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 Crane Lodge Place, Palm Beach

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk ***Declaration made by geotechnical engineer or engineering geologist or coastal engineer (where applicable) as part of a geotechnical report***

I, Ben White *on behalf of* White Geotechnical Group Pty Ltd
(Insert Name) (Trading or Company Name)

on this the 12/6/24 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 **7 Crane Lodge Place, Palm Beach**
Report Date: 12/6/24

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 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 Crane Lodge Place, Palm Beach

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk Management Geotechnical Report. This checklist is to accompany the Geotechnical Report and its certification (Form No. 1).

Geotechnical Report Details:

Report Title: Geotechnical Report **7 Crane Lodge Place, Palm Beach**

Report Date: 12/6/24

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **19/10/22**
(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 **19/10/22**

☒ 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 **7 Crane Lodge Place, Palm Beach**

1. Proposed Development

1.1 Extend the existing house on the downhill side with new home office, painting studio and lift by excavating to a maximum depth of ~1.2m.

1.2 Other minor internal and external alterations and additions to the existing house.

1.3 Construct a new block retaining wall in front of the existing tilting timber retaining wall on the uphill side of the house (Photos 9 & 10).

1.4 Extend the existing garage to the E and construct a new suspended parking area and turning platform to the W of the garage.

1.5 Details of the proposed development are shown on 30 drawings prepared by Stephen Varady Associates, drawings 01 to 30, Issue p13, dated 12/6/24.

2. Site Description

2.1 The site was inspected on the 19th October, 2022.

2.2 This residential property is on the high side of the road and has a S aspect. It is located on the steeply graded middle reaches of a hillslope. The natural slope rises across the property at an average angle of ~27°. The slope above the property continues at steep angles for some 140m before reaching the crest of the hill. The slope below the property gradually decreases in grade.

2.3 The property is accessed from a bitumen right of carriageway (ROW). Fill provides a level platform for the ROW (Photo 1). The fill merges into a densely vegetated natural steep slope (Photo 2). The depth of the fill is unknown but is

estimated to be ~2m deep. A suspended carport and garage is located on the downhill side of the ROW (Photo 1) and another garage is located on the uphill side (Photo 3). A detached sandstone joint block is located in a stable position beside the upper garage (Photo 4). A concrete driveway runs up the slope to a parking area above the rock (Photos 4 & 5). A cut and fill provides a level platform for the driveway and parking area. The cut and fill is supported by stable timber retaining walls up to ~2.0m high.

A suspended timber balcony extends off the downhill side of the house (Photo 1). One of the supporting posts is supported off a stable detached sandstone joint block (Photo 6). This post and the other supporting posts stand vertical. The part two storey brick and timber clad house is supported by brick walls and brick piers (Photos 6 & 7). The supporting walls and piers stand vertical and show no significant signs of movement (Photo 8). A cut provides a level platform on the uphill side of the house. The cut is supported by concrete block and timber retaining walls ~2.2m high (Photo 9). The concrete block retaining wall is stable. The timber retaining wall displays minor bulging and the timber posts supporting the wall are tilting downslope slightly (Photo 10). A new block retaining wall will be built in front of this wall as part of the proposed works. The steep slope on the uphill side of the retaining walls is well vegetated (Photo 11). Detached sandstone joint blocks are scattered across the slope.

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by Hawkesbury Sandstone, although the Newport Formation of the Narrabeen Group Rocks is shown close to the downhill property boundary and at a residential scale the map is not always accurate. Ground testing and observations of the slope geomorphology indicate the property is underlain by the Newport Formation of the Narrabeen Group Rocks. 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 the soil materials. Six Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to weathered rock. The locations of the tests are shown on the site plan. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is expected to have occurred for DCP2 & 3. 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:

AUGER HOLE 1 (~RL43.0) **–** AH1 (Photo 12)

Depth (m)	**Material Encountered**
0.0 to 0.4	**TOPSOIL**, sandy soil, dark brown/grey, damp, fine to medium grained.
0.4 to 0.6	**SANDY CLAY**, light brown orange, damp, firm.

End of hole @ 0.6m in firm sandy clay. No watertable 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** (~RL37.8)	**DCP 2** (~RL42.0)	**DCP 3** (~RL42.0)	**DCP 4** (~RL43.0)	**DCP 5** (~RL45.9)	**DCP 6** (~RL47.2)
0.0 to 0.3	12	4	12	3	3	5
0.3 to 0.6	8	2	6	5	4	6
0.6 to 0.9	7	5	#	6	4	10
0.9 to 1.2	13	#		50	18	21
1.2 to 1.5	15			30	20	31
1.5 to 1.8	19			#	20	#
1.8 to 2.1	#				32	
2.1 to 2.4					#	
	Refusal on Rock @ 1.6m	Refusal @ 0.7m	Refusal @ 0.6m	End of Test @ 1.3m	End of Test @ 2.1m	End of Test @ 1.5m

#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 @ 1.6m, DCP bouncing off rock surface, orange shale fragments on dry tip.

DCP2 – Refusal @ 0.7m, DCP bouncing on floating boulder, white rock fragments on dry tip.

DCP3 – Refusal @ 0.6m, DCP bouncing on floating boulder, white rock fragments on dry tip.

DCP4 – End of Test @ 1.6m, DCP still very slowly going down, orange shale fragments and brown soil on damp tip.

DCP5 – End of Test @ 2.1m, DCP still very slowly going down, white rock fragments and yellow brown clay on moist tip.

DCP6 – End of Test @ 1.5m, DCP still very slowly going down, orange shale fragments on 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 fill and a thin sandy topsoil over firm to stiff sandy clays. Fill to a maximum depth of ~2.0m provides level platforms for the bitumen ROW, a

concrete driveway and garden areas across the property. In the test locations, the clays merge into the weathered zone of the under lying rocks at depths of between ~1.2m to ~1.6m below the current surface. The weathered zone of the underlying rock is interpreted as Extremely Low to Low Strength Rock. 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. 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 recommended as part of the development a cut off drain be installed across the upper reaches of the site to catch surface flows from the slope above. Ideally, the drain is to be installed near the uphill property boundary to capture flows before they enter the property. If the drain is to be installed close to the uphill property boundary, the location of the drain will require the approval of the geotechnical consultant. Alternatively, the drain can be installed on the uphill side of the existing concrete block and timber retaining walls (Photo 9).

The captured flows from this drain should be piped to the street. All drains, pits and associated plumbing are to be oversized and designed to cope with extreme prolonged rainfall events. The drain is to be the first thing constructed on the site as part of the development. It is a condition of the slope stability assessment in Section 8 (**Hazard One**) that this be done.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The steeply graded slope that falls across the property and continues above and below is a potential hazard (**Hazard One**). The proposed excavations are a potential hazard until retaining structures are in place (**Hazard Two**).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The steep slope that falls across the property and continues above failing and impacting on the property.	The proposed excavation for the house additions collapsing onto the worksite, impacting the neighbouring properties and undercutting the existing house and a detached joint block (Photo 6) during the excavation process.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (20%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})
RISK TO LIFE	8.3×10^{-7}/annum	3.7×10^{-5}/annum
COMMENTS	This level of risk is 'ACCEPTABLE', provided the recommendations in **Section 7 & 16** are carried out.	This level of risk to life and property is 'UNACCEPTABLE'. To move the risk to 'ACCEPTABLE' levels, the recommendations in **Section 7 & 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 Crane Lodge Place. All stormwater from the proposed development is to be piped to the street drainage system through any tanks that may be required by the regulating authorities.

11. Excavations

An excavation to a maximum depth of ~1.2m is required to construct the proposed house additions.

The excavation is expected to be through fill, topsoil and clay, with Extremely Low to Low Strength Rock expected at depths of between ~1.2m to ~2.0m below the current surface. Excavations through soil, clay and rock up to Low Strength are expected to be carried out with an excavator and toothed bucket.

12. Vibrations

It is expected the proposed excavation will be carried out with an excavator and toothed bucket and the vibrations produced will be below the threshold limit for building or infrastructure damage using a domestic sized excavator up to 20 tonne.

13. Excavation Support Requirements

On steep sites such as this one, to help maintain excavation stability before retaining walls are in place, it is critical upslope runoff be diverted from the proposed excavation and retaining wall demolition with temporary or permanent drainage measures. Temporary measures may be trenches and sandbag mounds and permanent measures could be a wide diameter dish drain or similar. These are to be installed before any excavation work commences. In addition, see **Section 7**.

An excavation to a maximum depth of ~1.2m is required to construct the proposed house additions. Allowing for backwall drainage, the excavation comes flush with a detached sandstone joint block (Photo 6), flush with the E supporting brick wall of the existing house and is set back ~0.5m from the W common boundary.

The detached sandstone joint block (Photo 6), existing house and W common boundary will be within the zone of influence of the excavation. In this instance, the zone of influence is the area above a theoretical 30° line (from horizontal) through fill/soil and a 45° line through clay / weathered rock from the base of the excavation towards the surrounding structures and boundaries.

The large detached sandstone joint block (Photo 6) and E supporting brick wall of the existing house may extend to below the base of the excavation. However, to be sure, exploration pits along the joint block and wall will need to be put down by the builder to determine the depth of the joint block and the foundation depth and material that supports the existing house wall. These are to be inspected by the geotechnical consultant. If the base of the joint block and existing house wall foundations are confirmed to extend below the base of the excavation, the excavation may commence. If they are not, the sandstone joint block and existing house wall are to be underpinned to below the base of the excavation, prior to the excavation commencing. The extent of the area of the required exploration pits/underpinning are shown in orange on the attached Level 0 and Level 1 Plans.

Any other Loose boulders or detached joint blocks immediately above the proposed excavation faces are to be removed before any excavation commences.

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

The W side of the cut will need to be temporarily or permanently supported prior to the commencement of the excavation, or during the excavation process in a staged manner, so cut batters are not left unsupported. The support will need to be designed by the structural

engineer. See the Level 0 Plan attached for the minimum extent of the required shoring shown in blue.

Where shoring/underpinning is not required and where space permits, the fill/soil portion of the excavation is to be battered temporarily at 1.0 Vertical to 2.0 Horizontal (26°) until the retaining walls are in place.

Excavations through clay and weathered rock are expected to stand at near vertical angles for short periods of time until the retaining walls are in place, provided the cut batters are kept from becoming saturated.

As discussed above upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. All unsupported cut batters 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 cannot blow off in a storm. The materials and labour to construct the retaining walls are to be organised so on completion of the excavation they can be constructed as soon as possible. The excavation is to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast. If the cut batters remain unsupported for more than a few days before the construction of the retaining walls they are to be temporarily supported until the retaining walls are in place.

All excavation spoil is to be removed from site following the current Environmental Protection Agency (EPA) waste classification guidelines.

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 ON NEXT PAGE

Table 1 – Likely Earth Pressures for Retaining Structures

Unit	Earth Pressure Coefficients			
	Unit weight (kN/m³)	'Active' K_a	'At Rest' K_0	Passive
Fill and Topsoil	20	0.40	0.55	N/A
Residual Clays	20	0.35	0.45	Kp = 2.0 'ultimate'
Extremely Low to Very Low Strength Rock	22	0.25	0.38	Kp = 2.5 'ultimate'
Low Strength Rock	24	0.20	0.35	1000kPa '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 structure and do not account for any surcharge loads, noting that surcharge loads from the slope above will be acting on the wall. It also assumes retaining structures are fully drained. It should be noted that passive pressure is an ultimate value and should have an appropriate safety factor applied. No passive resistance should be assumed for the top 0.4m to account for any disturbance from the excavation. Ground materials and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

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

15. Foundations

The proposed additions are to be supported on piers taken to and embedded no less than 1.0m into weathered rock from the downhill edge of the footing. This ground material is expected at depths of between ~1.2m to ~3.2m below the current surface, being deeper in the filled area at the location of the proposed garage extension and suspended parking area. A maximum allowable bearing pressure of 600kPa can be assumed for footings embedded in Extremely Low Strength Rock or better. 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 in accordance with a 'Class M' site.

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 professional on site at the start of the footing excavation to advise on footing depth and material. This mostly prevents unnecessary over excavation in clay like shaly rock but can be valuable in all types of geology.

16. Ongoing Maintenance

Where slopes are steep and approach or exceed 30°, such as on this site, it is prudent for the owners to occasionally inspect the slope (say annually or after heavy and prolonged rainfall events, whichever occurs first). Should any of the following be observed: movement or cracking in retaining walls, cracking in any structures, cracking or movement in the slope surface, tilting or movement in established trees, leaking pipes, or newly observed flowing water, or changes in the erosional process or drainage regime, then a geotechnical consultant should be engaged to assess the slope. We can carry out these inspections upon request. The risk assessment in **Section 8** is subject to this ongoing maintenance being carried out.

17. 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.

18. 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 geotechnical consultant is to inspect any exploration pits required to expose the foundation materials of the existing house and to expose the base of the large sandstone joint block (Photo 6).

- 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),
Geotechnical Engineer.

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

Photo 7

Photo 8

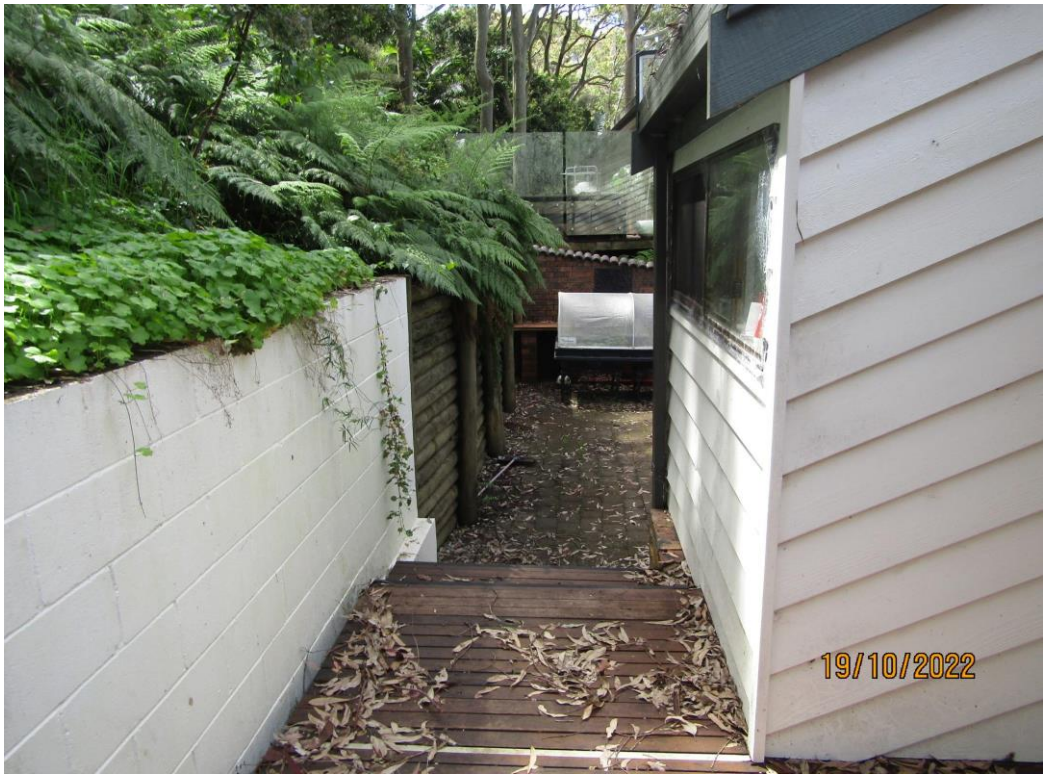


Photo 9

Photo 10

Photo 11

Photo 12: AH1 – 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.

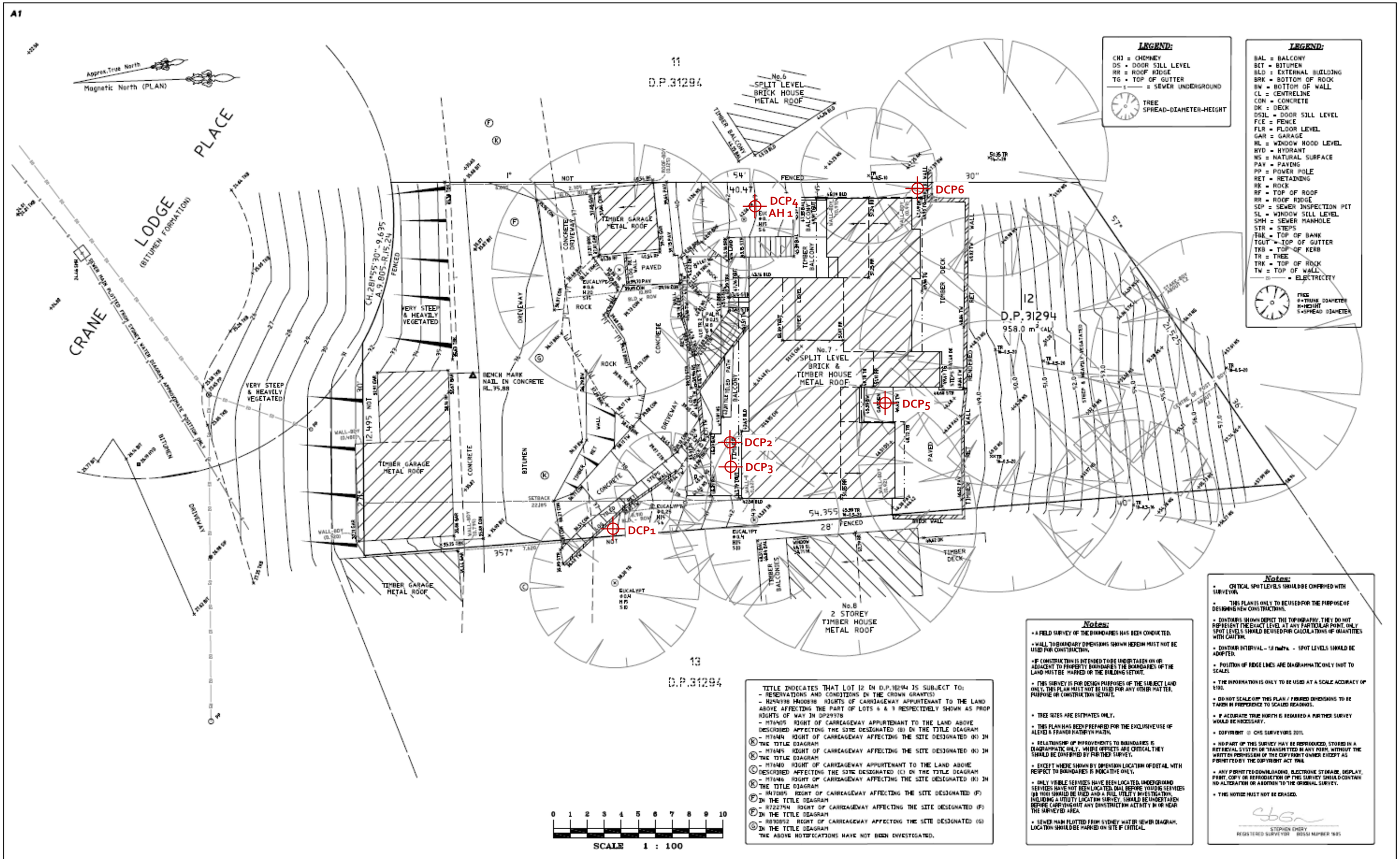
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- 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.

SURVEY – showing test locations



0 1 2 3 4 5 6 7 8 9 10

SCALE 1 : 100

TITLE INDICATES THAT LOT 12 IN D.P.31294 IS SUBJECT TO:
- RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
- H254998 H400898 RIGHTS OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE AFFECTING THE PART OF LOTS 6 & 7 RESPECTIVELY SHOWN AS PROP RIGHTS OF WAY IN DP29978
- M76405 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE DESIGNATED (B) IN THE TITLE DIAGRAM
- (K) M76444 RIGHT OF CARRIAGEWAY AFFECTING THE SITE DESIGNATED (K) IN THE TITLE DIAGRAM
- (K) M76445 RIGHT OF CARRIAGEWAY AFFECTING THE SITE DESIGNATED (K) IN THE TITLE DIAGRAM
- M76460 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE DESIGNATED (C) IN THE TITLE DIAGRAM
- (K) M76486 RIGHT OF CARRIAGEWAY AFFECTING THE SITE DESIGNATED (K) IN THE TITLE DIAGRAM
- (F) R470085 RIGHT OF CARRIAGEWAY AFFECTING THE SITE DESIGNATED (F) IN THE TITLE DIAGRAM
- (F) R722754 RIGHT OF CARRIAGEWAY AFFECTING THE SITE DESIGNATED (F) IN THE TITLE DIAGRAM
- (G) R830852 RIGHT OF CARRIAGEWAY AFFECTING THE SITE DESIGNATED (G) IN THE TITLE DIAGRAM

THE ABOVE NOTIFICATIONS HAVE NOT BEEN INVESTIGATED.

Notes:

- A FIELD SURVEY OF THE BOUNDARIES HAS BEEN CONDUCTED.
- WALL TO BOUNDARY DIMENSIONS SHOWN HEREON MUST NOT BE USED FOR CONSTRUCTION.
- IF CONSTRUCTION IS INTENDED TO BE UNDERTAKEN ON OR ADJACENT TO PROPERTY BOUNDARIES THE BOUNDARIES OF THE LAND MUST BE MARKED OR THE BUILDING SETOUT.
- THIS SURVEY IS FOR DESIGN PURPOSES OF THE SUBJECT LAND ONLY, THIS PLAN MUST NOT BE USED FOR ANY OTHER MATTER, PURPOSE OR CONSTRUCTION SETOUT.
- TREE SIZES ARE ESTIMATES ONLY.
- THIS PLAN HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF ALEXEI & FRANCO KATHRYN MAZIN.
- RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES IS DIAGRAMMATIC ONLY, WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY.
- EXCEPT WHERE SHOWN BY DIMENSION LOCATION OF DETAIL WITH RESPECT TO BOUNDARIES IS INDICATIVE ONLY.
- ONLY VISIBLE SERVICES HAVE BEEN LOCATED. UNDERGROUND SERVICES HAVE NOT BEEN LOCATED. DIAL BEFORE YOU DIG SERVICES (ph 1100) SHOULD BE USED AND A FULL UTILITY INVESTIGATION, INCLUDING A UTILITY LOCATION SURVEY, SHOULD BE UNDERTAKEN BEFORE CARRYING OUT ANY CONSTRUCTION ACTIVITY IN OR NEAR THE SURVEYED AREA.
- SEWER MAIN PLOTTED FROM SYDNEY WATER SEWER DIAGRAM. LOCATION SHOULD BE MARKED ON SITE IF CRITICAL.

Notes:

- CRITICAL SPOT LEVELS SHOULD BE CONFIRMED WITH SURVEYOR.
- THIS PLAN IS ONLY TO BE USED FOR THE PURPOSE OF DESIGNING NEW CONSTRUCTIONS.
- CONTOURS SHOWN DEPICT THE TOPOGRAPHY, THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT, ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- CONTOUR INTERVAL – 1.0 metre. - SPOT LEVELS SHOULD BE ADOPTED.
- POSITION OF RIDGE LINES ARE DIAGRAMMATIC ONLY (NOT TO SCALE).
- THE INFORMATION IS ONLY TO BE USED AT A SCALE ACCURACY OF 1:100.
- DO NOT SCALE OFF THIS PLAN / FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED READINGS.
- IF ACCURATE TRUE NORTH IS REQUIRED A FURTHER SURVEY WOULD BE NECESSARY.
- COPYRIGHT © CMS SURVEYORS 2011.
- NO PART OF THIS SURVEY MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM, WITHOUT THE WRITTEN PERMISSION OF THE COPYRIGHT OWNER EXCEPT AS PERMITTED BY THE COPYRIGHT ACT 1968.
- ANY PERMITTED DOWNLOADING, ELECTRONIC STORAGE, DISPLAY, PRINT, COPY OR REPRODUCTION OF THIS SURVEY SHOULD CONTAIN NO ALTERATION OR ADDITION TO THE ORIGINAL SURVEY.
- THIS NOTICE MUST NOT BE ERASED.

STEPHEN EMERY
REGISTERED SURVEYOR 8055 NUMBER 1935

			HORIZONTAL DATUM:	VERTICAL DATUM:	CLIENT:	BOUNDARY IDENTIFICATION & DETAIL & LEVEL SURVEY OVER LOT 12 IN D.P.31294 7 CRANE LODGE PLACE, PALM BEACH NSW 2108	C.M.S. Surveyors Pty Limited
			CO-ORDINATE SYSTEM: ASSUMED	DATUM: AUSTRALIAN HEIGHT DATUM (AHD)	KATHRYN JEANNE FRANCO & ALEXEI MAZIN		ACN: 096 240 201
3	OFFSETS TO RIGHT OF WAY	24/06/2021		B.M. ADOPTED: PM 8659	7 CRANE LODGE PLACE, PALM BEACH NSW 2108		PO Box 463 Dee Why NSW 2099
2	EXTRA LEVEL	11/06/2021		R.L. 1.441 (CLASS LB)			2/99A South Creek Road, Dee Why NSW 2099
1	FIRST ISSUE	7/02/11	LGA: NORTHERN BEACHES	SOURCE: S.C.I.M.S. (27/05/2021)			Telephone: (02) 9971 4802 Facsimile: (02) 9971 4822
							E-mail: info@cmssurveyors.com.au

SURVEYED	DRAWN	CHECKED	APPROVED
LJ/KK	GP	LJ/KK	MG/DR
SURVEY INSTRUCTION 7695B	SCALE 1:100	DATE OF SURVEY 27/01/11-11/05/21	
DRAWING NAME 7695detail		SHEET 1 OF 1	ISSUE 3
CAD FILE 7695Bdetail 2.dwg			

SITE PLAN – showing test locations

RETAIN COURTYARD
REMOVE TREE
RETAIN STAIRS
RETAIN DRIVEWAY
NEW LANDSCAPING TO REPLACE OLD SLEEPER WALL
RENOVATE EXISTING GARAGE

HOUSE #8

54.355

DCP1
DCP2
DCP3
DCP5

12.495

HOUSE #7

9.365

21.525

DCP4
AH 1

DCP6

40.470

EXISTING RIGHT-OF-WAY
NEW LANDSCAPING TO REPLACE DRIVEWAY
EXISTING ROCK
REMOVE TREE
NEW EXTENSIONS
RETAIN EXISTING REAR NATIVE BUSH GARDEN

HOUSE #6

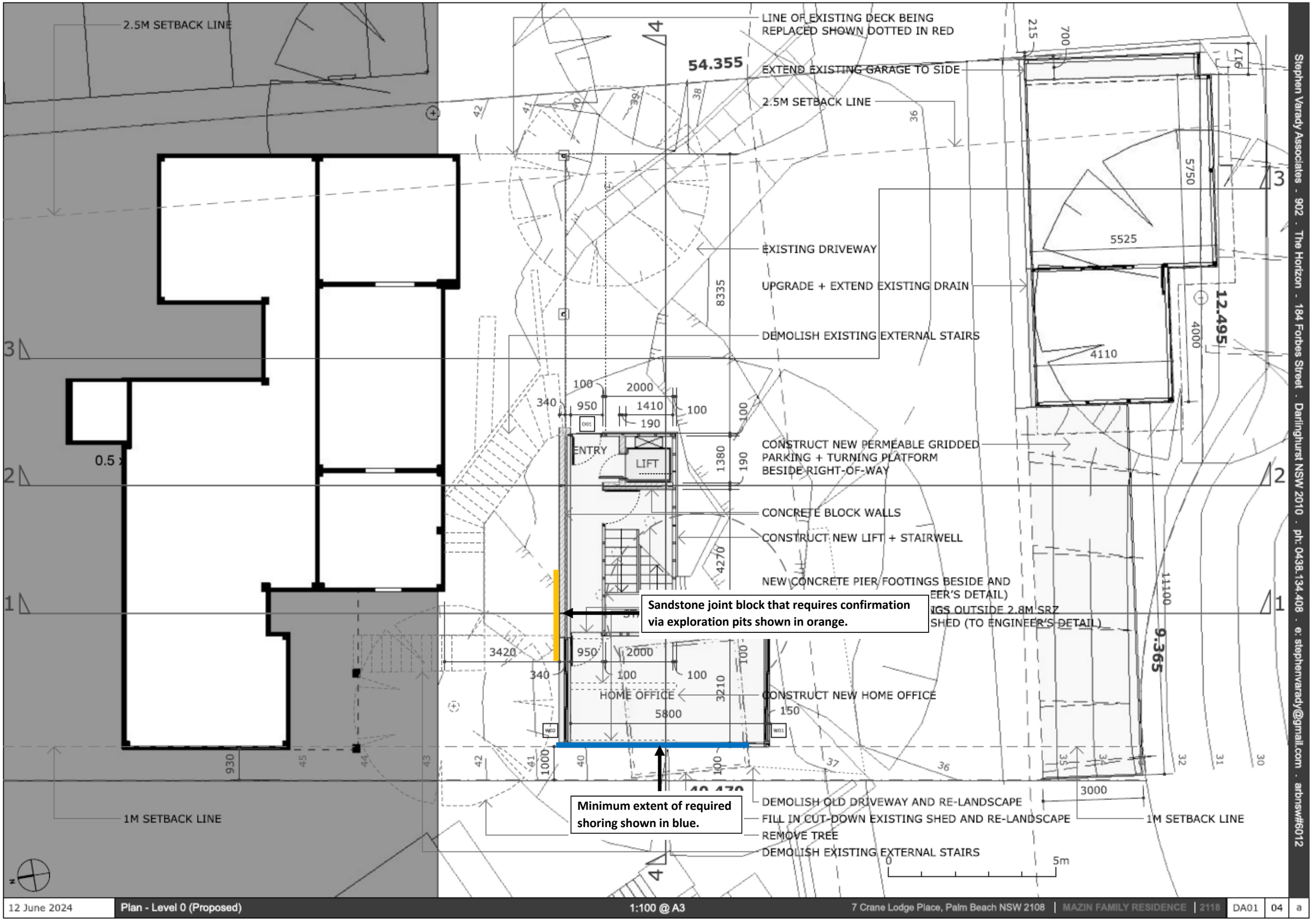
N

0 10m

Stephen Varady Associates - 902 - The Horizon - 184 Forbes Street - Darlinghurst NSW 2010 - ph: 0438.134.408 - e: stephenvarady@gmail.com - arbnsw#6012

12 June 2024	Site Plan (Proposed)	1:200 @ A3	7 Crane Lodge Place, Palm Beach NSW 2108 | MAZIN FAMILY RESIDENCE | 2118	DA01	03	a

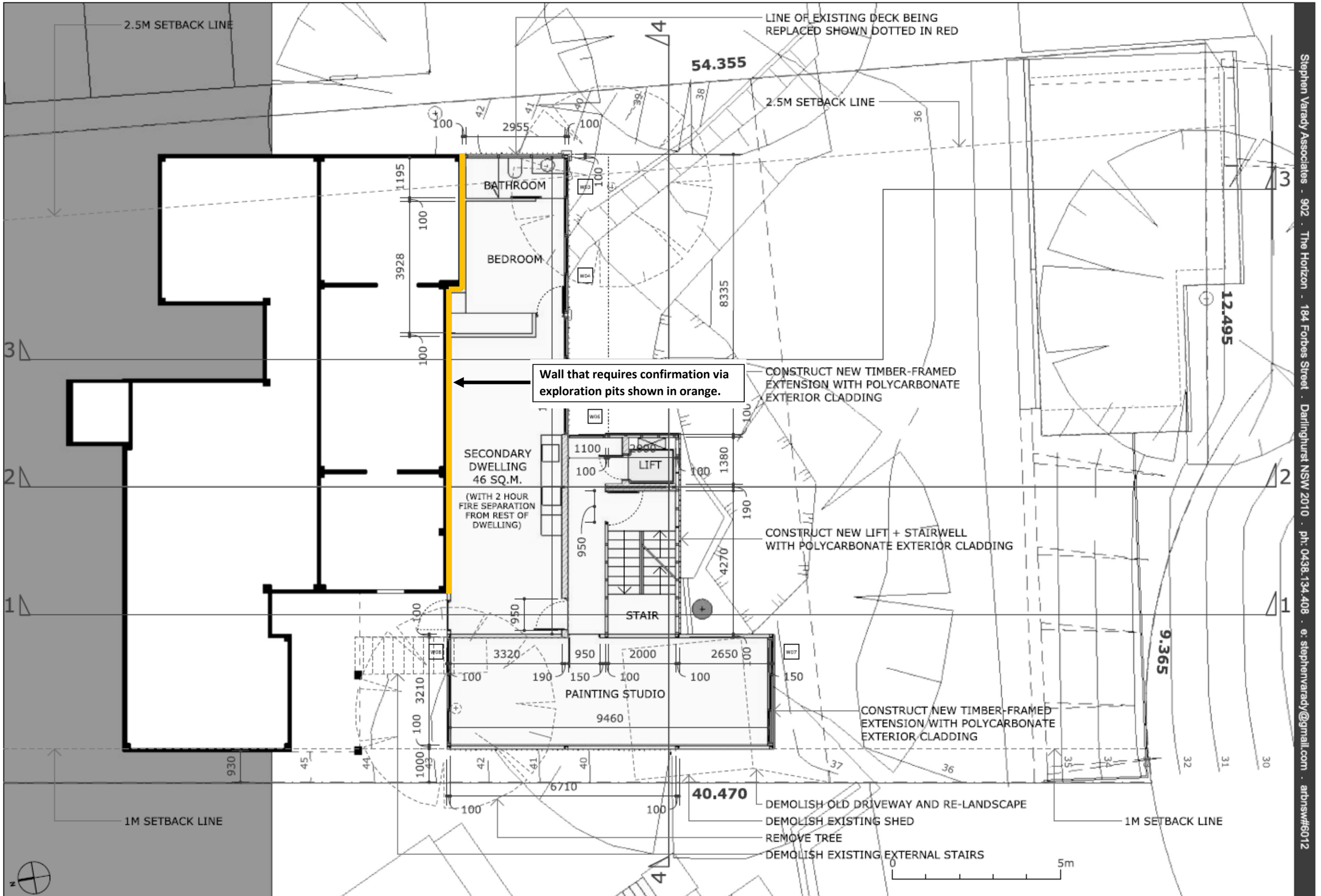
LEVEL 0 PLAN – showing extent of required underpinning and shoring.



Stephen Varady Associates - 902 - The Horizon - 184 Forbes Street - Darlinghurst NSW 2010 - ph: 0438.134.408 - e: stephenvarady@gmail.com - arbnsw#6012

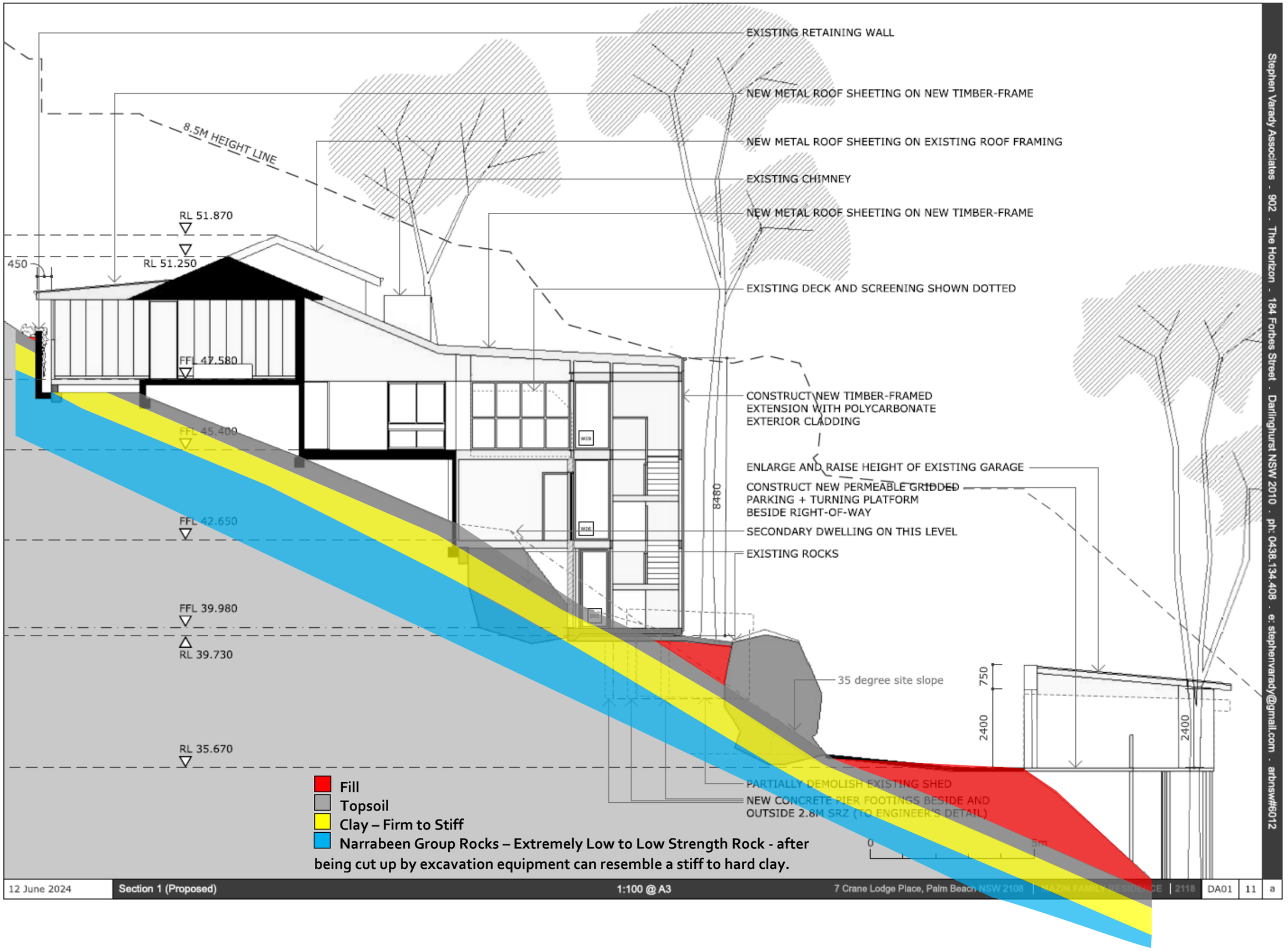
12 June 2024	Plan - Level 0 (Proposed)	1:100 @ A3	7 Crane Lodge Place, Palm Beach NSW 2108 | MAZIN FAMILY RESIDENCE | 2118	DA01	04	a

LEVEL 1 PLAN – showing extent of required underpinning.

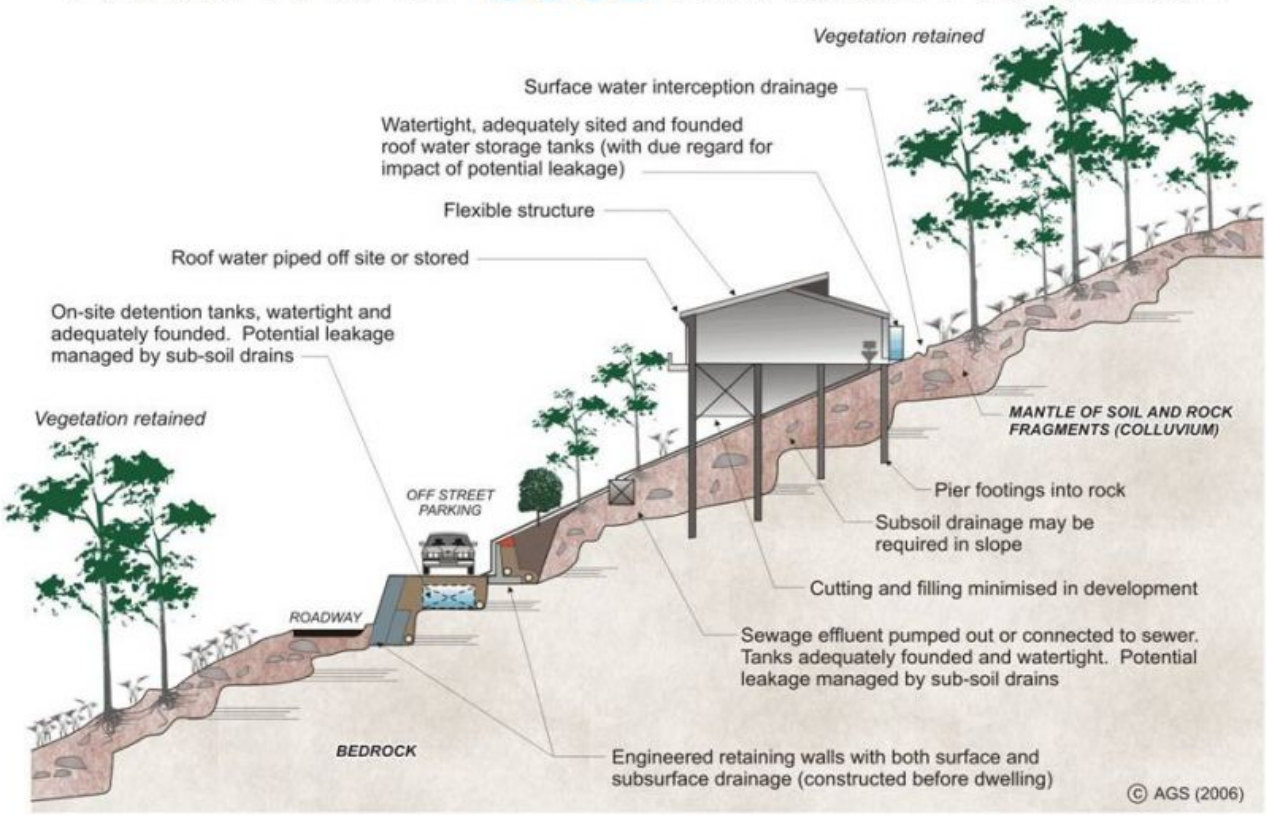


Stephen Varady Associates - 902 - The Horizon - 184 Forbes Street - Darlinghurst NSW 2010 - ph: 0438.134.408 - e: stephenvarady@gmail.com - arbnsw#6012

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE