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

Development Application for _____
Name of Applicant

Address of site 60-62 Chisholm Avenue, Avalon 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 4/3/21 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 **60-62 Chisholm Avenue, Avalon Beach**
Report Date: 4/3/21

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 60-62 Chisholm Avenue, Avalon 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 **60-62 Chisholm Avenue, Avalon Beach**

Report Date: 4/3/21

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **18/1/21**
(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 **18/1/21**

☒ 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 Driveway and Garage at **60-62 Chisholm Avenue, Avalon Beach**

1. Proposed Development

1.1 Construct a new driveway and garage by excavating to a maximum depth of ~3.7m.

1.2 Details of the proposed development are shown on 8 drawings prepared by Andy Lehman Designs, drawings numbered SK 00 to SK 07, dated February 2021.

2. Site Description

2.1 The site was inspected on the 18th of January, 2021.

2.2 This residential property is on the high side of the road and encompasses the crest and moderate to steeply graded flanks a hillslope. The natural slope rises from Chisholm Avenue at an angle of ~29° before reaching the crest of the hillslope. The slope falls at the NW side of the crest at similar steep angles. The slope on the SE side of the property continues at steep angles for ~60m before gradually easing to moderate angles. The slope on the NW side of the property continues at steep angles for ~55m before easing to moderate angles.

2.3 A turning circle is located at the road frontage (Photo 1). The cut for the road and turning circle is supported by a sandstone block retaining wall up to ~1.5m high. The wall displays bulging in places (Photos 2 & 3). See '**Section 16** Ongoing Maintenance'. Medium Strength Hawkesbury Sandstone Bedrock is outcropping at the road frontage (Photo 4). Sandstone bedrock is exposed at the surface and dislodged joint blocks are embedded in stable positions in the steep vegetated slope between the road frontage and the houses (Photos 5 to 7).

The house at 62 Chisholm Ave is accessed by a bitumen right of carriageway (ROW) and sandstone driveway (Photos 8 & 9). A sandstone dressed concrete block garage in good condition is located on the W side of the house (Photo 10). The old single storey sandstone block house is supported by sandstone block walls and sandstone piers (Photo 11). The supporting walls and piers stand vertical and display no significant signs of movement (Photo 12). The house is supported on exposed sandstone bedrock on the crest of the slope. A moderately sloping lawn on the NW side of the house is terraced by stable sandstone block retaining walls up to ~1.5m high. Sandstone bedrock is outcropping on the steep slope on the NW side of the property. A portion of the rock is undercut by up to ~3.5m (Photos 13 & 14). The undercut has a relatively thin cantilever arm in relation to its overhang length however has stood in its present state for at least hundreds of years. In the unlikely event that the undercut fails, it will fall onto the area immediately below. Given the location of the undercut and provided no one spends time under it, it is not considered a significant threat to life or property.

The ROW extends to the house at 60 Chisholm Ave (Photo 15). A pool in good condition is located on the W side of the house (Photo 16). A stable sandstone block retaining wall up to ~2.2m high supports fill on the downhill side of the pool. The part two storey timber clad house is supported by steel posts and concrete block walls (Photos 17 & 18). The supporting posts and walls stand vertical and show no significant signs of movement.

No signs of slope instability that could have occurred since the site was developed were observed on the properties. 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 Hawkesbury Sandstone. It is described as a medium to coarse grained quartz sandstone with very minor shale and laminite lenses.

4. Subsurface Investigation

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. 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. 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:

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** (~RL91.7)	**DCP 2** (~RL93.4)	**DCP 3** (~RL94.3)	**DCP 4** (~RL99.2)	**DCP 5** (~RL98.0)
0.0 to 0.3	3	3	7	6	3
0.3 to 0.6	4	5	2	5	3
0.6 to 0.9	10	7	13	13	9
0.9 to 1.2	23	3	15	#	34
1.2 to 1.5	#	#	#		#
	Refusal on rock @ 1.0m	Refusal on rock @ 0.9m	Refusal on rock @ 1.2m	Refusal on rock @ 0.8m	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 – Refusal on rock @ 1.0m, DCP bouncing off rock surface, white sandstone fragments on dry tip.

DCP2 – Refusal on rock @ 0.9m, DCP bouncing off rock surface, white sandstone fragments on moist tip.

DCP3 – Refusal on rock @ 1.2m, DCP bouncing off rock surface, white sandstone fragments on moist tip.
DCP4 – Refusal on rock @ 0.8m, DCP bouncing off rock surface, white sandstone fragments on moist tip.
DCP5 – End of Test @ 1.2m, DCP still very slowly going down, yellow white sandy clay on moist tip.

5. Geological Observations/Interpretation

The surface features of the block are controlled by the 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. The rock is overlain by fill, topsoil and sandy clays that fill the bench step formation. Fill provides level platforms for lawn and garden areas across the properties. In the test locations, the depth to rock ranged from between ~0.8m to ~1.2m below the current surface. The sandstone underlying the property is estimated to be Medium Strength or better. 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 proposed works.

7. Surface Water

No evidence of surface flows were observed on the property during the inspection. As the property encompasses the crest of the hill, any surface flows will be generated on the property and will flow away from the property. Runoff generated on the slopes either side of the crest will move down the slopes at a relatively high velocity due to the steep grade.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The steep slopes that fall across the property and continue below are a potential hazard (**Hazard One**). The proposed excavations are a potential hazard until retaining walls are in place (**Hazard Two**). The vibrations from the proposed excavations are a potential hazard (**Hazard Three**).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two	Hazard Two
TYPE	The steep slopes that fall across the property and continue below failing and impacting on the property.	The proposed excavations for the driveway and garage collapsing onto the worksite before retaining walls are in place.	The vibrations produced during the proposed excavations for the driveway and garage impacting on the surrounding structures.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (15%)	'Medium' (15%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})	'Moderate' (2×10^{-4})
RISK TO LIFE	8.3×10^{-7}/annum	8.3×10^{-6}/annum	5.3×10^{-7}/annum
COMMENTS	This level of risk is 'ACCEPTABLE' provided the recommendations in **Section 16** are carried out.	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.	This level of risk to property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels the recommendations in **Sections 11 & 12** 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 Chisholm Ave. 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 ~1.7m is required to construct the proposed new driveway. Another excavation to a maximum depth of ~3.7m is required to construct the proposed new garage.

The excavations are expected to be through topsoil and sandy clay, with Medium Strength Sandstone expected to be encountered from the surface to a depth of ~1.2m below. It is envisaged that excavations through soil and clay can be carried out with a machine and bucket and excavations through Medium Strength Sandstone or better will require grinding or rock sawing and breaking.

12. Vibrations

Possible vibrations generated during excavations through soil and clay will be below the threshold limit for building damage.

Excavations through Medium Strength Sandstone or better should be carried out to minimise the potential to cause vibration damage to the subject house and NE neighbouring garage. Allowing for backwall-drainage, the excavation for the garage is set back ~7.3m from the subject house and ~4.7m from the NE neighbouring 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 house 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 house 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 house and neighbouring properties.

13. Excavations Support Requirements

On steep sites such as this one, to help maintain excavation stability before retaining walls are in place, it is critical upslope runoff be diverted from the proposed excavations with temporary or permanent drainage measures. Temporary measures may be trenches and sandbag mounds and permanent measures could be a wide diameter dish drain or similar. These are to be installed before any excavation work commences.

Bulk Excavation for Driveway

An excavation to a maximum depth of ~1.7m is required to construct the proposed new driveway. The excavation is set back sufficiently from the surrounding structures and boundaries.

The excavation requires the removal an existing sandstone block retaining wall (Photo 1). The wall is to be demolished from the top down prior to the excavation commencing. The soil and

clay behind the wall is to be lowered and battered at 1.0 Vertical to 1.7 Horizontal (30°) as the wall is demolished.

The 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. Medium Strength Sandstone or better will stand at vertical angles unsupported subject to approval by the geotechnical consultant.

Bulk Excavation for Garage

An excavation to a maximum depth of ~3.7m is required to construct the proposed new garage. Due to the presence of shallow rock the excavation is set back sufficiently from the surrounding structures and boundaries.

Due to the proposed height of the excavation the soil/clay portion of the cut is to be supported before excavations through rock commences.

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.

Advice Applying to Both Excavations

Any trees immediately above the proposed excavations are to be assessed by an arborist and removed if their stability will be detrimentally impacted by the excavation.

Loose boulders or detached joint blocks on the surface immediately upslope of the proposed excavations are to be removed before any excavation commences.

Should any large boulders be encountered in the excavation face the geotechnical consultant is to assess the rock for stability before the excavation proceeds further.

As discussed above upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. All unsupported cut batters through soil and clay are to be covered to prevent access of water in wet weather and loss of moisture in dry weather. The materials

and labour to construct the retaining walls are to be organised so on completion of the excavations 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. If the retaining walls 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 or be supported by engineered retaining walls.

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
Topsoil	20	0.40	0.55
Residual Clays	20	0.35	0.45
Medium Strength Sandstone	24	0.00	0.01

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 (so slope surcharge loads will need to be accounted for in the design) and assume retaining structures are fully drained.

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 driveway can be supported off the natural surface after any organic matter has been stripped. Where the driveway is cut into the slope, it can be supported off the exposed sandy clay or Medium Strength Sandstone. Where the foundation material across the driveway structure changes, expansion joints are to be installed to separate the different foundation materials and to accommodate minor differential movement. A maximum allowable bearing pressure of 100kPa can be assumed for soil of the natural surface, 200kPa for footings on sandy clay and 1000kPa for footings on Medium Strength Sandstone. Alternatively, the driveway can be supported on piers taken to rock.

The proposed garage is expected to be seated in Medium Strength Sandstone on the uphill side. This is a suitable bearing material. Where the rock drops away with the slope on the downhill side, piers taken rock will be required to maintain a uniform bearing material across the structure. Fill shown on the plans underneath the proposed garage is to be used as formwork only. No structures are to be supported on fill.

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 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. Remedial Works/Ongoing Maintenance

Part of the bulging sandstone block retaining wall (Photos 1 to 3) will be demolished as part of the proposed works. The remaining portion is in poor condition. It is recommended it be repointed/rebuilt to meet current engineering standards as part of the works, if this is not already planned.

Where slopes are steep and approach or exceed 30°, such as on this site, it is prudent for the owners to occasionally inspect the slope (say annually or after heavy rainfall events, whichever occurs first). Should any of the following be observed: movement or cracking in retaining walls, cracking in any structures, cracking or movement in the slope surface, tilting or movement in established trees, leaking pipes, or newly observed flowing water, or changes in the erosional process or drainage regime, then a geotechnical consultant should be engaged to assess the slope. We can carry out these inspections upon request.

The risk assessment in **Section 8** is subject to this ongoing maintenance being carried out.

REQUIRED INSPECTIONS ON NEXT PAGE

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.

- 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 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

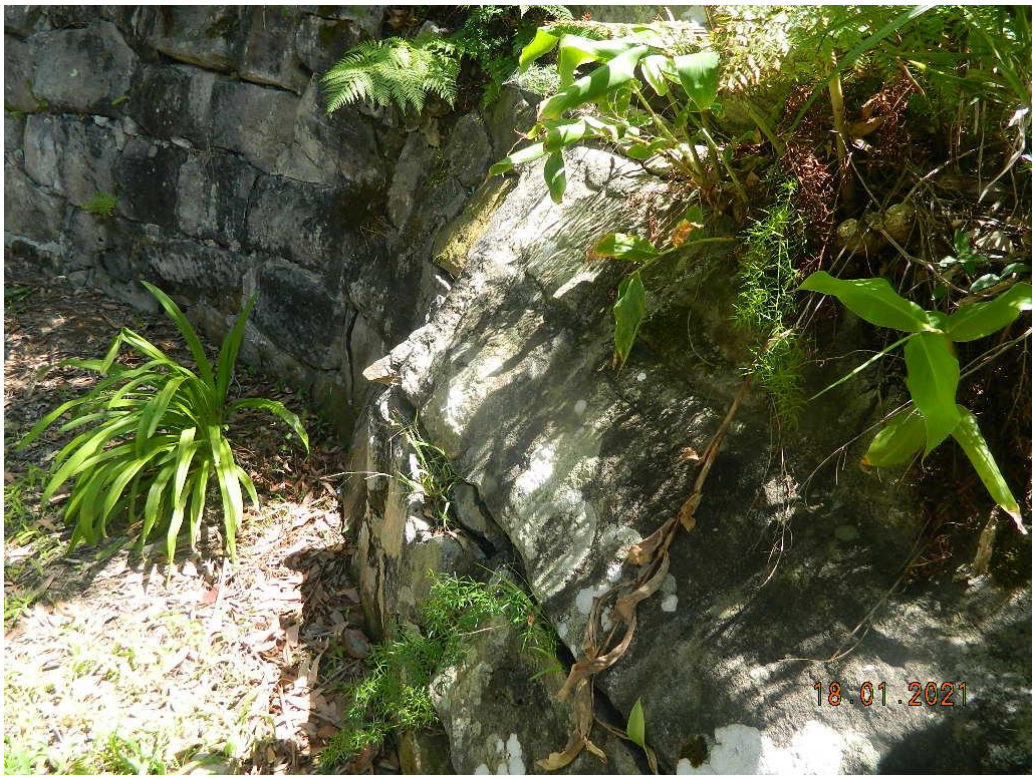


Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

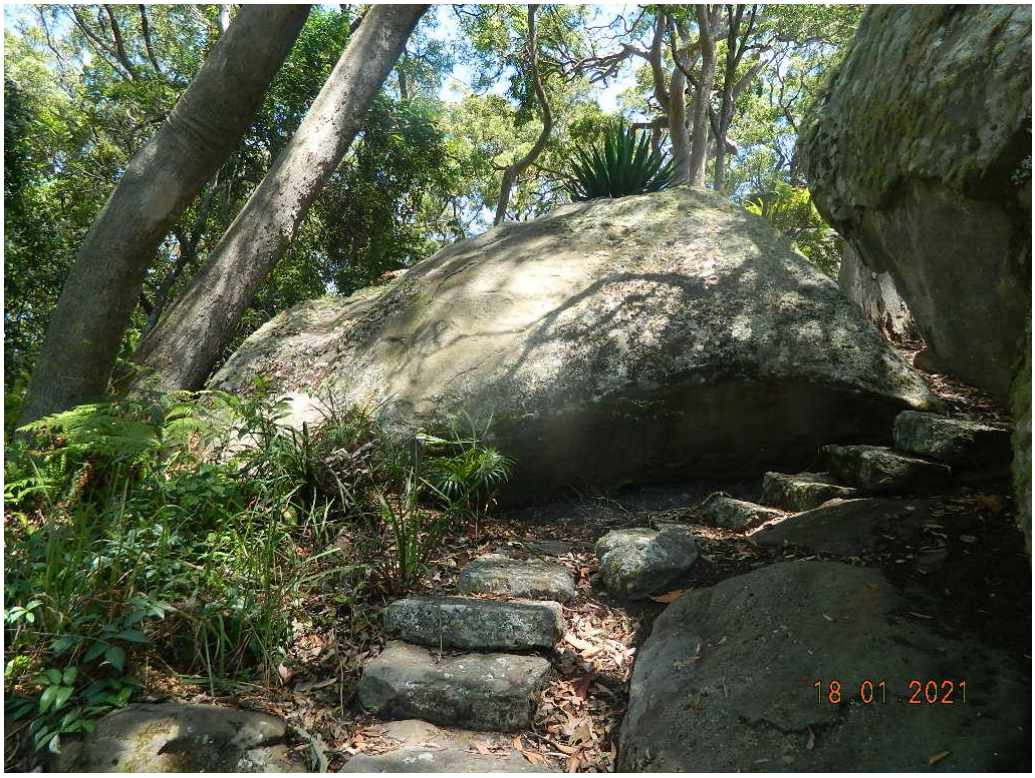


Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

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

N

Note:
All footings, slabs, structural beams, etc, to future engineers details.
All wall/roof connections + member sizes to NCC & future engineers details.
Rainwater from gutters to connect to stormwater system to relevant Building Codes, Council requirements.
All wastewater/sewage to connect to existing sewer system to all relevant NCC, Building Codes + Council requirements.
All works to comply with all relevant NCC, Building Codes + Council requirements.

MATERIALS:

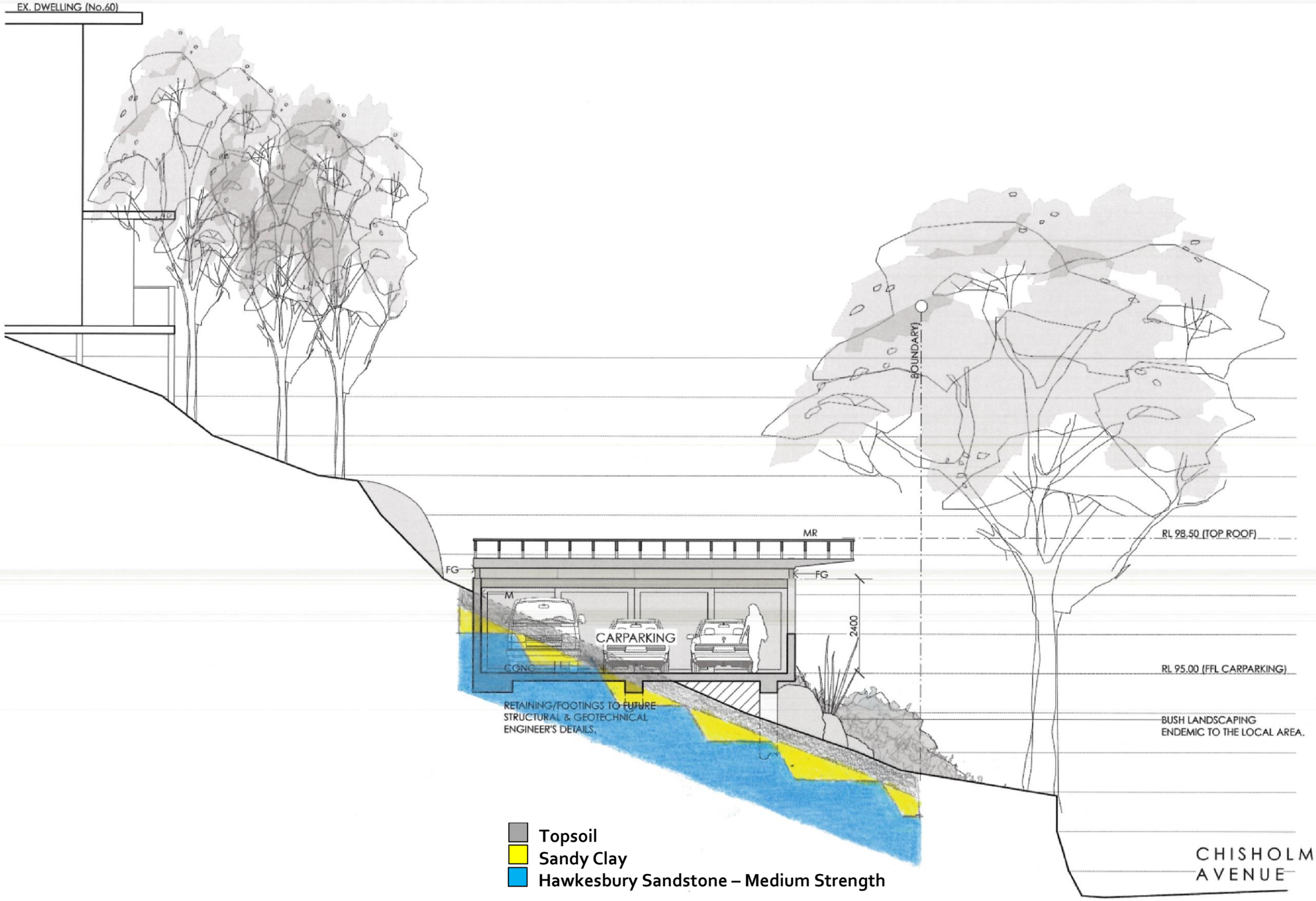
BAL	BALUSTRADE
CONC.	CONCRETE
DP	DOWNPIPE
FG	FIXED GLAZING
LC	LIGHTWEIGHT CLADDING
M	MASONRY
MR	METAL ROOF SHEETING
NGL	NATURAL GROUND LEVEL

Nada Herman

60-62 CHISHOLM AVENUE NSW 2107 LOTS 1 & 2 DP 1104192

PROJECT	Alterations & Additions	ANDY LEHMAN DESIGN	
DRAWING	SITE / ROOF/ ANAYSIS PLAN	DWG. NO.	SK. 01
NOTES	Please print in A3 or A1. This drawing is copyright and is for Development Application purposes only. Do not measure off drawings. If in doubt ask.	Tel. 0414 466 665	SCALE 1:500@A3
		Email: andy@andylehman.com.au	DATE FEBRUARY 2021
			ISSUE

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



- Topsoil
- Sandy Clay
- Hawkesbury Sandstone – Medium Strength

Note:
All footings, slabs, structural beams, etc, to future engineers details.
All wall/roof connections + member sizes to NCC & future engineers details.
Rainwater from gutters to connect to stormwater system to relevant Building Codes, Council requirements.
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All works to comply with all relevant NCC, Building Codes + Council requirements.

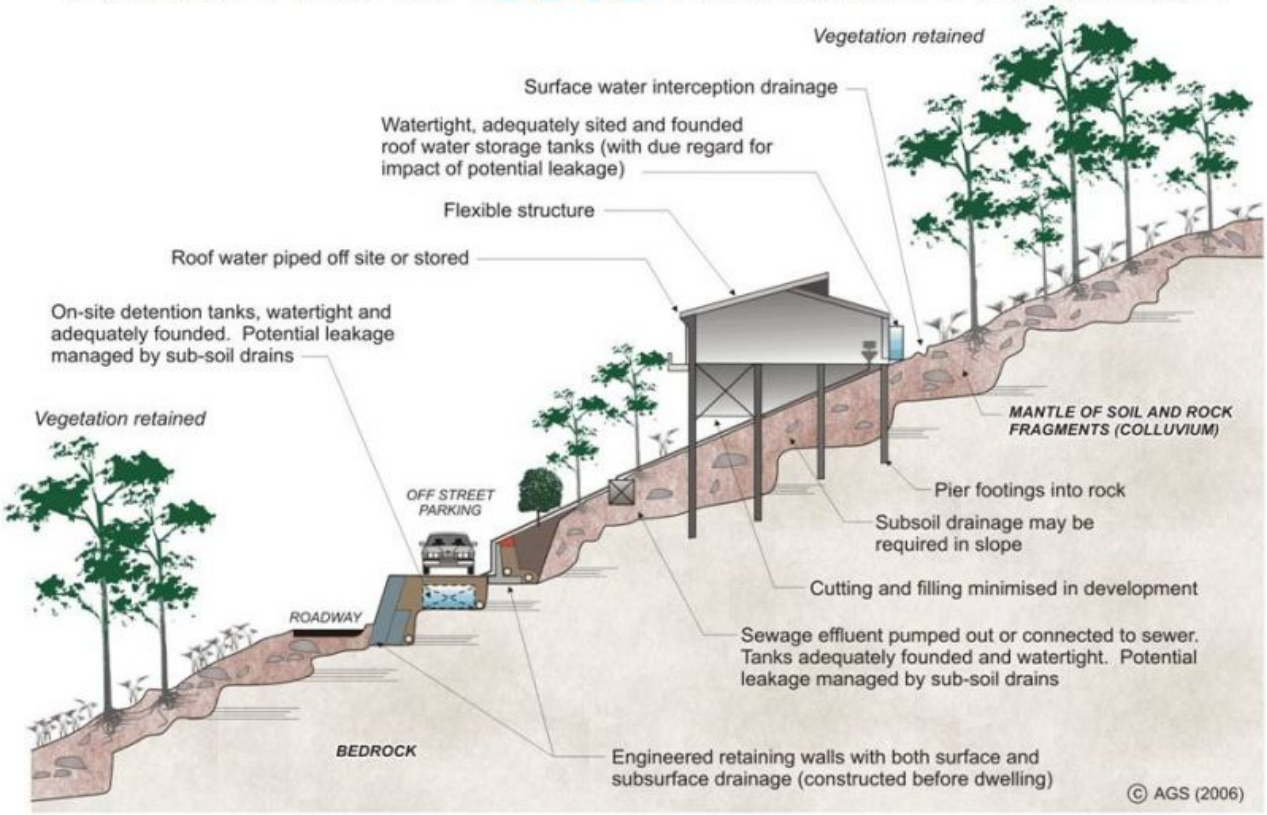
MATERIALS:

BAL	BALUSTRADE
CONC.	CONCRETE
DP	DOWNPIPE
FG	FIXED GLAZING
LC	LIGHTWEIGHT CLADDING
M	MASONRY
MR	METAL ROOF SHEETING
NGL	NATURAL GROUND LEVEL

Nada Herman
60-62 CHISHOLM AVENUE NSW 2107 LOTS 1 & 2 DP 1104192

PROJECT	Alterations & Additions	ANDY LEHMAN DESIGN	
DRAWING	SOUTH-WEST SECTION	DWG. NO.	SK. 04
		SCALE	1:100@A3
NOTES	Please print in A3 or A1. This drawing is copyright and is for Development Application purposes only. Do not measure off drawings.	Tel. 0414 466 665	
		Email: andy@andylehman .com.au	DATE FEBRUARY 2021
		If in doubt ask.	ISSUE

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE