-2021
DRAWN:	SDP	12-01-2022
DESIGNED:	SDP	12-01-2022
CHECKED:	JLB	18-01-2022
APPROVED:	JLB	18-01-2022

DETAILS:

THIS PLAN IS FOR RESOURCE CONSENT APPROVAL ONLY AND IS NOT TO BE USED FOR ANY OTHER PURPOSE.

EXISTING STORMWATER, WASTEWATER AND WATER SUPPLY LINES HAVE BEEN PLOTTED FROM COUNCIL RECORDS AND HAVE NOT BEEN VERIFIED ONSITE.

SITE BOUNDARIES HAVE BEEN DETERMINED BY SURVEY CALCULATION

SURVEY INFORMATION:

EQUIPMENT:
ROBOTIC TOTAL STATION & RTK GNSS WITH LOCAL BASE

DATUM:
NZGD2000

CIRCUIT:
WELLINGTON 2000

VERTICAL DATUM:
WELLINGTON 1953 (MSL)

SURVEY ORIGIN:
OLP I DP 59593 (F2F1)

SOURCE OF LEVELS:
OLP I DP 59693 (F2F1)
RL = 10.643
OBTAINED VIA LINZ HEIGHT CONVERSION 01 FEBRUARY 2021

CONTOUR INTERVAL:
1.0m (MAJOR)
0.5m (MINOR)

N

#134
Part Lot 8
DP 7225

#75 Renown Road
Part Lot 8
DP 7225

#75 Renown Road
Part Lot 7
DP 7225

Lot 1

Lot 2

Lot 3

Lot 4

Rosetta Road

PROPOSED VEHICLE CROSSING

NEW WASTEWATER CONNECTION

LOT 1 TO UTILISE EXISTING WATER CONNECTION

225mmØ CONCRETE SUMP LEAD (GIS)

SW OUTLET TO KERB FROM ATTENUATION TANK ON LOT 1
TANK DETAILS:
4680L ATTENUATION
21mmØ ORIFICE

SW OUTLET TO KERB FROM ATTENUATION TANK ON LOT 2
TANK DETAILS:
4180L ATTENUATION
18mmØ ORIFICE

150mmØ AC WASTEWATER MAIN (GIS)

150mmØ AC RETICULATION MAIN (GIS)

NEW WATER CONNECTION

EXISTING SOAKPIT LOCATION (SOURCED FROM BUILING FILE)

NEW WASTEWATER CONNECTION

2x NEW WATER CONNECTIONS SERVICING LOTS 3 & 4

NEW WASTEWATER CONNECTION

6.00

2.20

PASSING BAY DIMENSIONS IN ACCORDANCE WITH NZS4404:2010 CL 3.3.1.3

'L' TURNING HEAD IN ACCORDANCE WITH NZS4404:2010 FIG 3.4

EXISTING CROSSING TO BE WIDENED

NEW WASTEWATER MANHOLE

NEW WASTEWATER CONNECTION

EXISTING SOAKPIT LOCATION (SOURCED FROM BUILING FILE)

STRIP DRAIN AT BOUNDARY

PROPOSED SUMP OUTLET TO KERB

EXISTING POWER & TELECOM SUPPLIES

PROPOSED SUMP

EXISTING WASTEWATER CONNECTION TO BE CAPPED

LOW (<1.1m) RETAINING WALL (DETAILS TBC) BEHIND KERB

PROPOSED 150Ø GRAVITY MAIN TO ROSETTA ROAD

LOW (<0.5m) RETAINING WALL (DETAILS TBC) BEHIND KERB

NEW WASTEWATER MANHOLE

SW OUTLET TO KERB FROM ATTENUATION TANK ON LOT 3
TANK DETAILS:
2810L ATTENUATION
20mmØ ORIFICE

#120
Lot 1
DP 83124

#122
Lot 2
DP 83124

#71 Renown Road
Lot 3
DP 18137

LEGEND:

- BOUNDARY
- MAJOR CONTOUR (DESIGN)
- MINOR CONTOUR (DESIGN)
- W WATER MAIN (GIS)
- SW STORMWATER MAIN (GIS)
- S WASTEWATER MAIN (GIS)
- CENTRELINE OF ROAD
- BOTTOM OF BANK
- BUILDING GROUND LEVEL
- BUILDING GUTTER
- BUILDING ROOFLINE
- EDGE OF VEGETATION
- EXISTING FENCE
- GARDEN
- TOP OF BANK
- FH FIRE HYDRANT
- W WATER METER
- STORMWATER SUMP
- POWER POLE
- E POWER PILLAR

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PROJECT: 4 LOT SUBDIVISION
LOT 1 & 2 DP 18137
126-130 ROSETTA ROAD

CLIENT: LAWRENCE FAY

TITLE: SCHEME PLAN - SERVICES

SCALE: A1: 1:100 A3: 1:200

DRAWING SET NO: KAP-0460-SCH

SHEETS: 2 OF 4

REVISION: C

STATUS: FOR RCA APPROVAL

SURVEYED:	JLL	10-02-2021
DRAWN:	SDP	12-01-2022
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NZGD2000

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SOURCE OF LEVELS:
OLP I DP 59693 (F2F1)
RL = 10.643
OBTAINED VIA LINZ
HEIGHT CONVERSION
01 FEBRUARY 2021

CONTOUR INTERVAL:
1.0m (MAJOR)
0.5m (MINOR)

N

Rosetta Road

EXISTING GARAGE WALL TO BE REPLACED

EXISTING DOUBLE GARAGE TO BE REPLACED (DECK OVER)

PORTION OF EXISTING ROCK WALL TO BE BE REMOVED & BERM TO BE LOWERED

EXISTING ROCK WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

EXISTING WALLS TO BE DEMOLISHED

EXISTING WALL TO BE DEMOLISHED

Lot 1

Lot 2

Lot 3

Lot 4

#134
Part Lot 8
DP 7225

#75 Renown Road
Part Lot 7
DP 7225

#120
Lot 1
DP 83124

#122
Lot 2
DP 83124

#71 Renown Road
Lot 3
DP 18137

PROPOSED EARTHWORKS:	
TOTAL EARTHWORKS AREA	986m²
OVERALL SITE AREA	2425m²
PROPORTION OF SITE	41%
MAX CUT	4.4m
MAX FILL	1.2m
CUT VOLUME	883m³
FILL VOLUME	52m³
BALANCE	831m³ (excess cut)
NOTE: VOLUMES EXCLUDE COMPACTION	

CUT/FILL DEPTH RANGES:			
TYPE:	COLOUR:	LOWER VALUE:	UPPER VALUE:
CUT:		>-11	-10
		-10	-9
		-9	-8
		-8	-7
		-7	-6
		-6	-5
		-5	-4
		-4	-3
		-3	-2
		-2	-1
		-1	0
FILL:		0	1
		1	2
		2	3
		3	4
		4	5
		5	6
		6	7
		7	8
		8	9
		9	10
		10	>10

LEGEND:

BOUNDARY
MAJOR CONTOUR (DESIGN)
MINOR CONTOUR (DESIGN)
WATER MAIN (GIS)
STORMWATER MAIN (GIS)
WASTEWATER MAIN (GIS)
CENTRELINE OF ROAD
BOTTOM OF BANK
BUILDING GROUND LEVEL
BUILDING GUTTER
BUILDING ROOFLINE
EDGE OF VEGETATION
EXISTING FENCE
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TOP OF BANK
FIRE HYDRANT
WATER METER
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PROJECT: 4 LOT SUBDIVISION
LOT 1 & 2 DP 18137
126-130 ROSETTA ROAD

CLIENT: LAWRENCE FAY

TITLE: SCHEME PLAN - EARTHWORKS

SCALE: A1: 1:100 A3: 1:200

DRAWING SET NO: KAP-0460-SCH

SHEETS: 3 OF 4

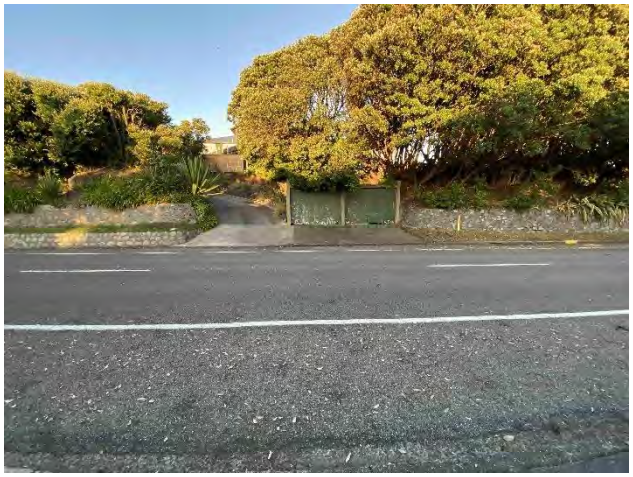
REVISION: C

STATUS: FOR RCA APPROVAL

SURVEYED:	JLL	10-02-2021
DRAWN:	SDP	14-01-2022
DESIGNED:	SDP	14-01-2022
CHECKED:	JLB	18-01-2022
APPROVED:	JLB	18-01-2022

ATTACHMENT 8

126-130 Rosetta Rd, Raumati South small subdivision



Integrated Transport Assessment

Prepared for Louise White, Applicant's planning representative

David Wanty
Tel: 04 9711423 Mob: 022 6431065
Email: david@transportconsultant.co.nz

DRAFT FINAL
22 September 2023

Rev.	Date	Description	Prepared By	Reviewed By	Approved By
	4/5/2023	Draft based on 18/1/23 plan & RFI 29/3/23	David K Wanty		
	22/9/2023	Revised plans 11/9/23 and 21/9/23	David K Wanty		

This report has been prepared in accordance with a specific agreement. The reliance by other parties on the information or opinions contained in this report shall without our prior review and agreement in writing, be at such party's sole risk. In preparing this report reliance has been made on written and verbal advice of parties involved. Wanty Transportation Consultancy Ltd has not necessarily independently verified all information and is not endorsing all information as to its accuracy. This report does not constitute legal advice or opinion.

INTEGRATED TRANSPORT ASSESSMENT

126-130 Rosetta Rd Raumati South small subdivision

CONTENTS

1 Introduction

David Wanty, Wanty Transportation Consultancy Ltd (WTC), a Chartered Professional transport engineer was engaged by the Applicant to undertake a traffic impact assessment (TIA) of the proposed subdivision of the two-lot site to provide an additional three houses in addition to the existing house that is to be retained.

This report follows the request for an integrated transport assessment by Kāpiti Coast District Council in its Request for Further Information.

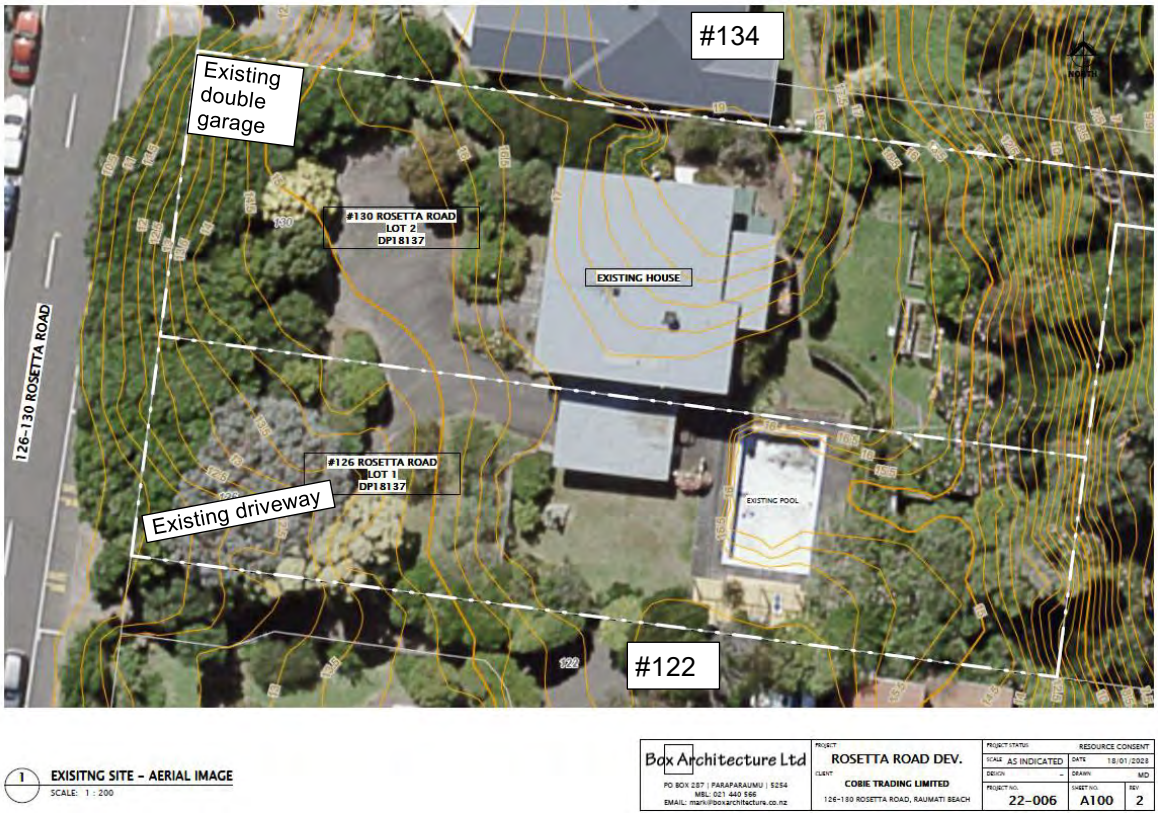


Figure 1: Existing site (overlaid on KCDC GIS with contours at 0.5 m)

2 Proposal

The Applicant has recently moved back into the existing house and wishes to continue to reside there will subdividing the site and constructing a house in front on the same existing Lot 1, and two houses on existing Lot 1 of the site with the existing pool as part of the proposed rear house 3. Each house will have a ground floor double garage and a double carpad will be constructed for the existing house.

Pedestrian access directly off Rosetta Road is proposed to House 1 beside the existing/proposed garage.

Following the draft ITA prepared in May 2023 the plans were updated in mid-September with changes made as follows (those highlighted in yellow pertain to transport aspects):

1. Fences shown on top of retaining walls over 1.0m high.
2. General heights of retaining walls noted on plans.
3. Existing house car pad cross slope decreased to 3 degrees.
4. House 03 exterior parking bay length increased to 10 m (corner end subsequently chamfered)
5. ROW leg increased to 11 m
6. Stormwater attenuation tanks shown and soak pits removed.
7. Vehicle turning shown on sheets A200, A510, and A610
8. Updated renders to show the above.

2.1 Current Environment and Site location

Rosetta Road in the One Network Framework (ONF) is in the “Urban Connectors” urban family (ONRC “Secondary Collector”). The current level of daily traffic past the site is estimated as approximately 2600 vehicles per day.

Figure 2: KCDC 2021 GIS aerial

2.2 Latest plans

Figure 3: Site plan and driveway cross-section

Figure 4: Garage B85 vehicle turning paths

Figure 5: Perspectives: front and rear

2.3 Site measurements

The following cross-section measurements for Rosetta Road were derived near the site driveway:

	Measured on site
• Western berm (has footpath)	-
• Northbound shoulder	1.85 m (4.4 m by Rosetta Café)
• Northbound traffic lane	2.95 m
• Median (if any)	0.0
• Southbound traffic lane	3.0 m
• Southbound shoulder	2.0 m by driveway (1.85 by garage)
• Eastern berm (no footpath)	1.90 m to base of stone wall (1.23 by #134)

Measurements were also taken at the existing driveway entrance which is to be modified.
The internal width between the nib walls was 5.50 m comprising 0.89 northern and 0.75 m southern sides to the 3.86 m between the 0.35/0.36 m wide entrance wingwalls (1.19 northern and 1.50 m southern external wingwall lengths). The wooden pole face to the southern wingwall face was 1.35 m.

On this basis the concept plan A200 Rev 2 stating “6.0 m maximum vehicle crossing width” might better show 5.5 m width on the presumption that the existing nib walls will be retained and the entrance wingwalls removed to be flush with them (thus providing 0.6 m clearance to the pole and approximately 0.40 m to the existing black 400V utility box).
It is furthermore presumed that the letterboxes for the four houses, not presently shown on the plans, will be positioned on the northern side of the main access.

With respect to the existing gradients, the existing driveway was observed to be typically 13.5-14.5% within the road reserve and 10 – 14% within the first 5 m within the site. For the existing double garage (3.0 m wide doors with 0.2 m wide central pillar), the typical driveway slope within the road reserve was 15.5-16.5% for the southern half and 16.5-18.5% for the northern half. By comparison the slope for the neighbouring #134 driveway (shared combined crossing) was 21.9-24.7% within the road reserve, which makes it fairly impractical to lessen the existing slope, noting that no footpath is provided along the eastern (site) side of Rosetta Road (note the low stone wall behind the kerb and the upper stone wall less than 1¼ m from kerb face in front of neighbouring #134 site).

2.4 Main site access sight lines and initial grades

The existing access crossing will be widened to provide 5.5 m width at the site boundary with the crossing splayed as agreed with Council ensuring that there is at least 1.0 m separation at the kerb to the neighbouring (#122) crossing.
The existing vegetation behind the stone retaining wall will be trimmed back to improve the sight visibility for residents exiting the main access. It is expected that the existing driveway gradient within the first few metres will be more or less retained which will help exiting motorist to see over the nominally 1.2 m high stone wall to observe for example any cyclists using the southbound shoulder.

Figure 6: Views from 3.5 m from edgeline (lower) and closer to edgeline (upper)

There is a dip to the north along Rosetta Road that coincides with its slight deviation to the east, resulting that southbound cars are hidden temporarily in the dip when view from more than approximately 1¼ m from the kerb (presuming any obscuring vegetation is trimmed). Closer to the kerb, and certainly within 2.5-3.0 m from the traffic lane (Austroads Guides measure sight lines from 2.5 m from the traffic lane), southbound vehicles are seen even within the dip although any cyclists in the shoulder would not be; however the latter would be travelling more slowly such that there would be at least 4-5 seconds of observable traffic time satsifying the Guide acceptable gap sight distances.

2.5 Secondary site access and House 1 double garage

The existing driveway to the existing double garage will be retained. It is stated that the “existing garage to be replace (deck over)” due to the structural requirement to support the proposed deck above and part of the house 1 lounge. Reversing in/out of the proposed double garage will be required as is presently the case (and as is required for #118 for instance).
At present the kerb is not cutdown as far or in the same manner as that for immediately adjacent #134 crossing but presumably could be (if required by Council).

The sight lines are similar in nature to those at the main access although because the garage is closer to the dip and the neighbouring stone wall is closer to the road, the sight lines are shorter.
Careful inspetion of the left images reveals that the front right of the southbound vehicle can just be seen, and more plainly in the next image. The lower two images are taken from a position slightly closer to the kerb where the whole southbound lane in the dip to the north and beyond is readily visibile.

In practise the reversing driver is likely to stop and look when the front of their car is just clear of the garage door, which coincides with being able to see past the northern stone wall while the rear of the car is not yet encroaching into the traffic lane. Prior to this from a point offset 3.5 m from the edgeline, when the front of the car has not fully exited the garage, visibility is restricted to approx. 3½ seconds of soutbound vehicle travel time, noting that southbound drivers (and cyclists) have good approach sight visibility of the rear of any car reversing from the double garage.

The Appendix illustrate the sight lines from the garage (plus the main driveway), confirming that there is adequate sight visibility past the existing stone walls, not to unduly compromise safety.

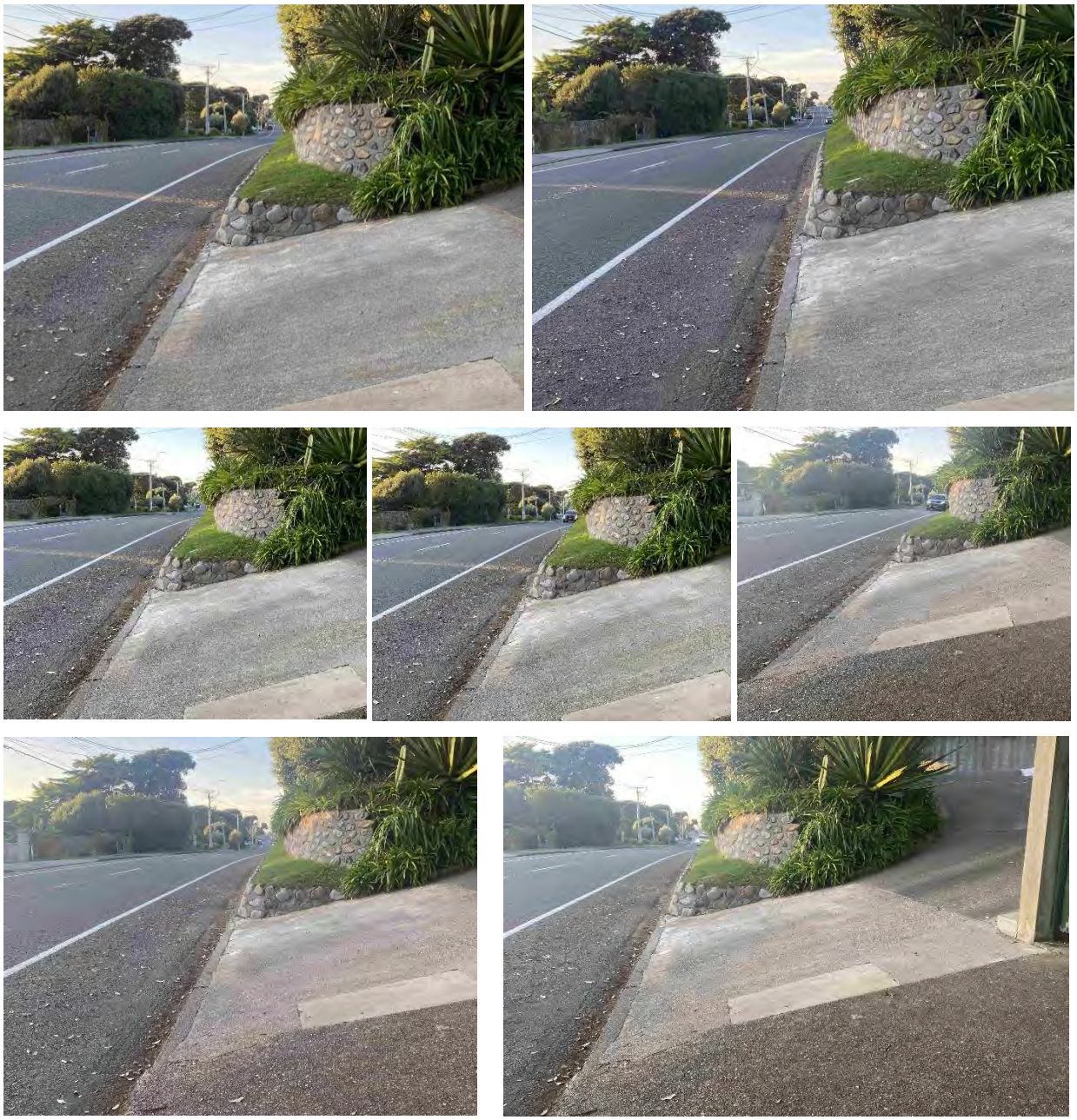


Figure 7: Views north from the House 1 garage driveway

With respect to southbound vehicles approaching the site, drivers (including cyclists) have reasonably good forward sight visibility of any vehicles exiting the site or the neighbouring #134 property. The parked ute in the video images below was parked just north of the existing site driveway, while the southbound vehicle (which also did a U-turn at) is approximately by the existing site garage in the first (left) image; the second (right) image was taken 10 seconds after the first and 4 seconds before I

reached the garage. Accordingly any southbound motorists would be aware of the front or rear of a car exiting the garage (or neighbouring #134 driveway) once it was past the #134 upper stone wall.

Figure 8: Views from the north from a southbound driver's viewpoint

2.6 Main access internal gradients and parking

The long section along the driveway in the concept plan is given below (should be labelled C- C). This reveals some initial regrading of the first 5 metres to be at 13.7% taking into account the vertical transition curve; otherwise at 12.5% (1 in 8) that equates with the AS/NZS 2890.1 3.3 (a) maximum grade allowable for the first 6 m (noting however that the 5% criteria at the boundary line is not met as the existing driveway and crossing is being used albeit widened).

It should be noted that the road and its berm are incorrectly positioned from CH0 if the latter is positioned at the site boundary; however it would appear that CH2.5 is more or less at the site boundary and the end of the long section is at the proposed internal ROW boundary with House 3. Usefully I have superimposed the approximate positions of the Houses 2 and 3 double garages and the existing house double carpad, noting that the RoW long-section is unchanged from previously.

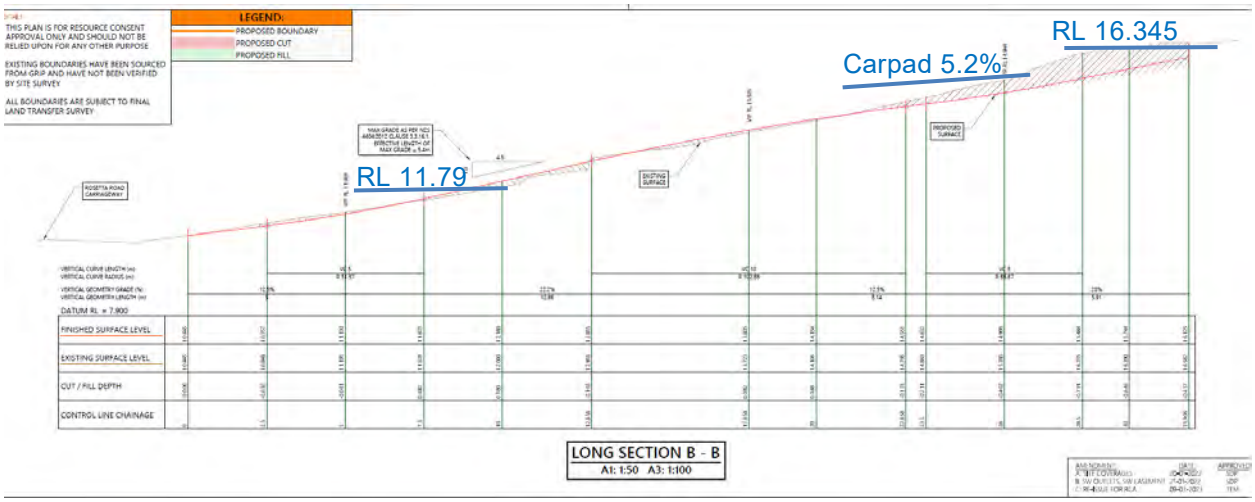


Figure 9: Long section (boundary is at approx chainage 2.5)

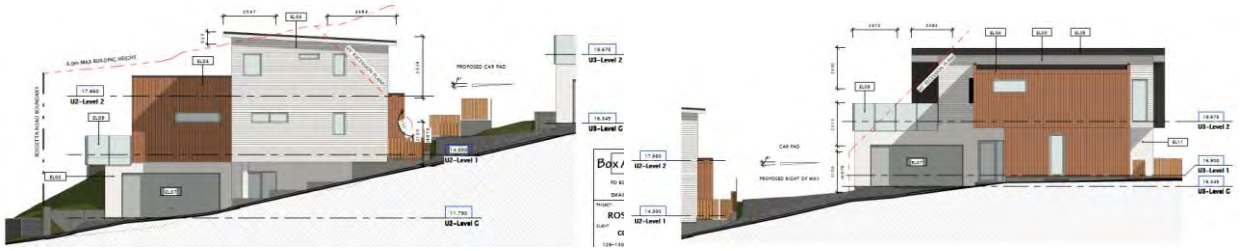


Figure 10: South elevations

House 2 double garage has internal dimensions 6.0 x 6.2 with a 4.7 m wide (tilt) door and 0.65 m offsets at stated RL 11.79. With a nominal 3.5 m initial offset this would result in an approximate 19% grade on the inside left wheel tracking to the space nearest the road, just below the 20% allowable.

The gradient would be less for the space further the road and in front of it where the resident might park to wash a car for example, being just clear off the main access and more than 6 m from the road boundary but just inside the common area unless the internal boundary was suitably repositioned.

House 3 double garage has internal dimensions 6.0 x 5.9/6.0 with a 4.7 m wide (tilt) door and 0.6/0.7 m offsets at stated RL 16.345 although E9 seems to infer that it is at a lower level (RL 16.05?) which would be more consistent with the long section.

The levels for theexisting house (relocated) carpad have been revised to provide a 5.2% cross-slope which complies with the AS/NZS2890.1 2.4.6.1 allowable limit of 6.25%. A 5.0% limit parallel to the angle of parking also applies; at the end of the driveway (not shown in the long section) by House 3 where a resident may choose to park at the end (10 m provided for this allows for two stacked cars) the calculated slope is 1 in 36.5 or 2.74%, well under the Standard (comfort) criterion.

With respect to a turning area which is required in NZS 4404:2010 for three or more dwellings off the same access as is the case here, the same maximum 6.25% might be deemed to apply although a limit of 10% (maximum 12.5%) is commonly applied. It should also be noted that the threshold of 3 for provision of a turning area is seldom applied to medium density housing with a higher threshold usually applied for B85 vehicles (4.91 m long car).

The proposed layout and common area effectively provides a L shape with 4 m inner radius and eastern end leg of 11 m, which should mean that no incursion over the invisible boundary line need occur when making a standard 3-point turn for a B85 vehicle (refer Standard reversing figure).

Previously it was suggested that the eastern internal boundary by House 3 be moved eastward by 0.5 metres and the end of the driveway extended by 1.1+ m to provide 10 m of allocated paved driveway. This has been actioned, which enables two nominal 5.0 m spaces at the end of the Row for stacked parking (potentially also enabling a visitor to park). Since then the corner nearest the house has been chamfered to provide a greater width to the nearby swimming pool, without compromising manoeuvring.

2.7 House 1 garage

Drawing Sheets A410 Rev 2 and A430 Rev 2 are shown below for the House 1 garage, with scaled internal dimensions 6.1 m wide by 6.25 m deep, the proposed garage door is 2.1 m high and 4.7 m wide (offset 0.7 m each side). No laundry is shown within the garage but is instead upstairs.
The garage floor level is shown as 10.900 with the kerb scaled as RL 10.30 offset by 3.8 m. This would indicate an average gradient of 15.8% although the section A-A shows an initial gradient of 12.5% (1 in 8, 0.4/3.2) and then a short steeper grade (1 in 3, 0.2/0.6).

AS/NZS2890.1 5.3.1 states that the headroom “shall be a minimum of 2200 mm”. Compared to the earlier design the garage fllor has been lowered by 0.15 m to ensure that the driveway grade is no more than the allowable 1 in 8 and to thus also dispense with any need for a short transition curve to the (level) garage floor (a minimum garage door height of 2.2 m can be provided). This is an improvement on the existing situation and a lateral transition will be provided to tie in with the neighbouring driveway sharing the same crossing.

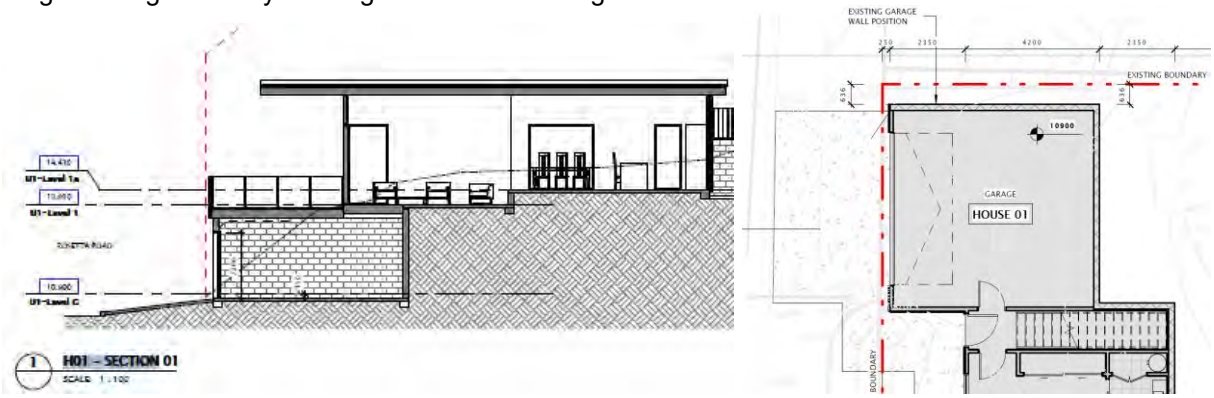


Figure 11: House 1 garage elevation (floor lowered by 0.15 m from previously) and ground floor plan

2.8 Road safety in the local vicinity

A search of the Waka Kotahi NZTA CAS database (version 2.3.1) was conducted on 2/5/2023 for reported crashes in the past eight calendar years 2015-2022 and 2023 year to date.

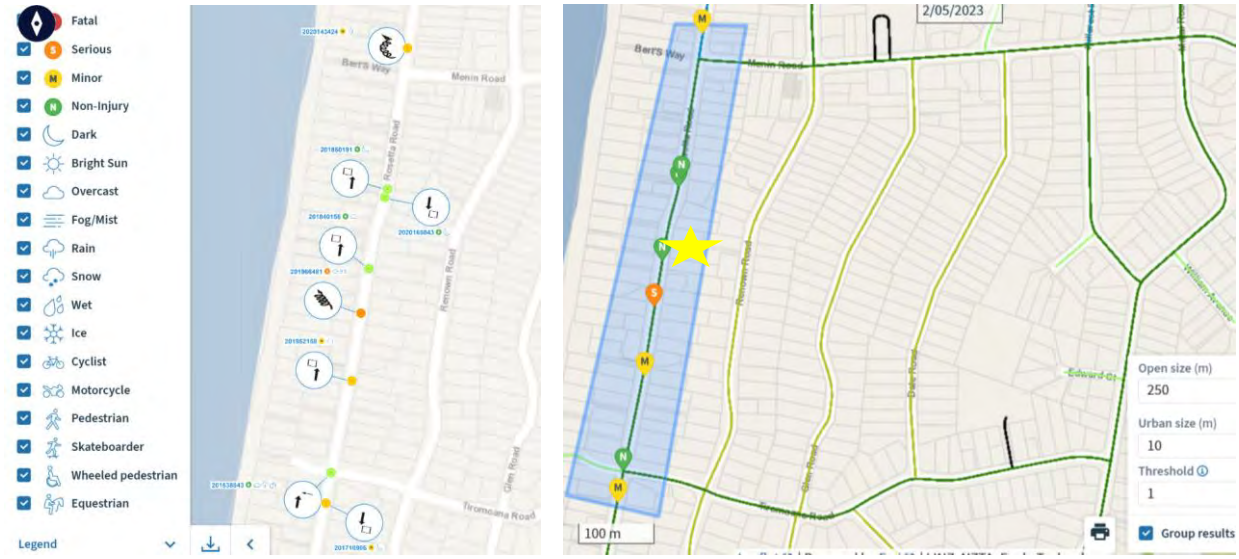


Figure 12: Reported crashes in the past 8+ years (2015-2023)

Along Rosetta Road between the Tiromoana Road crossroads and the Menin Road Tee intersection there were five crashes recorded (the queried area includes three other crashes as seen above).

Of the five crashes there was one severe crash, namely a serious injury crash on Saturday 31/8/2019 at 4 pm whereby a northbound motorcyclist lost control and hit the kerb after suffering a "vehicle fault".

There was one minor injury crash that occurred on Monday 25/3/2019 at 2:30 pm when a (speeding?) northbound car hit a car parked after moving to the left in response to an oncoming southbound truck.

A non-injury crash occurred near the site when a northbound car (driver fatigued, drugs suspected) clipped the wing mirror of a legally parked car beside the Rosetta café. The other two non-injury crashes north of the site also involved hitting a parked car (no factor codes other than "too far left"); one of these was recorded as being dark (8:40 pm Thursday 24/9/2020, the latest reported crash) – it is unknown whether the LED streetlighting had been installed at that time.

The safety history for the past 3+ years in the immediate vicinity of the site is considered very good with in general hitting parked vehicles (property damage only) crashes the only issue. The proposal is not expected to worsen the existing good crash history, noting that there is room sufficient for three cars to be parked on site other than for House 1 whereby any visitors would be likely to park on-street.

2.9 Existing Traffic

The Mobile Road App gives the following estimates of the Average Daily Traffic (ADT, measured in vehicles per day – vpd and the percentage of heavy vehicles (HV), plus the seal width

- Rosetta Road: Poplar Ave – Tiromoana Rd 2411, 6% HV, 23/6/2022, 9.7 m
- Rosetta Road: Tiromoana Rd – Menin Rd 2406, 6% HV, 23/6/2022, 9.2 m
- Tiromoana Road (460): east of Rosetta Rd 654, 6% HV, 23/6/2022, 5.6/6.7 m
- Menin Road (1009): east of Rosetta Rd 1664, 6% HV, 23/6/2022, 8.6 m

All these road sections have ONRC classification of *Secondary Collector*. The site is approximately 729-764 m along Rosetta Road north of Poplar Ave.

During the Friday 28 April 2023 late afternoon site visit a video was recorded (4 GB, 27+ minutes) which was processed to give the following recorded movements south of and at the Menin Road intersection (its western leg was not clearly visible). A total of 11 movements occurred between the intersection and the site (included one opposite the driveway), most of which were motorists turning left from Menin Road and then right into a western driveway (one motorist reversed into a western driveway). One of these involved a ute reversing out of an eastern driveway making a right turn into a western driveway and then reversing back to then effect a U-turn to head north.

Two southbound cyclists were observed and two northbound cyclists (one at the end of the video). Two pedestrians were observed walking along the footpath (western side) and three in the distance crossing Rosetta Road by Menin Road. Most of the Menin Road traffic was to/from the north rather than from the south, so the traffic flow along Rosetta Road south of the site in the 20 minutes from 4:15-4:35 pm was 90 vehicles (includes cyclists) compared to 115 vehicles north of Menin Road.

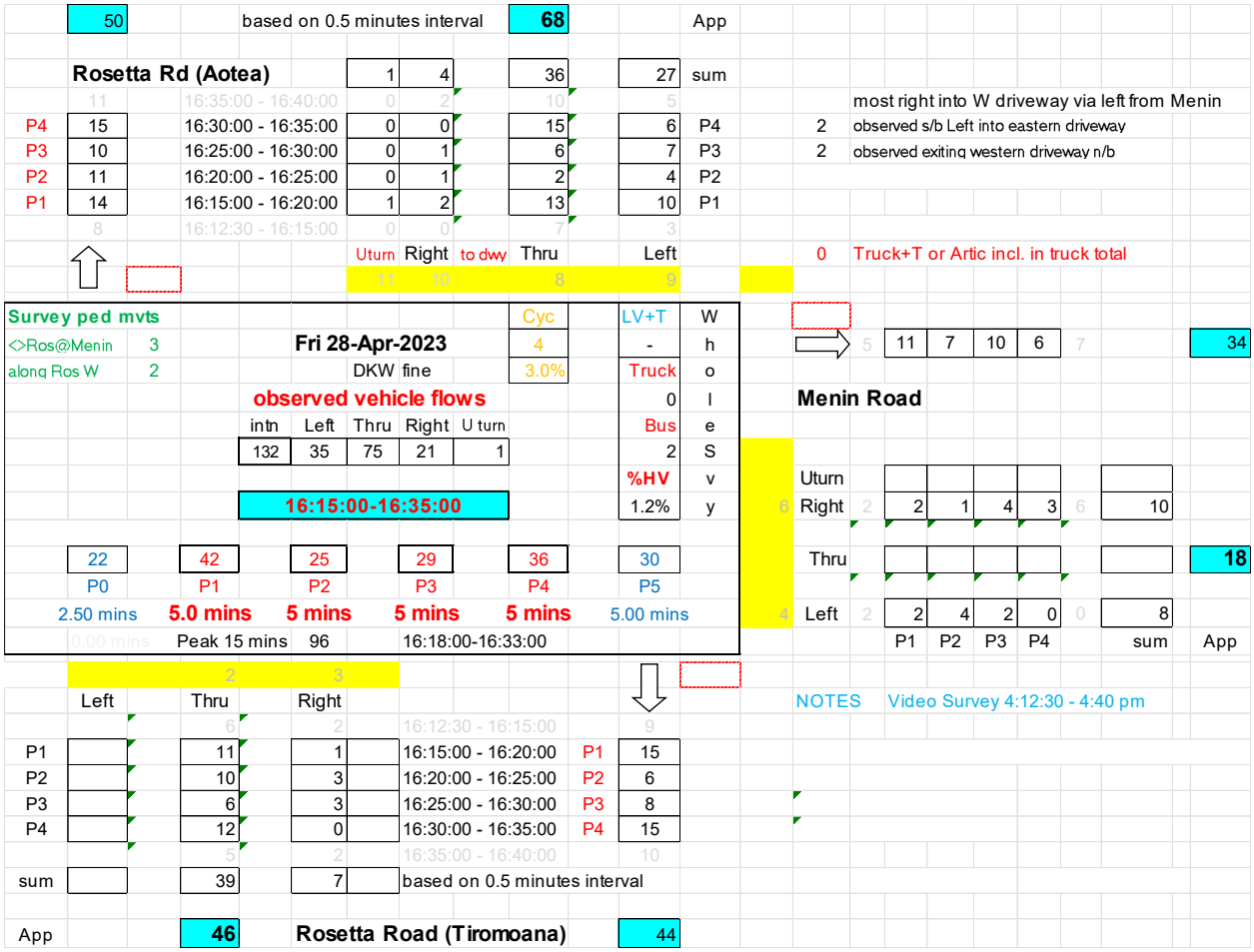


Figure 13: Observed traffic at and south of the Menin Road intersection: 4:12:30-4:40 pm

One bus was observed turning right out of Menin Road and one southbound bus was observed (Raumati South service 250). The site is thus within 400 m of two bus routes, while the road shoulders in shared paths in the wider area provide relatively safe opportunities for cycling.

2.10 Traffic and Safety impact

The proposal makes little impact on traffic levels along Rosetta Road, adding less than 1½ percent of motor vehicle traffic.

Residents and visitors to the existing house and Houses 2 and 3 will be able to drive into and exit the site in the forward direction with sufficient sight visibility. The initial width of the driveway allows for a car to enter at the same time as a car waiting to exit, while there is sufficient road width for any closely following northbound car to pass a car waiting to turn right into the site on the rare occasion this situation arises.

With no public footpath on the eastern side the pedestrian sight visibility triangle requirement (AS/NZS 2890.1 and NZS4404) does not apply, although the boundary wall is such that an exiting driver can see over it. There is very good sight visibility to the left (south) when exiting and sufficient, albeit restricted by the tree branches extending past the stone wall, to the right (north). Trimming of the vegetation will be undertaken and maintained to ensure that it does not provide any undue obstruction to the sight lines, noting that the driveway gradient allows approach sight lines over the 1.2 m high boundary stone wall on exiting.

The matter of sight visibility mainly relates to the existing double garage that will be replaced with a new double garage (single wide door as compared to existing two wooden doors) for House 1. Reversing to/from a garage for a single dwelling is generally allowed by Councils except onto arterial roads, even when there is a public footpath and pedestrian sight visibility triangles are not met. With no footpath there is no inherent danger to pedestrians and the offset to the road plus the wide shoulder does not constitute a significant danger to any southbound cyclists who would have clear visibility from afar of any car reversing out of the driveway. The reversing driver should have clear visibility to the north past the neighbouring stone wall within in the road reserve before encroaching into the southbound lane, and thus be able to safely exit in the forward direction. The local nearby widening by the Rosetta Café provides an opportunity to make a safe unimpeded U-turn if wishing to exit to the north instead of reversing out across to the northbound lane or shoulder.

Refer to the Appendix for illustration of the available sight lines. It is concluded that the traffic and safety impact of the proposed access arrangements should be less than minor.

2.11 Other issues

It is possible that the grades will be such to exceed the usual desired maxima in manoeuvring areas, which is commonplace; they will however satisfy the general maximum 1 in 5 grade with allowance for 1 in 4.5 on short straights applying to driveways. There should be sufficient offset of the garages and carpads to transition to the garage floor level or proposed carpad (which has cross-slope of 5.2%).

3 Summary and Conclusion

The concept plan prepared in principle meets the various Standards except potentially with regard to the cross-slopes in manoeuvring areas, noting however that for private residential situations usually higher slopes are commonly accepted.

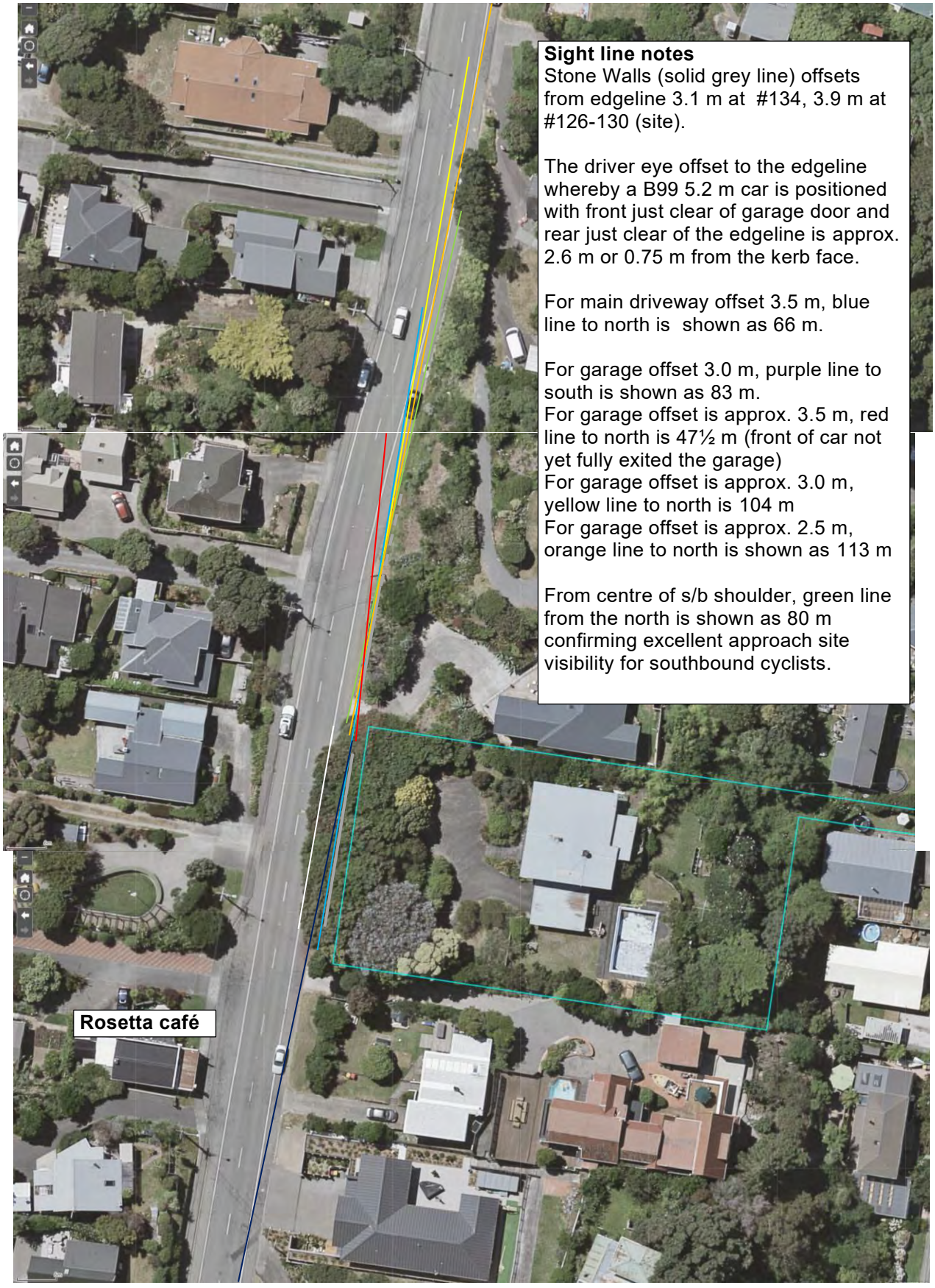
Earlier minor changes were recommended and pleasingly were acted upon, with regard to the House 1 garage (an improvement on the existing garage), the carpad manoeuvring cross-slope, the end of the driveway slope (2.7%) that allows for two stacked car parking or one resident/one visitor space, and slight increase in the turning area to ensure that aB85 vehicle can make a 3-poitn turn within the common area so can exit in the forward direction.

Sight lines for exiting the main driveway are good on the presumption that the vegetation will be trimmed and maintained. The width of the main driveway at the road end if retaining the existing nib walls would be nominally 5.5 m as measured, which would facilitate a car being able to enter when a car was waiting to exit.

With respect to the reversing required to/from the proposed double garage replacing the existing, it is concluded that there is in practice sufficient sight visibility and reversing back out onto the road (shoulder) should not unduly compromise the existing good road safety record.

It is concluded that the traffic and safety impact of the proposed access arrangements should be less than minor and that there are no reasonable transport grounds to decline the application, subject to the vegetation trimming and minor recommended design and common area changes (that could largely be considered at the detailed design stage).

4 Appendix: GIS aerial sight lines



Sight line notes
Stone Walls (solid grey line) offsets from edgeline 3.1 m at #134, 3.9 m at #126-130 (site).

The driver eye offset to the edgeline whereby a B99 5.2 m car is positioned with front just clear of garage door and rear just clear of the edgeline is approx. 2.6 m or 0.75 m from the kerb face.

For main driveway offset 3.5 m, blue line to north is shown as 66 m.

For garage offset 3.0 m, purple line to south is shown as 83 m.
For garage offset is approx. 3.5 m, red line to north is 47½ m (front of car not yet fully exited the garage)
For garage offset is approx. 3.0 m, yellow line to north is 104 m
For garage offset is approx. 2.5 m, orange line to north is shown as 113 m

From centre of s/b shoulder, green line from the north is shown as 80 m confirming excellent approach site visibility for southbound cyclists.

ATTACHMENT 9

ROSETTA ROAD DEV.

JOB NUMBER:

22-006

FOR: **COBIE TRADING LIMITED**

ADDRESS: **126-130 ROSETTA ROAD, RAUMATI BEACH**

ISSUE DATE: **21/09/2023**

DRAWING LIST

SHEET	DISCRIPTION	REV.
A000	COVER PAGE & INDEX	3
A100	EXISTING AERIAL SITE IMAGE	2
A200	PROPOSED SUBDIVISION PLAN	3
A205	PROPOSED DWELLING STORMWATER	3
A300	PROPOSED R.O.W SECTION	3
A400	HOUSE 01 - VIEW	3
A410	HOUSE 01 - PLAN L0	3
A411	HOUSE 01 - PLAN L1	3
A420	HOUSE 01 - ELEVATIONS	4
A421	HOUSE 01 - ELEVATIONS	3
A430	HOUSE 01 - SECTION	4
A500	HOUSE 02 - VIEW	4
A510	HOUSE 02 - PLAN L0	2
A511	HOUSE 02 - PLAN L1	3
A512	HOUSE 02 - PLAN L2	2
A520	HOUSE 02 - ELEVATIONS	3
A521	HOUSE 02 - ELEVATIONS	3
A530	HOUSE 02 - SECTION 02	3
A600	HOUSE 03 - VIEW	4
A610	HOUSE 03 - PLAN L1	3
A611	HOUSE 03 - PLAN L2	2
A620	HOUSE 03 - ELEVATIONS	3
A621	HOUSE 03 - ELEVATIONS	3
A630	HOUSE 03 - SECTIONS	3

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1 EXISITNG SITE - AERIAL IMAGE

SCALE: 1 : 200

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PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED

126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED	DATE 21/09/2023		
DESIGN -	DRAWN MD		
PROJECT NO. 22-006	SHEET NO. A100	REV 2	

1 PROPOSED SITE SUBDIVISION

SCALE: 1 : 200

TOTAL LAND AREA: APPROX. 2424m²

LOT 01 (HOUSE 01)

LAND AREA: 309m²
FOOTPRINT: 165m²
PERMEABLE AREA: 58m²

SITE COVERAGE (%): 53%
PERMEABLE AREA (%): 19%

TOTAL FLOOR AREA: 209m²

LOT 02 (HOUSE 02)

LAND AREA: 303m²
FOOTPRINT: 115m²
PERMEABLE AREA: 130m²

SITE COVERAGE (%): 37%
PERMEABLE AREA (%): 42%

TOTAL FLOOR AREA: 222m²

LOT 03 (HOUSE 03)

LAND AREA: 627m²
FOOTPRINT: 124m²
POOL AREA: 60m²
PERMEABLE AREA: 289m²

SITE COVERAGE (%): 29%
(Including Pool)
PERMEABLE AREA (%):46%

TOTAL FLOOR AREA: 209m²

LOT 04 (EXISTING)

LAND AREA: 1001m²
FOOTPRINT: 190m²
PERMEABLE AREA: 626m²

SITE COVERAGE: 19%
PERMEABLE AREA(%): 62%

TOTAL FLOOR AREA: 317m²

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PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED		DATE 21/09/2023	
DESIGN –		DRAWN MD	
PROJECT NO. 22-006	SHEET NO. A200	REV 3	

1 **PROPOSED DWELLING STORMWATER ATTENUATION**

SCALE: 1 : 200

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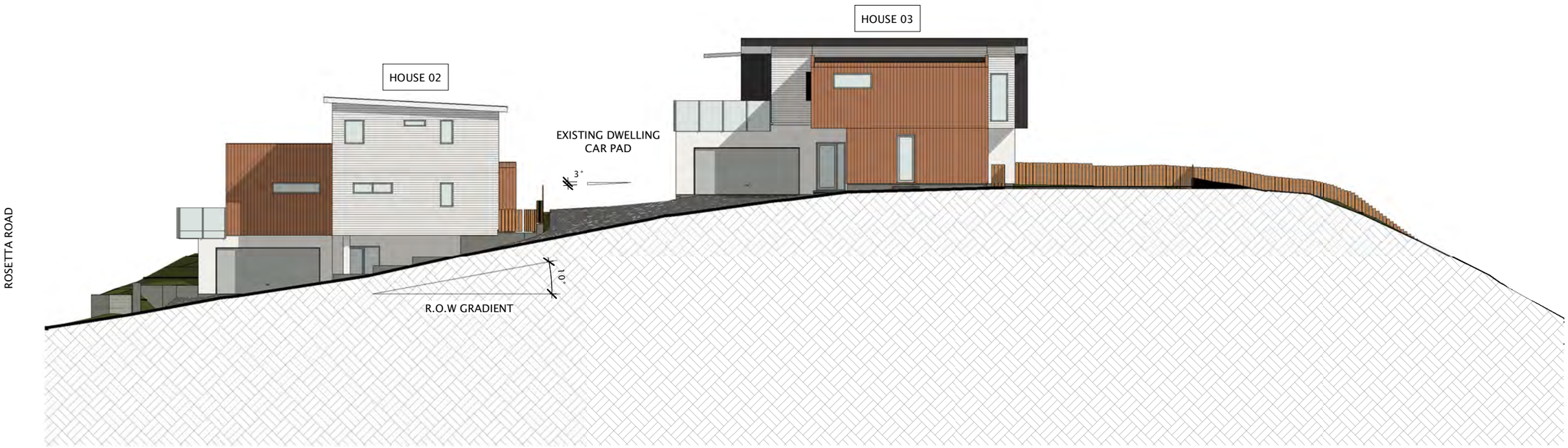
PROJECT
ROSETTA ROAD DEV.
CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED		DATE 21/09/2023	
DESIGN		DRAWN MD	
PROJECT NO. 22-006		SHEET NO. A205	REV 3

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
CHECK AND VERIFY ALL DIMENSIONS AND LEVELS ON SITE PRIOR TO WORK COMMENCING. ALL WORK TO COMPLY WITH NZBC, NZS3604:2011 AND LOCAL TERRITORIAL AUTHORITY REGULATIONS.
DRAWINGS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
DO NOT SCALE OFF DRAWINGS.



1 DRIVEWAY SECTION 01

SCALE: 1 : 200

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PROJECT
ROSETTA ROAD DEV.
CLIENT
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126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN –	DRAWN –	
PROJECT NO. 22-006	SHEET NO. A300	REV 3

HOUSE 01

1 **3D VIEW (HOUSE 01)**

SCALE: 1 : 1

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PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN –	DRAWN –	
PROJECT NO. 22-006	SHEET NO. A400	REV 3

NORTH

E4
E3 E1
E2

EXISTING GARAGE
WALL POSITION

250 2350 4200 2350 12526

EXISTING BOUNDARY

636 636

10750

GARAGE

HOUSE 01

STEP

10900

BEDROOM

ENS.

1
A430

1
A430

ROSETTA ROAD

EXISTING BOUNDARY

PROPOSED BOUNDARY

2234 2234

2600

PROPOSED BOUNDARY

STEPS

1 HOUSE 01 - GROUND FLOOR

SCALE: 1 : 100

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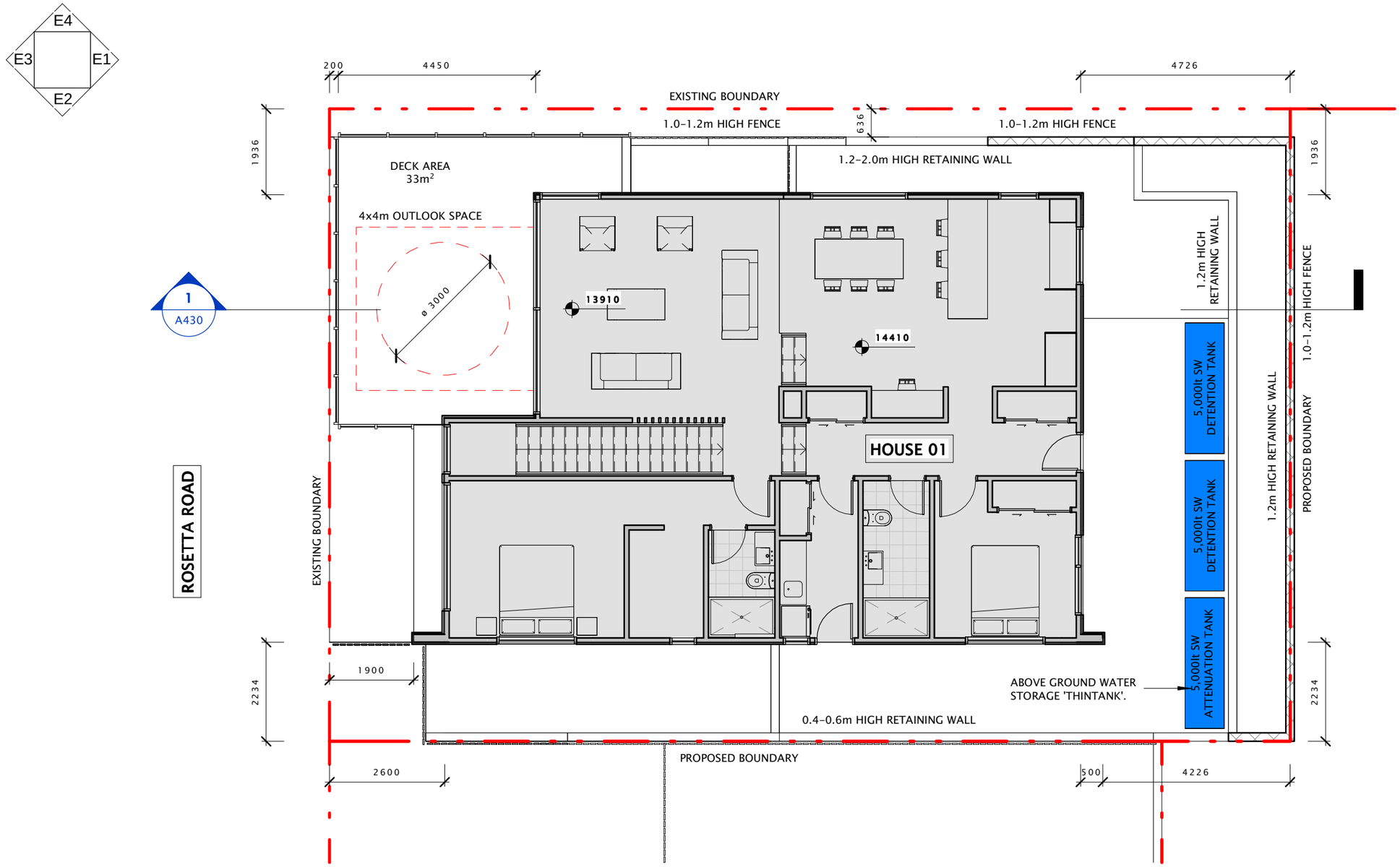
PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED

126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED	DATE 21/09/2023		
DESIGN -	DRAWN MD		
PROJECT NO. 22-006	SHEET NO. A410	REV 3	



1 **HOUSE 01 – FIRST FLOOR**

SCALE: 1 : 100

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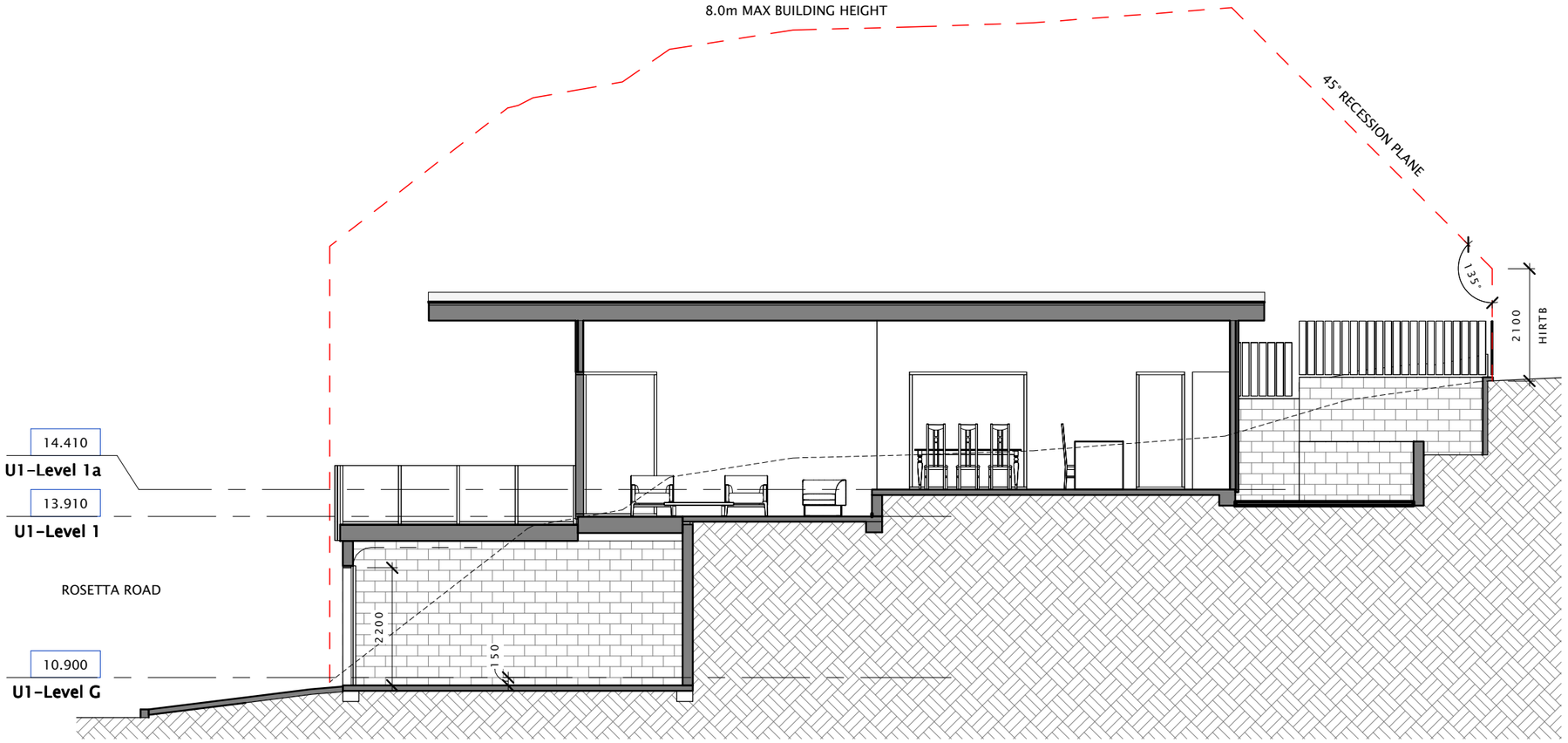
PROJECT	ROSETTA ROAD DEV.	PROJECT STATUS	RESOURCE CONSENT
CLIENT	COBIE TRADING LIMITED	SCALE AS INDICATED	DATE 21/09/2023
126–130 ROSETTA ROAD, RAUMATI BEACH		DESIGN –	DRAWN –
		PROJECT NO. 22–006	SHEET NO. A411 / REV 3



1 **H01 - SECTION 01**

SCALE: 1 : 100

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PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED

126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN –	DRAWN –	
PROJECT NO. 22-006	SHEET NO. A430	REV 4

HOUSE 02

2 **3D VIEW (HOUSE 02)**

SCALE: 1 : 1

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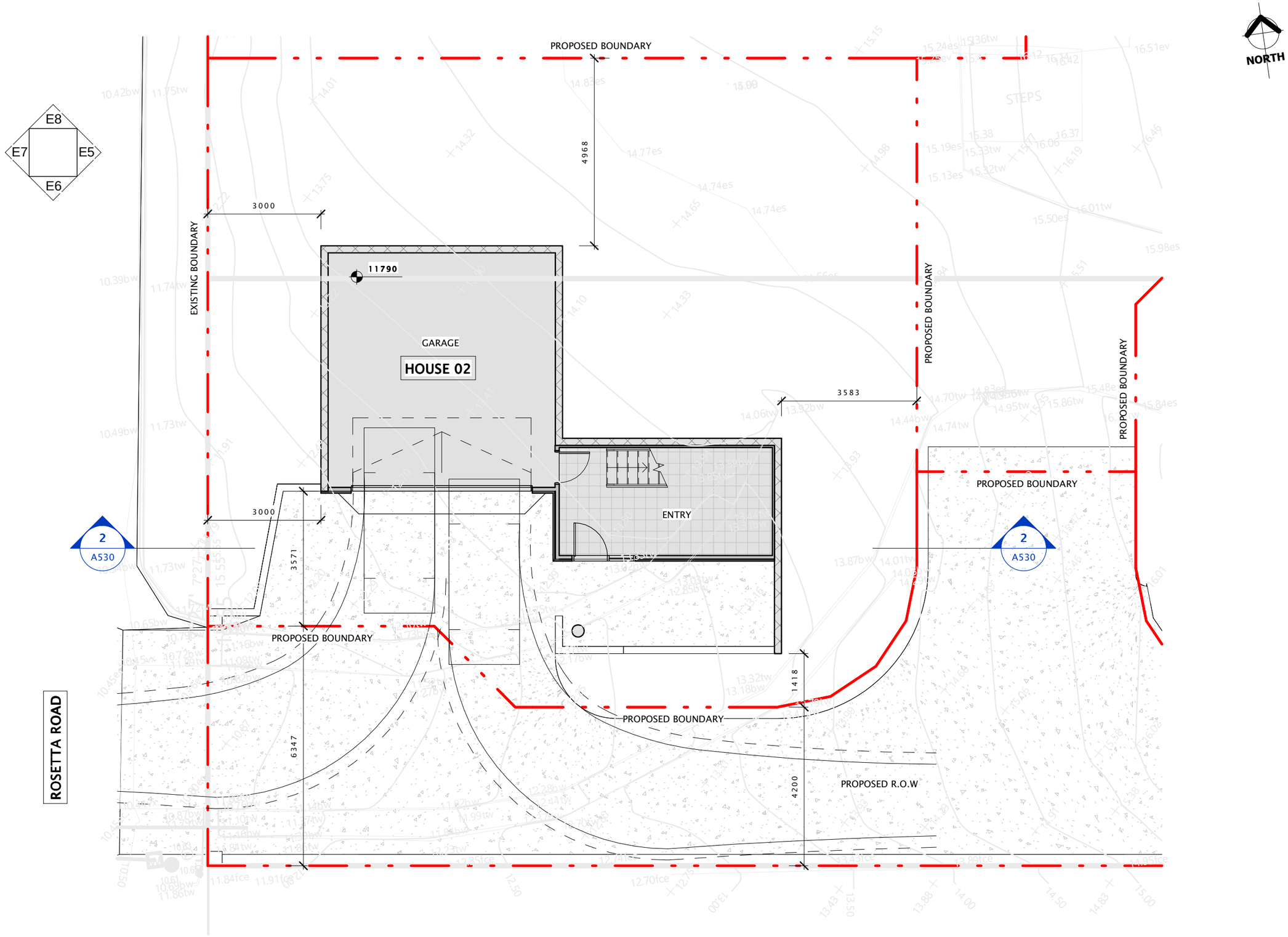
PROJECT
ROSETTA ROAD DEV.
CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN –	DRAWN –	
PROJECT NO. 22-006	SHEET NO. A500	REV 4



1 **HOUSE 02 - GROUND FLOOR**

SCALE: 1 : 100

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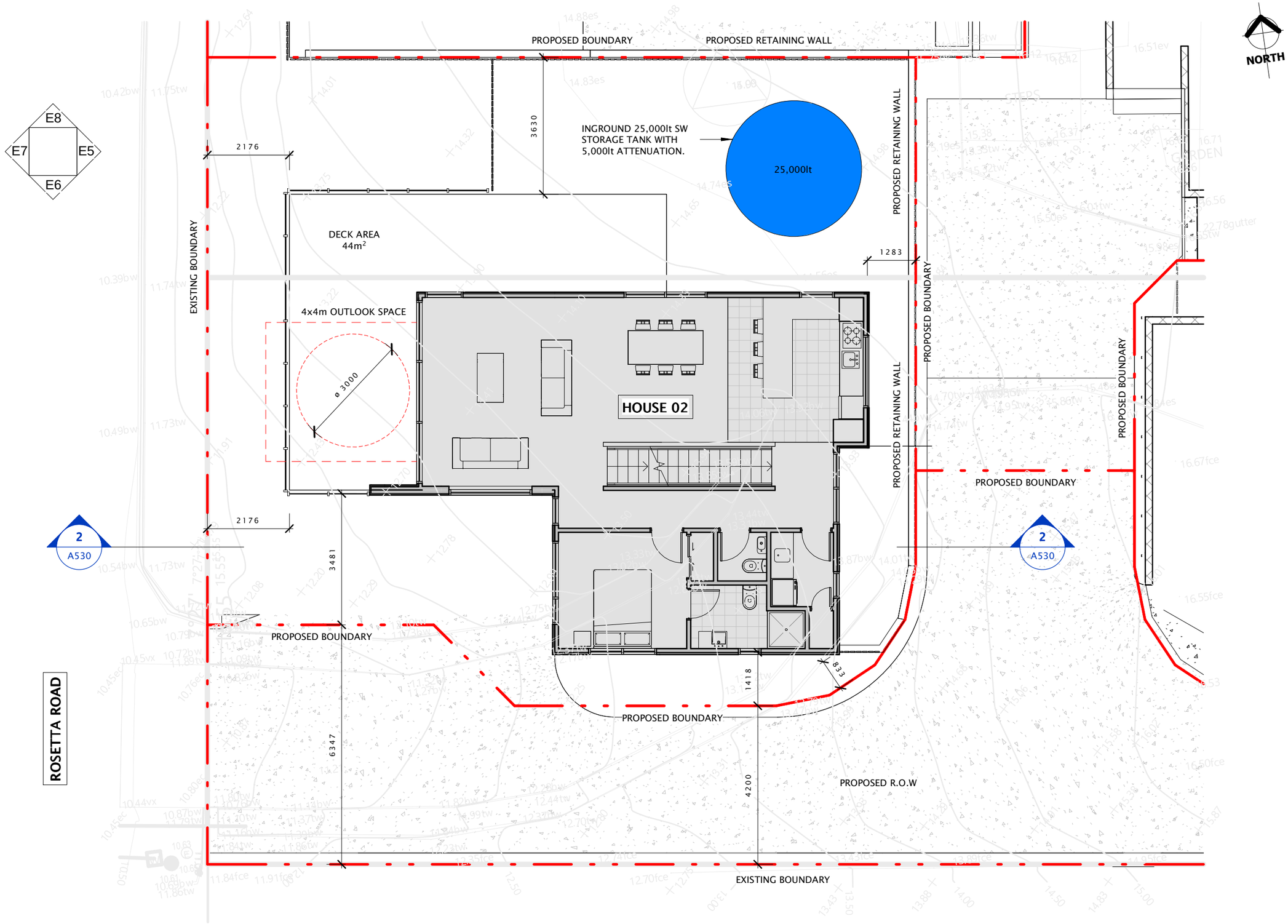
PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED	DATE 21/09/2023		
DESIGN –	DRAWN MD		
PROJECT NO. 22-006	SHEET NO. A510	REV 2	



1 HOUSE 2 - FIRST FLOOR

SCALE: 1 : 100

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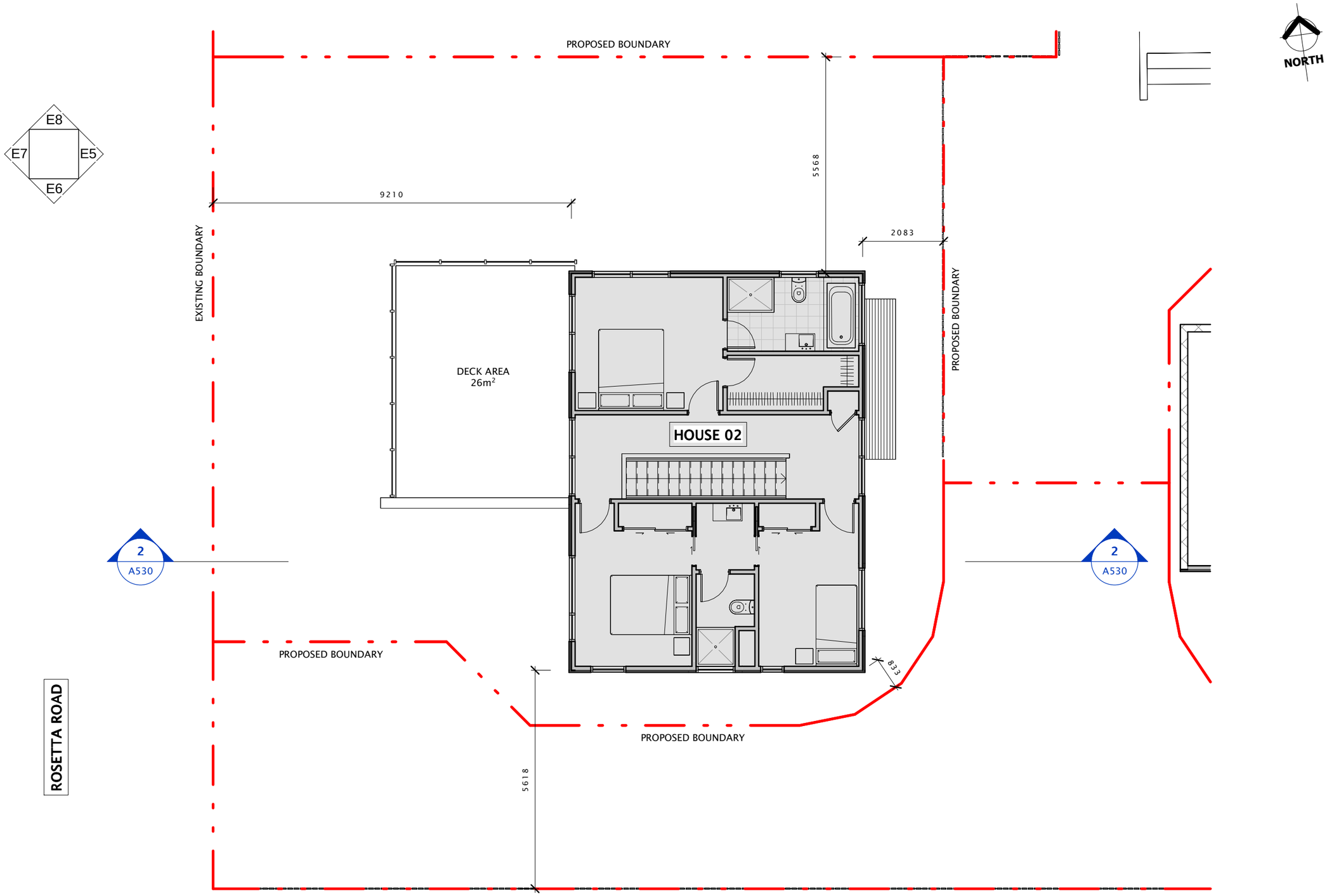
PROJECT	ROSETTA ROAD DEV.
CLIENT	COBIE TRADING LIMITED
	126-130 ROSETTA ROAD, RAUMATI BEACH
PROJECT STATUS	RESOURCE CONSENT
SCALE	AS INDICATED
DATE	21/09/2023
DESIGN	-
DRAWN	MD
PROJECT NO.	22-006
SHEET NO.	A511
REV	3



1 HOUSE 02 - SECOND FLOOR

SCALE: 1 : 100

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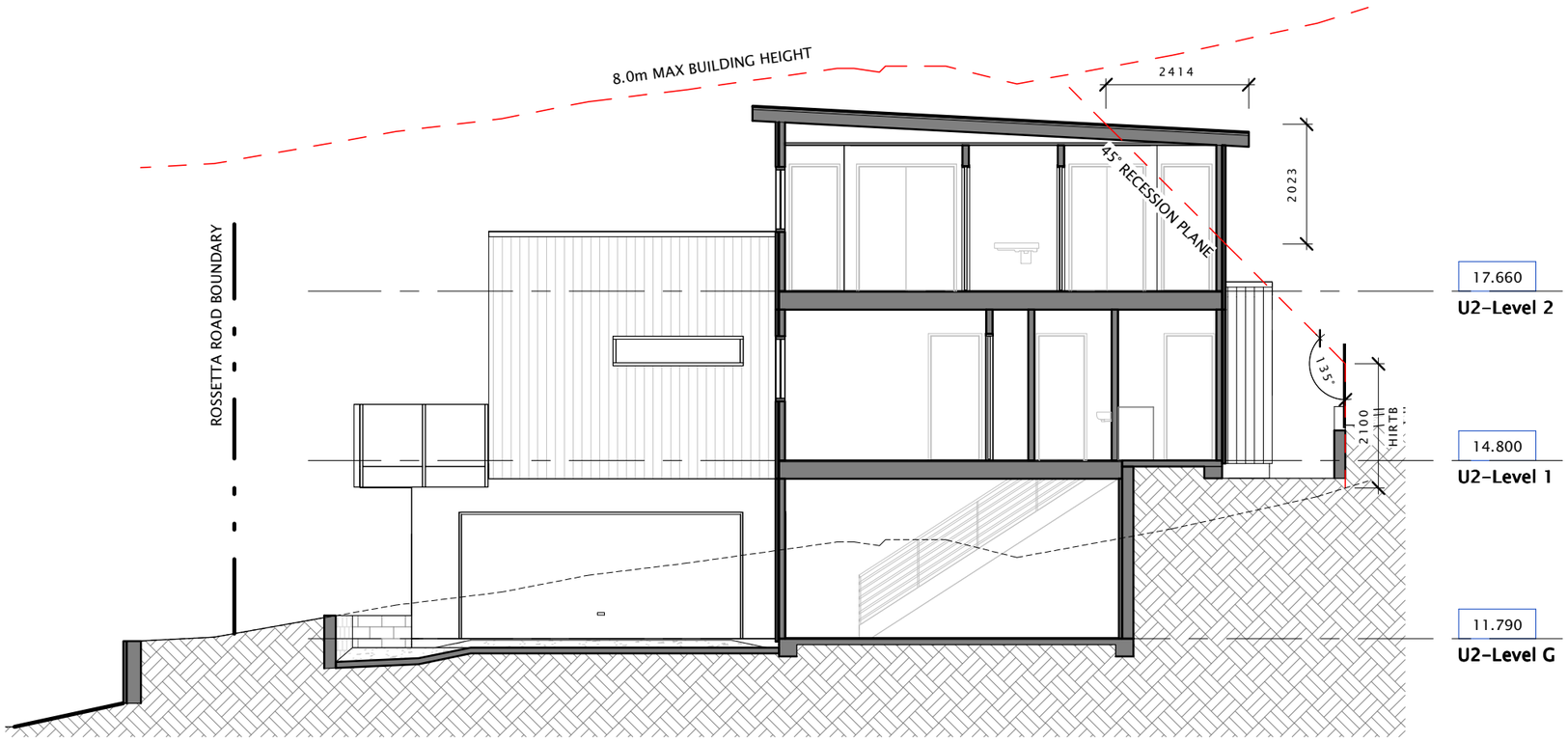
PROJECT	ROSETTA ROAD DEV.	PROJECT STATUS	RESOURCE CONSENT
CLIENT	COBIE TRADING LIMITED	SCALE AS INDICATED	DATE 21/09/2023
	126-130 ROSETTA ROAD, RAUMATI BEACH	DESIGN -	DRAWN MD
		PROJECT NO. 22-006	SHEET NO. A512 / REV 2



2 **H02 - SECTION 03**

SCALE: 1 : 100

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PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED

126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN -	DRAWN -	
PROJECT NO. 22-006	SHEET NO. A530	REV 3

HOUSE 03

3 **3D VIEW (HOUSE 03)**

SCALE: 1 : 1

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PROJECT
ROSETTA ROAD DEV.
CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN –	DRAWN –	
PROJECT NO. 22-006	SHEET NO. A600	REV 4

NORTH

PROPOSED BOUNDARY

1500

890

1500

PROPOSED BOUNDARY

PROPOSED BOUNDARY

1
A630

1
A630

16345

HOUSE 03

16900

EXISTING DOUBLE GARAGE

IN GROUND SWIMMING POOL

EXISTING STRUCTURE

CLOTHESLINE

INGROUND 25,000lt SW STORAGE TANK WITH 5,000lt ATTENUATION.

25,000lt

SHED

DECK AREA

8200

PROPOSED R.O.W

PROPOSED BOUNDARY

16500

16700

3950

97°28'20"

65.37

EXISTING BOUNDARY

65.36

10m PARKING AREA (HOUSE 03)

ROOFLINE OF NEIGHBOURING PROPERTY

E12
E11 E9
E10

1 HOUSE 03 - GROUND FLOOR

SCALE: 1 : 100

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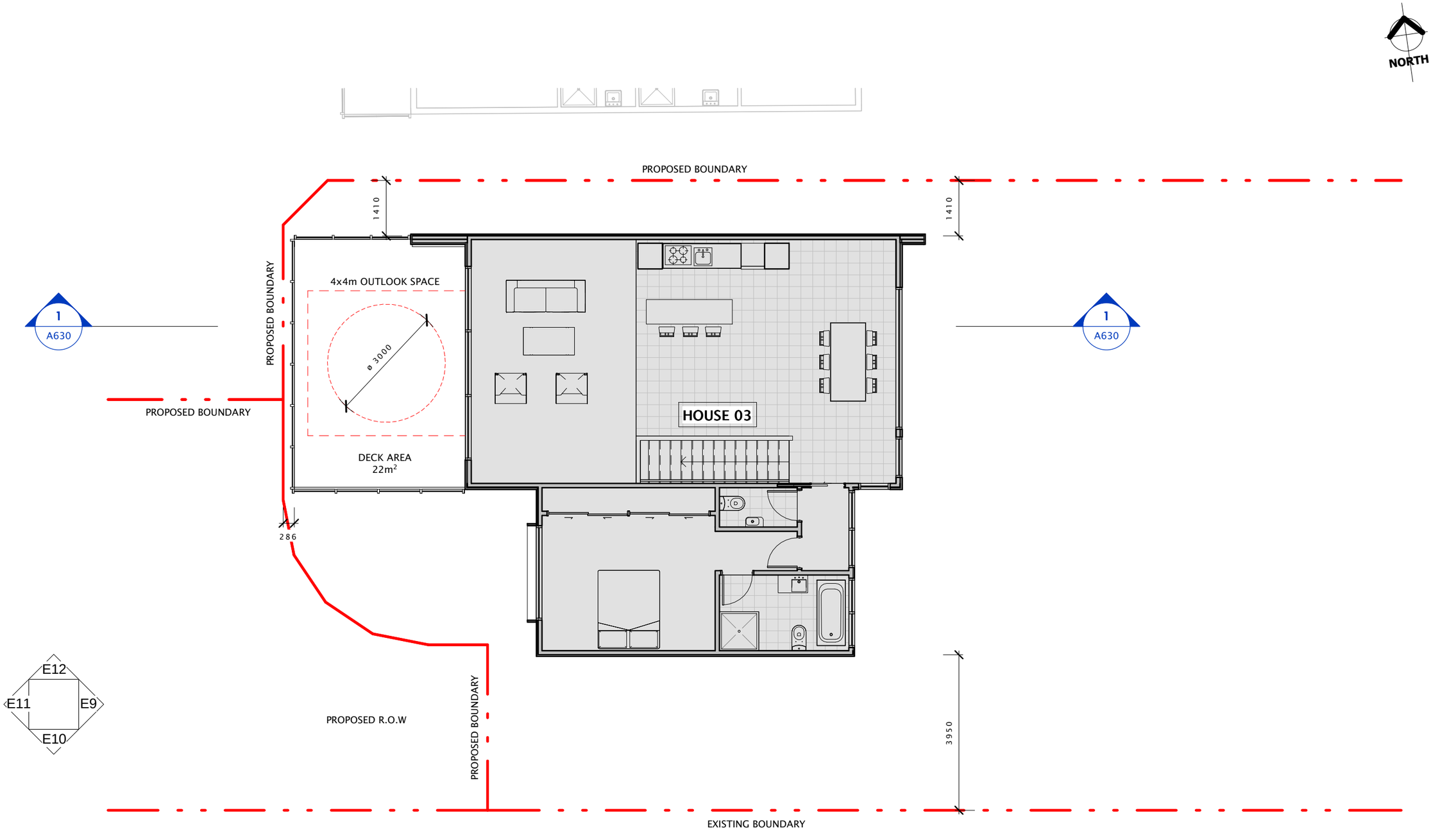
PROJECT	ROSETTA ROAD DEV.
CLIENT	COBIE TRADING LIMITED
	126-130 ROSETTA ROAD, RAUMATI BEACH
PROJECT STATUS	RESOURCE CONSENT
SCALE	AS INDICATED
DATE	21/09/2023
DESIGN	-
DRAWN	MD
PROJECT NO.	22-006
SHEET NO.	A610
REV	3



1 **HOUSE 03 - FIRST FLOOR**

SCALE: 1 : 100

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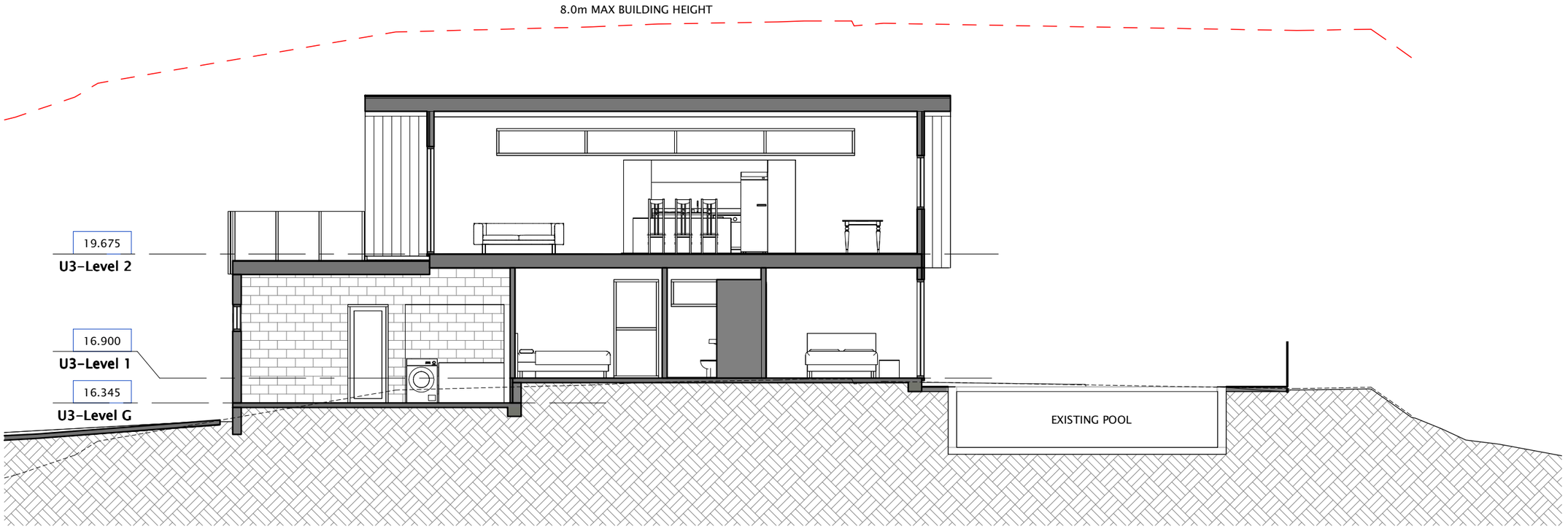
PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED	DATE 21/09/2023		
DESIGN –	DRAWN MD		
PROJECT NO. 22-006	SHEET NO. A611	REV 2	



1 **H03 - SECTION 03**

SCALE: 1 : 100

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PROJECT
ROSETTA ROAD DEV.

CLIENT
COBIE TRADING LIMITED

126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT	
SCALE AS INDICATED	DATE 21/09/2023	
DESIGN -	DRAWN -	
PROJECT NO. 22-006	SHEET NO. A630	REV 3

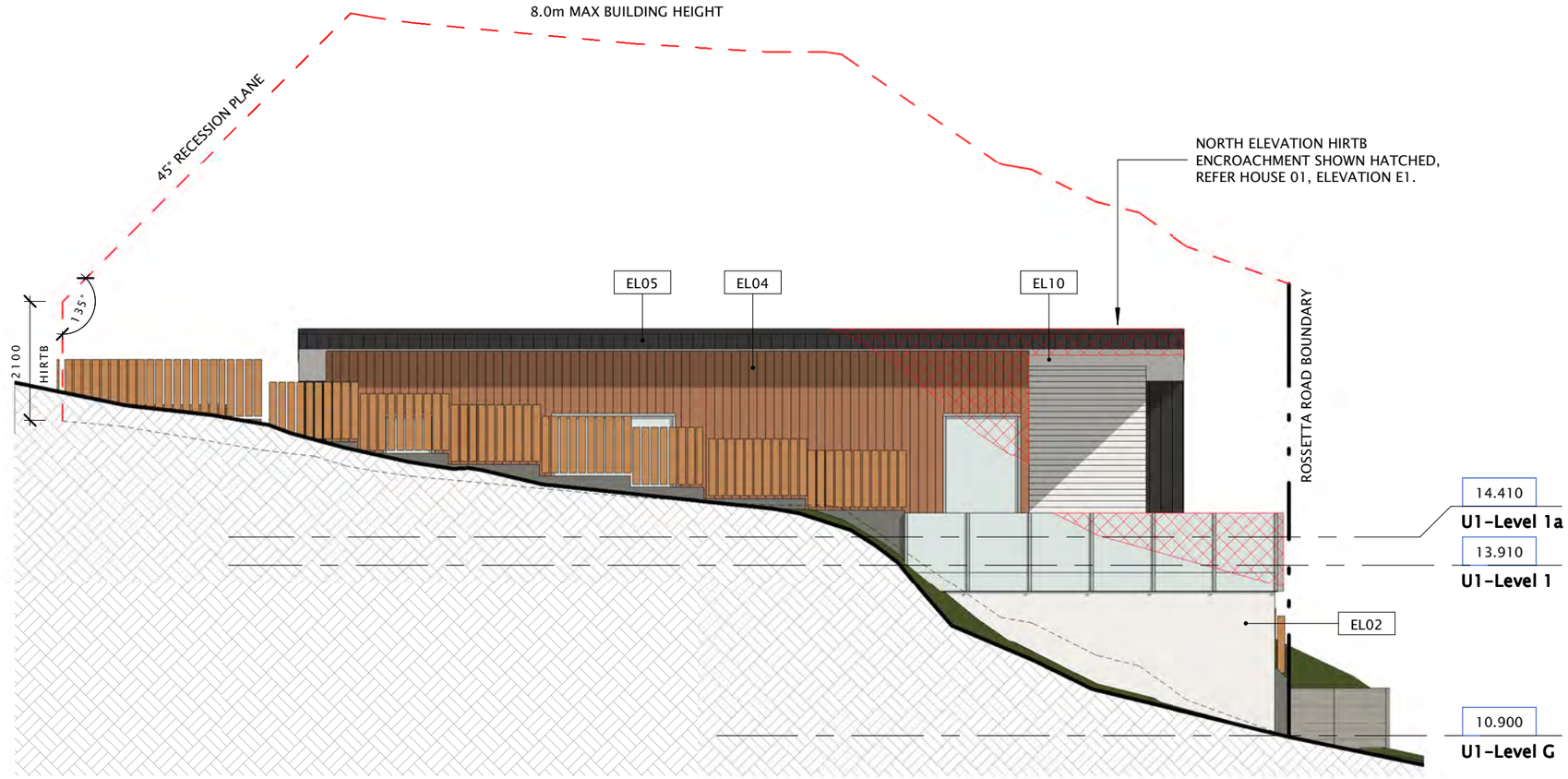
LOT 01 (HOUSE 01)

STREET FACADE AREA	= 73m²
GLAZING AREA	= 23m²
GLAZING PERCENTAGE	= 31%

ELEVATION KEYNOTES	
KEY	DESCRIPTION
EL01	PROFILED METAL LONGRUN ROOFING.
EL02	RENDERED FINISH OVER CONCRETE MASONRY BLOCK.
EL03	HORIZONTAL TIMBER WEATHERBOARDS OVER CAVITY SYSTEM WITH PAINT FINISH.
EL04	VERTICAL CEDAR WEATHERBOARD OVER CAVITY SYSTEM WITH STAIN FINISH.
EL05	VERTICAL TIMBER WEATHERBOARD OR 'GROOVED' PANEL CLADDING OVER CAVITY SYSTEM WITH PAINT FINISH.
EL06	ALUMINIUM JOINERY SUITE.
EL07	4.8x2.1m HIGH SECTIONAL GARAGE DOOR.
EL09	GLAZED ALUMINIUM BALUSTRADE.
EL10	PAINTED FIBRE CEMENT SOFFITS.
EL11	LIGHTWEIGHT RENDERED FINISH OVER CAVITY SYSTEM.

E1 HOUSE 01 – WEST ELEVATION

SCALE: 1 : 100



E2 HOUSE 01 – NORTH ELEVATION

SCALE: 1 : 100

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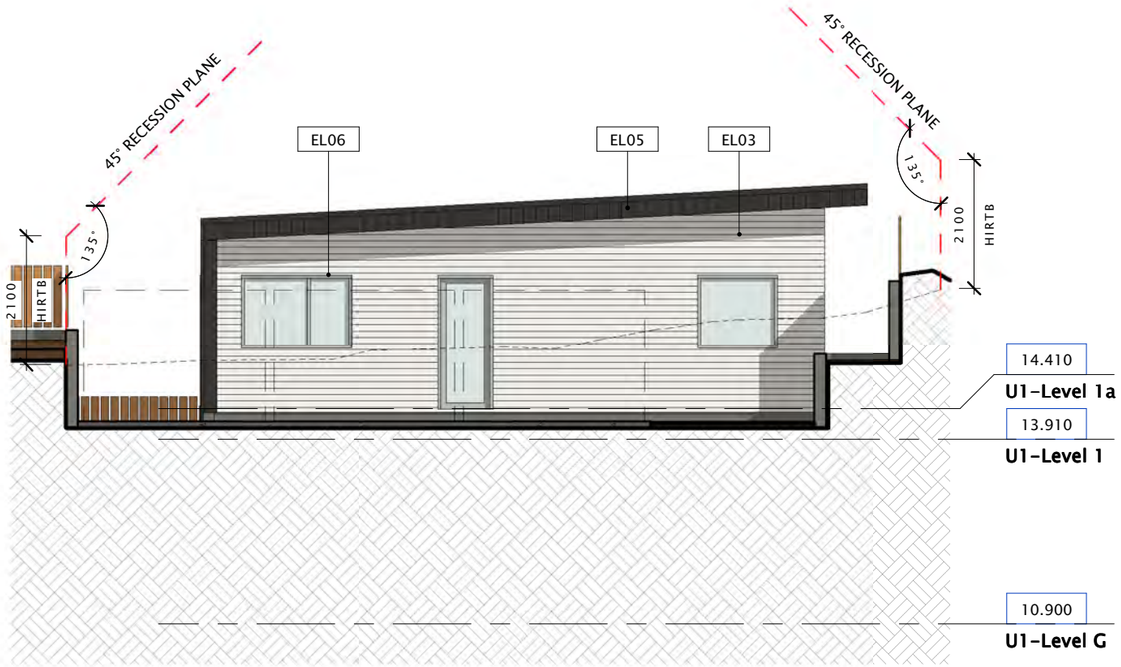
PROJECT
ROSETTA ROAD DEV.
CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

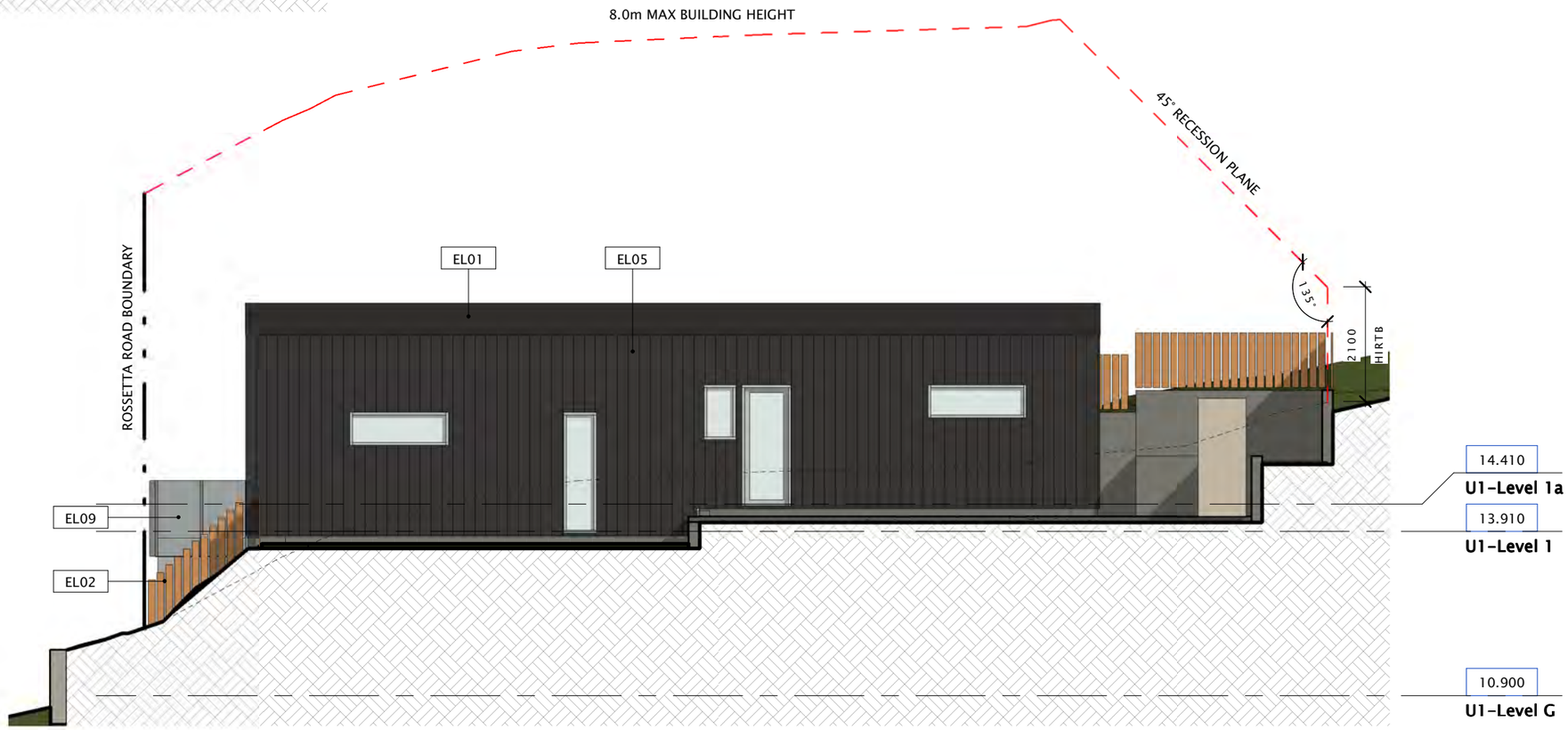
PROJECT STATUS	RESOURCE CONSENT		
SCALE	AS INDICATED	DATE	21/09/2023
DESIGN	–	DRAWN	MD
PROJECT NO.	22-006	SHEET NO.	A420
REV	4		



E3 HOUSE 01 - EAST ELEVATION

SCALE: 1 : 100

ELEVATION KEYNOTES	
KEY	DESCRIPTION
EL01	PROFILED METAL LONGRUN ROOFING.
EL02	RENDERED FINISH OVER CONCRETE MASONRY BLOCK.
EL03	HORIZONTAL TIMBER WEATHERBOARDS OVER CAVITY SYSTEM WITH PAINT FINISH.
EL04	VERTICAL CEDAR WEATHERBOARD OVER CAVITY SYSTEM WITH STAIN FINISH.
EL05	VERTICAL TIMBER WEATHERBOARD OR 'GROOVED' PANEL CLADDING OVER CAVITY SYSTEM WITH PAINT FINISH.
EL06	ALUMINIUM JOINERY SUITE.
EL07	4.8x2.1m HIGH SECTIONAL GARAGE DOOR.
EL09	GLAZED ALUMINIUM BALUSTRADE.
EL10	PAINTED FIBRE CEMENT SOFFITS.
EL11	LIGHTWEIGHT RENDERED FINISH OVER CAVITY SYSTEM.



E4 HOUSE 01 - SOUTH ELEVATION

SCALE: 1 : 100

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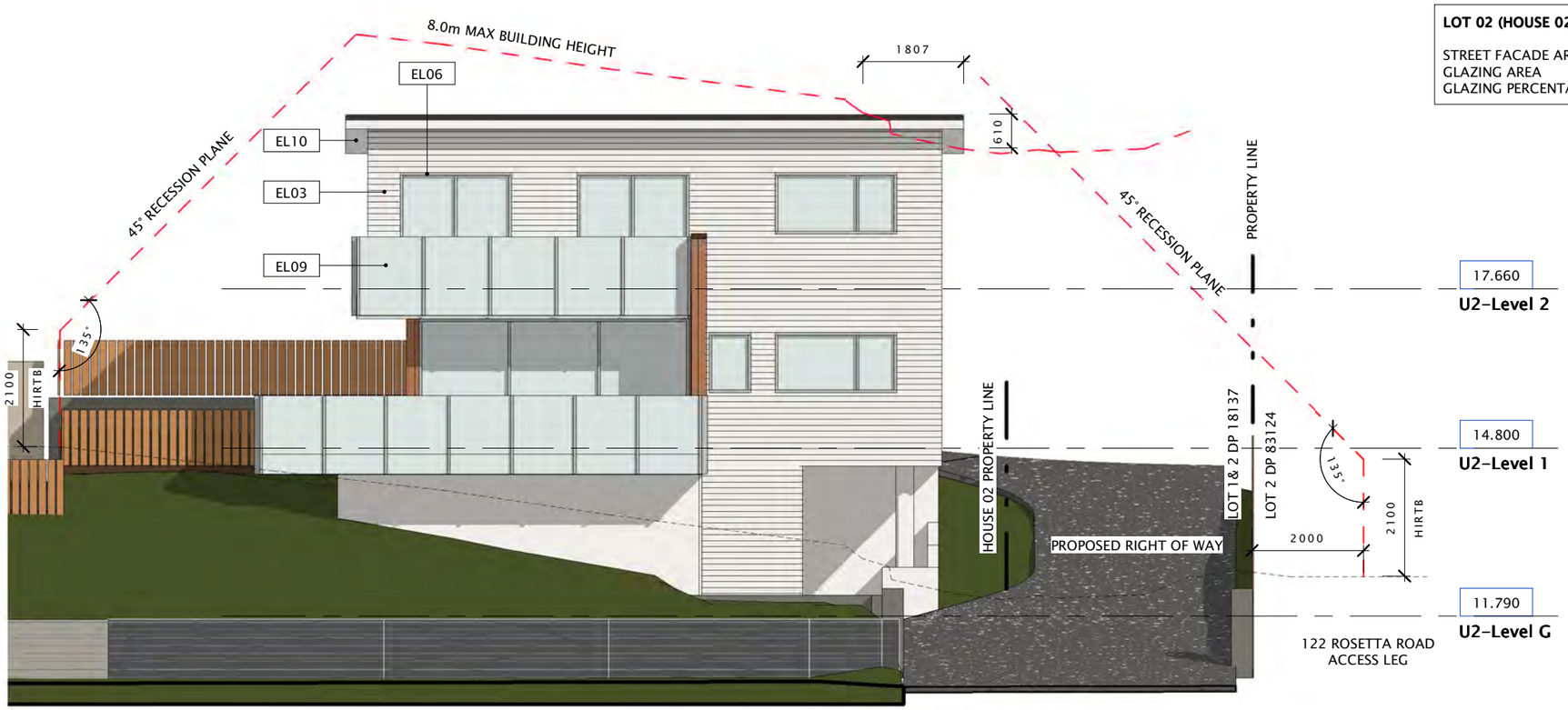
PROJECT
ROSETTA ROAD DEV.
CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED		DATE 21/09/2023	
DESIGN –		DRAWN –	
PROJECT NO. 22-006		SHEET NO. A421	REV 3

LOT 02 (HOUSE 02)

STREET FACADE AREA	= 79m²
GLAZING AREA	= 25m²
GLAZING PERCENTAGE	= 31%

ELEVATION KEYNOTES	
KEY	DESCRIPTION
EL01	PROFILED METAL LONGRUN ROOFING.
EL02	RENDERED FINISH OVER CONCRETE MASONRY BLOCK.
EL03	HORIZONTAL TIMBER WEATHERBOARDS OVER CAVITY SYSTEM WITH PAINT FINISH.
EL04	VERTICAL CEDAR WEATHERBOARD OVER CAVITY SYSTEM WITH STAIN FINISH.
EL05	VERTICAL TIMBER WEATHERBOARD OR 'GROOVED' PANEL CLADDING OVER CAVITY SYSTEM WITH PAINT FINISH.
EL06	ALUMINIUM JOINERY SUITE.
EL07	4.8x2.1m HIGH SECTIONAL GARAGE DOOR.
EL09	GLAZED ALUMINIUM BALUSTRADE.
EL10	PAINTED FIBRE CEMENT SOFFITS.
EL11	LIGHTWEIGHT RENDERED FINISH OVER CAVITY SYSTEM.



E5 HOUSE 02 - WEST ELEVATION

SCALE: 1 : 100

E6 HOUSE 02 - NORTH ELEVATION

SCALE: 1 : 100

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PROJECT
ROSETTA ROAD DEV.

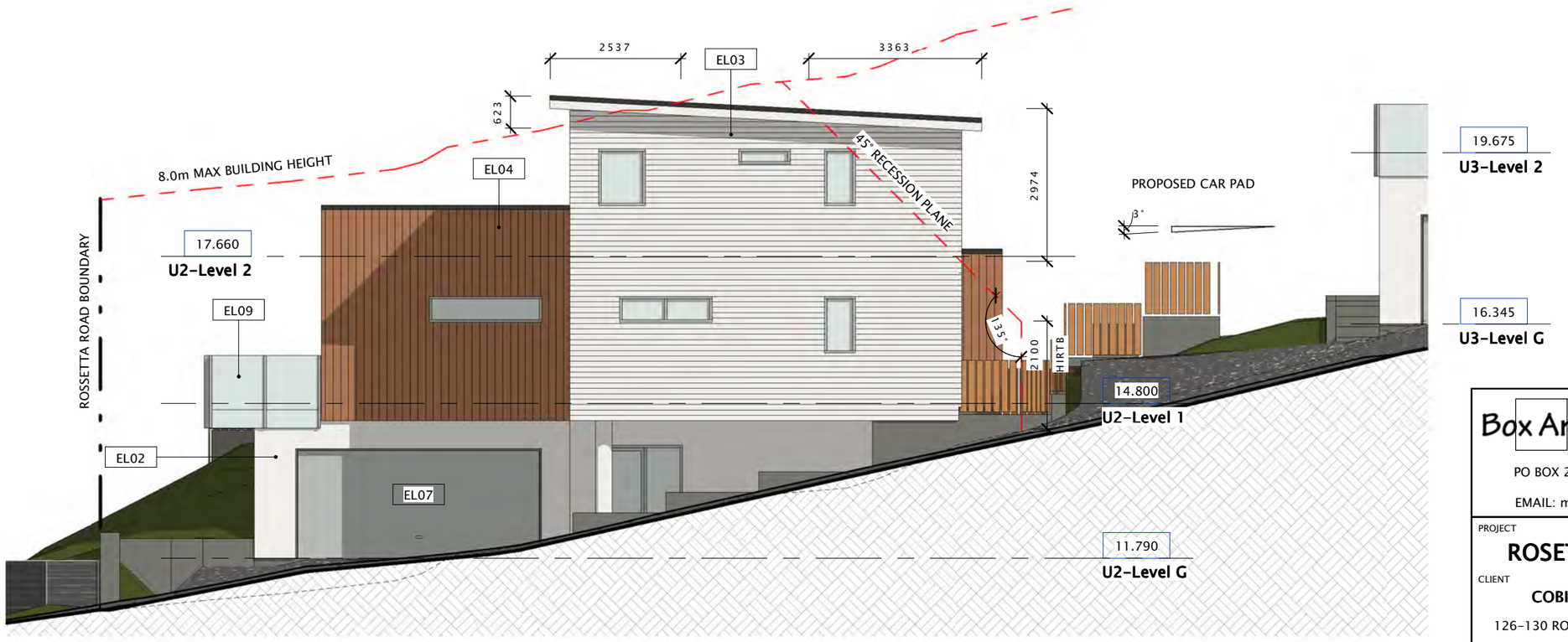
CLIENT
COBIE TRADING LIMITED

126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED		DATE 21/09/2023	
DESIGN –		DRAWN MD	
PROJECT NO. 22-006		SHEET NO. A520	REV 3

E7 HOUSE 02 – EAST ELEVATION

SCALE: 1 : 100



E8 HOUSE 02 – SOUTH ELEVATION

SCALE: 1 : 100

ELEVATION KEYNOTES	
KEY	DESCRIPTION
EL01	PROFILED METAL LONGRUN ROOFING.
EL02	RENDERED FINISH OVER CONCRETE MASONRY BLOCK.
EL03	HORIZONTAL TIMBER WEATHERBOARDS OVER CAVITY SYSTEM WITH PAINT FINISH.
EL04	VERTICAL CEDAR WEATHERBOARD OVER CAVITY SYSTEM WITH STAIN FINISH.
EL05	VERTICAL TIMBER WEATHERBOARD OR 'GROOVED' PANEL CLADDING OVER CAVITY SYSTEM WITH PAINT FINISH.
EL06	ALUMINIUM JOINERY SUITE.
EL07	4.8x2.1m HIGH SECTIONAL GARAGE DOOR.
EL09	GLAZED ALUMINIUM BALUSTRADE.
EL10	PAINTED FIBRE CEMENT SOFFITS.
EL11	LIGHTWEIGHT RENDERED FINISH OVER CAVITY SYSTEM.

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PROJECT
ROSETTA ROAD DEV.

CLIENT
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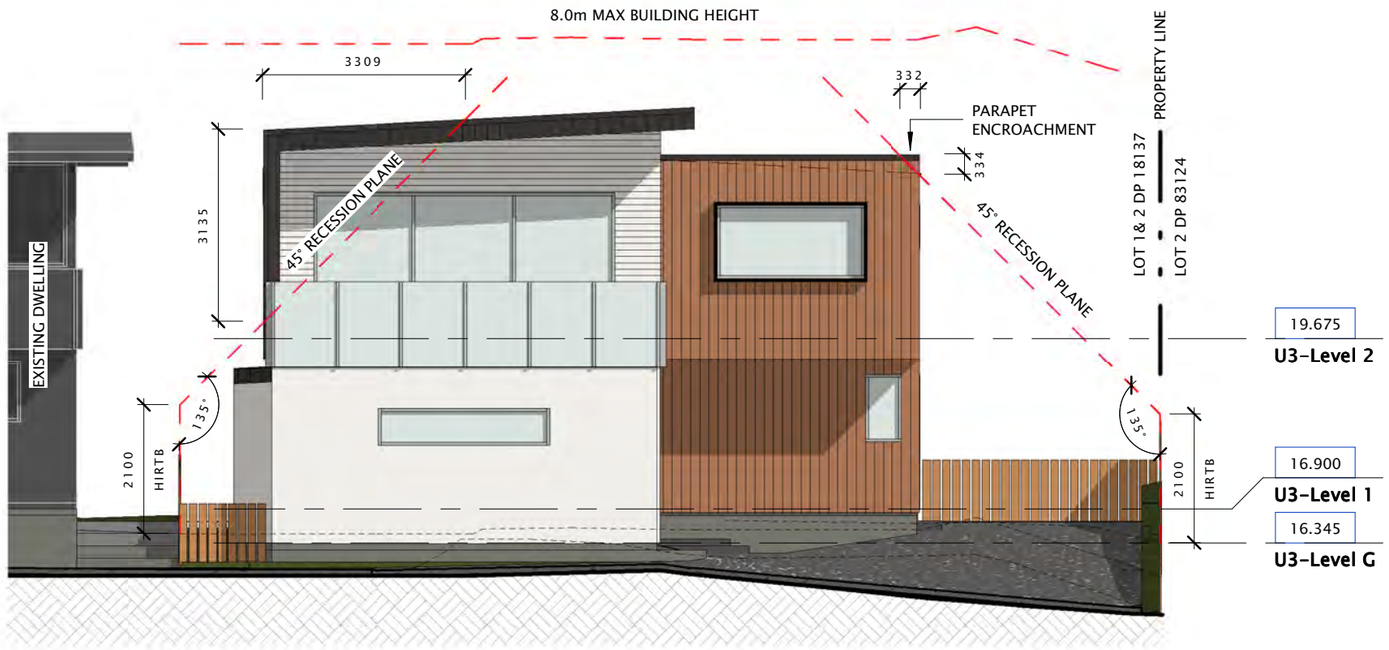
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED		DATE 21/09/2023	
DESIGN –		DRAWN MD	
PROJECT NO. 22-006		SHEET NO. A521	REV 3



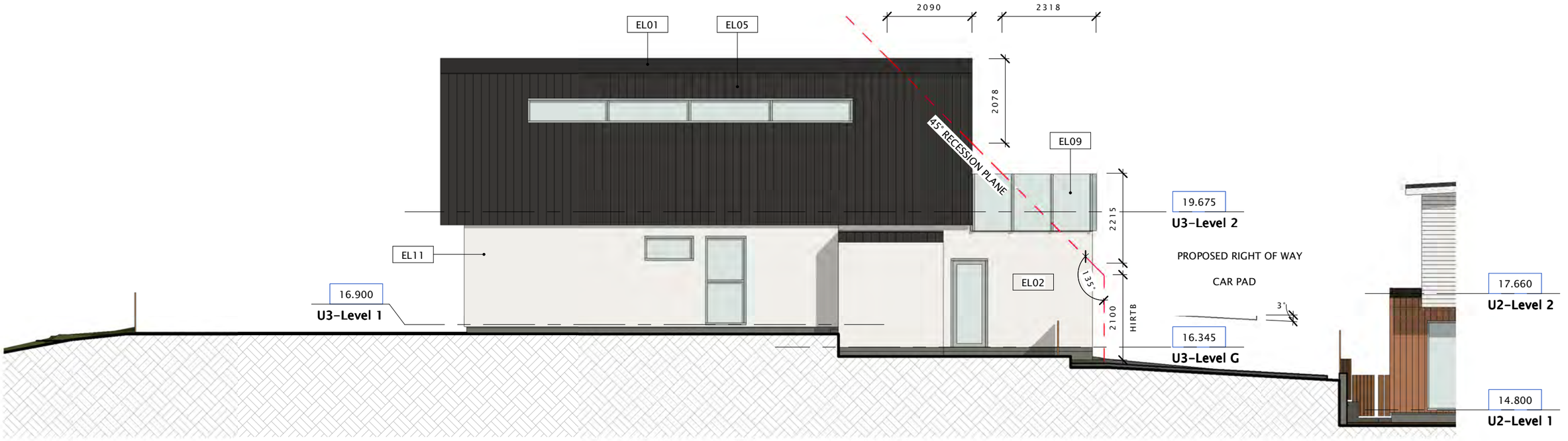
LOT 03 (HOUSE 03)

STREET FACADE AREA	= 71m²
GLAZING AREA	= 15m²
GLAZING PERCENTAGE	= 21%

ELEVATION KEYNOTES	
KEY	DESCRIPTION
EL01	PROFILED METAL LONGRUN ROOFING.
EL02	RENDERED FINISH OVER CONCRETE MASONRY BLOCK.
EL03	HORIZONTAL TIMBER WEATHERBOARDS OVER CAVITY SYSTEM WITH PAINT FINISH.
EL04	VERTICAL CEDAR WEATHERBOARD OVER CAVITY SYSTEM WITH STAIN FINISH.
EL05	VERTICAL TIMBER WEATHERBOARD OR 'GROOVED' PANEL CLADDING OVER CAVITY SYSTEM WITH PAINT FINISH.
EL06	ALUMINIUM JOINERY SUITE.
EL07	4.8x2.1m HIGH SECTIONAL GARAGE DOOR.
EL09	GLAZED ALUMINIUM BALUSTRADE.
EL10	PAINTED FIBRE CEMENT SOFFITS.
EL11	LIGHTWEIGHT RENDERED FINISH OVER CAVITY SYSTEM.

E9 HOUSE 03 - WEST ELEVATION

SCALE: 1 : 100



E10 HOUSE 03 - NORTH ELEVATION

SCALE: 1 : 100

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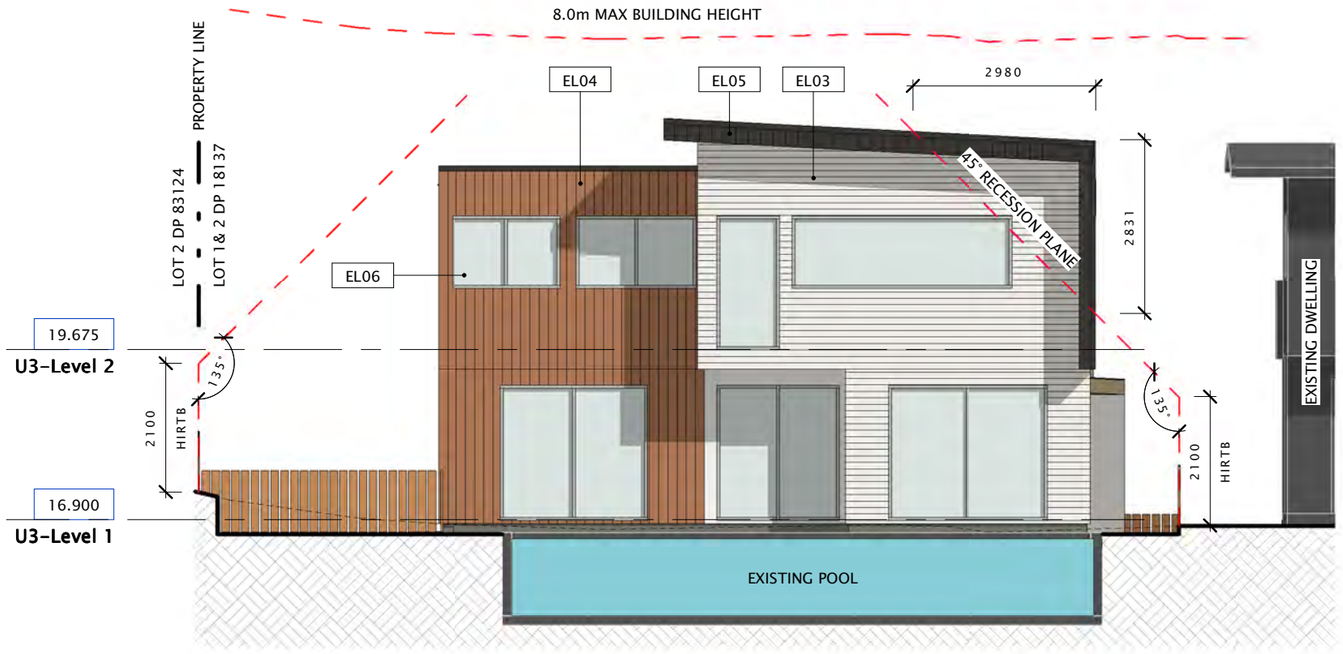
PROJECT
ROSETTA ROAD DEV.
CLIENT
COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED	DATE 21/09/2023		
DESIGN –	DRAWN MD		
PROJECT NO. 22-006	SHEET NO. A620	REV 3	



E11 HOUSE 03 - EAST ELEVATION

SCALE: 1 : 100

E12 HOUSE 03 - SOUTH ELEVATION

SCALE: 1 : 100

ELEVATION KEYNOTES	
KEY	DESCRIPTION
EL01	PROFILED METAL LONGRUN ROOFING.
EL02	RENDERED FINISH OVER CONCRETE MASONRY BLOCK.
EL03	HORIZONTAL TIMBER WEATHERBOARDS OVER CAVITY SYSTEM WITH PAINT FINISH.
EL04	VERTICAL CEDAR WEATHERBOARD OVER CAVITY SYSTEM WITH STAIN FINISH.
EL05	VERTICAL TIMBER WEATHERBOARD OR 'GROOVED' PANEL CLADDING OVER CAVITY SYSTEM WITH PAINT FINISH.
EL06	ALUMINIUM JOINERY SUITE.
EL07	4.8x2.1m HIGH SECTIONAL GARAGE DOOR.
EL09	GLAZED ALUMINIUM BALUSTRADE.
EL10	PAINTED FIBRE CEMENT SOFFITS.
EL11	LIGHTWEIGHT RENDERED FINISH OVER CAVITY SYSTEM.

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PROJECT: ROSETTA ROAD DEV.
CLIENT: COBIE TRADING LIMITED
126-130 ROSETTA ROAD, RAUMATI BEACH

PROJECT STATUS	RESOURCE CONSENT		
SCALE AS INDICATED	DATE 21/09/2023		
DESIGN -	DRAWN MD		
PROJECT NO. 22-006	SHEET NO. A621	REV 3	