J1457B.
31st January, 2019

Lot 4, 7 Trentwood Park, Avalon

Comments on Updates to Plans

We have reviewed the existing geotechnical report, the concept plans used to carry out the report, and the updated plans for DA shown on 4 drawings prepared by Gartner-Trovato Architects, Project number 1711-LOT4, drawings numbered DA.01 to DA.04, Revision J, dated 30/1/2019.

The changes include:

- Adding a fourth lot and house to the proposed subdivision.
- Minor levelling may be required for the proposed house.

The proposed additional house only requires minor levelling in terms of additional earth works. The original report was comprehensively written to detail the construction of the proposed houses on the subdivision. Provided these recommendations are applied to the additional proposed house, the changes do not alter the recommendations or the risk assessment in the report carried out by this firm numbered J1457 and dated the 15th September, 2017.

White Geotechnical Group Pty Ltd.

Ben White M.Sc. Geol.,
AusIMM., CP GEOL.
No. 222757
Engineering Geologist.

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

Development Application for _____
Name of Applicant

Address of site **7 Trentwood Park, Avalon**

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 20/9/17 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 $2million.
I have:

Please mark appropriate box

☒ 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

☒ I 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 paragraph 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy fro 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 am of the opinion that the Development Application only involves Minor Development/Alterations that do not require a Detailed Geotechnical Risk Assessment and hence my report is in accordance with the Geotechnical Risk Management Policy for Pittwater – 2009 requirements for Minor Development/Alterations.

☐ Provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report

Geotechnical Report Details:

Report Title: Geotechnical Report **7 Trentwood Park, Avalon**

Report Date: 15/9/17

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 **7 Trentwood Park, Avalon**

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 **7 Trentwood Park, Avalon**

Report Date: 15/9/17

Author : BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted 14/9/17 (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 14/9/17
☒ 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 Subdivision and Two New Houses at **7 Trentwood Park, Avalon.**

1. Proposed Development

1.1 Subdivide the property into three lots.

1.2 Construct two new houses on the lower and upper lots (lots 1 & 3) by excavating ~3.8m into the slope for lot 1, and ~2.4m for lot 3.

1.3 Construct a new Right of Carriageway (ROW) by excavating ~2.7m into the slope.

1.4 Details of the proposed development are shown on 9 drawings prepared by Gartner-Trovato Architects, project number 1711, drawings numbered A01 to 09, Issue C, dated June 2017.

2. Site Description

2.1 The site was inspected on the 14th September, 2017.

2.2 This residential property is on the high side of the road and has an E aspect. It is positioned on the moderate to steeply graded middle reaches of a hillslope. The natural slope rises across the property at an average angle of ~20°. The slope above and below the property continues at similar angles.

2.3 At the road frontage, a concrete driveway runs up the slope to a brick garage and brick-paved parking area on the S side of the house (Photos 1 & 2). The garage will be demolished as part of the proposed works. The driveway diverts to a lawn-covered parking area below the brick-paved parking area (Photo 3). The fill for the lawn-covered parking area is battered to stable angles and meres into the natural slope (Photo 4). Between the road frontage and the lawn-covered parking area, the slope is sparsely vegetated with native trees (Photo 5). The part two-storey timber framed and clad house will remain unchanged as part of the proposed works (Photo 6). An excavation has been made in the slope for the lower ground floor of the house. The cut was made through a

band of medium-strength sandstone (Photo 7). A fill has been placed on the slope above the cut for a level paved area. The fill is supported by a ~1.2m high stable sandstone block retaining wall that is supported directly off the exposed sandstone band. Another excavation has been made in the slope for the upper ground floor. The cut batter is well-vegetated and battered to stable angles. The slope that rises above the house to the upper boundary has been cleared of most of its vegetation (Photo 8).

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

Two auger holes were put down to identify the soil materials. Eight Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to bedrock. 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 and the results are as follows:

AUGER HOLE 1 (~RL46.1) **–** AH1 (Photo 9)

Depth (m)	**Material Encountered**
0.0 to 0.3	**TOPSOIL,** sandy soil, brown-grey, fine to medium grained with fine trace organic matter and trace silt.
0.3 to 0.6	**CLAY**, orange-brown, firm to stiff, fine grained.

End of hole @ 0.6m in firm to stiff clay. No watertable encountered.

AUGER HOLE 2 (~RL69.8) **–** AH2 (Photo 10)

Depth (m)	Material Encountered
0.0 to 0.2	**TOPSOIL,** sandy soil, brown to dark brown, fine to medium grained with fine trace organic matter.
0.2 to 0.5	**CLAY**, weathered shale, orange-brown with mottled maroon, stiff, fine grained.

End of hole @ 0.5m in weathered shale. No watertable 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 (~RL42.8)	DCP 2 (~RL45.7)	DCP 3 (~RL49.7)	DCP 4 (~RL60.9)	DCP 5 (~RL61.1)	DCP 6 (~RL66.0)	DCP 7 (~RL69.8)	DCP 8 (~RL69.7)
0.0 to 0.3	29	16	38	25	22	15	12	14
0.3 to 0.6	26	23	28	21	45	26	22	14
0.6 to 0.9	30	20	30	30	#	50	30	36
0.9 to 1.2	#	30	#	#		#	#	#
1.2 to 1.5		#						
	End of Test @ 0.9m	Refusal @ 1.0m	End of Test @ 0.9m	End of Test @ 0.9m	End of Test @ 0.5m	End of Test @ 0.9m	End of Test @ 0.9m	End of Test @ 0.9m

#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 @ 0.9m, DCP still very slowly going down, light brown shale fragments on dry tip.
DCP2 – Refusal @ 1.0m, DCP bouncing, white to orange-brown shale fragments on dry tip.
DCP3 – End of test @ 0.9m, DCP still very slowly going down, white and maroon shale fragments on dry tip.
DCP4 – End of test @ 0.7m, DCP still very slowly going down, brown shale fragments on dry tip.
DCP5 – End of test @ 0.5m, DCP still very slowly going down, light brown shale fragments on dry tip.
DCP6 – End of test @ 0.9m, DCP still very slowly going down, light brown shale fragments on dry tip.
DCP7 – End of test @ 0.9m, DCP still very slowly going down, white to light brown shale fragments on dry tip.
DCP8 – End of test @ 0.9m, DCP still very slowly going down, white, orange, and maroon shale fragments on dry tip.

5. Geological Observations/Interpretation

The slope materials are colluvial at the near surface and residual at depth. They consist of a thin sandy topsoil over firm to stiff clays. In the test locations, the clays merge into the weathered zone of the under lying rocks at an average depth of ~0.6m below the current surface. The weathered zone of the underlying rock is interpreted as extremely low to very low strength shale. It is to be noted that this material is a soft rock and can appear as a mottled stiff clay when it is cut up by excavation equipment.

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 excavations.

7. Surface Water

No evidence of significant 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 Chisholm Avenue above.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The moderate to steeply graded land surface that falls across the property and continues above and below is a potential hazard (**Hazard One**). The proposed excavation for lot 1 is a potential hazard until the retaining walls are in place (**Hazard Two**). The proposed excavation for lot 3 is a potential hazard until retaining walls are in place (**Hazard Three**). The proposed excavation for the ROW is a potential hazard until retaining walls are in place (**Hazard Four**).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The moderate to steep slope that falls across the property and continues above and below failing and impacting on the existing house and proposed works.	The excavation for lot 1 collapsing onto the work site and impacting the neighbouring structures and properties.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (15%)	'Medium' (30%)
RISK TO PROPERTY	'Low' (2 x 10^{-5})	'Moderate' (2 x 10^{-4})
RISK TO LIFE	5.5 x 10^{-7}/annum	3.8 x 10^{-4}/annum
COMMENTS	This level of risk is 'ACCEPTABLE'.	'UNACCEPTABLE' level of risk to life and property. To move risk 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)

HAZARDS	Hazard Three	Hazard Four
TYPE	The excavation for lot 3 collapsing onto the work site before retaining walls are in place.	The excavation for the ROW collapsing onto the work site before retaining walls are in place.
LIKELIHOOD	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (15%)	'Medium' (25%)
RISK TO PROPERTY	'Moderate' (2 x 10^{-4})	'Moderate' (2 x 10^{-4})
RISK TO LIFE	5.3 x 10^{-5}/annum	5.3 x 10^{-5}/annum
COMMENTS	UNACCEPTABLE' level of risk to life and property. To move risk to 'ACCEPTABLE' levels, the recommendations in **Section 13** are to be followed.	UNACCEPTABLE' level of risk to life and property. To move risk 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.

The fall is to the street. 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.

An excavation to a maximum depth of ~3.8m will be required to install the proposed garage level for lot 1. Another excavation to maximum depth of ~2.4m will be required to install the proposed garage level for lot 3. Another excavation to maximum depth of ~2.7m will be required to install the proposed ROW.

The excavations are expected to be through a thin sandy soil over firm to stiff sandy clays with extremely low to very low strength shale expected at an average depth of ~0.6m below the surface.

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

12. Vibrations.

It is expected the proposed excavation will be carried out with an excavator and bucket and the vibrations produced will be below the threshold limit for building damage.

13. Excavation Support Requirements

Bulk Excavation for Lot 1

The excavation for the proposed garage level of lot 1 will reach a maximum depth of ~3.8m and will be set back ~0.5m from the N common boundary. The house on the neighbouring property is

cut into the slope, effectively lowering the excavation height. It is also positioned downslope, where the proposed cut is ~2.0m in depth.

Existing historic excavations on the property up to ~2.2m in height are standing unsupported at batter angles of ~70°. Given the proposed excavation is 0.5m from the common boundary, to carry out the excavation with the least risk it is recommended that heavy ground support be installed before the excavation commences, such as spaced pier retaining wall. The piers, in this instance, will most likely be supported by embedment with pier spacing typically ~2.0m but can vary between 1.6 to 2.4m depending on the design. It is possible to utilise other suitable methods to provide lateral support such as the use of deadmen or anchors etc.

To drill the pier holes for the retaining wall, a powerful excavator or small pilling rig that can excavate through medium strength rock will be required. If a machine of this type is not available we recommend carrying out core drilling before the construction commences to confirm the strength of the rock and to ensure the excavation equipment is capable of reaching the required depths. As the excavation is lowered in 1.5m lifts, infill sprayed concrete panels or similar are added between the piers to form the wall. Drainage is installed behind the panels. The wall is to be tied into the concrete floor and roof slabs of the garage after which any temporary support can be released.

The geotechnical consultant is to inspect the drilling process of the entire first pile and the ground materials at the base of all piers before any concrete is placed.

Bulk Excavation for Lot 3 and ROW

No structures or boundaries will be within the zones of influence of the excavations for the proposed garage level of lot 3, or for the proposed ROW.

Provided soils are battered at 1.0 Vertical to 2.0 Horizontal (26°) and clays are battered at 1.0 Vertical to 1.0 Horizontal (45°) for at least the top 1.0m, the remaining stiff clay/extremely low strength shale will stand unsupported at near-vertical angles for short periods of time until retaining walls are in place provided the cuts are kept from becoming saturated.

All unsupported cut batters are to be covered to prevent access of water in wet weather and loss of moisture in dry weather. Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. The materials and labour to construct the retaining structures 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.

14. Retaining Walls

For cantilever or singly propped retaining walls 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 Walls

Unit	Earth Pressure Coefficients			
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0	Passive
Sandy Soil and Residual Clays	20	0.35	0.45	N/A
Extremely Low to Very Strength Shale	22	0.3	0.25	400 kPa Ultimate

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 walls are fully drained. So in this instance slope surcharge loads will need to be accounted for in the design. It should be noted that passive pressure is an ultimate value and require an appropriate safety factor applied. No passive resistance should be assumed for the top 0.4m to account for any disturbance from the excavation.

Should the piered retaining wall be temporarily supported by rock anchors, to prevent toe 'kick out' we recommend the piers be embedded at least 1.0m below the base of the excavation.

All retaining walls 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 walls, the likely hydrostatic pressures are to be accounted for in the retaining wall design.

15. Foundations

The proposed houses can be supported on a concrete slab and piers taken to extremely low to very low strength shale. This ground material is expected to be exposed across most of the bases of the excavations, and is expected at an average depth of ~0.6m below the proposed houses. A maximum allowable bearing pressure of 600kPa can be assumed for footings on extremely low to very 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.

The ROW is to be supported directly off the surface clays after the topsoil has been stripped. A maximum allowable bearing pressure of 200kPa can be assumed for footings on clays. Where the ROW is cut into the slope, it will be supported directly off the exposed shale. Where the foundation material across the structure changes expansion joints are to be installed to separate the different foundation materials and to accommodate minor differential movement.

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.

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.

- During the excavation process for each of the proposed excavations, the geotechnical consultant is to inspect the cuts in 1.5m intervals as they are lowered, while the machine/excavation equipment is on site, to ensure the ground materials are as expected and no additional temporary support is required.

- The geotechnical consultant is to inspect the ground materials while the first pile for the pier wall is being dug to assess the ground strength and to ensure it is in line with our expectations.

- All finished pier holes are to be inspected and measured before concrete is placed.

- 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

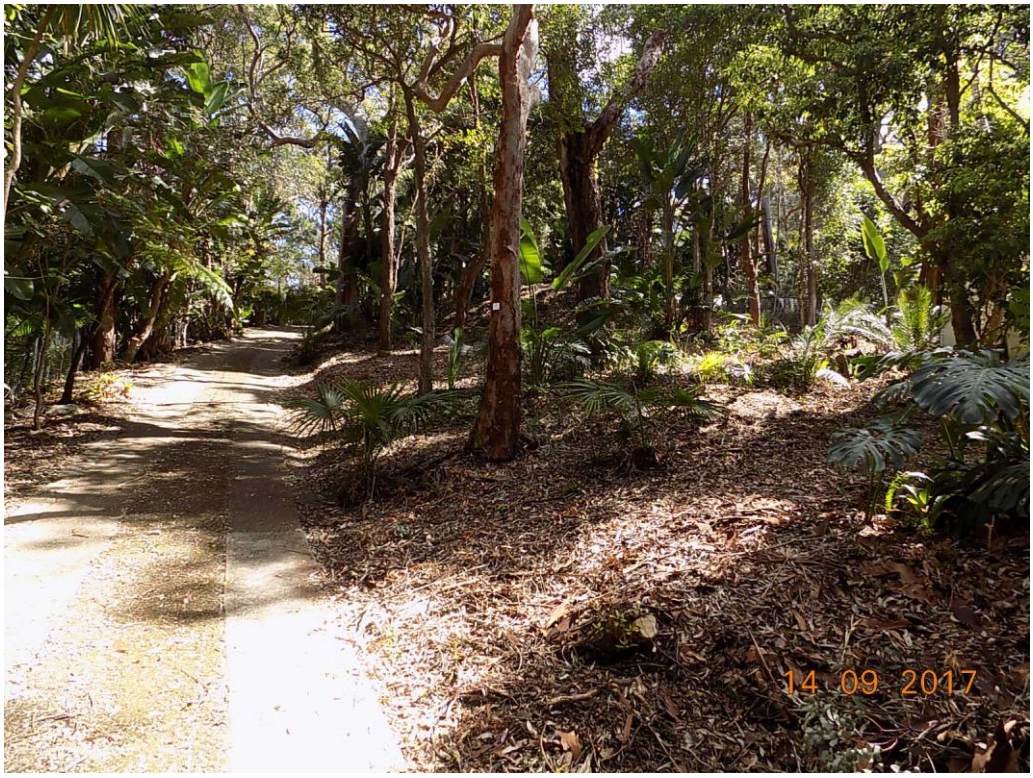

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9: AH1 – Downhole is from left to right.

Photo 10: AH2 – Downhole is from left to right.

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

CHISHOLM AVENUE

333
D.P.620738

No.-
1&2 STOREY
TIMBER HOUSE
STEEL ROOF

21
D.P.514540

97°30'45" 27.416 - PROPOSED (LOT 3)
97°30'45" 77.365 - EXISTING
97°30'45" 49.947 - PROPOSED (LOT 2)
7°17'30" 37.49 - EXISTING
187°33'30" 47.59 - EXISTING

DCP6
DCP7
AH2
DCP8
6.750 SETBACK
9.067
DECK
OUTLINE OF PROPOSED DWELLING
ROOF OUTLINE
OSD DRAINAGE UNDER SLAB TO STREET
9.600

2
D.P.202857

3
D.P.202857

TRENTWOOD PARK

PROPOSED LOT 2 DETAILS
SITE AREA: 2,823m²
NET SITE AREA: 2679m²
LANDSCAPED AREA: 2091m² or 74%

PROPOSED LOT 2

PROPOSED LOT 3

306°39'10" 38.693 - PROPOSED (LOT 3)

NEW BOUNDARY 56.359

OUTLINE OF EXISTING DWELLING
RETAINING WALL
RETAINING WALL
FIRE HYDRANT (WITHIN 90m OF BACK CORNER OF LOT 3 HOUSE)
FIRE HOSE REEL (IN BOX)
REMOVE EX. GARAGE
CAR STAND
5.500

PROPOSED LOT 3 DETAILS
SITE AREA 1,390m²
NET SITE AREA 1,355m²
LANDSCAPED AREA 1,223m² or 87%
FLOOR AREA OF HOUSE 290m²
FSR 0.20:1

No.-
1&2 STOREY
TEXTURE BOARD
HOUSE
STEEL ROOF

22
D.P.634757

10
D.P.574143

DCP5
DCP4
DCP2
DCP1
DCP3
AH 1

90°42'10"
ROOF OUTLINE
OUTLINE OF PROPOSED DWELLING
OUTLINE OF EX. DRIVEWAY
OSD DRAINAGE UNDER SLAB TO STREET
4.179
12.5% (2.000)
25% (20.000)
GARBAGE LOT 1
LETTER BOX LOT 1

306°39'10" 82.93 - EXISTING
216.331 - PROPOSED (LOT 2)
306°39'10" 18.500 PROPOSED LOT 1
NEW BOUNDARY 29.823
PROPOSED LOT 1
RIGHT OF WAY
70°35'30" 51.330 - EXISTING
37°34'40"10" 15.91

REMOVE EXISTING
MAINTAIN LEVELS IN CROSSOVER
OSD OUTLET TO KERB
RAD 13.715
ARC 12.84
LETTER BOX 2 & 3
GARBAGE LOT 2 & 3
FIRE HYDRANT BOOSTER ASSEMBLY
SIGN INDICATING HYDRANT AND HOSE REEL NEAR LOT 2 HOUSE

PROPOSED LOT 1 DETAILS
SITE AREA 1,205m²
NET SITE AREA 865m²
LANDSCAPED AREA 821m² or 68%
FLOOR AREA OF HOUSE 238m²
FSR 0.20:1

21
D.P.859660

20
D.P.859660

3
D.P.565776

No.6
ONE & TWO STOREY
BRICK, METAL CLAD
& PART STONE
HOUSE
BASEMENT CARPORT

No.-
ONE & TWO STOREY
...FRED HOUSE

N

NOTES

POUR NEW DRIVEWAY OVER TOP OF EXISTING WITH PIERS AS REQUIRED. NO EXCAVATION.

* EXISTING DRIVEWAY GRADE OF 25% PLUS 12.5% TRANSITIONS TOP AND BOTTOM.

SITE PLAN 1:200

Date :	Issue :	Description :	Date :	Issue :	Description :	Date :	Issue :	Description :	Date :	Issue :	Description :

The builder shall check and verify all dimensions and verify all errors and omissions to the Architect. Do not scale the drawings. Drawings shall not be used for construction purposes until issued by the Architect for construction.

GARTNERTROVATO ARCHITECTS

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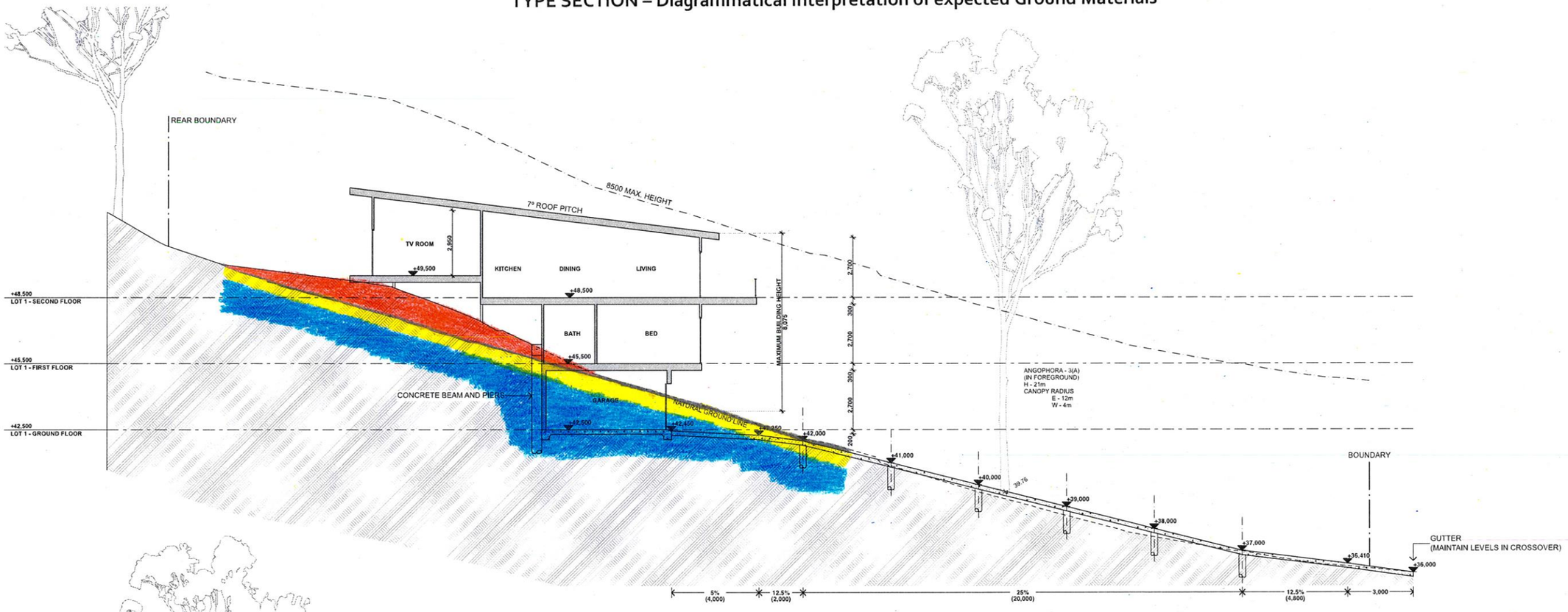
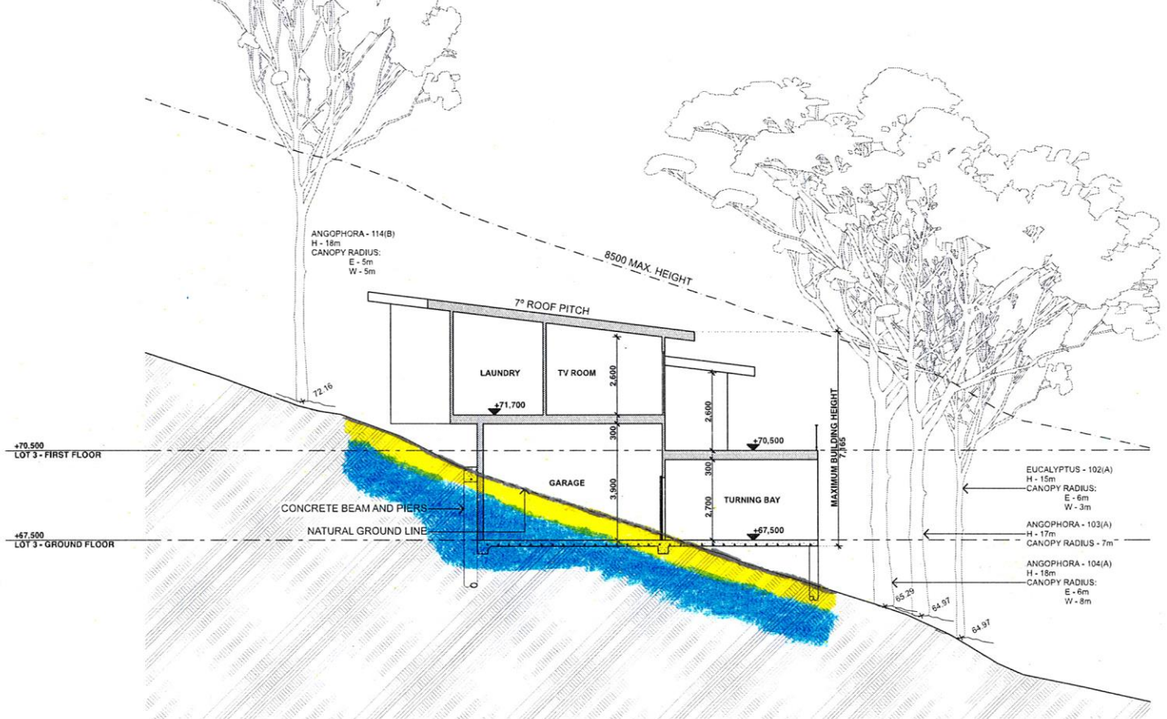
Project : SUBDIVISION
7 TRENTWOOD PARK AVALON
Client : DARGAVILLE
Drawing : SKETCH DESIGN
SITE PLAN

Architect : SG/NS
Date : JUNE 2017
Project Number : 1711
Scale : 1:200 @ (A1)
Drawing No. : A01
Issue : C

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



LOT 1 - SECTION A 1:100



LOT 3 - SECTION B 1:100

- 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.

Date :	Issue :	Description :	Date :	Issue :	Description :	Date :	Issue :	Description :	Date :	Issue :	Description :

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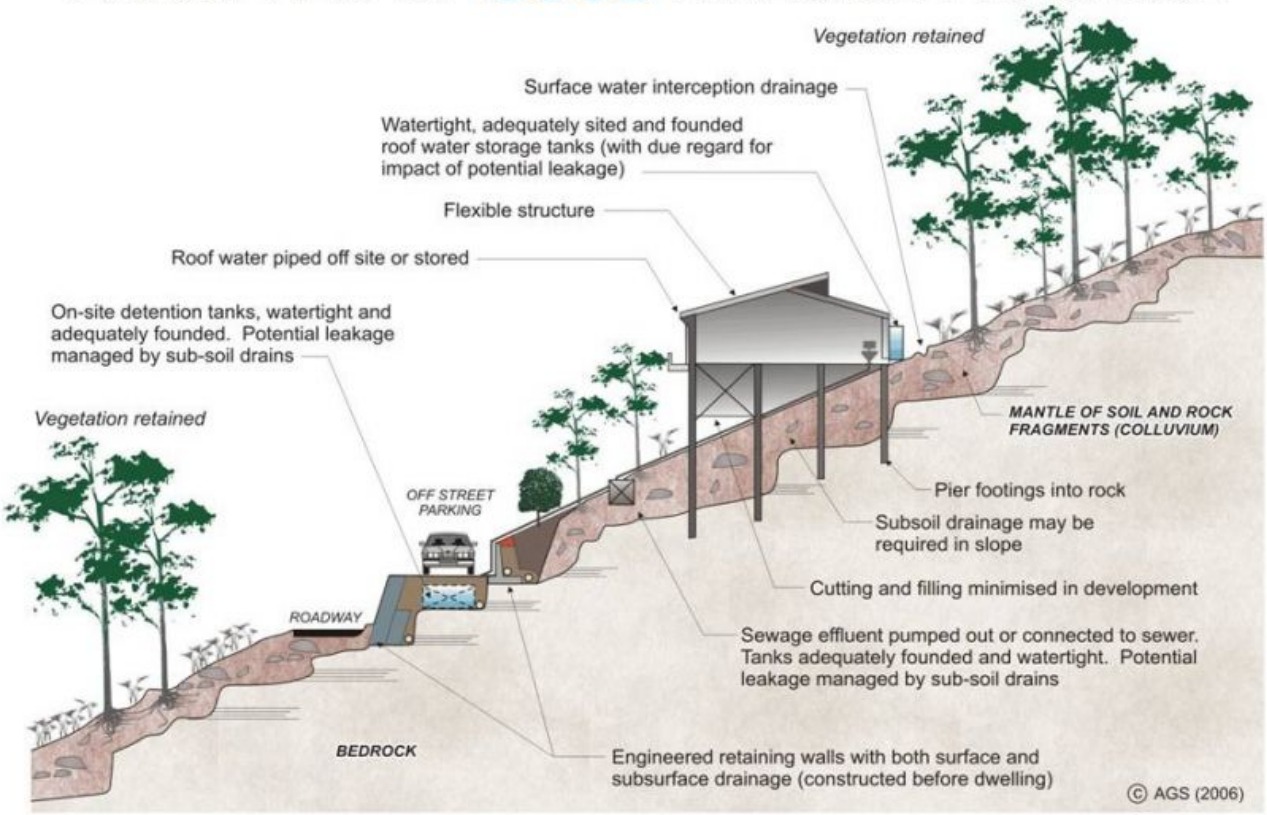
GARTNERTROVATO ARCHITECTS

Project :	SUBDIVISION 7 TRENTWOOD PARK AVALON
Client :	DARGAVILLE
Drawing :	SKETCH DESIGN LOT 1 & 3 - SECTIONS
Architect :	SG/NS
Project Number :	1711
Drawing No. :	A04
Date :	JUNE 2017
Scale :	1:100 @ (A1)
Issue :	C

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE