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

Development Application for _____
Name of Applicant

Address of site 56 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 17/12/18 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 **56 Crescent Road, Newport**

Report Date: 17/12/18

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 56 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 **56 Crescent Road, Newport**

Report Date: 17/12/18

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **05/12/18**
(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 **06/12/18**

☒ Geotechnical model developed and reported as an inferred subsurface type-section

☒ Geotechnical hazards identified
- ☐ Above the site
- ☒ On the site
- ☐ Below the site
- ☐ Beside the site

☒ Geotechnical hazards described and reported

☒ Risk assessment conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Consequence analysis
- ☒ Frequency analysis

☒ Risk calculation

☒ Risk assessment for property conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Risk assessment for loss of life conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.

☒ Design Life Adopted:
- ☒ 100 years
- ☐ Other _____
specify

☒ Geotechnical Conditions to be applied to all four phases as described in the Geotechnical Risk Management Policy for Pittwater - 2009 have been specified

☒ Additional action to remove risk where reasonable and practical have been identified and included in the report.

☐ Risk assessment within Bushfire Asset Protection Zone.

I am aware that Pittwater Council will rely on the Geotechnical Report, to which this checklist applies, as the basis for ensuring that the geotechnical risk management aspects of the proposal have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated, and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL INVESTIGATION:

Alterations and Additions and New Pool at **56 Crescent Road, Newport**

1. Proposed Development

1.1 Construct a level lawn area on the uphill side of the house by excavating to a maximum depth of ~1.7m into the slope.

1.2 Install a pool on the downhill side of the property by excavating to a maximum depth of ~0.5m into the slope.

1.3 Extend the downhill side of the house and construct a deck on the uphill side of the house.

1.4 Details of the proposed development are shown on 7 drawings prepared by Network Design, project number 06-18-CRE, DA issue, sheets numbered 1 to 7, dated June 2018.

2. Site Description

2.1 The site was inspected on the 5th December, 2018.

2.2 This residential property is on the low side of the road and has a W aspect. It is positioned on the gentle to moderately graded lower reaches of a hillslope. From the road frontage to the downhill side of the house the natural slope falls at an average angle of ~9°. The slope below the house steps down in two terraces to the lower boundary. The slope above and below the property continues at similar angles.

2.3 At the road frontage a concrete driveway runs down the S side of the property to a garage under the house (Photos 1 & 2). A gently sloping lawn falls from the road frontage (Photo 3). An excavation has been made in the slope to level the uphill side of the house. The cut is supported by a stable sandstone flagging retaining wall (Photo 4). A portion of the wall will be demolished as part of the proposed works. The

wall continues down a of the N side of the house as a stable treated pine retaining wall (Photo 5). The part two-storey timber framed and clad house is supported on brick walls and brick piers (Photo 6). A large vertical crack observed in the uphill supporting brick wall of the house (Photo 7). We are not sure why the cracking has occurred but it is not considered the result of settlement or an indication of slope instability. The brick piers stand vertical (Photo 8). A stable timber crib wall reaching a maximum height of ~1.5m runs along a portion of the N common boundary below the house. The wall continues on the N neighbouring property and supports a cut and fill for a level lawn area on the N neighbouring property (Photo 9). The slope that falls from the downhill side of the house to the lower boundary has been terraced. The terraces are supported by stable treated timber retaining walls that reach a maximum height of ~1.6m (Photos 10 & 11). No significant signs of movement related to slope instability were observed on the property. No geotechnical hazards that could impact on the subject property were observed on the neighbouring properties as seen from the subject property and the road.

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by the Newport Formation of the Narrabeen Group. It is described as interbedded laminate, shale and quartz to lithic quartz sandstone.

4. Subsurface Investigation

Two Hand Auger Holes (AH) were put down to identify the 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. 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. It is likely DCP1 was intercepted by a rock in the profile as the test bounced on

refusal. This is not expected to be an issue for the remaining tests on this site and the results are as follows:

AUGER HOLE 1 (~RL14.4) **–** AH1 (Photo 12)

Depth (m)	**Material Encountered**
0.0 to 0.4	**SANDY SOIL**, light brown/brown, loose, fine to medium grained, organic matter, dry.
0.4 to 0.6	**SANDY CLAY**, orange/brown, firm, rock fragments, fine to medium grained, dry.
0.6 to 0.8	**SANDY CLAY**, orange/brown, stiff, fine to medium grained, dry.

End of hole @ 0.8m in sandy clay. No watertable encountered.

AUGER HOLE 2 (~RL10.1) **–** AH1 (Photo 13)

Depth (m)	**Material Encountered**
0.0 to 0.4	**SANDY SOIL**, dark brown, loose, fine to medium grained, organic matter, dry.
0.4 to 0.6	**SILTY SAND**, brown, loose, fine grained, dry.
0.6 to 0.8	**SILTY SAND**, light brown, firm, fine grained, dry.
0.8 to 0.9	**SANDY CLAY**, light brown/orange, firm, fine to medium grained, damp.

End of hole @ 0.9m in sandy clay. No watertable encountered.

SEE OVER THE PAGE FOR DCP TEST RESULTS

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** (~RL15.7)	**DCP 2** (~RL14.8)	**DCP 3** (~RL10.0)	**DCP 4** (~RL9.9)	**DCP 5** (~RL11.7)
0.0 to 0.3	9	5	4	4	3
0.3 to 0.6	26	5	4	2F	2
0.6 to 0.9	21	18	4	4	3
0.9 to 1.2	25	20	10	12	4
1.2 to 1.5	#	28	18	9	7
1.5 to 1.8		38	40	19	11
1.8 to 2.1		36	#	32	14
2.1 to 2.4		#		#	34
2.4 to 2.7					#
	Refusal on Rock @ 1.2m	End of Test @ 2.1m	End of Test @ 1.8m	End of Test @ 2.1m	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 – Refusal on rock @ 1.2m, DCP bouncing off rock surface, red clay on dry tip.
DCP2 – End of test @ 2.1m, DCP still slowly going down, red clay on dry tip.
DCP3 – End of test @ 1.8m, DCP still slowly going down, grey clay on damp tip.
DCP4 – End of test @ 2.1m, DCP still slowly going down, brown clay on damp tip.
DCP5 – End of test @ 2.4m, DCP still slowly going down, brown clay on damp tip.

5. Geological Interpretation

The slope materials are colluvial at the near surface and residual at depth. In the test locations, the ground materials consist of a sandy topsoil over silty sands and firm to very stiff clays. The clays merge into the underlying weathered rock at depths of between ~1.2 to ~2.4m below the current ground surface. The weathered zone is interpreted to be Extremely Low

Strength Shale that becomes progressively stronger with depth. See Site Plan 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 clay and 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 base of the proposed excavation.

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 on Crescent Road.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above, below, or beside the property. The proposed excavation for the new lawn area is a potential hazard until retaining walls are in place. (**Hazard One**).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One
TYPE	The proposed excavation for the level lawn area on the uphill side of the house collapsing onto the worksite and house before retaining walls are in place.
LIKELIHOOD	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (20%)
RISK TO PROPERTY	'Moderate' (2×10^{-4})
RISK TO LIFE	7.3×10^{-5}/annum
COMMENTS	This level of risk to life and property is '**UNACCEPTABLE'**. To move the risk levels to acceptable levels the recommendations in **Section 13** are to be followed.

(See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

9. Suitability of the Proposed Development for the Site

The proposed development is suitable for the site. No geotechnical hazards will be created by the completion of the proposed development provided it is carried out in accordance with the requirements of this report and good engineering and building practice.

10. Stormwater

It is recommended a drainage easement be obtained from the downhill neighbouring property and all stormwater or drainage runoff from the proposed development be piped to the street below. If this option is not feasible, a spreader/dispersion trench is suitable as a last resort, provided flows are kept close to natural runoff for the site. All stormwater is to be piped 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 create a level area on the uphill side of the house. It is expected to be through a sandy topsoil over firm to very stiff clays.

An Excavation to a maximum depth of ~0.5m is required to install the pool. It is expected to be through a sandy topsoil over silty sands and firm to stiff clays.

It is envisaged the excavations can be carried out with a bucket and rock hammers will not be required.

12. Vibrations

Any vibrations generated during the excavations through soil, sand, clay and Extremely Low Strength Shale will be well below the threshold limit for infrastructure or building damage.

13. Excavation Support Requirement

Excavation for the Propose Lawn Area

The excavation for the level lawn area above the house will involve the demolition of most of the sandstone flagging retaining wall above the house. A portion of the N end of the wall will remain. The S end of the wall is to be demolished prior to the bulk excavation. The wall is to be systematically lowered from the top down. This work is to be conducted in an orderly manner so no damage occurs to the portion of the wall that is to remain. As the wall is lowered, any soil, sand and clay behind the wall is to be lowered simultaneously and battered at 1.0 Vertical to 1.7 Horizontal (30°). Clay and weathered shale will stand for short periods until retaining walls are installed provided the cut batters are prevented from becoming saturated. See advice to follow for both excavations.

The geotechnical professional is to inspect the excavation face as it is lowered to 1.5m, while the machine is on site to ensure ground materials are as expected and that no additional support is required.

Excavation for the Proposed Pool

The excavation for the proposed pool will reach a maximum depth of ~0.5m and come within ~0.4m of the existing ~1.6m high treated timber retaining wall on the downhill side of the house. Thus ~0.4m of the wall will lie within the zone of influence of the excavation. In this instance the zone of influence is a 30° through soil and 45° through clay from the base of the excavation towards the surrounding structures.

The portion of the wall footing within the zone of influence of the excavation will need to be underpinned to the base of the excavation, prior to the excavation commencing.

The required underpinning will cover a small ~0.4m portion of the existing timber retaining wall. In no circumstances is the bulk excavation to be taken to the edge of the footing and then be underpinned. The underpins are to be carried out in drives pushed forward from beyond the zone of influence following the underpinning sequence. Under pin should not exceed 0.3m in width. Allowances are to be made for drainage through the underpinning to prevent a build-up of hydrostatic pressure. Underpins that are not designed as retaining walls are to be supported by retaining walls. The void between the retaining wall and the underpinning is to be filled with free draining material such as gravel.

On completion of the required underpinning the excavation may commence.

The soil and clay portions of the cut will stand unsupported for short periods of time until retaining structures are in place provided the cut batters are prevented from becoming saturated. If the cut batters through soil and clay remain unsupported for more than a few days before the commencement of pool construction they are to be temporarily supported with typical pool shoring such as braced sheet metal or similar until the pool structure is in place.

The following applies to both excavations

Unsupported cut batters through soil, sand, and clay are to be covered to prevent access of water in wet weather and loss of moisture in dry weather. The covers are to be tied down with metal pegs or other suitable fixtures so they can't blow off in a storm. Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. The materials and labour to construct the pool and retaining wall for the new lawn area 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.

All excavation spoil is to be removed from site.

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
Sandy Soil and Residual Clays	20	0.4	0.55
Extremely Low Strength Rock	22	0.25	0.35

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 wall, do not account for any surcharge loads and assume retaining structures are fully drained. So in this instance slope surcharge loads will need to be accounted for in the design. Ground

material strengths 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 wall with free-draining material (such as gravel). This material is to be wrapped in a non-woven Geotextile fabric (i.e. Bidim A34 or similar), to prevent the drainage from becoming clogged with silt and clay. If no back-wall drainage is installed in retaining structures, the likely hydrostatic pressures are to be accounted for in the retaining structures design.

15. Foundations

Piers supported off the underlying Extremely Low Strength Shale is a suitable footing for the proposed pool. This bearing material is expected at a maximum depth of ~1.6m below the current ground surface. A maximum allowable bearing pressure of 600 kPa can be assumed for footings on Extremely Low Strength Shale.

If the proposed additions are flexible structures and some movement in accordance with a 'Class M' site can be tolerated (i.e. timber framed and clad) a piered concrete slab supported on the underlying firm to stiff clays are suitable footings for the proposed additions. Pier depth is expected to be at least 0.5m for the uphill addition and 1.2m for downhill addition from the downhill side of the footings. A maximum allowable pressure of 200kPa can be assumed for footings supported on firm to very stiff clays.

For better quality footings or where little movement (i.e. the additions are of masonry construction) can be tolerated piers can be taken to extremely low strength shale. The required pier depth is expected to be ~1.5m for the uphill addition and 2.1m for the downhill addition, below the current surface. A maximum allowable bearing pressure of 600 kPa can be assumed for footings on Extremely Low Strength Shale.

Ideally, footings should be founded on the same footing material across the existing house and new additions. Where the footing material changes across the structure construction

joints or similar are to be installed to prevent differential settlement, where the structure cannot tolerate such movement.

Firm to stiff clay or better will be exposed across the excavation for the level lawn area. This is a suitable foundation for the retaining wall. Maximum allowable bearing pressure is as above.

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.

SEE OVER THE PAGE FOR REQUIRTED INSPECTIONS

16. Inspections

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

- The underpinning foundations to support the wall is to be inspected by the Geotechnical Consultant prior to steel, concrete or masonry being placed.

- The Geotechnical Consultant is to inspect the proposed excavation for the lawn area as it is lowered to a depth of 1.5m, while the machine is on site to ensure ground materials are as expected and that no additional support is 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

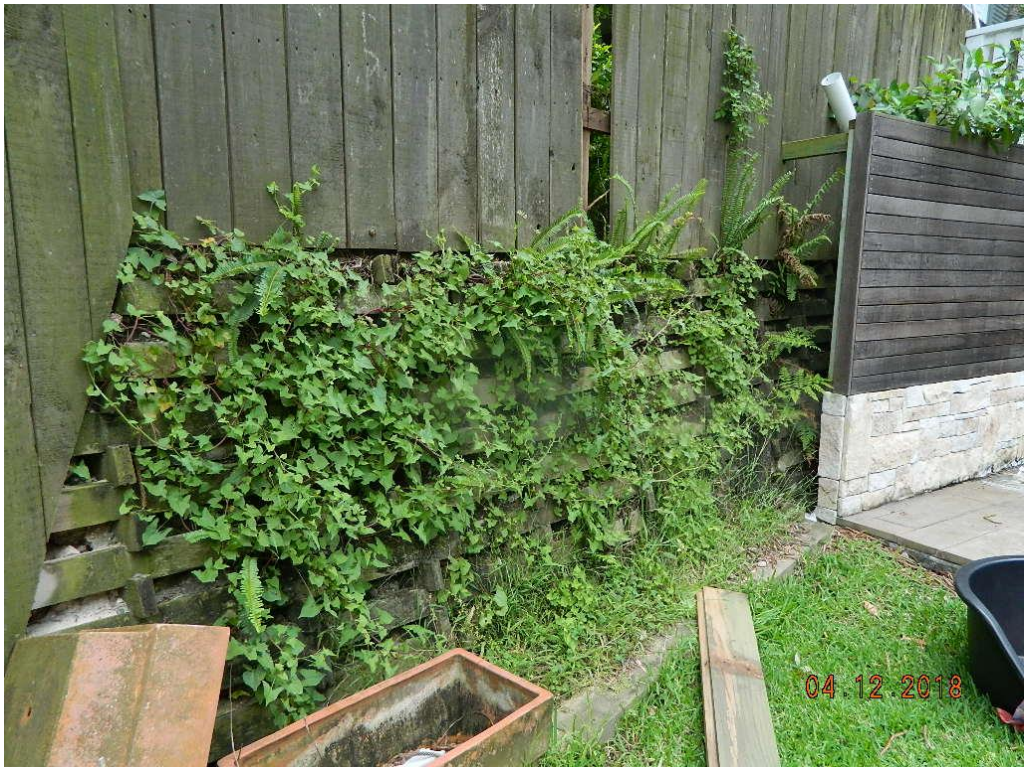


Photo 9

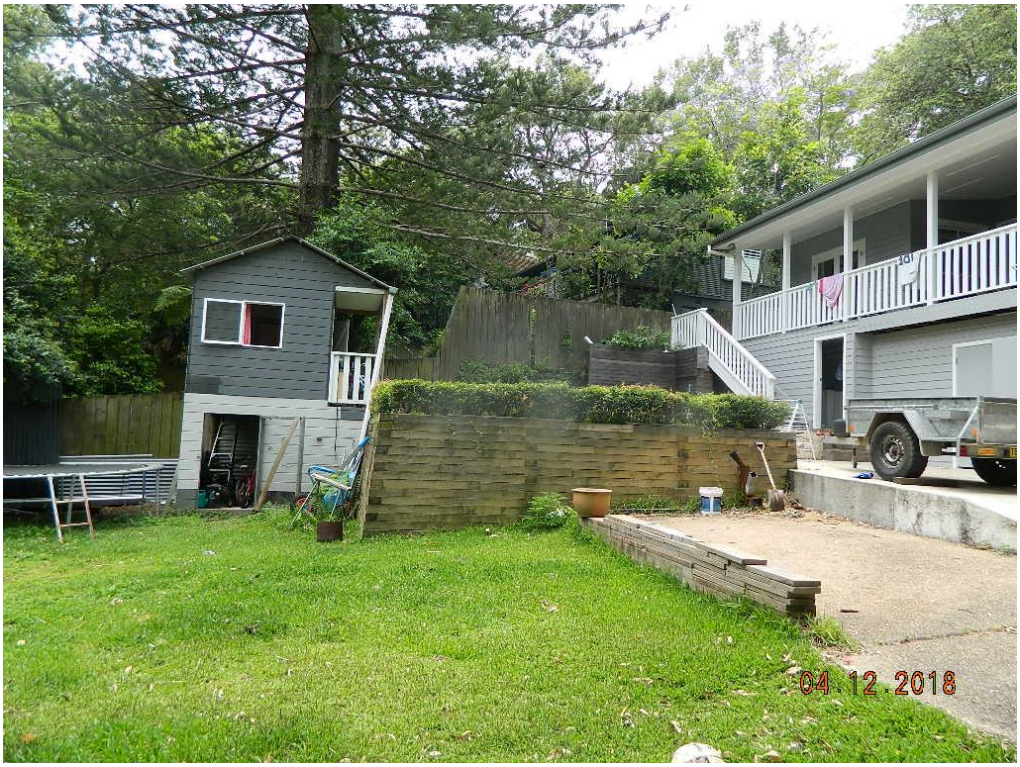


Photo 10

Photo 11

Photo 12 - End of the auger is at the bottom of the image

Photo 13 - End of the auger is at the bottom of the image

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 tests 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 professional. 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.

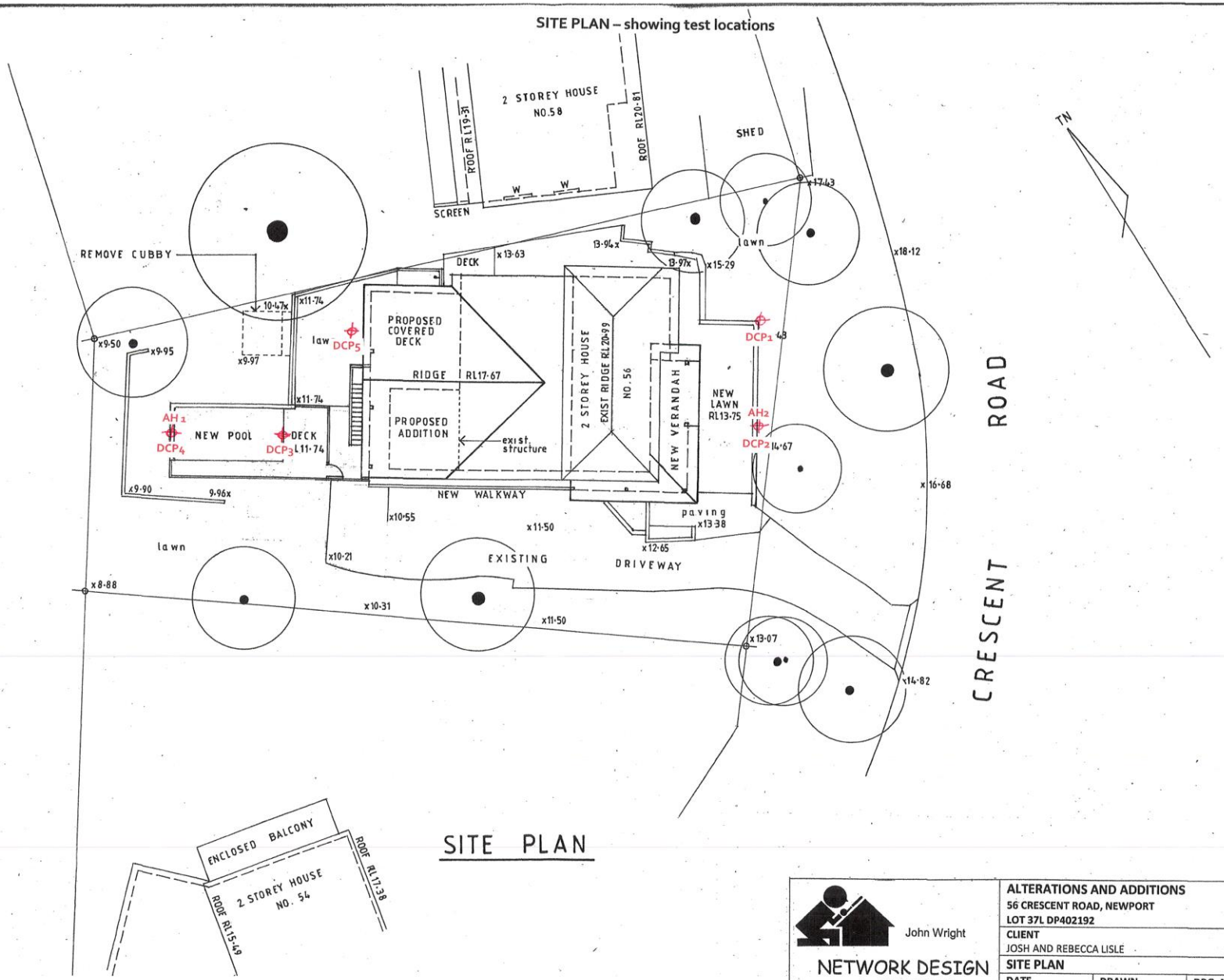
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- 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.

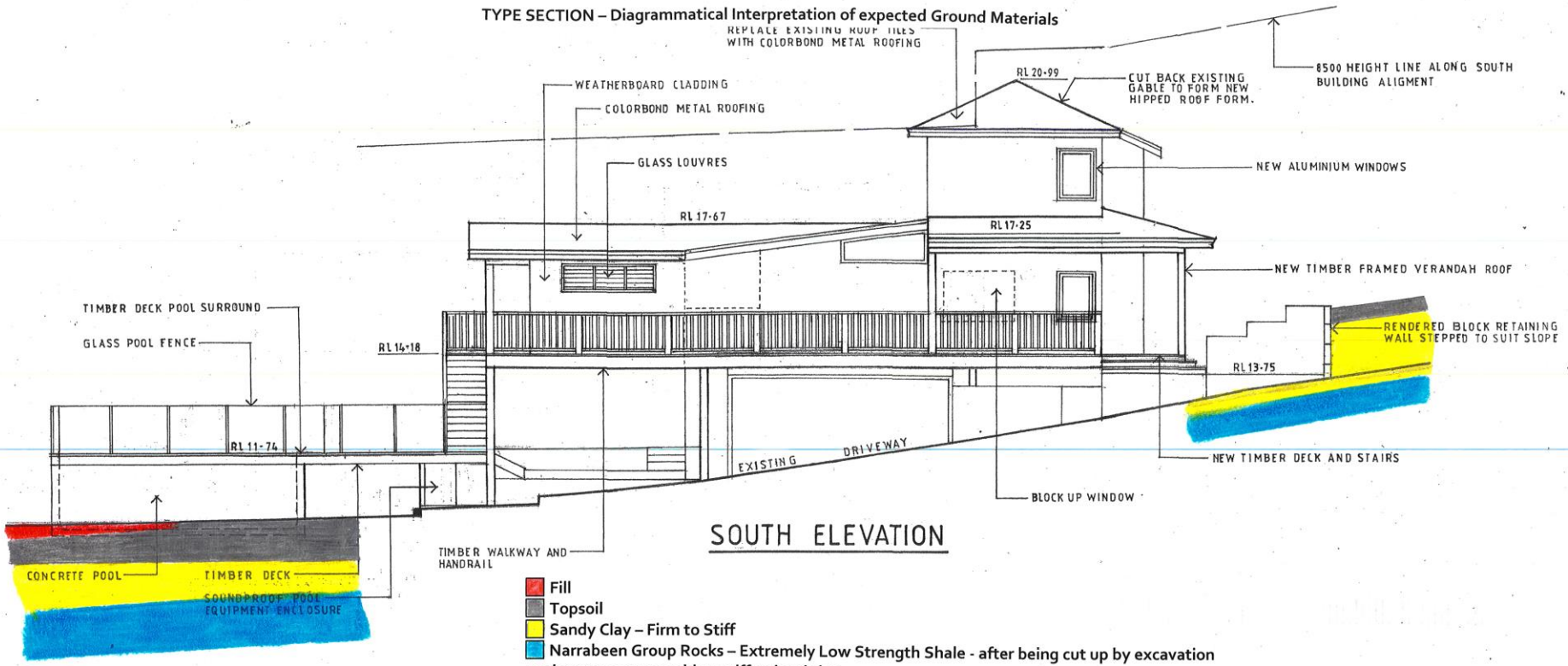
SITE PLAN – showing test locations



SITE PLAN

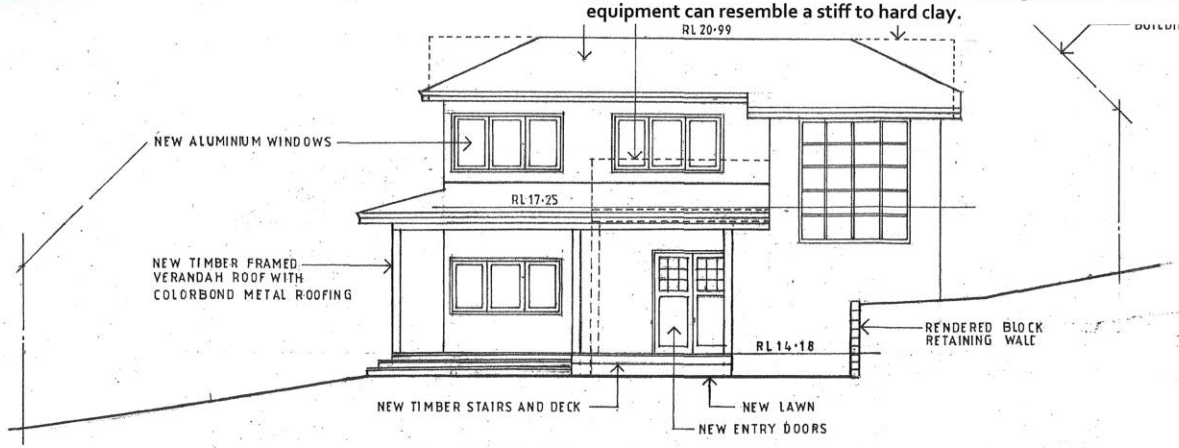
John Wright NETWORK DESIGN a.b.n.52 057 985 118 37 McKillop Road Beacon Hill 2100 M. 0417 459 596 alwayswright@optusnet.com.au	**ALTERATIONS AND ADDITIONS** **56 CRESCENT ROAD, NEWPORT** **LOT 37L DP402192**	
	CLIENT JOSH AND REBECCA LISLE	
	SITE PLAN	
	DATE JUNE 2018	**DRAWN** J.WRIGHT
	SCALE 1:100	**ISSUE:** DA
	DRG. NO. 06-18-CRE	
	SHEET NO. 7	

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



SOUTH ELEVATION

- Fill
- Topsoil
- Sandy 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.



EAST ELEVATION

John Wright
NETWORK DESIGN
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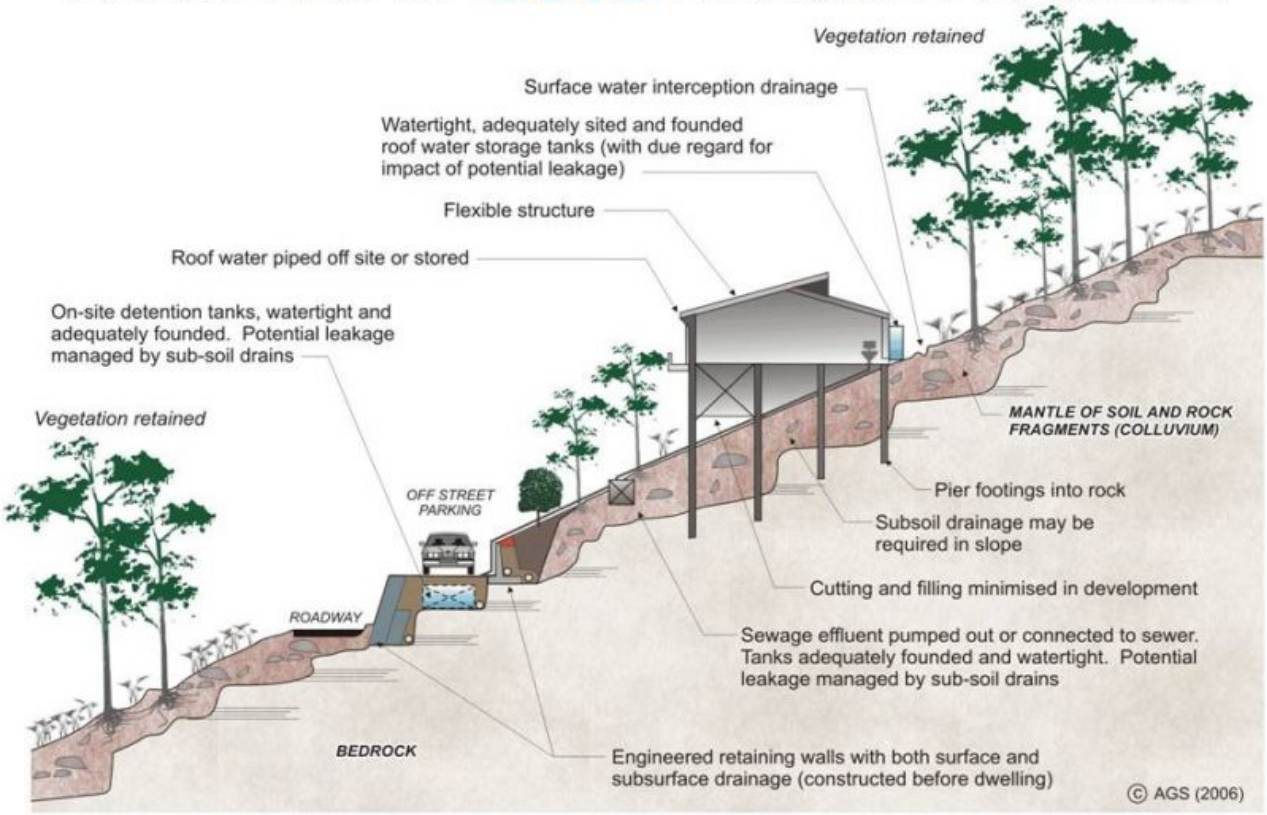
M. 0417 459 596
alwayswright@optusnet.com.au

ALTERATIONS AND ADDITIONS **56 CRESCENT ROAD, NEWPORT** **LOT 37L DP402192**		
CLIENT JOSH AND REBECCA LISLE		
SOUTH AND EAST ELEVATION		
DATE JUNE 2018	**DRAWN** J.WRIGHT	**DRG. NO.** 06-18-CRE
SCALE 1:100	**ISSUE:** DA	**SHEET NO.** 4

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE