3 Orana Road, Mona Vale

Comments on Updates to Plans

We have reviewed the existing geotechnical report, the plans used to carry out the report, and the updated plans for DA shown on 11 architectural drawings prepared by Site Specific Designs, project number 2022 02, drawings numbered DA00 to DA10, Issue C, dated 25/5/23.

The changes include:

- Removed the proposed gym.
- Removed the proposed first floor.
- Slightly increased the proposed ground floor area.
- Changed the studio to a master bedroom.
- Removed the proposed spa.
- Added landscaping works requiring minor filling and low retaining walls on the S side of the house.
- Other minor internal and external alterations.

The changes to the plans are minor from a geotechnical perspective and do not alter the recommendations or the risk assessment in the report carried out by this firm numbered J4401 and dated the 27th July, 2022.

White Geotechnical Group Pty Ltd.

Reviewed By:

Dion Sheldon
BEng(Civil)(Hons),
Geotechnical Engineer.

Ben White M.Sc. Geol.,
AusIMM., CP GEOL.
No. 222757
Engineering Geologist.

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1 – To be submitted with Development Application

Development Application for _____
Name of Applicant

Address of site 3 Orana Road, Mona Vale

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk ***Declaration made by geotechnical engineer or engineering geologist or coastal engineer (where applicable) as part of a geotechnical report***

I, Ben White *on behalf of* White Geotechnical Group Pty Ltd
(Insert Name) (Trading or Company Name)

on this the 27/7/22 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $10million.

I:
Please mark appropriate box

☒ have prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☒ am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☐ have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.

☐ have examined the site and the proposed development/alteration in detail and I am of the opinion that the Development Application only involves Minor Development/Alteration that does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have examined the site and the proposed development/alteration is separate from and is not affected by a Geotechnical Hazard and does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report

Geotechnical Report Details:

Report Title: Geotechnical Report **3 Orana Road, Mona Vale**

Report Date: 27/7/22

Author: BEN WHITE

Author's Company/Organisation: **WHITE GEOTECHNICAL GROUP PTY LTD**

Documentation which relate to or are relied upon in report preparation:

Australian Geomechanics Society Landslide Risk Management March 2007.

White Geotechnical Group company archives.

I am aware that the above Geotechnical Report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council as the basis for ensuring that the Geotechnical Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1(a) - Checklist of Requirements for Geotechnical Risk Management Report for Development Application

Development Application for _____
Name of Applicant

Address of site 3 Orana Road, Mona Vale

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk Management Geotechnical Report. This checklist is to accompany the Geotechnical Report and its certification (Form No. 1).

Geotechnical Report Details:

Report Title: Geotechnical Report **3 Orana Road, Mona Vale**

Report Date: 27/7/22

Author: BEN WHITE

Author's Company/Organisation: WHITE GEOTECHNICAL GROUP PTY LTD

Please mark appropriate box

- ☒ Comprehensive site mapping conducted **20/7/22** (date)
- ☒ Mapping details presented on contoured site plan with geomorphic mapping to a minimum scale of 1:200 (as appropriate)
- ☒ Subsurface investigation required
  - ☐ No Justification _____
  - ☒ Yes Date conducted **20/7/22**
- ☒ Geotechnical model developed and reported as an inferred subsurface type-section
- ☒ Geotechnical hazards identified
  - ☒ Above the site
  - ☒ On the site
  - ☒ Below the site
  - ☐ Beside the site
- ☒ Geotechnical hazards described and reported
- ☒ Risk assessment conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
  - ☒ Consequence analysis
  - ☒ Frequency analysis
- ☒ Risk calculation
- ☒ Risk assessment for property conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Risk assessment for loss of life conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.
- ☒ Design Life Adopted:
  - ☒ 100 years
  - ☐ Other _____ (specify)
- ☒ Geotechnical Conditions to be applied to all four phases as described in the Geotechnical Risk Management Policy for Pittwater - 2009 have been specified
- ☒ Additional action to remove risk where reasonable and practical have been identified and included in the report.
- ☐ Risk assessment within Bushfire Asset Protection Zone.

I am aware that Pittwater Council will rely on the Geotechnical Report, to which this checklist applies, as the basis for ensuring that the geotechnical risk management aspects of the proposal have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated, and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL INVESTIGATION:

New House and Pool at **3 Orana Road, Mona Vale**

1. Proposed Development

1.1 Demolish the existing house, carport and outbuildings.

1.2 Construct a new part two storey house by excavating to a maximum depth of ~2.0m.

1.3 Construct a new garage with gym by excavating to a maximum depth of ~1.9m.

1.4 Install a new pool with spa by excavating to a maximum depth of ~1.7m.

1.5 Details of the proposed development are shown on 10 drawings prepared by Site Specific Designs, project number 2022 02, drawings numbered DA, DA00, DA01, DA02, DA02-b and DA03 to DA07, dated 10/6/22.

2. Site Description

2.1 The site was inspected on the 20th July, 2022.

2.2 This residential property is on the high side of the road and has a SW aspect. The block runs longways to the SE so the slope is a cross-fall. It is located on the gentle to moderately graded lower reaches of a hillslope. The natural slope rises across the property at an average angle of ~8°. The slope above the property gradually increases in grade. The slope below the property eases to near level angles.

2.3 At the road frontage, a concrete and brick paved driveway runs up the slope to a carport beside the house (Photo 1). Between the road frontage and the house is a gently sloping lawn area. The single storey brick house is supported by brick walls and concrete piers (Photos 1 & 2). The supporting walls and piers stand vertical and show no significant signs of movement (Photo 3). Stable low brick retaining walls

support cuts and fills for level paved and garden areas on the uphill side of the house. Brick outbuildings that show no significant signs of movement are located uphill of the house (Photo 4). A gently sloping lawn and garden area extends off the uphill side of the outbuildings. No signs of slope instability were observed on the property. The adjoining neighbouring properties were observed to be in good order as seen from the street and subject property.

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by the Newport Formation of the Narrabeen Group. This is described as interbedded laminite, shale, and quartz to lithic quartz sandstone.

4. Subsurface Investigation

One hand Auger Hole (AH) was put down to identify the soil materials. Five Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to weathered rock. The locations of the tests are shown on the site plan attached. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to have been an issue for this site. But due to the possibility that the actual ground conditions vary from our interpretation there should be allowances in the excavation and foundation budget to account for this. We refer to the appended “Important Information about Your Report” to further clarify. The results are as follows:

TEST RESULTS ON NEXT PAGE

AUGER HOLE 1 (~RL12.7) **–** AH1 (photo 6)

Depth (m)	**Material Encountered**
0.0 to 0.7	**TOPSOIL**, dark brown, with a layer of brown and maroon laterite @ 0.5-0.6m, damp, fine to course grained.
0.7 to 0.9	**CLAY**, orange/brown, mottled, stiff, damp.

End of Hole @ 0.9m in stiff clay. No watertable encountered.

DCP TEST RESULTS – Dynamic Cone Penetrometer

Equipment: 9kg hammer, 510mm drop, conical tip. Standard: AS1289.6.3.2 -1997

Depth(m) Blows/0.3m	**DCP 1** (~RL10.8)	**DCP 2** (~RL11.6)	**DCP 3** (~RL12.7)	**DCP 4** (~RL14.9)	**DCP 5** (~RL16.7)
0.0 to 0.3	3	3	3	6	6
0.3 to 0.6	6	4	13	21	15
0.6 to 0.9	9	9	10	9	10
0.9 to 1.2	11	17	20	38	31
1.2 to 1.5	13	40	29	#	#
1.5 to 1.8	30	33	#		
1.8 to 2.1	#	#			
	End of Test @ 1.8m	Refusal on rock @ 1.7m	End of Test @ 1.5m	End of Test @ 1.2m	End of Test @ 1.2m

#refusal/end of test. F=DCP fell after being struck showing little resistance through all or part of the interval.

DCP Notes:

DCP1 – End of Test @ 1.8m, DCP still very slowly going down, orange brown clay and maroon shale fragments on moist tip.

DCP2 – Refusal on rock @ 1.7m, DCP bouncing off rock surface, orange clay on wet tip.

DCP3 – End of Test @ 1.5m, DCP still very slowly going down, orange clay and brown soil on muddy wet tip.

DCP4 – End of Test @ 1.2m, DCP still very slowly going down, orange clay on wet tip.

DCP5 – End of Test @ 1.2m, DCP still very slowly going down, orange clay and brown soil on muddy wet tip.

5. Geological Observations/Interpretation

The slope materials are colluvial at the near surface and residual at depth. In the test locations, the ground materials consist of topsoil over firm to stiff clays. Fill to a maximum depth of ~1.0m provides level platforms for paved, lawn and garden areas across the property. The clays merge into the weathered zone of the under lying rock at depths from between ~1.2m to ~1.8m below the current surface. The weathered zone of the underlying rock is interpreted as Extremely Low Strength Shale. It is to be noted that this material is a soft rock and can appear as a mottled stiff clay when it is cut up by excavation equipment. See Type Section attached for a diagrammatical representation of the expected ground materials.

6. Groundwater

Normal ground water seepage is expected to move over the buried surface of the rock and through the cracks in the rock.

Due to the slope and elevation of the block, the water table in the location is expected to be many metres below the base of the proposed works.

7. Surface Water

No evidence of surface flows were observed on the property during the inspection. It is expected that normal sheet wash will move onto the site from above the property during heavy down pours. If the owners know, or become aware in the future, that overland flows enter the property during heavy prolonged rainfall events our office is to be informed so appropriate drainage measures can be recommended and installed. It is a condition of the slope stability assessment in Section 8 (**Hazard One**) that this be done.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The gentle to moderate slope that rises across the property and continues above and below is a potential hazard (**Hazard One**). The proposed excavations are a potential hazard (**Hazard Two**).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The gentle to moderate slope that rises across the property and continues above and below failing and impacting on the property.	The proposed excavations for the house, garage and pool collapsing onto the worksite, impacting the neighbouring properties and undercutting the NE neighbouring water tanks (Photo 5) during the excavation process.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (20%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})
RISK TO LIFE	8.3×10^{-7}/annum	3.7×10^{-6}/annum
COMMENTS	This level of risk is 'ACCEPTABLE'.	This level of risk to life and property is 'UNACCEPTABLE'. To move the risk to 'ACCEPTABLE' levels, the recommendations in **Section 13** are to be followed.

(See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

9. Suitability of the Proposed Development for the Site

The proposed development is suitable for the site. No geotechnical hazards will be created by the completion of the proposed development provided it is carried out in accordance with the requirements of this report and good engineering and building practice.

10. Stormwater

The fall is to Orana Road. All stormwater from the proposed development is to be piped to the street drainage system through any tanks that may be required by the regulating authorities.

11. Excavations

An excavation to a maximum depth of ~2.0m is required to construct the proposed new house. Another excavation to a maximum depth of ~1.9m is required to construct the proposed new garage with gym. A third excavation to a maximum depth of ~1.7m is required to install the proposed pool. The excavations are expected to be through fill, topsoil and clay, with Extremely Low Strength Shale expected at depths from between ~1.2m to ~1.8m below the current surface.

It is envisaged that excavations through fill, soil, clay and Extremely Low Strength Shale can be carried out with an excavator and toothed bucket.

12. Vibrations

It is expected the proposed excavation will be carried out with an excavator and toothed bucket and the vibrations produced will be below the threshold limit for building or infrastructure damage using a domestic sized excavator up to 16 tonne.

13. Excavation Support Requirements

Bulk Excavation for House

An excavation to a maximum depth of ~2.0m is required to construct the proposed new house. Allowing for backwall drainage, the excavation is set back ~0.6m from the NE common boundary and ~0.9m from the NE neighbouring water tanks (Photo 5). The NE common boundary and NE neighbouring water tanks will be within the zone of influence of the excavation. In this instance, the zone of influence is the area above a theoretical 30° line

(from horizontal) through fill/soil and a theoretical 45° line through clay/shale from the base of the excavation, towards the surrounding structures and boundaries.

Due to the proximity to the NE neighbouring water tanks, The NE side of the cut will require ground support installed prior to the commencement of the excavation. See the Ground Floor Plan attached for the minimum extent of the required shoring shown in blue.

A spaced pile retaining wall is one of the suitable methods of support. Pier spacing is typically ~2.0m but can vary between 1.6 to 2.4m depending on the design. As the excavation is lowered in 1.5m lifts infill sprayed concrete panels or similar are added between the piers to form the wall. Drainage is to be installed behind the panels. To drill the pier holes for the walls, a pilling rig that can excavate through Medium to High Strength Rock will be required. The piers can be temporarily supported by embedment below the base of the excavation or with a combination of embedment and propping. The walls are to be tied into the Ground floor slab to provide permanent bracing after which any temporary bracing can be released.

The geotechnical consultant is to inspect the drilling process of the entire first pile and the ground materials at the base of all pier holes/excavations installed for ground support purposes.

Where shoring is not required, the fill/soil portion of the excavation is to be battered temporarily at 1.0 Vertical to 2.0 Horizontal (26°) until the retaining walls are in place. Excavations through clay and shale are expected to stand at near vertical angles for short periods of time until the retaining walls are in place, provided the cut batters are kept from becoming saturated.

Bulk Excavation for Garage and Gym

Another excavation to a maximum depth of ~1.9m is required to construct the proposed new garage with gym. The gym portion of the excavation is set back ~1.0m from the SW common boundary. The SW common boundary will be within the zone of influence of the excavation.

The SW side of the gym cut will need to be temporarily or permanently supported prior to the commencement of the excavation, or during the excavation process in a staged manner, so cut batters are not left unsupported. The support will need to be designed/approved by the structural engineer. See the Garage Level Plan attached for the minimum extent of the required shoring shown in blue.

Where shoring is not required, the fill/soil portion of the excavation is to be battered temporarily at 1.0 Vertical to 2.0 Horizontal (26°) until the retaining walls are in place. Excavations through clay and shale are expected to stand at near vertical angles for short periods of time until the retaining walls are in place, provided the cut batters are kept from becoming saturated.

Bulk Excavation for Pool

Another excavation to a maximum depth of ~1.7m is required to install the proposed pool. The excavation is set back sufficiently from the surrounding structures and boundaries.

The excavation is expected to stand at near-vertical angles for short periods of time until the pool structure is installed, provided the cut batters are kept from becoming saturated.

Advice Applying to All Excavations

Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. All unsupported cut batters are to be covered to prevent access of water in wet weather and loss of moisture in dry weather. The covers are to be tied down with metal pegs or other suitable fixtures so they can't blow off in a storm. The materials and labour to construct the retaining walls / pool structure are to be organised so on completion of the excavation they can be constructed as soon as possible. The excavation is to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast. If the retaining walls / pool structure are not constructed within a few days of the excavation being completed temporary shoring will be required.

All excavation spoil is to be removed from site following the current Environmental Protection Agency (EPA) waste classification guidelines.

14. Retaining Structures

For cantilever or singly propped retaining structures it is suggested the design be based on a triangular distribution of lateral pressures using the parameters shown in Table 1.

Table 1 – Likely Earth Pressures for Retaining Structures

Unit	Earth Pressure Coefficients			
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0	Passive
Fill, Topsoil	20	0.40	0.55	N/A
Residual Clays	20	0.35	0.45	Kp = 2.0 'ultimate'
Extremely Low Strength Shale	22	0.25	0.35	Kp = 2.5 'ultimate'

For rock classes refer to Pells et al "Design Loadings for Foundations on Shale and Sandstone in the Sydney Region". Australian Geomechanics Journal 1978.

It is to be noted that the earth pressures in Table 1 assume a level surface above the structure and do not account for any surcharge loads, noting that surcharge loads from the NE neighbouring tanks above will be acting on the wall. It also assumes retaining structures are fully drained. No passive resistance should be assumed for the top 0.4m to account for any disturbance from the excavation. Rock strength and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

All retaining structures are to have sufficient back-wall drainage and be backfilled immediately behind the structure with free draining material (such as gravel). This material is to be wrapped in a non-woven Geotextile fabric (i.e. Bidim A34 or similar), to prevent the drainage from becoming clogged with silt and clay. If no back-wall drainage is installed in

retaining structures the full hydrostatic pressures are to be accounted for in the retaining structure design.

15. Foundations

The proposed house, garage and pool are expected to be seated in Extremely Low Strength Shale on the uphill side. This is a suitable foundation material. On the downhill side where the shale drops away with the slope, piers taken to shale will be required to maintain a uniform foundation material across the structure. This ground material is expected at depths from between ~1.2m to ~1.8m below the current surface. A maximum allowable bearing pressure of 600kPa can be assumed for footings supported on Extremely Low Strength Shale. It should be noted that this material is a soft rock and a rock auger will cut through it so the builders should not be looking for refusal to end the footings.

The piers that will support the downhill portions of the proposed pool and spa are to be taken to beyond the zone of influence of the garage and gym retaining walls below. Additionally, the piers supporting the house are to be taken to beyond the zone of influence of the proposed pool. In this instance, the zone of influence is the area above a theoretical 45° line (from horizontal) through clay/shale from the base of the pier, towards the base of the retaining structure. Alternatively, the retaining structures can be designed to cope with the surcharge loads from the structures above.

As the bearing capacity of shale reduces when it is wet we recommend the footings be dug, inspected and poured in quick succession (ideally the same day if possible). If the footings get wet, they will have to be drained and the soft layer of shale on the footing surface will have to be removed before concrete is poured.

If a rapid turnaround from footing excavation to the concrete pour is not possible a sealing layer of concrete may be added to the footing surface after it has been cleaned.

NOTE: If the contractor is unsure of the footing material required it is more cost effective to get the geotechnical professional on site at the start of the footing excavation to advise on

footing depth and material. This mostly prevents unnecessary over excavation in clay like shaly rock but can be valuable in all types of geology.

16. Geotechnical Review

The structural plans are to be checked and certified by the geotechnical engineer as being in accordance with the geotechnical recommendations. On completion, a Form 2B will be issued. This form is required for the Construction Certificate to proceed.

17. Inspections

The client and builder are to familiarise themselves with the following required inspections as well as council geotechnical policy. We cannot provide geotechnical certification for the Occupation Certificate if the following inspections have not been carried out during the construction process.

- The geotechnical consultant is to inspect the ground materials while the first pier for the ground support is being dug to assess the ground strength and to ensure it is in line with our expectations. All finished pier holes for piled wall/excavations for ground support are to be inspected and measured before concrete is placed.

- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment and contractors are still onsite and before steel reinforcing is placed or concrete is poured.

White Geotechnical Group Pty Ltd.

Ben White M.Sc. Geol.,
AusIMM., CP GEOL.
No. 222757
Engineering Geologist.

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6: AH1 – Downhole is from left to right.

Important Information about Your Report

It should be noted that Geotechnical Reports are documents that build a picture of the subsurface conditions from the observation of surface features and testing carried out at specific points on the site. The spacing and location of the test points can be limited by the location of existing structures on the site or by budget and time constraints of the client. Additionally, the test themselves, although chosen for their suitability for the particular project, have their own limiting factors. The testing gives accurate information at the location of the test, within the confines of the test's capability. A geological interpretation or model is developed by joining these test points using all available data and drawing on previous experience of the geotechnical consultant. Even the most experienced practitioners cannot determine every possible feature or change that may lie below the earth. All of the subsurface features can only be known when they are revealed by excavation. As such, a Geotechnical report can be considered an interpretive document. It is based on factual data but also on opinion and judgement that comes with a level of uncertainty. This information is provided to help explain the nature and limitations of your report.

With this in mind, the following points are to be noted:

- If upon the commencement of the works the subsurface ground or ground water conditions prove different from those described in this report, it is advisable to contact White Geotechnical Group immediately, as problems relating to the ground works phase of construction are far easier and less costly to overcome if they are addressed early.

- If this report is used by other professionals during the design or construction process, any questions should be directed to White Geotechnical Group as only we understand the full methodology behind the report's conclusions.

- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

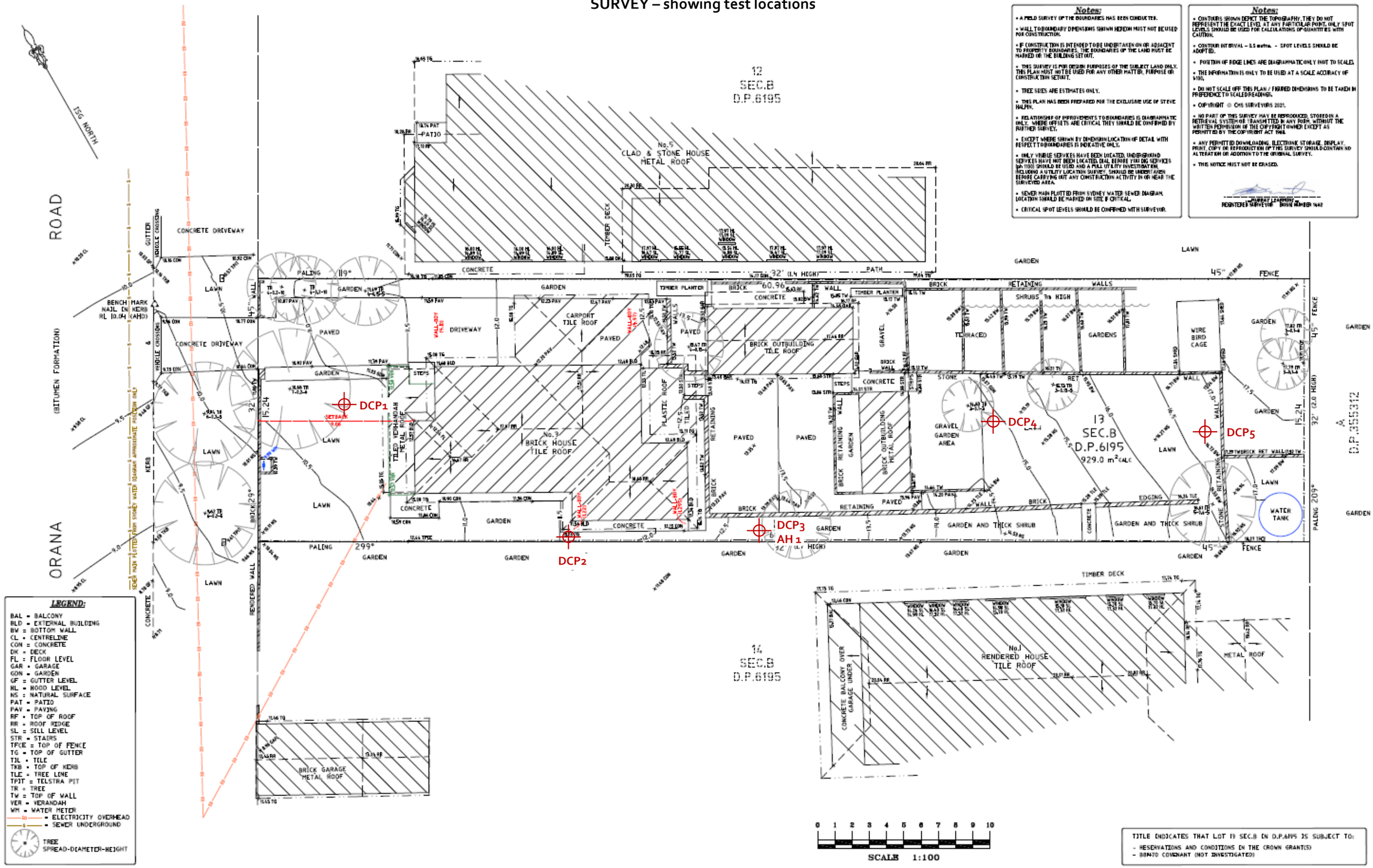
- This report should not be applied to any other project other than that outlined in section 1.0.

- This report is to be read in full and should not have sections removed or included in other documents as this can result in misinterpretation of the data by others.

- It is common for the design and construction process to be adapted as it progresses (sometimes to suit the previous experience of the contractors involved). If alternative design and construction processes are required to those described in this report, contact White Geotechnical Group. We are familiar with a variety of techniques to reduce risk and can advise if your proposed methods are suitable for the site conditions.

A1

SURVEY – showing test locations



Notes:

- A FIELD SURVEY OF THE BOUNDARIES HAS BEEN CONDUCTED.
- WALL TO BOUNDARY DIMENSIONS SHOWN HEREON MUST NOT BE USED FOR CONSTRUCTION.
- IF CONSTRUCTION IS INTENDED TO BE UNDERTAKEN ON OR ADJACENT TO PROPERTY BOUNDARIES, THE BOUNDARIES OF THE LAND MUST BE MARKED ON THE BUILDING SET OUT.
- THIS SURVEY IS FOR DESIGN PURPOSES OF THE SUBJECT LAND ONLY. THIS PLAN MUST NOT BE USED FOR ANY OTHER MATTER, PURPOSE OR CONSTRUCTION SETOUT.
- TREE SIZES ARE ESTIMATES ONLY.
- THIS PLAN HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF STEVE HALPIN.
- RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES IS DIAGRAMMATIC ONLY. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY.
- EXCEPT WHERE SHOWN BY DIMENSION LOCATION OF DETAIL WITH RESPECT TO BOUNDARIES IS INDICATIVE ONLY.
- ONLY VISIBLE SERVICES HAVE BEEN LOCATED. UNDERGROUND SERVICES HAVE NOT BEEN LOCATED. DIAL BEFORE YOU DIG SERVICES (ph 1100) SHOULD BE USED AND A FULL UTILITY INVESTIGATION, INCLUDING A UTILITY LOCATION SURVEY, SHOULD BE UNDERTAKEN BEFORE CARRYING OUT ANY CONSTRUCTION ACTIVITY IN OR NEAR THE SURVEYED AREA.
- SEWER MAIN PLOTTED FROM SYDNEY WATER SEWER DIAGRAM. LOCATION SHOULD BE MARKED ON SITE IF CRITICAL.
- CRITICAL SPOT LEVELS SHOULD BE CONFIRMED WITH SURVEYOR.

Notes:

- CONTOURS SHOWN DEPICT THE TOPOGRAPHY. THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT, ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- CONTOUR INTERVAL – 0.5 metre. - SPOT LEVELS SHOULD BE ADOPTED.
- POSITION OF RIDGE LINES ARE DIAGRAMMATIC ONLY AND NOT TO SCALE.
- THE INFORMATION IS ONLY TO BE USED AT A SCALE ACCURACY OF 1:100.
- DO NOT SCALE OFF THIS PLAN / FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED READINGS.
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- THIS NOTICE MUST NOT BE ERASED.

MURRAY LEARMONT
REGISTERED SURVEYOR 9098 NUMBER 1462

LEGEND:

BAL = BALCONY
BLD = EXTERNAL BUILDING
BW = BOTTOM WALL
CL = CENTRELINE
CON = CONCRETE
DK = DECK
FL = FLOOR LEVEL
GAR = GARAGE
GDN = GARDEN
GF = GUTTER LEVEL
HL = HOOD LEVEL
NS = NATURAL SURFACE
PAT = PATIO
PAV = PAVING
RF = TOP OF ROOF
RR = ROOF RIDGE
SL = SILL LEVEL
STR = STAIRS
TFCE = TOP OF FENCE
TG = TOP OF GUTTER
TIL = TILE
TKB = TOP OF KERB
TLE = TREE LINE
TPIT = TELSTRA PIT
TR = TREE
TW = TOP OF WALL
VER = VERANDAH
WM = WATER METER
= ELECTRICITY OVERHEAD
= SEWER UNDERGROUND
TREE
SPREAD-DIAMETER-HEIGHT

SCALE 1:100

TITLE INDICATES THAT LOT 13 SEC.B IN D.P.6195 IS SUBJECT TO:
- RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- 88B470 COVENANT (NOT INVESTIGATED)

2	ADDED GARAGE TO No.1 ORANA	13/12/2021	
1	FIRST ISSUE	8/12/2021	

HORIZONTAL DATUM:
CO-ORDINATE SYSTEM: ASSUMED
MARKS ADOPTED:
LGA: NORTHERN BEACHES

VERTICAL DATUM:
DATUM: AUSTRALIAN HEIGHT DATUM (AHD)
B.M. ADOPTED: PM 45928
R.L. 4.898 (CLASS LC)
SOURCE: S.C.J.M.S. (22/11/2021)

CLIENT:
STEVE HALPIN
No.3 ORANA ROAD
MONA VALE, NSW, 2103

BOUNDARY IDENTIFICATION AND DETAIL & LEVEL SURVEY
OVER LOT 13 SEC. B IN DP6195
No.3 ORANA ROAD
MONA VALE, NSW, 2103

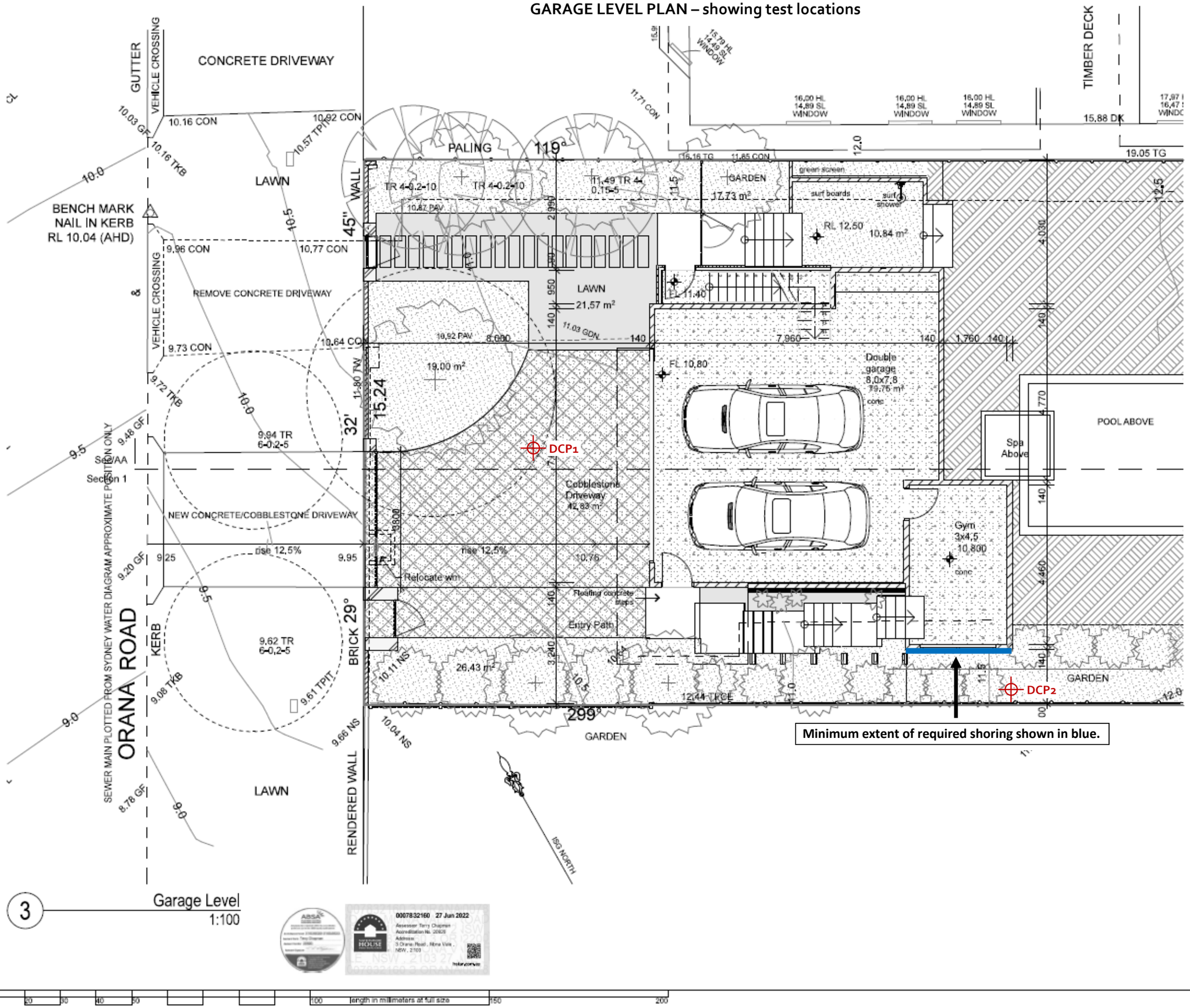
C.M.S. Surveyors Pty Limited
ACN: 096 240 201
PO Box 463 Dee Why NSW 2099
2/99A South Creek Road, Dee Why NSW 2099
Telephone: (02) 9971 4802 Facsimile: (02) 9971 4822
E-mail: info@cmssurveyors.com.au

SURVEYED	DRAWN	CHECKED	APPROVED
HH	GP	HH	BG

SURVEY INSTRUCTION	SCALE	DATE OF SURVEY
20913	1:100 @ A1, 1:200 @ A3	30/11/2021

DRAWING NAME: 20913detail
CAD FILE: 20913detail 2.dwg
SHEET: 1 OF 1
ISSUE: 2

GARAGE LEVEL PLAN – showing test locations



3 Garage Level
1:100

0007832160 27 Jun 2022
Assessor Terry Chapman
Accreditation No. 20928
Address
3 Orana Road , Mona Vale , NSW , 2103

The builder shall check and verify all dimensions and verify all errors and omissions to the Architect. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Architect for construction.

Client
S & J Halpin
Project Name
Halpin House and Pool
3 Orana Rd Mona Vale
2103
SITE SPECIFIC DESIGNS
Sheridan Hogan BJSc(Arch) BJ(Arch) UNSyd
0418 954 695 sheridan_sw@bigpond.com
Drawing Title
Plans Ground • Garage Floor
Garage Level

Scale: as noted	Date: 10.06.22
Status: DA	Checked By: SH
Project No: 2022 02	Drawing No.: DA01
Plot Date:	18/06/2022

length in millimeters at full size

GROUND FLOOR PLAN – showing test locations

Minimum extent of required shoring shown in blue.

DCP4
DCP5
DCP3
AH 1

Ground Floor
1:100

3

Remove Cocas palm

Remove Cocas palm

TIMBER DECK

Garage outline to be demolished

Remove small fruit trees

Remove Cocas palm

Lawn/Garden
6.5x8.5
99.05 m²

Alfresco
8.1x6.4
42.40 m²

Garden
59.41 m²

Garden
30.21 m²

Bed 1
6,3x4,0
cpt

Bed 5
3,0x4,1
cpt

WIR 1
2.7x2.5
cpt

Ens 1
2.7x3.0
tiles

Powder
1.8x2.1
tiles

Laundry
2.2x3.9
tiles

Living
5,0x5,5

Dining
4.5x5.5

Kitchen
5,0x3,0

Pantry
1.5x2.8

Entry
2.4x2.7

Ground
Floor Area
176,3 m²

3m b'bar

Existing
Frangipanis

Garden

BBQ

GARDEN AND THICK SHRUB

GARDEN

LAWN

pol.conc

timber
hallway

gravel

fireplace

Privacy screen

High windows

Threshold drain

Recessed door track

New timber stairs

Roof above

wall above

FL 14.50

FL 14.00

FL 15.0

FL 15.5

14.40

14.450

WINDOW
16.40 SL
17.32 HL

WINDOW
16.40 SL
17.32 HL

WINDOW
15.19 SL
17.32 HL

WINDOW
15.70 SL
17.32 HL

WINDOW
15.70 SL
17.32 HL

17.75 TG

12.46 CON

15.27 BAL

17.74 TG

14 RF

ISG NORTH

ISG NORTH

45"

17.89 NS

16.94

16.92 NS

14.53 NS

18.67 NS

18.73 NS

2,440

12.5

16,545

13.5

3.000

1.950

2.410

3.090

(1,7 HIGH)

45"

8,870

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Client
S & J Halpin
Project Name
Halpin House and Pool
3 Orana Rd Mona Vale
2103

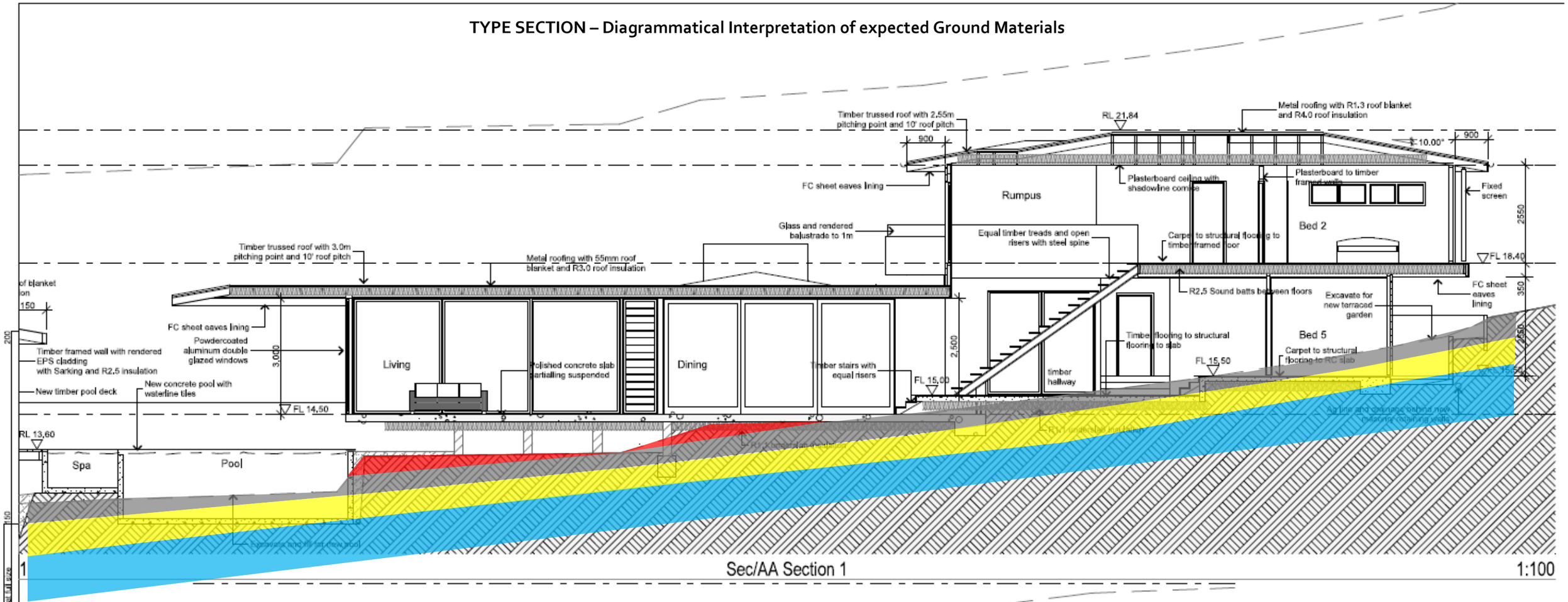
SITE SPECIFIC DESIGNS
Sheridan Hogan BJSc(Anth) BJ(Anth) LLByd
0418 954 635 sheridan_reed@bigpond.com

Drawing Title
Plans Ground • Ground Floor Plan
Ground Floor

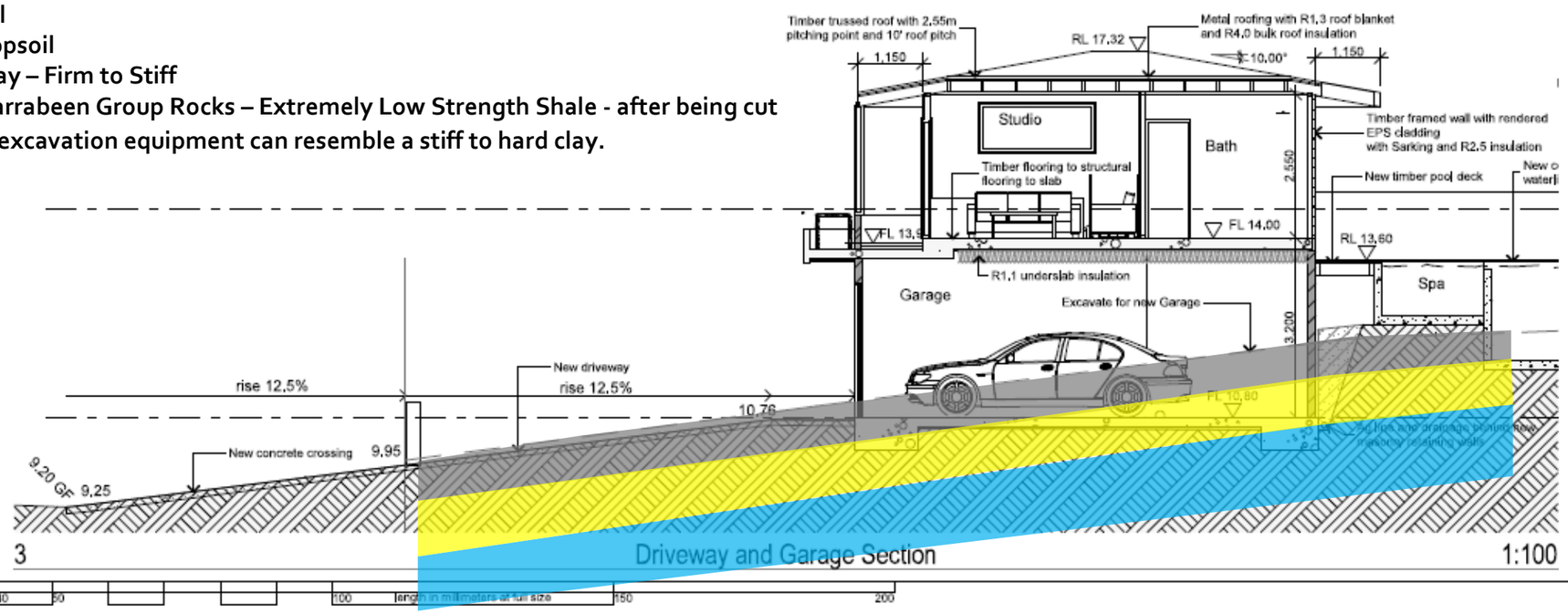
Scale: as noted	Date: 10.06.22
Status: DA	Checked By: SH
Project No: **2022 02**	Drawing No.: **DA02-b**
Plot Date:	15/06/2022

0007832160 27 Jun 2022

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



- Fill
- Topsoil
- Clay – Firm to Stiff
- Narrabeen Group Rocks – Extremely Low Strength Shale - after being cut up by excavation equipment can resemble a stiff to hard clay.



0007832160 27 Jun 2022
Assessor Terry Chapman
Accreditation No. 20920
Address
3 Orana Road , Mona Vale ,
NSW, 2103

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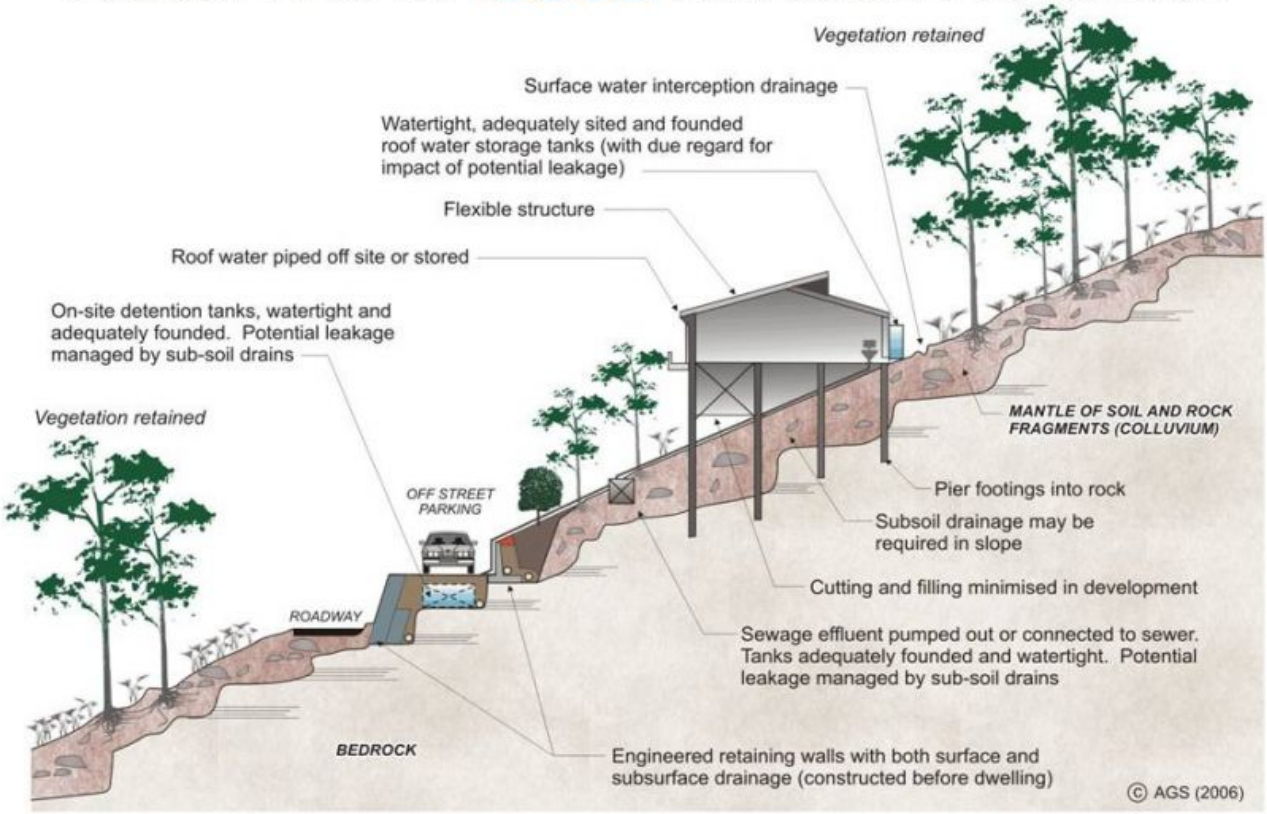
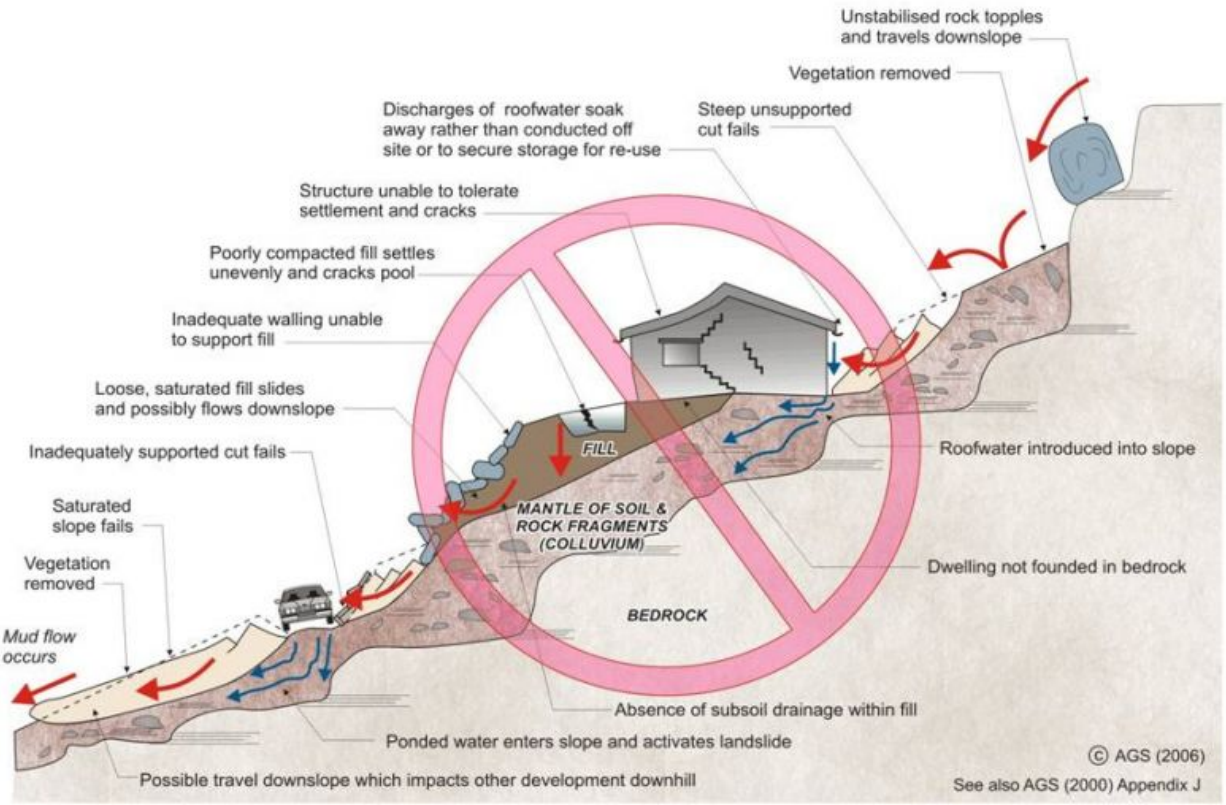
Client
S & J Halpin
Project Name
Halpin House and Pool
3 Orana Rd Mona Vale
2103

SITE SPECIFIC DESIGNS
Sheridan Hogan BJSc(Arch) BJ(Arch) LJByd
0418 954 635 sheridan_reid@bigpond.com

Drawing Title
Elevations • Sections
Driveway and Garage Section, Sec/AA Section 1

Scale: as noted	Date: 10.06.22
Status: DA	Checked By: SH
Project No: 2022 02	Drawing No: DA04
Plot Date:	24/06/2022

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE