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

Development Application for _____
Name of Applicant

Address of site 74 Grandview Drive, Newport

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 5/3/25 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 **74 Grandview Drive, Newport**
Report Date: 5/3/25

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**

REGISTERED PROFESSIONAL GEOSCIENTIST
AUSTRALIAN INSTITUTE OF GEOSCIENTISTS
BENJAMIN WHITE
RPGeo No: 10306

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 74 Grandview Drive, Newport

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 **74 Grandview Drive, Newport**

Report Date: 5/3/25

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **3/3/25**
(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 **3/3/25**

☒ 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 at **74 Grandview Drive, Newport**

1. Proposed Development

1.1 Extend the first floor of the existing house to the SW.

1.2 Details of the proposed development are shown on 14 drawings prepared by Jamie King Landscape Architect, project number 25041, drawings numbered Sht-101 to Sht-114, Issue D, dated 24/2/24.

2. Site Description

2.1 The site was inspected on the 3rd March, 2025 and previously on the 24th February, 2021.

2.2 Grandview Drive wraps around the uphill, W, and downhill sides of this residential property. The property has a SE aspect. It is located on the moderate to steeply graded upper middle reaches of a hillslope. The natural slope falls across the property at an average angle of ~20°. The slope above the property gradually decreases in grade. The slope below the property continues at similar steep angles.

2.3 At the road frontage, a concrete driveway runs to a garage on the ground floor of the house (Photos 1 & 2). A cut and fill provides a level platform for the driveway. The cut and fill is supported by a mortared sandstone block and rendered masonry retaining walls up to ~1.5m high (Photos 3 & 4). The sandstone block wall displays some cacking through the mortar but shows no signs of deflection and is considered to be currently stable. The part two-storey house is supported on masonry walls (Photos 2 & 5). The external supporting walls show no significant signs of movement. A stable sandstone block retaining wall up to ~2.4m high supports a cut for the uphill side of the house and the fill for the road reserve above (Photo 6). A pool that shows no significant signs of movement is located at the downhill side of the house

(Photo 7). A concrete crib retaining wall reaching ~4.0m high supports a fill for the downhill side of the property / road reserve and a cut for the road below (Photo 8). The condition of this retaining wall was difficult to determine as it has a thick covering of vegetation at the time of the inspection. However, from what could be seen of the wall and its surrounds, it appears stable.

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

Two hand Auger Holes (AH) were 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 not expected to have been an issue for this site. But due to the possibility that the actual ground conditions vary from our interpretation there should be allowances in the excavation and foundation budget to account for this. We refer to the appended “Important Information about Your Report” to further clarify. The results are as follows:

TEST RESULTS ON NEXT PAGE

AUGER HOLE 1 (~RL99.9) **–** AH1 (Photo 9)

Depth (m)	Material Encountered
0.0 to 0.6	**FILL**, disturbed sandy soil, dark brown and brown, loose to medium dense, dry, fine to coarse grained with fine trace organic matter and trace clay.
0.6 to 0.9	**FILL**, disturbed clay, brown, firm, damp, fine to coarse grained with fine trace organic matter.
0.9 to 1.1	**FILL**, disturbed sandy soil, dark brown and brown, loose to medium dense, dry, fine to coarse grained with fine trace organic matter and trace clay.

Refusal @ 1.1m in fill. No water table encountered.

AUGER HOLE 2 (~RL99.0) **–** AH2 (Photo 10)

Depth (m)	Material Encountered
0.0 to 0.5	**FILL**, silty soil and clay, with some rock fragments, brown, dry, fine to coarse grained.

Refusal @ 0.5m in fill. No water table encountered.

DCP TEST RESULTS ON NEXT PAGE

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** (~RL98.7)	**DCP 2** (~RL99.9)	**DCP 3** (~RL99.0)	**DCP 4** (~RL99.0)
0.0 to 0.3	6	4F	46	31
0.3 to 0.6	11	7	51	37
0.6 to 0.9	16	8	22	18
0.9 to 1.2	47	22	37	41
1.2 to 1.5	39	21	22	30
1.5 to 1.8	32	19	27	20
1.8 to 2.1	#	25	28	50
2.1 to 2.4		22	#	#
2.4 to 2.7		19		
2.7 to 3.0		30		
3.0 to 3.3		53		
3.3 to 3.6		#		
	End of Test @ 1.8m	End of Test @ 3.3m	Refusal on Rock @ 2.0m	End of Test @ 2.1m

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

DCP Notes:

DCP1 – End of Test @ 1.8m, DCP still very slowly going down, clean dry tip.

DCP2 – End of Test @ 3.3m, DCP still very slowly going down, brown impact dust on dry tip.

DCP3 – Refusal on rock @ 2.0m, DCP bouncing off rock surface, orange rock fragments on dry tip.

DCP4 – End of Test @ 2.1m, DCP still very slowly going down, orange rock fragments on dry 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 clay that fills the bench step formation. Fill to an estimated maximum depth of ~2.5m provides level platforms for lawn and garden areas across the property and for the road reserve. In the DCP2 to 4 test locations, weathered rock was encountered at depths of between ~1.8m to ~3.0m below the current surface, being deeper where the fill is deeper. It is interpreted that DCP1 was terminated in fill. The rock underlying the property is interpreted to be Very Low Strength Sandstone or better. 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 and through the cracks in the rock. 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. Normal sheet wash from the slope above will be intercepted by the street drainage system for Grandview Drive above.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The steep slope that falls across the property and continues above and below is a potential hazard (**Hazard One**).

RISK ANALYSIS SUMMARY ON NEXT PAGE

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One
TYPE	The steep slope that falls across the property and continues above and below failing mass failing and impacting on the house.
LIKELIHOOD	'Unlikely' (10^{-4})
CONSEQUENCES TO PROPERTY	'Medium' (12%)
RISK TO PROPERTY	'Low' (2×10^{-5})
RISK TO LIFE	8.3×10^{-7}/annum
COMMENTS	This level of risk is 'ACCEPTABLE'

(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 Grandview Drive. 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

Apart from those for footings, no excavations are required.

12. Site Classification

The site classification in accordance with AS2870-2011 is Class P due to the depth of the fill. The natural clays underlying the fill are interpreted to be moderately reactive.

13. Foundations

The proposed house additions are to be supported on piers taken to and embedded no less than 0.6m into Very Low Strength Rock or better. A maximum allowable bearing pressure of 600kPa can be assumed for footings embedded in Very Low Strength Rock or better. This ground material is expected at depths of between ~1.0m to ~3.0m below the current surface, being deeper where the fill is deeper. It should be noted that this material is a soft rock and a rock auger will cut through it so the builders should not be looking for refusal to end the footings.

The foundations supporting the existing house are currently unknown. Ideally, footings should be founded on the same footing material across the old and new portions of the structure. Where the footing material does change across the structure construction joints or similar are to be installed to prevent differential settlement, where the structure cannot tolerate such movement.

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 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 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.

14. 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.

15. Inspection

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

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

White Geotechnical Group Pty Ltd.

Reviewed By:

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

Nathan Gardner B.Sc. (Geol. & Geophys. & Env. Stud.)
AIG., RPGeo Geotechnical & Engineering.
No. 10307
Engineering Geologist & Environmental Scientist.

Photo 1

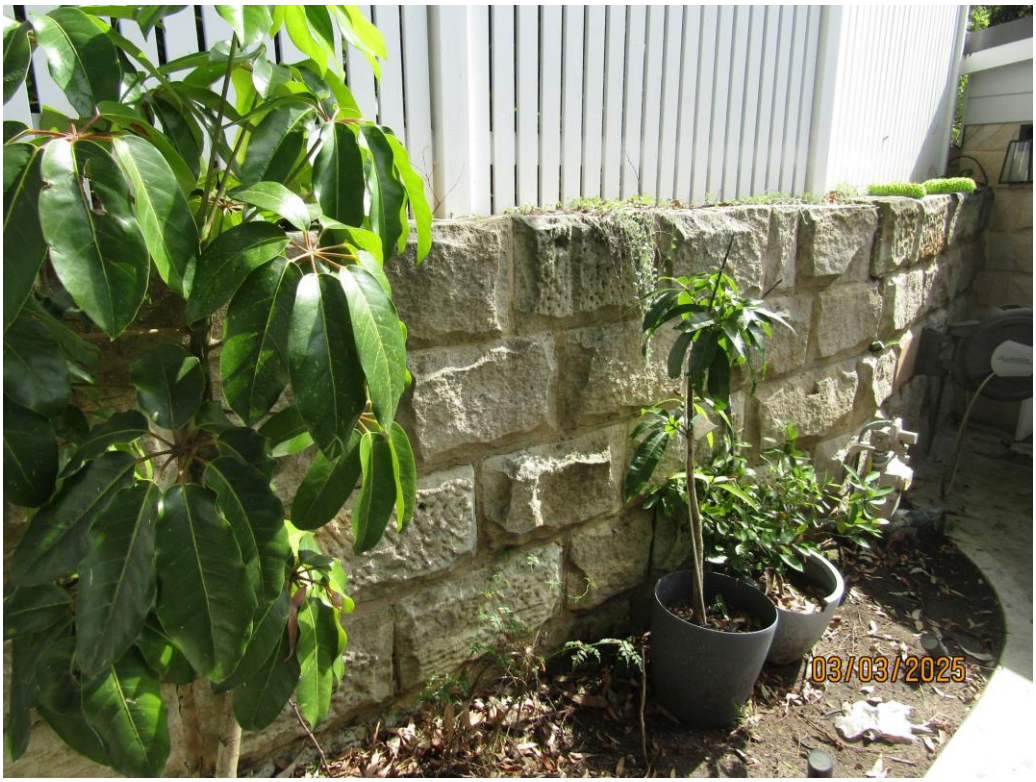


Photo 2

Photo 3

Photo 4

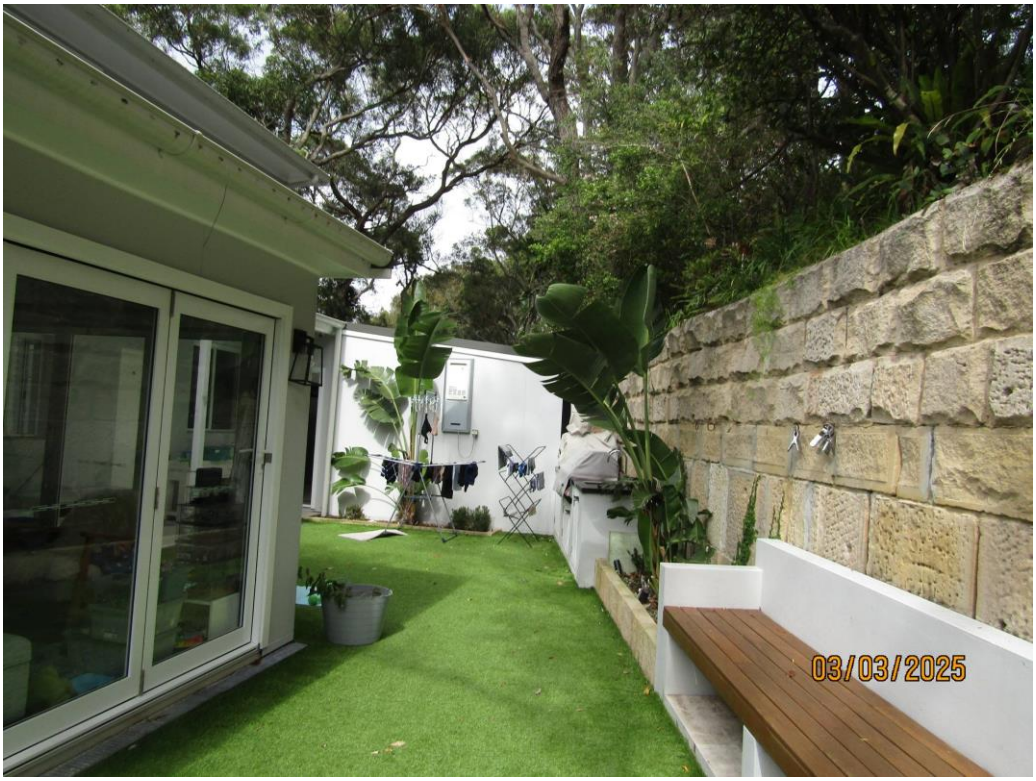


Photo 5

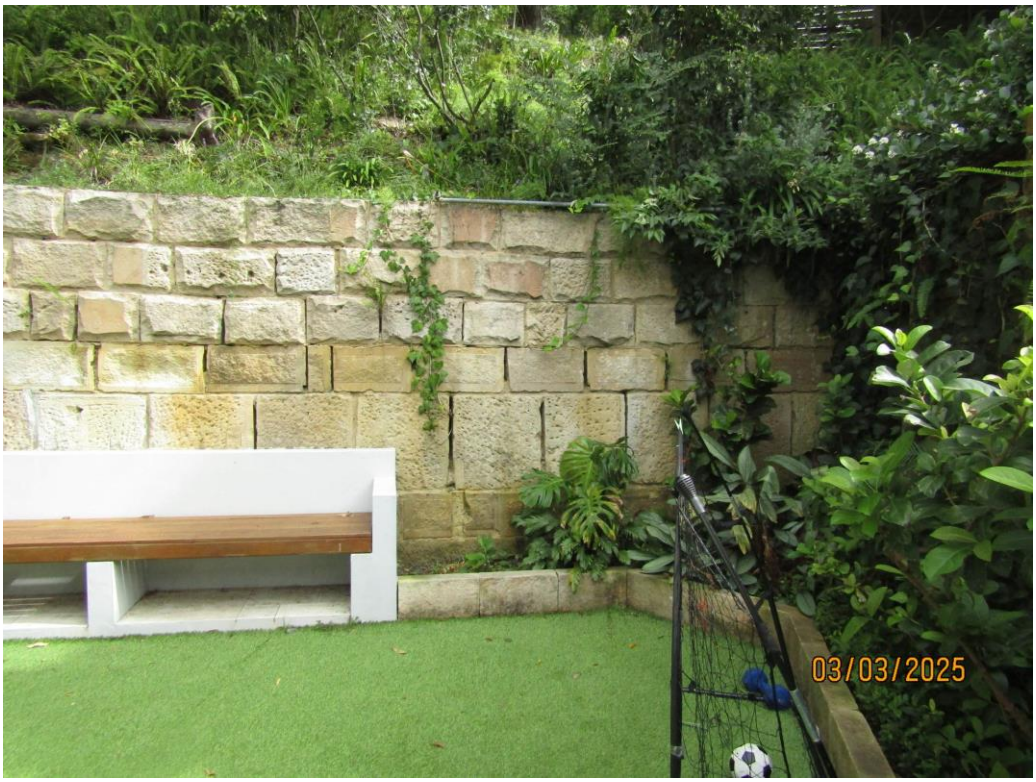


Photo 6

Photo 7

Photo 8

Photo 9: AH1 – Downhole is from top to bottom.

Photo 10: AH2 – Downhole is from top to bottom

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.

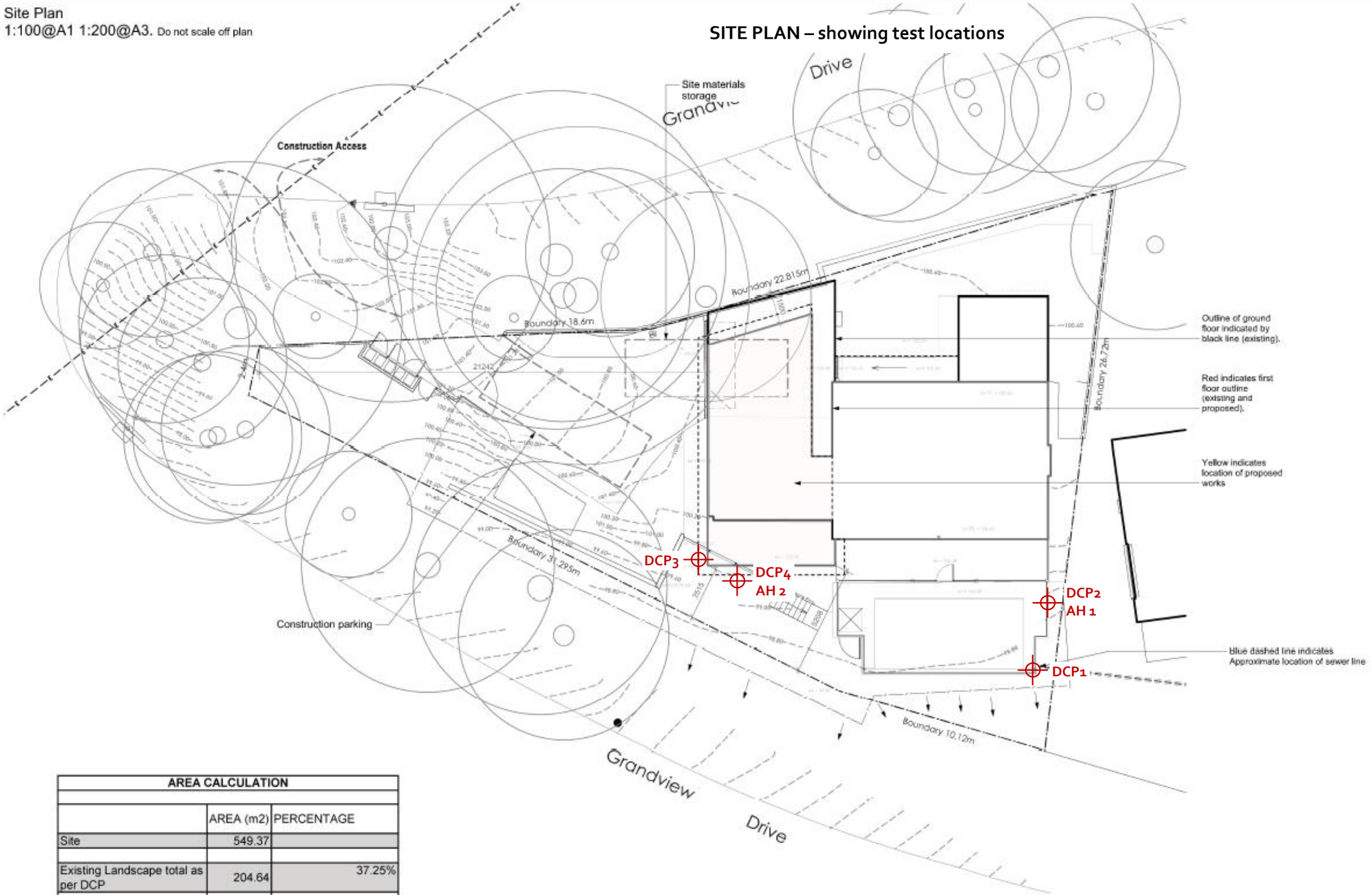
- This report should not be applied to any other project other than that outlined in section 1.0.

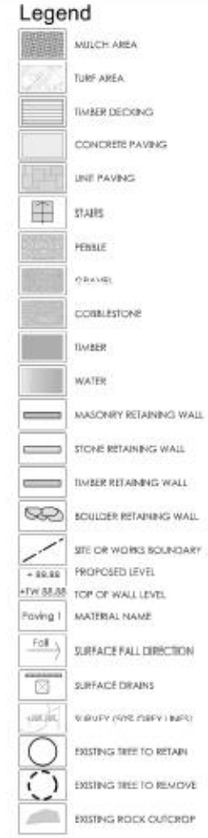
- This report is to be read in full and should not have sections removed or included in other documents as this can result in misinterpretation of the data by others.

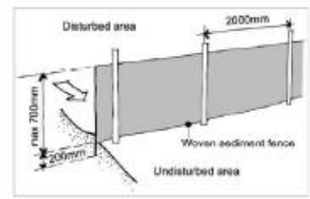
- It is common for the design and construction process to be adapted as it progresses (sometimes to suit the previous experience of the contractors involved). If alternative design and construction processes are required to those described in this report, contact White Geotechnical Group. We are familiar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

Site Plan
1:100@A1 1:200@A3. Do not scale off plan

SITE PLAN – showing test locations







Sedimentation Control Fence
Not to scale.
Source: www.yourhome.gov.au

AREA CALCULATION		
	AREA (m2)	PERCENTAGE
Site	549.37	
Existing Landscape total as per DCP	204.64	37.25%
Proposed Landscape total as per DCP	204.64	37.25%

FLOOR SPACE CALCULATION		
	AREA (m2)	PERCENTAGE
Site	549.37	
Existing Floor Space	232.61	42.34%
Proposed Floor Space	293.26	53.38%

D	24/02/24	Issue for Tender
C	14/02/24	DRAFT issue for review
B	28/01/24	DRAFT issue for review
A	28/11/24	DRAFT issue for review

Notes:
>Do not scale off plan.
>Contractors to check all measurements on site before quoting or commencing work.
>If abnormalities arise, contact the Landscape Architect.
>This design is copyright and is not to be reproduced in anyway without written consent of Jamie King Landscape Architect.
All dimensions are indicative and may be adjusted onsite within the bounds of the approved documents and site minimum standards and codes.

JAMIE KING
LANDSCAPE ARCHITECT
DESIGN • APPROVE • MANAGE

Jamie King Landscape Architect
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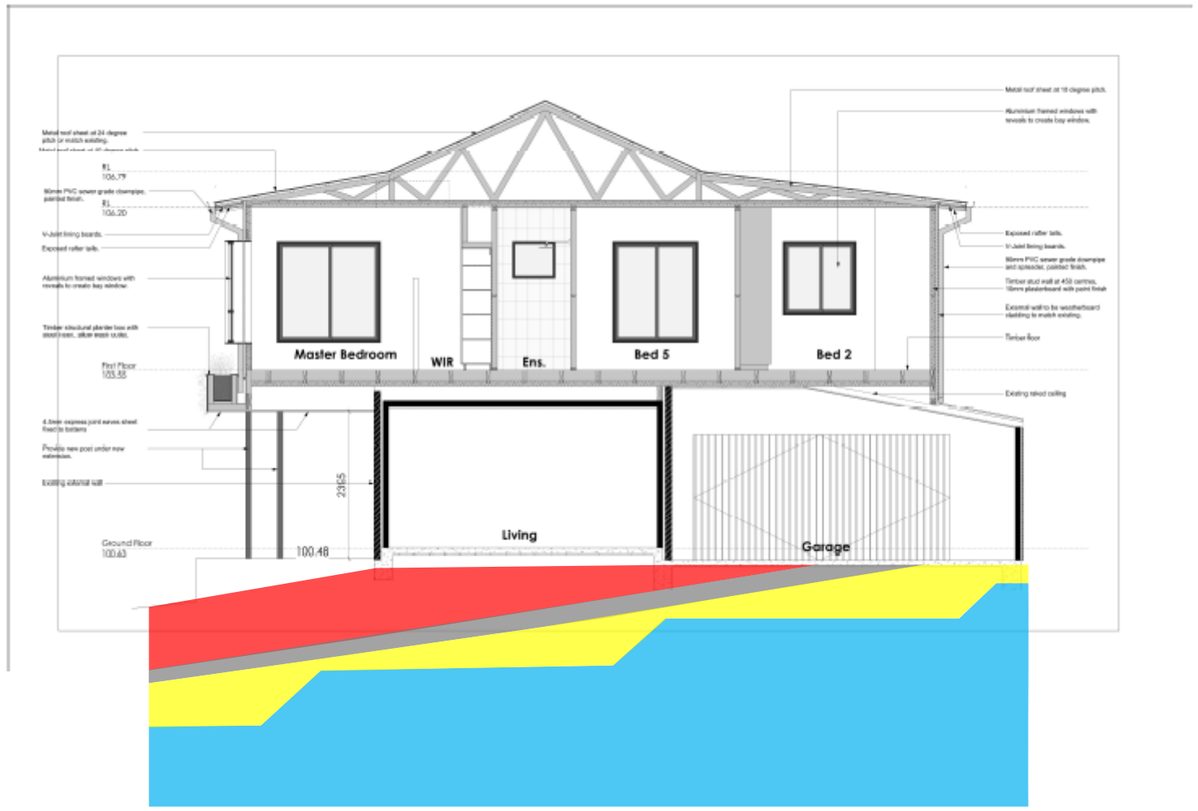
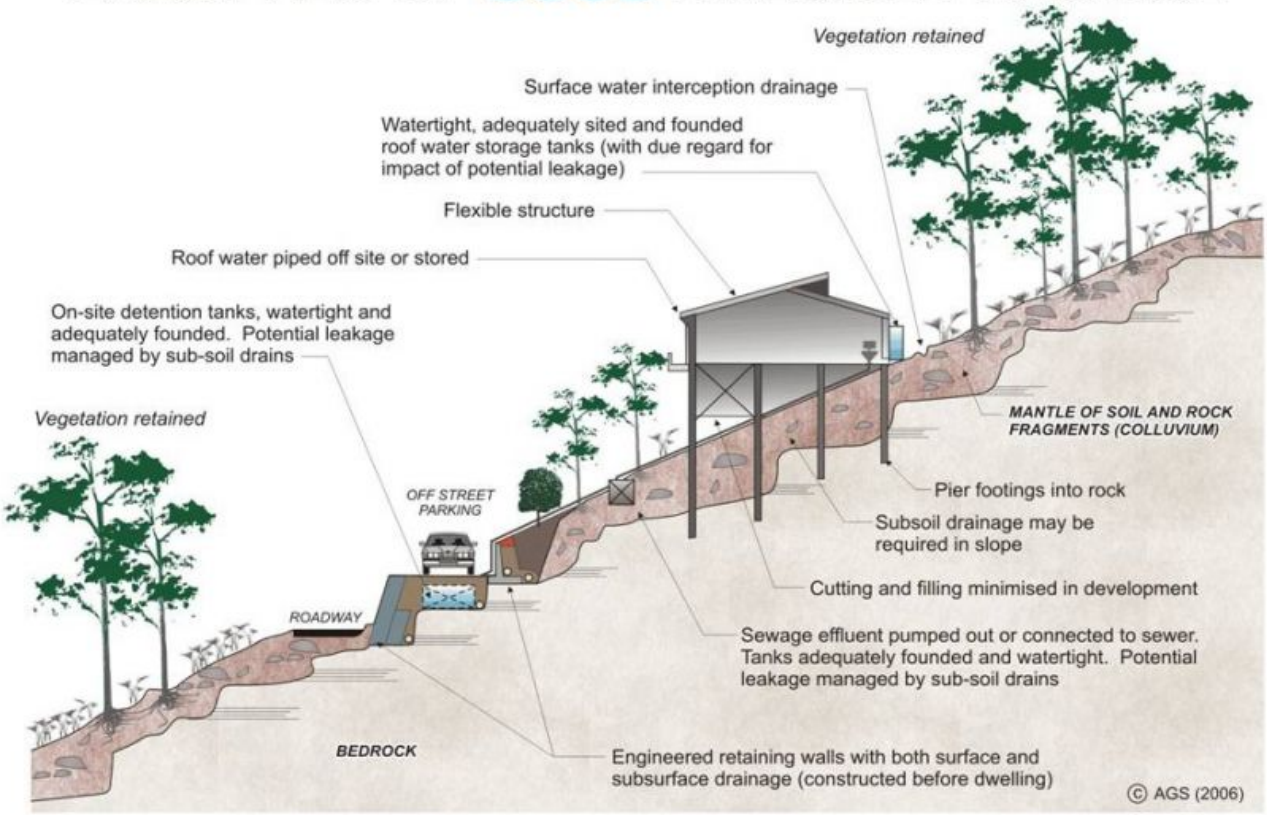
PROJECT	74 Grandview Drive, Newport
PROJECT #	25041
CLIENT	HSU
DATE	See above
SCALE @ A1	See Plan
DRAWN	WPS
CHKD	JK
DWG #	Sht-101
DWG	Site Plan
REVISION	

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



- Fill
- Topsoil
- Clay – Firm to Stiff
- Hawkesbury Sandstone – Very Low to Medium Strength

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE