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

Development Application for		
		Name of Applicant
Addre	ss of site	885 Barrenjoey Road, Palm Beach
		ers the minimum requirements to be addressed in a Geotechnical Risk Declaration made by engineering geologist or coastal engineer (where applicable) as part of a geotechnical report
l,	Ben White (Insert Name)	on behalf of White Geotechnical Group Pty Ltd (Trading or Company Name)
organisa	engineer as defined	certify that I am a geotechnical engineer or engineering geologist or I by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above sue this document and to certify that the organisation/company has a current professional indemnity.
: Please r	mark appropriate b	box
\boxtimes		ne detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics de Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for
\boxtimes	accordance with t	chnically verify that the detailed Geotechnical Report referenced below has been prepared in the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the k Management Policy for Pittwater - 2009
	with Section 6.0 c assessment for t	ne site and the proposed development in detail and have carried out a risk assessment in accordance of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk the proposed development are in compliance with the Geotechnical Risk Management Policy for and further detailed geotechnical reporting is not required for the subject site.
	have examined the Application only	ne site and the proposed development/alteration in detail and I am of the opinion that the Development involves Minor Development/Alteration that does not require a Geotechnical Report or Risk hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
	have examined the Hazard and does the Geotechnical	ne site and the proposed development/alteration is separate from and is not affected by a Geotechnical not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with Risk Management Policy for Pittwater - 2009 requirements.
	have provided the	e coastal process and coastal forces analysis for inclusion in the Geotechnical Report
Geotech	nnical Report Deta	
	Report Title: Geoto Report Date: 23/1	echnical Report 885 Barrenjoey Road, Palm Beach 10/25
	Author: BEN WH	IITE
	Author's Company	y/Organisation: WHITE GEOTECHNICAL GROUP PTY LTD
Docume	entation which rela	ate 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	clut
Name	Ben White
Chartered Professional Sta	ntus 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

	201010011111111111111111111111111111111	
Dev	Development Application for Name of Applicant	
Add	Address of site 885 Barrenjoey Road, Palm Beach	
	The following checklist covers the minimum requirements to be addressed in Report. This checklist is to accompany the Geotechnical Report and its certification.	
Geote	Geotechnical Report Details:	
Rep	Report Title: Geotechnical Report 885 Barrenjoey Road, Palm Beach	h
	Report Date: 23/10/25	
	Author: BEN WHITE	
Autl	Author's Company/Organisation: WHITE GEOTECHNICAL GROUP PT	TY LTD
Pleas	Please mark appropriate box	
\boxtimes	Mapping details presented on contoured site plan with geomorphic ma	apping to a minimum scale of 1:200 (as appropriate)
\boxtimes	Subsurface investigation required	,
	☐ No Justification	
\boxtimes		e type-section
	·	type section
	△ Seotechnical hazards identified △ Above the site	
	☑ On the site	
	☐ Below the site	
	☐ Beside the site	
\boxtimes	☐ Geotechnical hazards described and reported	
\boxtimes	Risk assessment conducted in accordance with the Geotechnical Risk	Management Policy for Pittwater - 2009
	☑ Consequence analysis	
	□ Frequency analysis	
\boxtimes		
\boxtimes		echnical Risk Management Policy for Pittwater - 2009
\boxtimes	_	
\boxtimes	,	le Pick Management" criteria provided that the
	specified conditions are achieved.	le risk management ontena provided that the
	□ 100 years	
	,	
	☐ Other	
	specify	in the Costochnical Disk Management Delicy for
\boxtimes	Geotechnical Conditions to be applied to all four phases as described Pittwater - 2009 have been specified	in the Geolechnical Risk Management Policy for
	·	has identified and included in the report
	•	been identified and included in the report.
	☐ Risk assessment within Bushfire Asset Protection Zone.	
that the	I am aware that Pittwater Council will rely on the Geotechnical Report, to w that the geotechnical risk management aspects of the proposal have been as Management" level for the life of the structure, taken as at least 100 years and that reasonable and practical measures have been identified to remove	dequately addressed to achieve an "Acceptable Risl unless otherwise stated, and justified in the Repor
	8.11	ESSIDA
	Signature	(0°
	Signature	- AUSTRALIAN . C.
	Name Ben White	- 100
	Chartered Professional Status MScGEOLAusIMM CP GEOL	BENJAMIN WHITE

222757

White Geotechnical Group Pty Ltd

Membership No.

Company



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GEOTECHNICAL INVESTIGATION:

New Carport at 885 Barrenjoey Road, Palm Beach

1. Proposed Development

- **1.1** Demolish the existing carport. Construct a new concrete crossover and suspended carport with lift and shed below by excavating to a maximum depth of ~1.6m.
- **1.2** Other minor external alterations and additions.
- 1.3 Details of the proposed development are shown on 14 drawings prepared by Hot House Architecture & Interiors, drawings numbered DA001, DA010, DA011, DA100, DA101, DA110, DA200, DA201, DA300 to DA302, DA500, DA600 and DA700, Revision 01, dated 22/10/25.

2. Site Description

- **2.1** The site was inspected on the 16th October, 2025.
- 2.2 This waterfront residential property is on the low side of the road and has a W aspect. It is located on the moderately graded lower reaches of a hillslope. The natural slope falls across the property at an average angle of ~16°. The slope above the property increases in grade to steep angles for some 100m before easing near the crest of the hill.
- 2.3 Fill provides a level platform for the road, road reserve and a garden area on the uphill side of the property (Photos 1 to 3). The fill is battered at stable angles or lined by rough stacked rocks and low sandstone flagging. A suspended timber carport with shed below is located at the uphill side of the property (Photo 4). The posts that support the carport stand vertical. The carport and shed will be replaced as part of the proposed works. The part two storey house is supported on brick walls, brick piers and



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concrete block walls (Photos 5 & 6). The external supporting walls show no significant signs of movement. The majority of the foundation space was inaccessible. Fill provides level platforms for deck, paved, lawn and garden areas at the downhill side of the property. Mortared sandstone retaining walls up to ~2.0m high support the fill (Photos 7 to 9). The visible portions of the walls at the downhill side of the property appear to be stable. Part of the upper retaining wall (Photo 7) was obscured by vegetation and could not be assessed. Detached sandstone joint blocks are located at the waterfront (Photo 10). No signs of slope instability were observed on the property that could have occurred since the property was developed. 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. Four 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 expected to have occurred for DCP2. 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:



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AUGER HOLE 1 (~RL13.6) – AH1 (Photo 11)

Depth (m)	Material Encountered
0.0 to 1.3	FILL, sandy soil and clay, with some rock fragments, dark brown, light
	brown, orange, moist, fine to coarse grained.
1.3 to 1.5	SILTY SAND, grey, damp, fine to medium grained.
1.5 to 1.7	CLAY, light brown, orange and grey, mottled, firm to stiff, moist.

End of hole @ 1.7m in firm to stiff clay. No water table encountered.

DCP TEST RESULTS – Dynamic Cone Penetrometer				
Equipment: 9l	Equipment: 9kg hammer, 510mm drop, conical tip. Standard: AS1289.6.3.2 -199			
Depth(m)	DCP 1	DCP 2	DCP 3	DCP 4
Blows/0.3m	(~RL11.5)	(~RL12.1)	(~RL13.3)	(~RL13.6)
0.0 to 0.3	6	8	5	3
0.3 to 0.6	14	8	4	6
0.6 to 0.9	10	#	5	12
0.9 to 1.2	12		12	10
1.2 to 1.5	34		16	7
1.5 to 1.8	#		8	13
1.8 to 2.1			#	17
2.1 to 2.4				40
2.4 to 2.7				#
	End of Test @ 1.5m	Refusal @ 0.6m	Refusal on Rock @ 1.7m	End of Test @ 2.4m

#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 @ 1.5m, DCP still very slowly going down, orange impact dust on dry tip, orange clay on collar above tip.

DCP2 – Refusal @ 0.6m, DCP bouncing, dark brown soil on moist tip.

DCP3 - Refusal on Rock @ 1.7m, DCP thudding on rock surface, orange and white rock fragments on dry tip.



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DCP4 – End of Test @ 2.4m, DCP still very slowly going down, dark brown soil and grey sand

on moist 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 fill, a thin topsoil and silty sand over Firm to Stiff

clays. Fill to a maximum depth of ~2.0m provides level platforms for the road / road reserve

and lawn, garden and paved areas across the property. In the test locations, the clays merge

into the weathered zone of the underlying rock at depths of between ~1.2m to ~2.1m below

the current surface, being deeper in the filled areas. The weathered zone of the underlying

rock is interpreted as Extremely Low to Low Strength Rock. 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

Ground water seepage is expected to move over the denser and less permeable clay and

weathered rock layers in the sub-surface profile. Due to the slope and elevation of the block,

the water table 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.

Barrenjoey Road is not guttered above the subject property. However, the camber of the road

appears sufficient to divert surface flows away from the property.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed below or beside the property. The moderate to

steeply graded slope that falls across the property and continues above is a potential hazard



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(Hazard One). The proposed excavation is a potential hazard until retaining structures are in place (Hazard Two).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two	
ТҮРЕ	The moderate to steep slope that falls across the property and continues above failing and impacting on the house or the proposed works.	The proposed excavation for the shed and lift collapsing onto the worksite and impacting the road reserve during the excavation process.	
LIKELIHOOD	'Unlikely' (10 ⁻⁴)	'Possible' (10 ⁻³)	
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (15%)	
RISK TO PROPERTY	'Low' (2 x 10 ⁻⁵)	'Moderate' (2 x 10 ⁻⁴)	
RISK TO LIFE	8.3 x 10 ⁻⁷ /annum	3.7 x 10 ⁻⁵ /annum	
COMMENTS	This level of risk to life and 'UNACCEPTABLE'. To move 'ACCEPTABLE' recommendations in Sect 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

There is fall from the roof of the proposed carport to the road and to Pittwater. All stormwater from the proposed development is to be piped to the street drainage system or to Pittwater through any tanks that may be required by the regulating authorities.



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11. Excavations

An excavation to a maximum depth of ~1.6m is required to construct the proposed shed and

lift. The excavation is expected to be through fill, topsoil, sand and clay. Excavations through

fill, soil, sand and clay are expected to 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

An excavation to a maximum depth of ~1.6m is required to construct the proposed shed and

lift. Allowing 0.5m for backwall drainage, the excavation is set back ~1.5m from the road

reserve. The road reserve 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/sand and a 45° line through clay from the base of the excavation towards the

surrounding structures and boundaries.

The E side of the excavation 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 by the structural

engineer. See the site plan attached for the minimum extent of the required shoring shown

in blue.

Where shoring is not required, the fill/soil/sand 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 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.



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During the excavation process, the geotechnical consultant is to inspect the cut face in 1.5m intervals as it is lowered to ensure ground materials are as expected and that additional support is not required.

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 cannot blow off in a storm. 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 excavation is to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast. If the cut batters remain unsupported for more than a few days before the construction of the retaining walls they are to be temporarily supported until the retaining walls are in place.

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

	Earth Pressure Coefficients			
Unit	Unit weight (kN/m³)	'Active' K _a	'At Rest' K₀	
Fill, Topsoil and Sand	20	0.40	0.55	
Residual Clays	20	0.35	0.45	

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



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It is to be noted that the earth pressures in Table 1 assume a level surface above the wall, do

not account for any surcharge loads and assume retaining walls are fully drained. Ground

Materials 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. Site Classification

The site classification in accordance with AS2870-2011 is Class P due to the depth of the fill in

the location of the proposed works. The natural clays that underlie the fill are interpreted to

be moderately reactive.

16. Foundations

The proposed suspended concrete crossover and suspended carport with lift and shed below

are to be supported on piers taken to and embedded no less than 0.6m from the downhill

edge of the footing into Extremely Low Strength rock or better. This ground material is

expected at depths of between ~1.2m to ~2.4m below the current surface, being deeper in

the filled area across and downslope of the road reserve. A maximum allowable bearing

pressure of 600kPa can be assumed for footings embedded in Extremely Low Strength Rock

or better. 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.

As the bearing capacity of weathered rock 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



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footings get wet, they will have to be drained and the soft layer of weathered rock 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 and inspected.

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.

17. 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.

18. 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.

• During the excavation process, the geotechnical consultant is to inspect the cut face

in 1.5m intervals as it is lowered to ensure ground materials are as expected and that

additional support is not required.

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.



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White Geotechnical Group Pty Ltd.

Dion Sheldon

BEng(Civil)(Hons) MIEAust NER, Geotechnical Engineer.



Reviewed By:

Nathan Gardner B.Sc. (Geol. & Geophys. & Env. Stud.)

AIG., RPGeo Geotechnical & Engineering.

No. 10307

Engineering Geologist & Environmental Scientist.





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Photo 1



Photo 2



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Photo 3



Photo 4



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Photo 5



Photo 6



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Photo 7



Photo 8



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Photo 9



Photo 10



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Photo 11: AH1 – Downhole is from top to bottom.



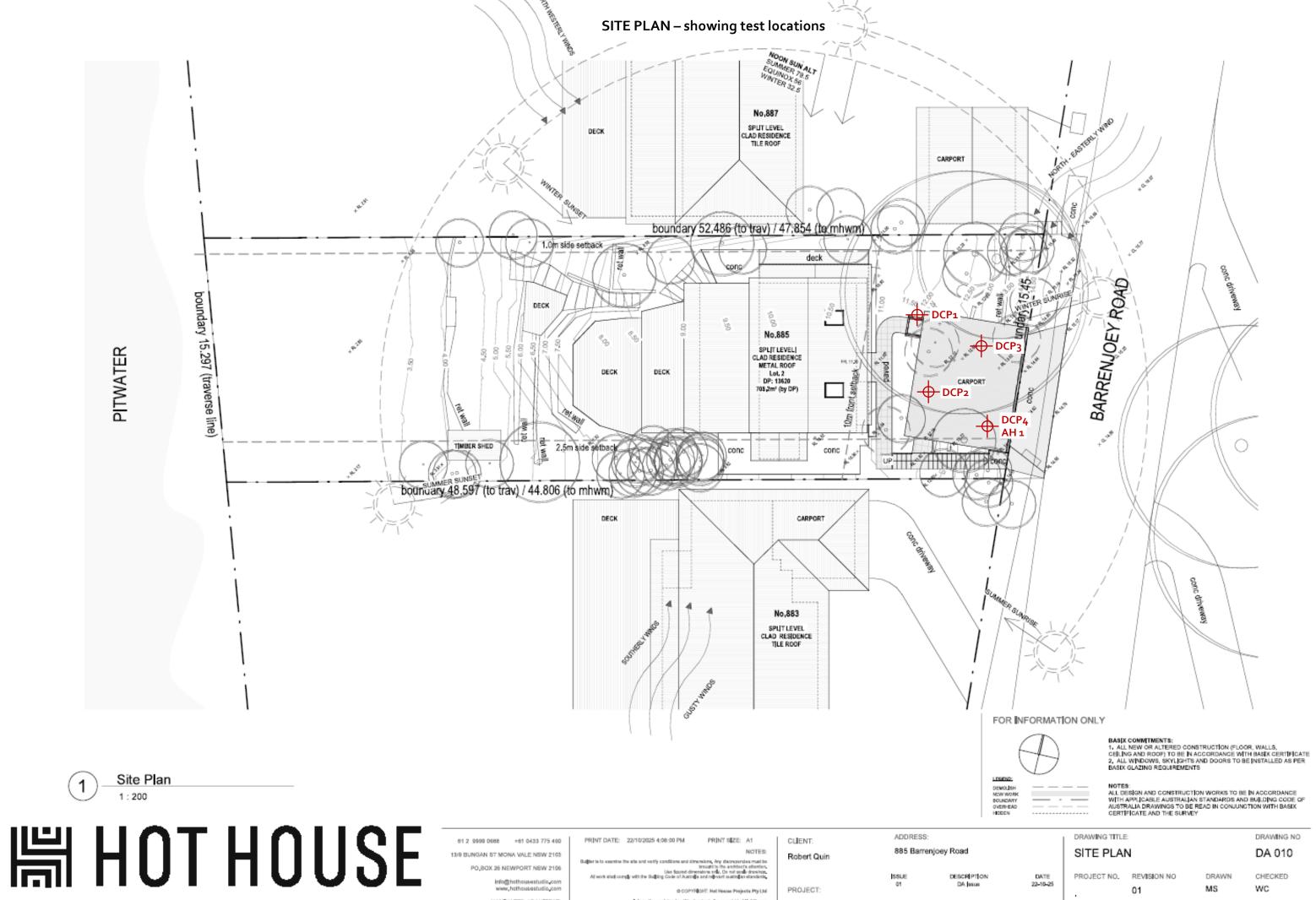
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Important Information about Your Report

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.



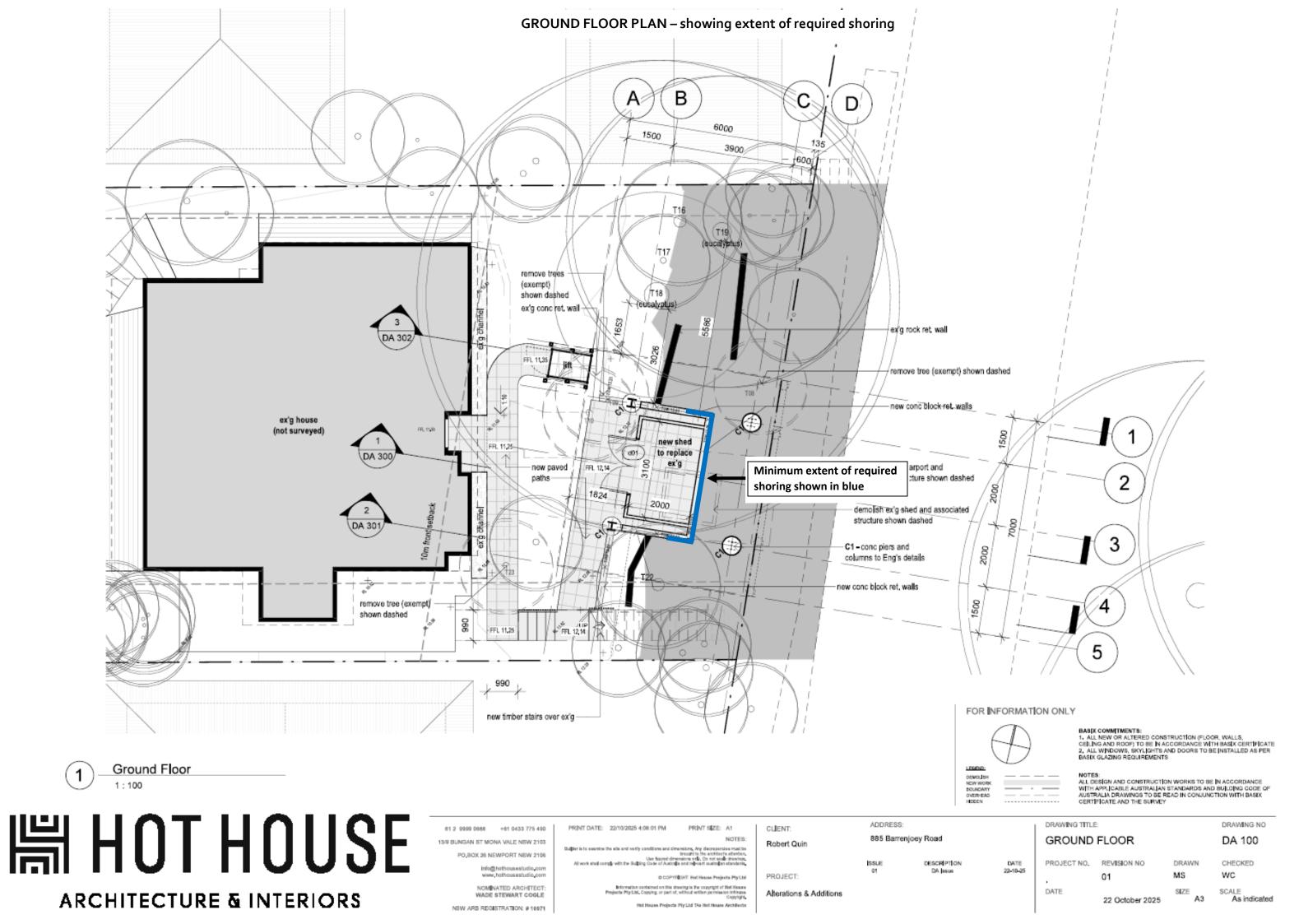
ARCHITECTURE & INTERIORS

WADE STEWART COGLE

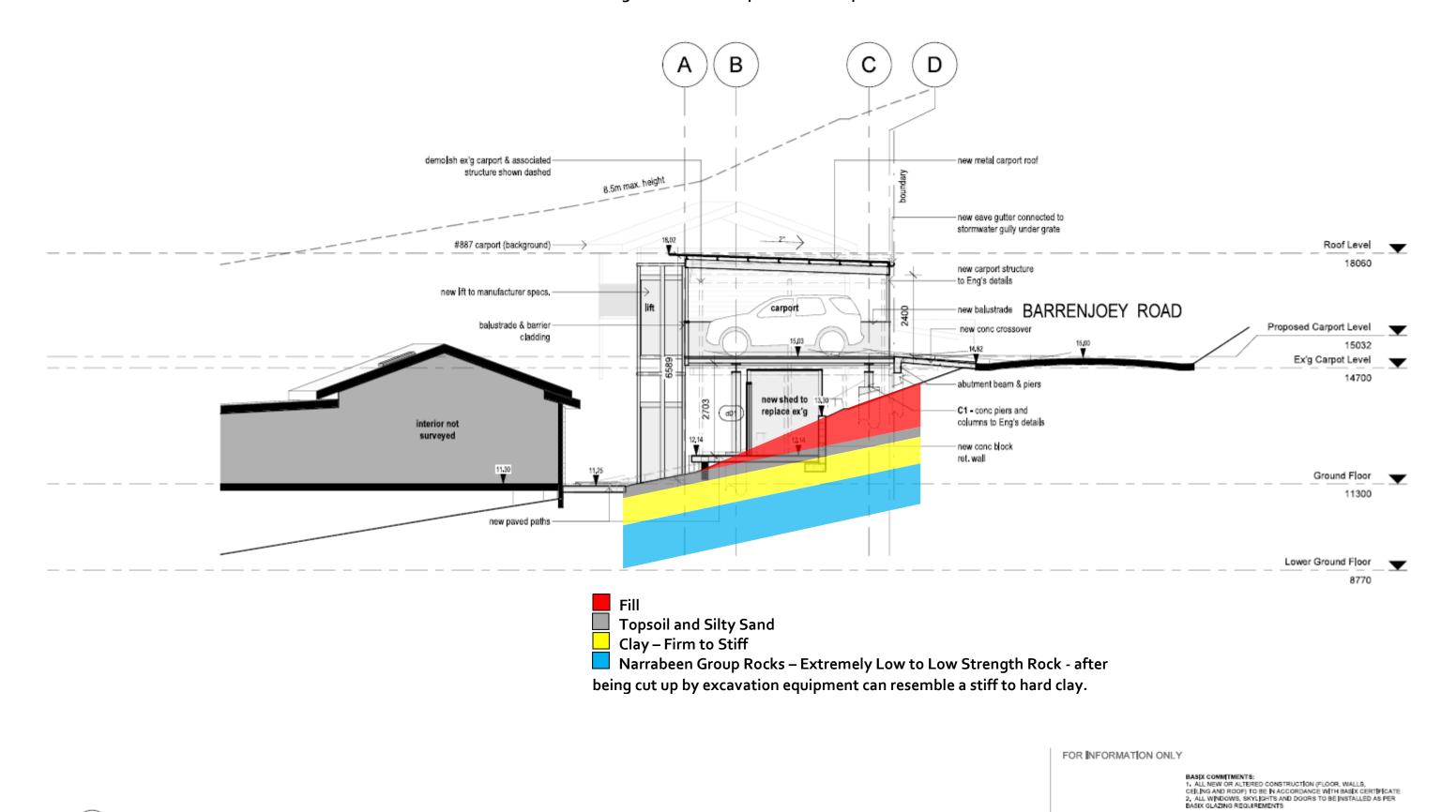
NSW ARB REGISTRATION: #10971

Alterations & Additions

DATE 22 October 2025 As indicated



TYPE SECTION - Diagrammatical Interpretation of expected Ground Materials





ARCHITECTURE & INTERIORS

13/9 BUNGAN ST MONA VALE NSW 2193
PO,BOX 26 NEWPORT NSW 2196
Info@hothousastudic.com
www.hothousastudic.com
NOMENTED ARCHITECT:
WADE STEWART COGLE
NSW ARB REGESTRATION: # 10971

+61 0433 775 490

PRINT DATE: 22/10/2025 4:00:04 PM PRINT SEZE: A1 NOTES.

Bullet is to examine the site and verify conditions and dimensions, Any distributed as must be included in the architects detection.

Uses founded demanders with, On sit weight destination of the architects detection. All work shall comply with the Bulleting Code of Australia and shall read administration and shallowing the Copyright. Had because Projects PtyLide. Supplying on part of, without written per mission inflames Projects PtyLide. Copyright.

Bit House Projects PtyLide Copyright.

CLIENT: ADDRESS:

Robert Quin 885 Barrenjoey Road

ISSUE DESCRIPTION DATE
PROJECT: 01 DA Issue 22-10-2

Alterations & Additions

 DRAWING NO

 SECTIONS
 DA 300

 PROJECT NO.
 REVISION NO
 DRAWN
 CHECKED

 01
 MS
 WC

 DATE
 22 October 2025
 SIZE A3
 SCALE As indicated

NOTES: ALL DESIGN AND CONSTRUCTION WORKS TO BE IN ACCORDANCE WITH APPLICABLE AUSTRALIAN STANDARDS AND BULLDING CODE OF AUSTRALIA DRAWINGS TO BE READ IN CONJUNCTION WITH BASIX CERTIFICATE AND THE SURVEY

EXAMPLES OF GOOD HILLSIDE PRACTICE



EXAMPLES OF POOR HILLSIDE PRACTICE

