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

Development Application for _____
Name of Applicant

Address of site 57 Crescent Road, 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 6/11/24 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 **57 Crescent Road, Newport**
Report Date: 6/11/24

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 MScGEOL AIG., RPGeo

Membership No. 10306

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 57 Crescent Road, 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 **57 Crescent Road, Newport**

Report Date: 6/11/24

Author: BEN WHITE

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

Please mark appropriate box

- ☒ Comprehensive site mapping conducted **30/10/24** (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 **30/10/24**
- ☒ 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 MScGEOL AIG., RPGeo

Membership No. 222757

Company **White Geotechnical Group Pty Ltd**

GEOTECHNICAL INVESTIGATION:

Additions and Alterations and New Garage at **57 Crescent Road, Newport**

1. Proposed Development

1.1 Construct an extension to the uphill side of the house.

1.2 Construct a garage on the downhill side of the property

1.3 Construct a balcony off the downhill side of the house.

1.4 Various other minor internal and external additions and alterations.

1.5 Details of the proposed development are shown on 11 drawings prepared by Nvisage, project number RES144, drawings numbered DA-01 to DA-11, dated 28.10.24.

2. Site Description

2.1 The site was inspected on the 30th October, 2024.

2.2 This residential property is on the high side of the road and has a S aspect. It is located on the moderately graded middle reaches of a hillslope. The natural slope rises across the property at an average angle of ~10°. The slopes above and below the property continue at similar angles.

2.3 At the road frontage, a concrete driveway runs up the slope past a parking area to a garage underneath the downhill side of the house (Photo 1). In between the road frontage and the house is a moderately sloping fill batter for the parking area. The fill batter is supported by a stable stack rock retaining wall reaching up to ~2.0m high (Photo 2). Two stable brick retaining walls reaching up to ~1.2m terrace the W side of the property adjacent to the house. The part two-storey house is supported on external rendered brick walls (Photo 3). The supporting brick walls of the house show

no significant signs of movement. Access to the foundation space of the house was not available at the time of inspection. The cut for a level patio and upper floor of the house is supported by a stable rendered masonry retaining wall reaching ~1.5m high (Photo 4). A gently sloping lawn area extends from the uphill side of this wall to the upper common boundary (Photo 5).

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 soil materials. Five Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to weathered rock. The locations of the tests are shown on the site plan attached. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to 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:

AUGER HOLE 1 (~RL15.0) **–** AH1 (Photo 6)

Depth (m)	**Material Encountered**
0.0 to 0.9	**FILL**, disturbed weathered rock and clay, fine to medium grained, medium dense, trace of rock fragments, dry.

End of test @ 0.9m. Auger refusing on fill. No water table encountered.

DCP TEST RESULTS – Dynamic Cone Penetrometer					
Equipment: 9kg hammer, 510mm drop, conical tip.				Standard: AS1289.6.3.2 - 1997	
Depth(m) Blows/0.3m	**DCP 1** (~RL14.2)	**DCP 2** (~RL14.2)	**DCP 3** (~RL15.0)	**DCP 4** (~RL20.5)	**DCP 5** (~RL20.5)
0.0 to 0.3	12	8	8	8	8
0.3 to 0.6	20	11	11	14	15
0.6 to 0.9	16	9	17	26	25
0.9 to 1.2	15	18	21	32	32
1.2 to 1.5	21	24	31	#	#
1.5 to 1.8	28	29	#		
1.8 to 2.1	#	38			
2.1 to 2.4		#			
	Refusal on Rock @ 1.8m	End of Test @ 2.1m	End of Test @ 1.5m	End of Test @ 1.2m	End of Test @ 1.2m

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

DCP Notes:

DCP1 – Refusal on Rock @ 1.8m, DCP bouncing off rock surface, red shale on dry tip.
DCP2 – End of test @ 2.1m, DCP still going down slowly, red shale on dry tip.
DCP3 – End of test @ 1.5m, DCP still going down slowly, orange and white clay on dry tip.
DCP4 – End of test @ 1.2m, DCP still going down slowly, orange and white clay on dry tip.
DCP5 – End of test @ 1.2m, DCP still going down slowly, clean dry 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 soils and clays. Fill has been placed in the location of the proposed garage to terrace the slope. The clays merge into the underlying weathered rock at depths of between ~1.2m to ~1.8m below the current surface. The weathered zone is interpreted to be Extremely Low Strength Shale. 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. 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. It is expected that normal sheet wash will move onto the site from above the property during heavy down pours.

8. Geotechnical Hazards and Risk Analysis

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

Risk Analysis Summary

HAZARDS	Hazard One
TYPE	The moderate slope that rises across the property and continues above and below failing and impacting on the proposed works.
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 Crescent 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

Apart from those for footings and minor levelling, no excavations are required.

12. Foundations

To prevent any surcharge loads being placed on the stack rock retaining walls along the E common boundary, the proposed garage is to be supported on piers embedded into the underlying Extremely Low Strength Shale and taken to below the zone of influence of the retaining wall.

The depths of these piers will depend on the height of the retaining wall in this location. The piers are expected to be taken to depths of between ~1.2m and ~2.0m.

Any additional footings required for the proposed works can also be taken to the underlying Extremely Low Strength Shale. This material is expected at a depth of ~1.2m in the location of the proposed additions and alterations.

A maximum allowable bearing pressure of 600kPa can be assumed for footings on Extremely Low Strength Shale. It should be noted that this material is a soft rock and a rock auger will cut through it so the builders should not be looking for refusal to end the footings.

As the bearing capacity of clay and shale reduces when it is wet, we recommend the footings be dug, inspected, and poured in quick succession (ideally the same day if possible). If the

footings get wet, they will have to be drained and the soft layer of wet clay or shale on the footing surface will have to be removed before concrete is poured.

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

NOTE: If the contractor is unsure of the footing material required, it is more cost-effective to get the geotechnical 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.

13. 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.

14. 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 and Occupation Certificate if the following inspections have 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.

Tyler Jay Johns
BEng (Civil)(Hons),
Geotechnical Engineer.

Reviewed By:

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

REGISTERED PROFESSIONAL GEOSCIENTIST
AUSTRALIAN INSTITUTE OF GEOSCIENTISTS
NATHAN GARDNER
RPGeo No: 10307

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6 (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.

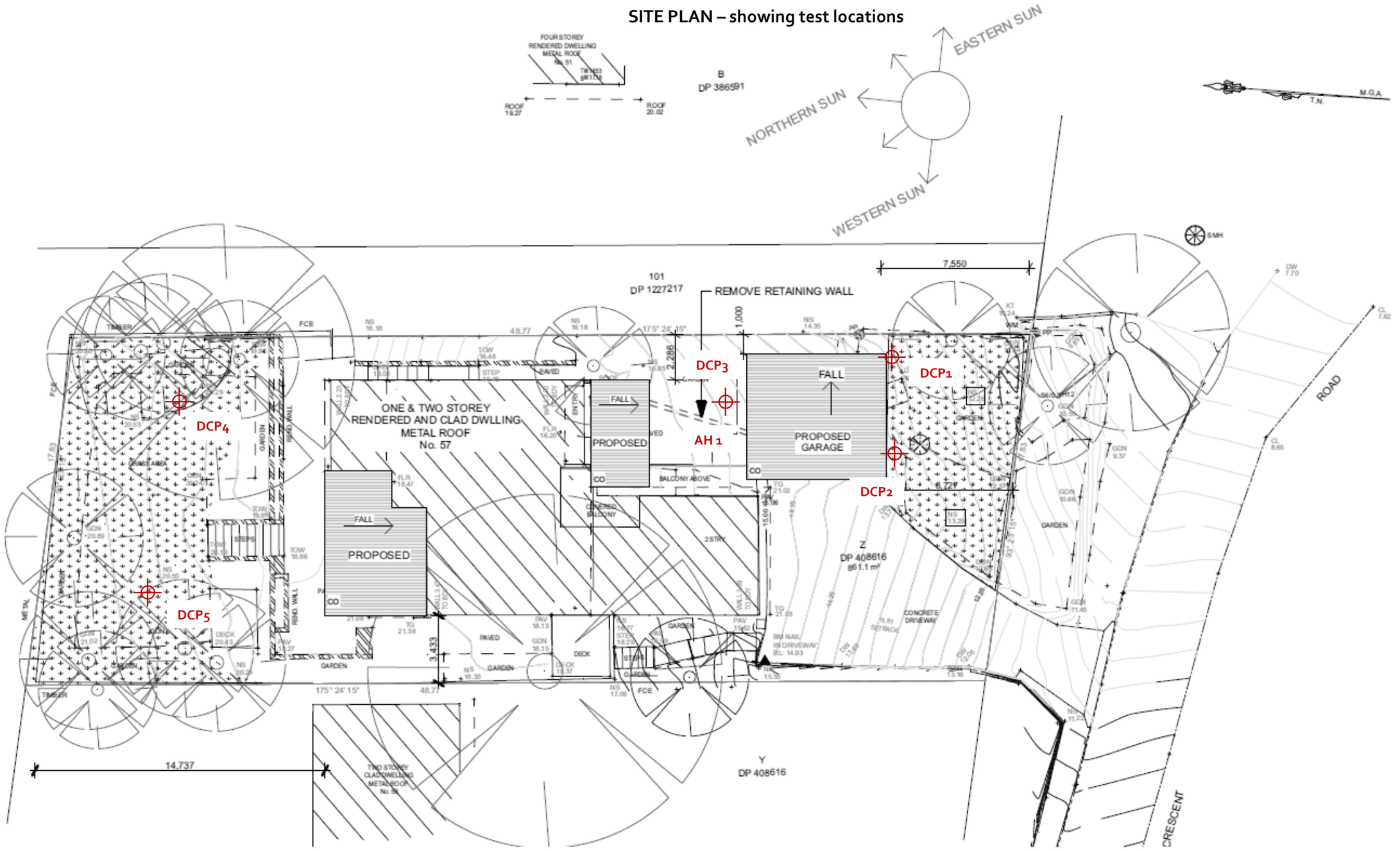
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- 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 – showing test locations



SITE PLAN 1:200

SITE AREA BY SURVEY = 861.1 m²

60% LANDSCAPED AREA = 516.66 m²
EXISTING LANDSCAPED AREA = 383.93 m² (44.6%)
PROPOSED LANDSCAPED AREA = 377.93 m² (43.8 %)

SITE NOTES:

1. ALL WORK TO BE CARRIED OUT WITHIN THE BOUNDARIES OF THE SITE.
2. ALL WORK IS TO BE IN ACCORDANCE WITH THE NCC, NORTHERN BEACHES COUNCIL AND SYDNEY WATER.
3. ANY STORAGE/SKIP BINS ARE TO BE STORED ON SITE AND NOT ON COUNCIL RESERVE/FOOTPATH.
4. ALL WORK TO BE CARRIED OUT AS PER PLANS, ANY CHANGES ARE TO BE DISCUSSED WITH THE DESIGNER AND APPROVED BY THE DESIGNER.
5. ALL STORMWATER AS PER EXISTING
6. ALL WORK TO BE COMPLIANT WITH THE FOLLOWING AUSTRALIAN STANDARDS AND NOT LIMITED TO;
   AS2601.2001 Demolition of structures, AS 1562.1 Design and installation of sheet roof and wall cladding- metal
   AS/NZS 3500.3 Stormwater drainage, AS3660.1 2014 termite management.
7. CHECK ALL DIMENSIONS ON SITE.

KEY:

- EXISTING TREES
- PROPOSED ADDITION
- GRASS AREA
- EXISTING GROUND LEVEL
- EXISTING FENCE
- CO CUSTOM ORB ROOFING
- PP POWER POLE
- EXISTING TO BE REMOVED

Nvisage

NVISAGE PTY LTD.
PO BOX 1668
WARRIEWOOD SQUARE
NSW 2102

ACN: 107 496 935

MOBILE: 0413 489 984

CLIENT DETAILS:
EMMA & ANTHONY WATSON

57 CRESCENT ROAD
NEWPORT NSW 2106
AUSTRALIA

PROPERTY:
LOT Z DP 408616

DRAWING TITLE:
DA PLANS

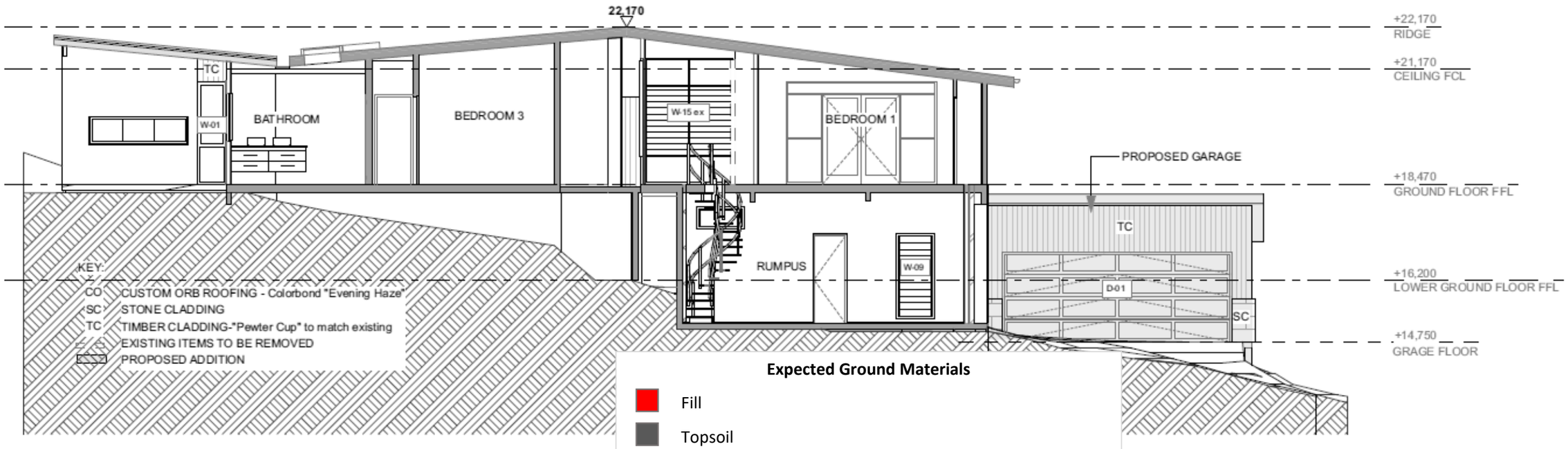
DESIGN BY:
TRINA ROWSTON

DRAWN BY:
ELENA BYRNE

DATE:	REVISION:
28/10/2024	A-1
JOB No.	DWG. No.
RES 144	DA-02

ALL MEASUREMENTS ARE IN MM UNLESS NOTED OTHERWISE.
PLOT DATE: 28/10/2024

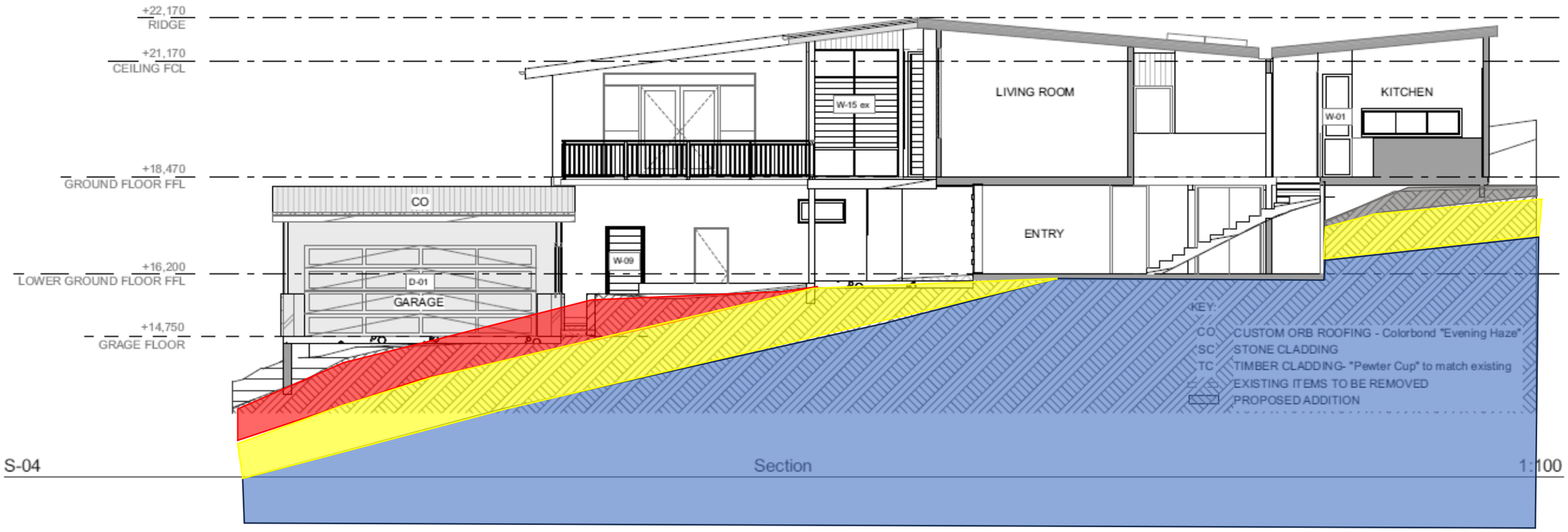
TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



S-01 1:100

Expected Ground Materials

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



S-04 Section 1:100

NVISAGE PTY LTD.
PO BOX 1668
WARRIEWOOD SQUARE
NSW 2102

ACN: 107 496 935

MOBILE: 0413 489 984

CLIENT DETAILS:
EMMA & ANTHONY WATSON
57 CRESCENT ROAD
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28/10/2024	A-1

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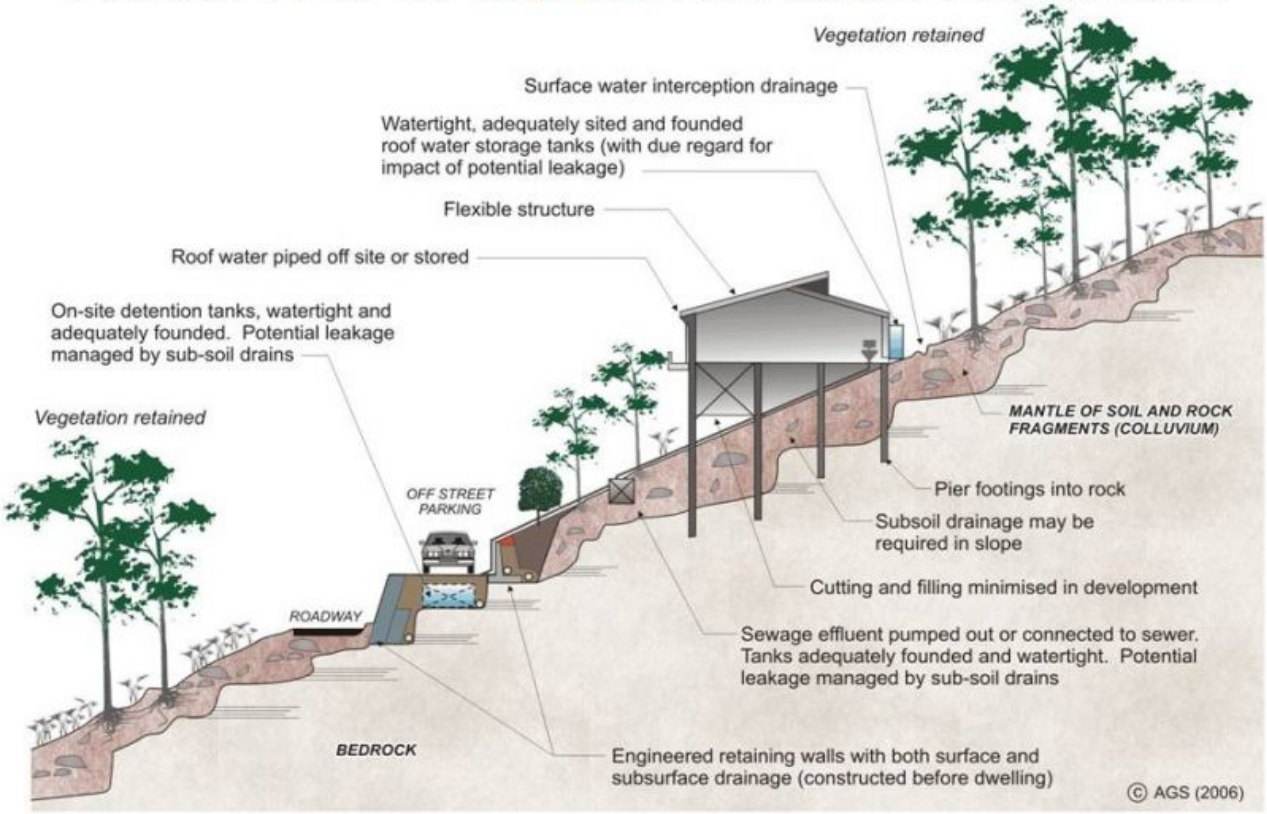
RES 144	DA-08

ALL MEASUREMENTS ARE IN MM UNLESS NOTED OTHERWISE.
PLOT DATE: 28/10/2024

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE