73 Pacific Road, Palm Beach

Geotechnical Comments for Section 4.55

We have reviewed the existing geotechnical report, the original plans, and the 25 amended plans by CM Studio, Project number 2020_112, drawings numbered DA-401, DA-402, DA501 to DA-503, and DA-601 to DA-603 are Issue A, drawings numbered DA-104, DA-32, and DA-403 are Issue B, and drawings numbered DA-000, DA-101 to DA-103, DA-105 to DA-107, DA-201 to DA-206, and DA-301 are Issue C, all drawings dated 23/6/22.

The changes are as follows:

- Construct a new low retaining wall beside the proposed garage.
- Alter the internal layout of the lower ground floor of the house.
- Various other minor modifications to the house and external areas.

The changes are considered minor from a geotechnical perspective and do not alter the recommendations or the risk assessment in the original report carried out by this firm numbered J2963 and dated the 27th October, 2020.

White Geotechnical Group Pty Ltd.

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 73 Pacific Road, Palm Beach

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 27/10/20 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 **73 Pacific Road, Palm Beach**

Report Date: 27/10/20

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 73 Pacific Road, Palm Beach

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 **73 Pacific Road, Palm Beach**

Report Date: 27/10/20

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **27/10/20**
(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 **27/10/20**

☒ 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:

Alterations and Additions and New Garage at **73 Pacific Road, Palm Beach**

1. Proposed Development

1.1 Construct a new garage with a studio over on the downhill side of the property by excavating to a maximum depth of ~5.0m into the slope.

1.2 Construct a new lower ground floor extension.

1.3 Construct a new internal lift on the downhill side of the house.

1.4 Various internal and external modifications.

1.5 Details of the proposed development are shown on 25 drawings prepared by CM Studio, Project number 2020_112, drawings numbered DA-000, 101 to 107, 201 to 206, 301, 302, 401 to 403, 501 to 503, and 601 to 603, Issue A, dated 26/10/20.

2. Site Description

2.1 The site was inspected on the 21st September, 2020.

2.2 This residential property has dual access. It is on the downhill side of Pacific Road and on the uphill side of Mitchell Road. The property has a NW aspect. The block is located on the moderate to steeply graded upper reaches of a hillslope. The natural surface falls across the property at an average angle of ~20°. The slope above the property gradually eases. The slope below the property gradually increases in grade.

2.3 At the road frontage to Pacific Road, a concrete driveway runs down the slope to a garage on the ground floor of the house (Photo 1). The cut for the driveway is supported by a stable rendered masonry retaining wall reaching ~2.0m high (Photo 2). Between the road frontage and the house is a gently sloping garden area (Photo 3).

An excavation has been made through this slope for the uphill side of the house. The cut is supported by a stable rendered masonry retaining wall ~1.1m high (Photo 4). The part three-storey rendered brick house is supported on brick walls and brick piers (Photos 5 & 6). No significant signs of movement were observed in the supporting walls of the house and the supporting piers stand vertical. Some of the walls and piers were observed to be supported directly off competent Medium Strength Sandstone bedrock within the foundation space of the house. An excavation has been made in the slope for the lower ground floor of the house. The ~2.0m cut has been taken entirely through competent Medium Strength Sandstone (Photo 7). No significant geological defects were observed in the cut face and it is considered stable. A pool has been constructed on the downhill side of the house (Photo 8). The water level of the pool indicates no ground movement has occurred in the shell of the pool since its construction. A small terraced garden slope falls from the downhill side of the house and pool to a gently sloping lawn area below (Photo 9). The terraces are supported by stable rendered masonry retaining walls reaching ~1.4m high. At the E end, the walls were observed to be supported directly off outcropping Medium Strength Sandstone (Photo 10). The outcrop steps down the slope ~1.7m. No significant geological defects were observed in the outcrop and it is considered stable. A concrete parking area has been constructed below the outcrop and beside the lawn (Photo 11). A concrete driveway provides access to the parking area from Mitchell Road (Photo 12). Between the road frontage to Mitchell Road and the parking area and lawn is a terraced garden (Photo 13). The terraces are supported by stable sandstone block retaining walls reaching ~1.0m high.

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by Hawkesbury Sandstone. It is described as a medium to coarse grained quartz sandstone with very minor shale and laminite lenses.

4. Subsurface Investigation

Five DCP (Dynamic Cone Penetrometer) tests were carried out to determine the relative density of the overlying soil and the depth to bedrock. The locations of the tests are shown on the site plan. 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 be an issue for the testing on this site. However, excavation and foundation budgets should always allow for the possibility that the interpreted ground conditions in this report vary from those encountered during excavations. See the appended "Important information about your report" for a more comprehensive explanation. The results are as follows:

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** (~RL86.0)	**DCP 2** (~RL82.9)	**DCP 3** (~RL81.1)	**DCP 4** (~RL81.3)	**DCP 5** (~RL80.3)
0.0 to 0.3	Rock Exposed at Surface	Rock Exposed at Surface	6	4	17
0.3 to 0.6			15	6	55
0.6 to 0.9			19	#	9
0.9 to 1.2			7		10
1.2 to 1.5			8		9
1.5 to 1.8			14		14
1.8 to 2.1			#		17
2.1 to 2.4					30
2.4 to 2.7					37
2.7 to 3.0					#
			Refusal on Rock @ 1.8m	Refusal on Rock @ 0.4m	End of Test @ 2.7m

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

DCP Notes:

DCP1 – Rock exposed at surface.
DCP2 – Rock exposed at surface.
DCP3 – Refusal on rock @ 1.8m, DCP bouncing off rock surface, clean dry tip.
DCP4 – Refusal on rock @ 0.4m, DCP bouncing off rock surface, brown clay on wet tip.
DCP5 – End of test @ 2.7m, DCP still very slowly going down, grey clay on wet tip, grey clay in collar above tip.

5. Geological Observations/Interpretation

The surface features of the block are controlled by the outcropping and underlying sandstone bedrock that steps down the property forming sub-horizontal benches between the steps. Where the grade is steeper, the steps are larger and the benches narrower. Where the slope eases, the opposite is true. Manmade fill has been placed across the property for landscaping. Where the rock is not exposed, it is overlain by fill, sandy soils, and sandy clays that fill the bench step formation. In the test locations where rock was not exposed, it was encountered at depths of between 0.4 to 1.8m below the current surface, being slightly deeper due to fill encountered in DCP3 and due to the stepped nature of the underlying bedrock. It is likely DCP5 was over a joint (crack) in the rock as it reached a maximum depth of 2.7m. The outcropping sandstone on the property is estimated to be Medium Strength or better and similar strength rock is expected to underlie the entire site. See Type Section attached for a diagrammatical representation of the expected ground materials.

6. Groundwater

Groundwater seepage was observed to be flowing over the surface of the exposed sandstone under the house. Normal ground water seepage is expected to move over the buried surface of the rock and through the cracks. Due to the slope and elevation of the block, the water table is expected to be many metres below the base of the proposed excavation.

7. Surface Water

No evidence of significant surface flows were observed on the property during the inspection. Normal sheet wash from the slope above will be intercepted by the street drainage system for Pacific Road above.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above or beside the property. The moderate to steeply graded land surface that falls across the property and continues below is a potential hazard (**Hazard One**). The vibrations from the proposed excavations are a potential hazard (**Hazard Two**). A loose boulder, wedge, or similar geological defect toppling onto the work site during the excavation process is a potential hazard (**Hazard Three**).

RISK ANALYSIS SUMMARY ON THE NEXT PAGE

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two	Hazard Three
TYPE	The moderate to steep slope that falls across the property and continues below failing and impacting on the property.	The vibrations produced during the proposed excavations impacting on the surrounding structures.	A loose boulder, wedge, or similar geological defect toppling onto the work site during the excavation process.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (20%)	'Medium' (15%)	'Medium' (20%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})	'Moderate' (2×10^{-4})
RISK TO LIFE	8.3×10^{-7}/annum	5.3×10^{-7}/annum	8.4×10^{-4}/annum
COMMENTS	'ACCEPTABLE' level of risk to life & property.	This level of risk to property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels the recommendations in **Section 12** are to be followed.	This level of risk to life and property is 'UNACCEPTABLE'. To move 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 Mitchell Road. Roof water from the 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 ~5.0m is required to construct the proposed garage with studio over. The excavation is expected to be through fill over natural soil and clay with Medium Strength Sandstone encountered at the surface and to a maximum depth of ~1.8m.

It is envisaged that excavations through fill, sandy soil, and sandy clays can be carried out with a bucket and excavations through rock will require grinding or rock sawing and breaking.

12. Vibrations

Possible vibrations generated during excavations through fill, sandy soils, and sandy clays will be below the threshold limit for building damage.

The majority of the excavation is expected to be through Medium Strength Sandstone. Excavations through rock should be carried out to minimise the potential to cause vibration damage to the subject pool and E neighbouring house. The subject pool will be as close as ~1.0m and the E neighbouring house will be as close as ~5.0m from the edges of the excavation to construct the garage. Close controls by the contractor over rock excavation are recommended so excessive vibrations are not generated.

Excavation methods are to be used that limit peak particle velocity to 10mm/sec at the subject pool and property boundaries. Vibration monitoring will be required to verify this is achieved.

If a milling head is used to grind the rock, vibration monitoring will not be required. Alternatively, if rock sawing is carried out around the perimeter of the excavation boundaries in not less than 1.0m lifts, a rock hammer up to 300kg could be used to break the rock without vibration monitoring. Peak particle velocity will be less than 10mm/sec at the subject pool

and property boundaries using this method provided the saw cuts are kept well below the rock to broken.

It is worth noting that vibrations that are below thresholds for building damage may be felt by the occupants of the subject and neighbouring properties.

13. Excavation Support Requirements

Bulk Excavation for Garage

One corner of the excavation will come close to flush with the rendered masonry retaining wall above and another corner will be set back a minimum of ~1.0m from the E common boundary. However, the retaining wall above was observed to be supported directly onto outcropping Medium Strength Sandstone (Photo 10) and where the excavation comes closest to the E common boundary, the rock was encountered at a depth of just 0.4m. Additionally, all remaining sides of the excavation are sufficiently set back from the surrounding structures and boundaries. Thus, no structures or boundaries (including the retaining wall and E common boundary) will be within the zone of influence of the proposed excavation.

The fill and soil portions of the cut batters are to be battered temporarily at 1.0 Vertical to 2.0 Horizontal (30°) until the retaining walls are in place. Excavations through natural clay will stand unsupported for a short period of time until the retaining walls are in place, provided they are kept from becoming saturated. Medium Strength Sandstone or better will stand at vertical angles unsupported subject to approval by the geotechnical consultant.

During the excavation process, the geotechnical consultant is to inspect the excavations as they are lowered in 1.5m intervals to ensure the ground materials are as expected and no wedges or other geological defects are present that could require additional support. Should additional ground support be required, this will likely involve the use of mesh, sprayed concrete, and rock bolts.

Unsupported cut batters through fill, soil, and clay 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. Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. The materials and labour to construct the retaining walls are to be organised so on completion of the excavation they can be constructed as soon as possible. The excavations are to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast.

Upon completion of the excavations, it is recommended all cut faces be supported with retaining walls to prevent any potential future movement of joint blocks in the cut faces that can occur over time, when unfavourable jointing is obscured behind the excavation faces. Additionally, retaining walls will help control seepage and to prevent minor erosion and sediment movement.

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

14. Retaining Walls

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

Table 1 – Likely Earth Pressures for Retaining Walls

Unit	Earth Pressure Coefficients		
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0
Fill, Sandy Soil, and Residual Clay	20	0.40	0.55
Medium Strength Sandstone	24	0.00	0.10

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, do not account for any surcharge loads and assume retaining walls are fully drained. Rock strength and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

All retaining walls are to have sufficient back-wall drainage and be backfilled immediately behind the wall 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 walls, the likely hydrostatic pressures are to be accounted for in the structural design.

15. Foundations

A concrete slab and piers (where required) supported directly off Medium Strength Sandstone are suitable footings for the proposed garage, lower ground floor extension, and lift. This ground material is expected to be exposed across the majority of the base of the excavations. Where sandstone is not exposed, it is expected at a maximum depth of ~1.8m. A maximum allowable bearing pressure of 1000kPa can be assumed for footings on Medium Strength Sandstone.

Naturally occurring vertical cracks (known as joints) commonly occur in sandstone. These are generally filled with soil and are the natural seepage paths through the rock. They can extend to depths of several metres and are usually relatively narrow but can range between 0.1 to 0.8m wide. If a footing falls over a joint in the rock, the construction process is simplified if, with the approval of the structural engineer, the joint can be spanned or, alternatively, the footing can be repositioned so it does not fall over the joint.

NOTE: If the contractor is unsure of the footing material required, it is more cost-effective to get the geotechnical consultant 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. 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 owners or the regulating authorities if the following inspections have not been carried out during the construction process.

- During the excavation process, the geotechnical consultant is to inspect the cut faces as they are lowered in 1.5m intervals to ensure ground materials are as expected and that there are no wedges or other defects present in the rock that may require additional support.

- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment is 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

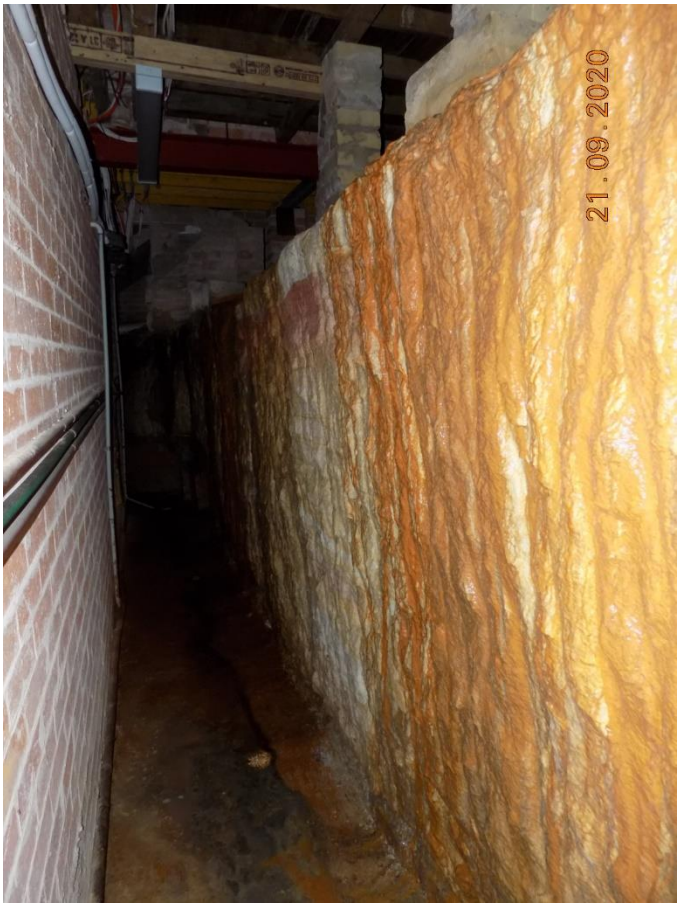


Photo 7

Photo 8

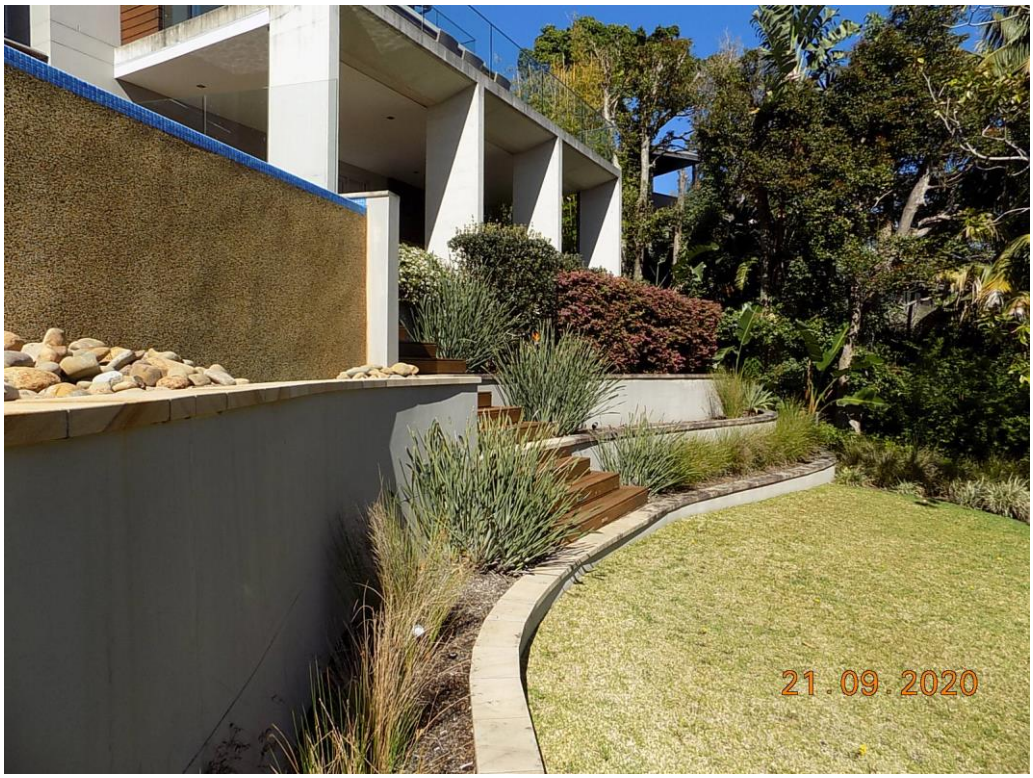


Photo 9

Photo 10

Photo 11

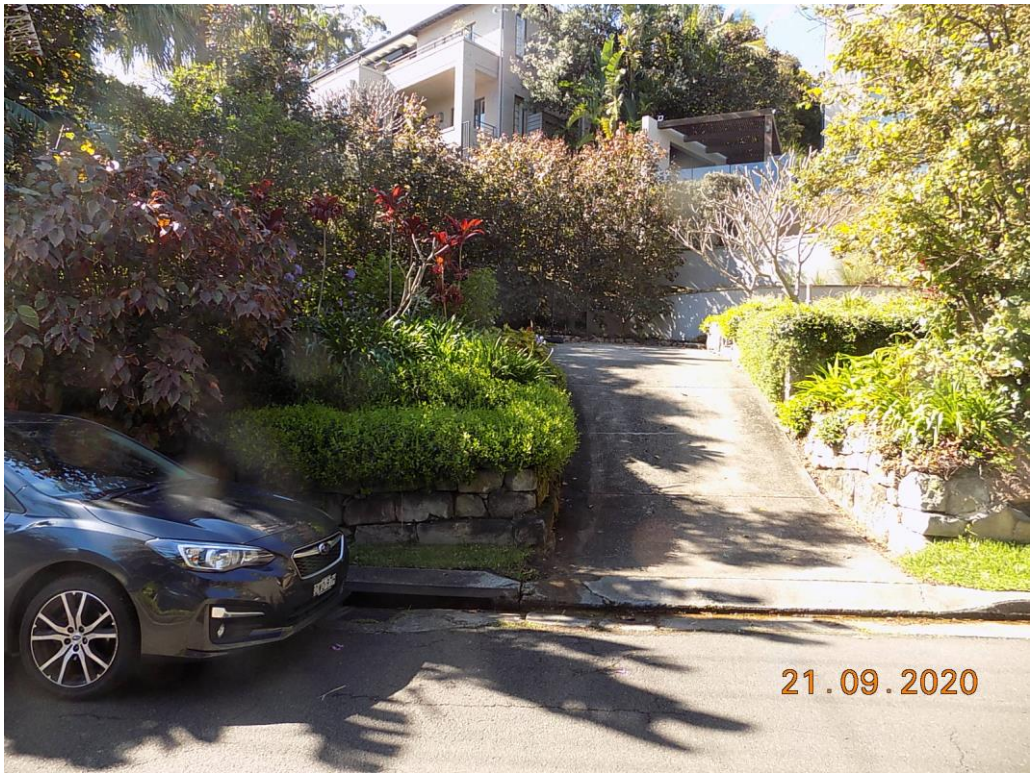


Photo 12

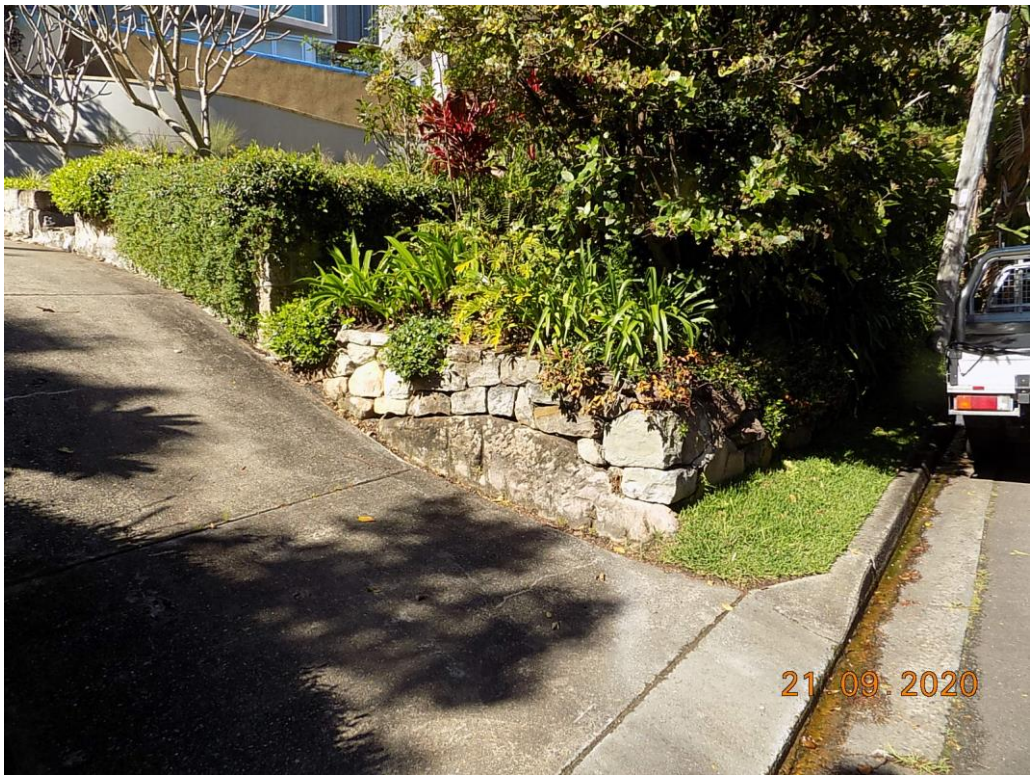


Photo 13

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.

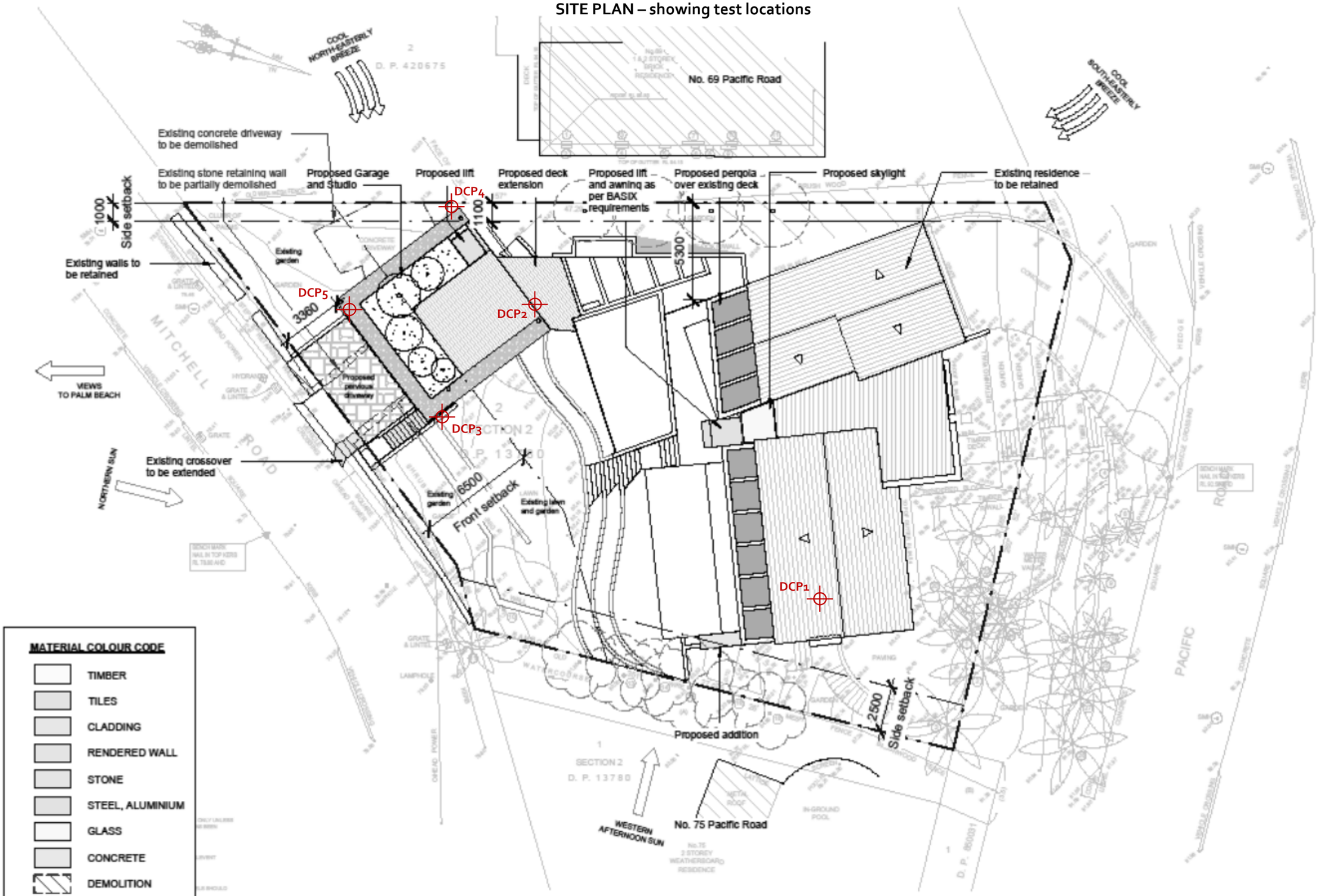
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- 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.

SITE PLAN – showing test locations



MATERIAL COLOUR CODE

- TIMBER
- TILES
- CLADDING
- RENDERED WALL
- STONE
- STEEL, ALUMINIUM
- GLASS
- CONCRETE
- DEMOLITION

Project: Pacific House II Palm Beach

73 Pacific Road, Palm Beach

Project number 2020_112

Client: Cameron Blanks

Drawing Number: DA-101 Issue A

Date 26-10-2020

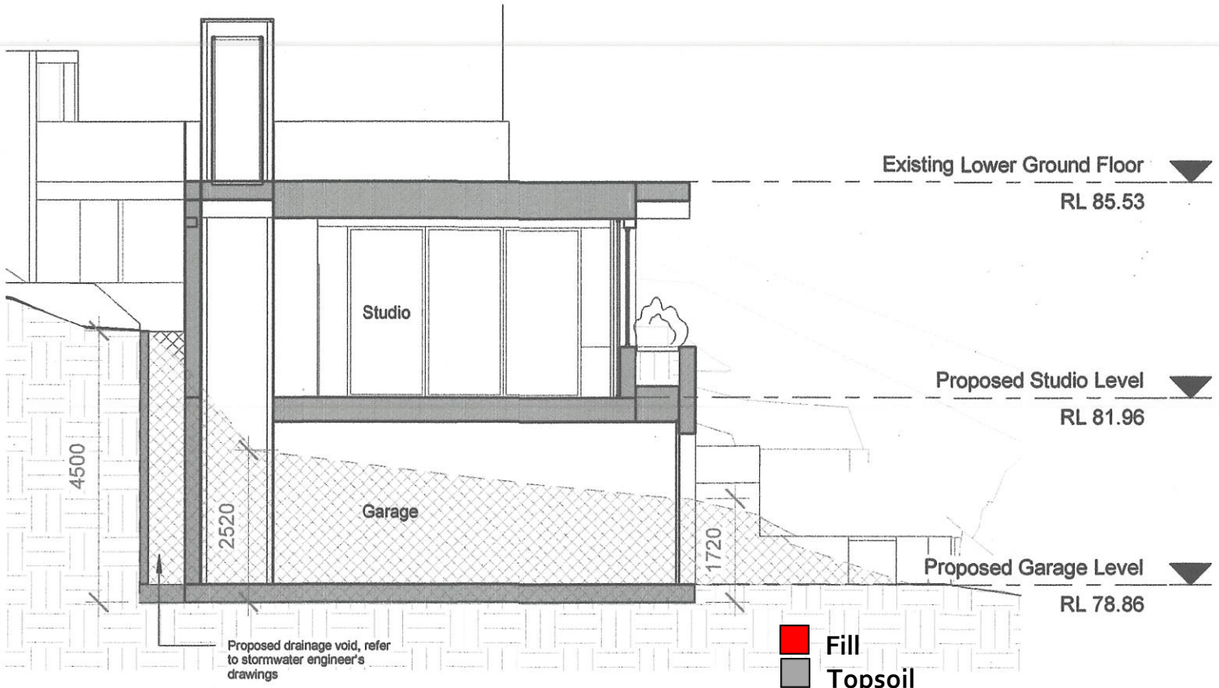
N

Drawing: Site Plan + Site Analysis Plan

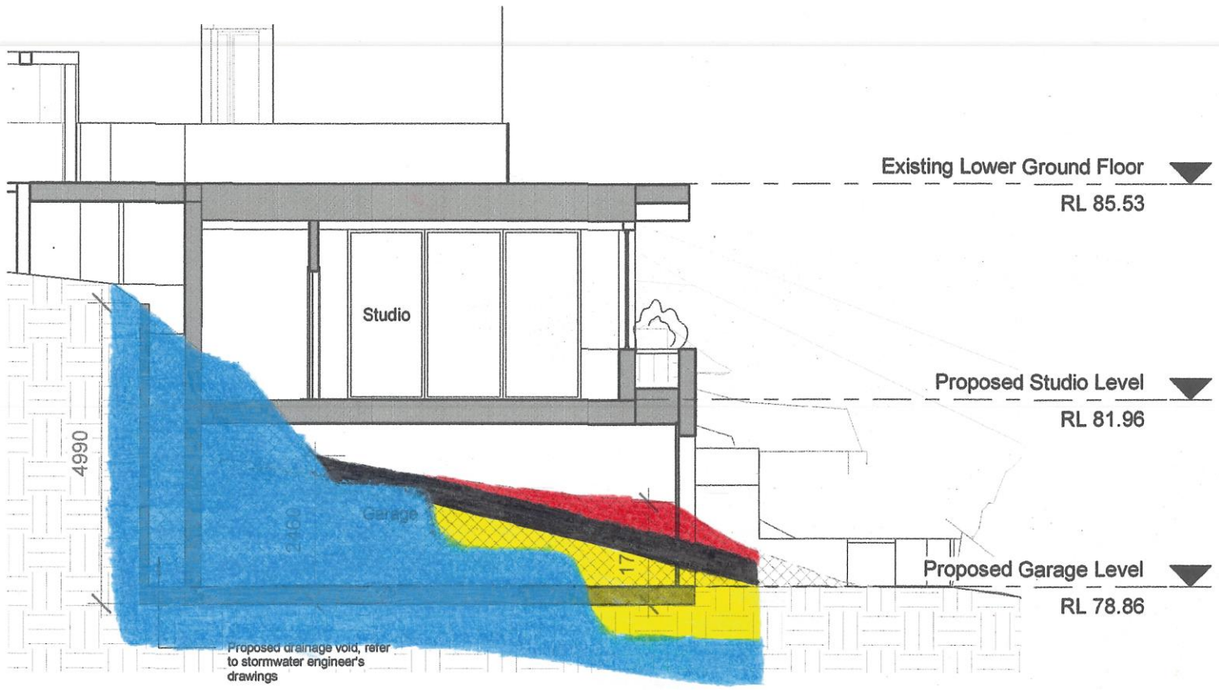
Scale 1 : 200

Drawn by: EV Checked by: OP

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials

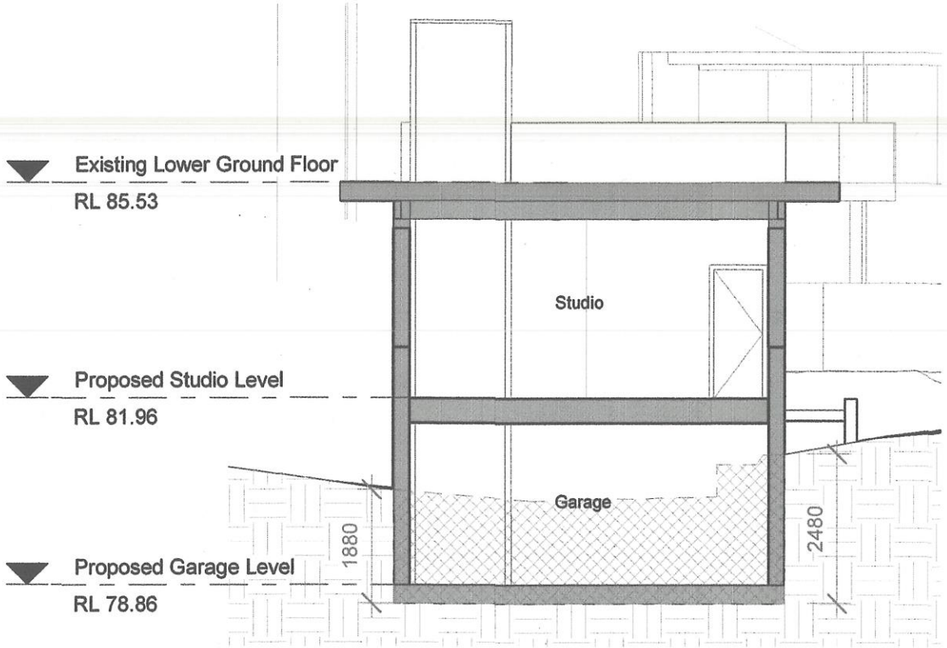


Section A-A

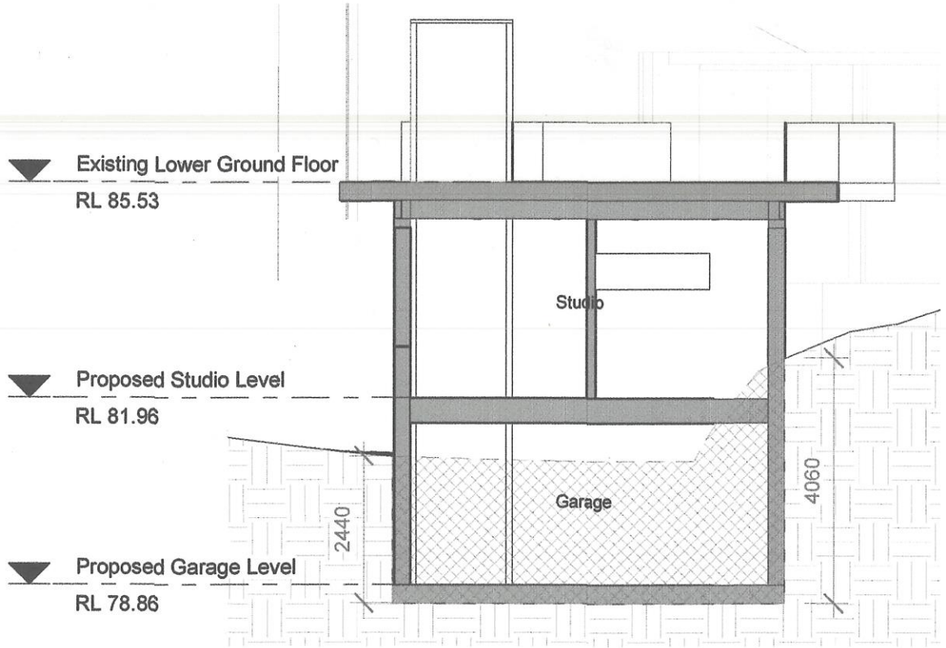


Section B-B

Fill
Topsoil
Sandy Clay
Hawkesbury Sandstone – Medium Strength



Section C-C



Section D-D

Project: Pacific House II Palm Beach

73 Pacific Road, Palm Beach

Project number 2020_112

Client: Cameron Blanks

Drawing Number: DA-603 Issue A

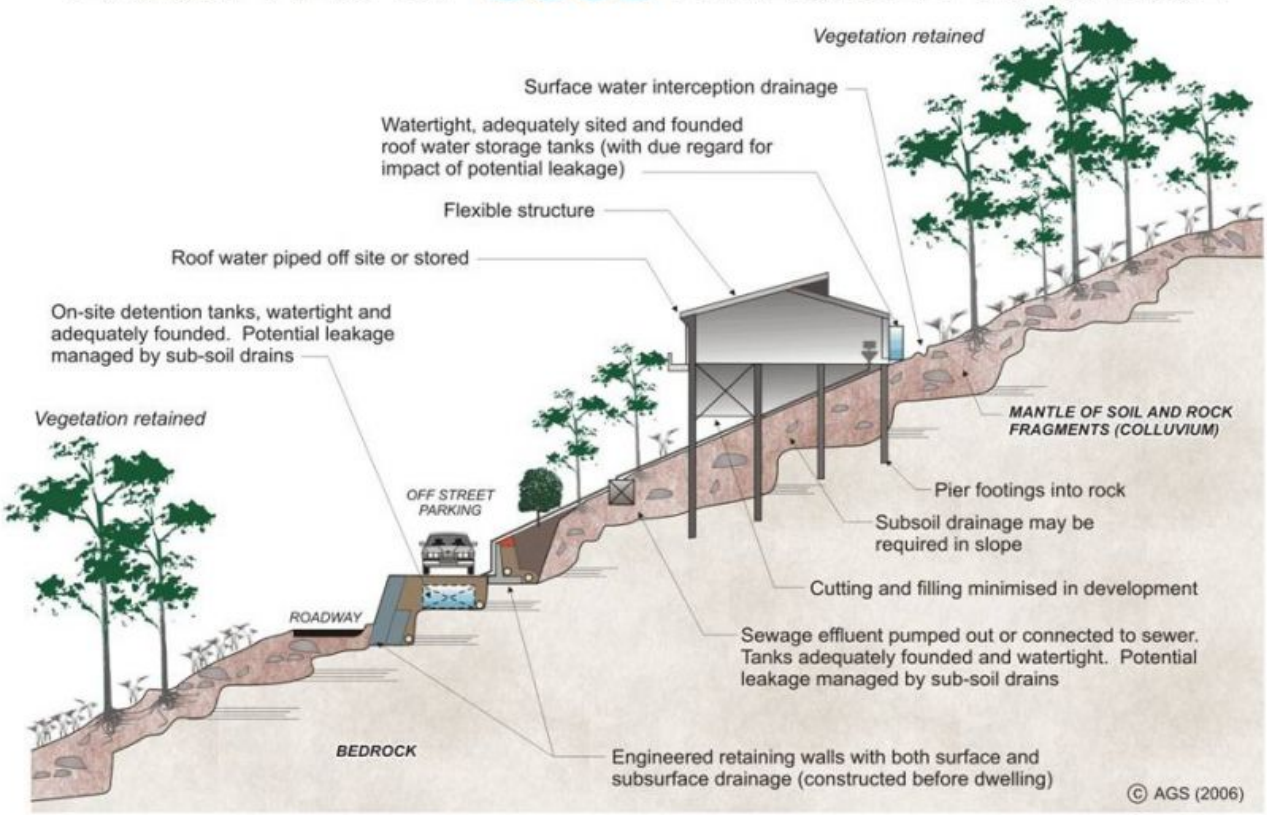
Date 26-10-2020

Drawing: Excavation Sections

Scale 1 : 100

Drawn by: EV Checked by: OP

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE