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

Development Application for _____
Name of Applicant

Address of site 1 Narrabeen Park Parade, North Narrabeen

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

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

on this the 6/11/24 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $10million.

I:
Please mark appropriate box

☒ have prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☒ am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☐ have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.

☐ have examined the site and the proposed development/alteration in detail and I am of the opinion that the Development Application only involves Minor Development/Alteration that does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have examined the site and the proposed development/alteration is separate from and is not affected by a Geotechnical Hazard and does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

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

Geotechnical Report Details:

Report Title: Geotechnical Report **1 Narrabeen Park Parade, North Narrabeen**
Report Date: 6/11/24

Author: BEN WHITE

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

Documentation which relate to or are relied upon in report preparation:

Australian Geomechanics Society Landslide Risk Management March 2007.

White Geotechnical Group company archives.

I am aware that the above Geotechnical Report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council as the basis for ensuring that the Geotechnical Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOL AIG., RPGeo

Membership No. 10306

Company **White Geotechnical Group Pty Ltd**

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

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1(a) - Checklist of Requirements for Geotechnical Risk Management Report for Development Application

Development Application for _____
Name of Applicant

Address of site 1 Narrabeen Park Parade, North Narrabeen

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 **1 Narrabeen Park Parade, North Narrabeen**

Report Date: 6/11/24

Author: BEN WHITE

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

Please mark appropriate box

- ☒ Comprehensive site mapping conducted **30/10/24** (date)
- ☒ Mapping details presented on contoured site plan with geomorphic mapping to a minimum scale of 1:200 (as appropriate)
- ☒ Subsurface investigation required
  - ☐ No Justification _____
  - ☒ Yes Date conducted **30/10/24**
- ☒ Geotechnical model developed and reported as an inferred subsurface type-section
- ☒ Geotechnical hazards identified
  - ☒ Above the site
  - ☒ On the site
  - ☐ Below the site
  - ☐ Beside the site
- ☒ Geotechnical hazards described and reported
- ☒ Risk assessment conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
  - ☒ Consequence analysis
  - ☒ Frequency analysis
- ☒ Risk calculation
- ☒ Risk assessment for property conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Risk assessment for loss of life conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.
- ☒ Design Life Adopted:
  - ☒ 100 years
  - ☐ Other _____ specify
- ☒ Geotechnical Conditions to be applied to all four phases as described in the Geotechnical Risk Management Policy for Pittwater - 2009 have been specified
- ☒ Additional action to remove risk where reasonable and practical have been identified and included in the report.
- ☐ Risk assessment within Bushfire Asset Protection Zone.

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

Signature _____

Name Ben White

Chartered Professional Status MScGEOL AIG., RPGeo

Membership No. 222757

Company **White Geotechnical Group Pty Ltd**

GEOTECHNICAL INVESTIGATION:

New House at **1 Narrabeen Park Parade, North Narrabeen**

1. Proposed Development

1.1 Construct a new three-storey house in between the existing café and garage on the subject property.

1.2 Details of the proposed development are shown on 6 drawings prepared by Bennett Architects & Associates, project number 23119, drawings numbered DA101 to DA106, dated 09.24.

2. Site Description

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

2.2 This mixed-use property is on the E side of Narrabeen Park Parade and to the N of a council carpark. The property is on near level ground to the NW of Narrabeen Beach. The land begins to slope upwards at gentle to moderate angles near the E boundary.

2.3 A brick building lines the road frontage to Narrabeen Park Parade and encompasses the width of the property (Photo 1). The building appears to be in good condition. A concrete driveway runs from the council carpark to a parking area and brick garage on the E side of the property (Photo 2). The garage is partially cut into the slope (Photo 3). The visible brick walls of the garage show no significant signs of movement.

3. Geology

The Sydney 1:100 000 Geological Sheet indicates the site is underlain by Alluvial Stream and Estuarine Sediment (Qhf). This is described as medium to fine “marine” sand, which was encountered during testing.

4. Subsurface Investigation

One hand Auger Hole (AH) was put down to identify the soil materials. Three Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative densities of the sands through the profile. The locations of the tests are shown on the site plan attached. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to be an issue for the testing on this site. However, excavation and foundation budgets should always allow for the possibility that the interpreted ground conditions in this report vary from those encountered during excavations. See the appended "Important information about your report" for a more comprehensive explanation. The results are as follows:

AUGER HOLE 1 (~RL4.6) **–** AH1 (Photo 4)

Depth (m)	Material Encountered
0.0 to 0.5	**SAND**, dark brown, medium grained, dense, dry.
0.5 to 1.0	**SAND**, grey, medium grained, dense, dry.
1.0 to 1.8	**SAND**, orange, coarse grained, dense, dry.

End of hole @ 1.8m in dry sand. The water table was not encountered to the extent of testing.

DCP TESTS ON THE 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** (~RL4.7)	**DCP 2** (~R4.6)	**DCP 3** (~RL5.0)
0.0 to 0.3	12	12	6
0.3 to 0.6	20	20	14
0.6 to 0.9	30	15	9
0.9 to 1.2	41	13	17
1.2 to 1.5	#	17	26
1.5 to 1.8		17	31
1.8 to 2.1		#	#
	End of Test @ 1.5m	End of Test @ 1.8m	End of Test @ 1.8m

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

DCP Notes:

DCP1 – End of test @ 1.5m, DCP still going down slowly, white sand on dry tip.
DCP2 – End of test @ 1.8m, DCP still going down slowly, grey and brown sand on dry tip.
DCP3 – End of test @ 1.8m, DCP still going down slowly, clean dry tip.

5. Geological Observations/Interpretation

The site is underlain by Dense Sand that was encountered to the extent of the testing at 1.8m. Rock was not encountered. See the Type Section attached for a diagrammatical representation of the expected ground materials.

6. Groundwater

Normal ground water seepage is expected to descend rapidly through the sand profile towards the water table. The water table is expected to be below the proposed works.

7. Surface Water

No evidence of significant surface flows were observed on the property during the inspection. Normal sheet wash that is generated on the property will be quickly absorbed into the sandy soil where surfaces are unsealed.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed below or beside the property. The gentle to moderate graded slope that rises near the E side of the property and continues above is a potential hazard (**Hazard One**).

Risk Analysis Summary

HAZARDS	Hazard One
TYPE	The gentle to moderate slope that rises near the E side the property and continues above failing and impacting on the proposed works.
LIKELIHOOD	'Unlikely' (10^{-4})
CONSEQUENCES TO PROPERTY	'Medium' (12%)
RISK TO PROPERTY	'Low' (2×10^{-5})
RISK TO LIFE	8.3×10^{-7}/annum
COMMENTS	This level of risk is 'ACCEPTABLE'.

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

9. Suitability of the Proposed Development for the Site

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

10. Stormwater

The fall is to Narrabeen Park Parade. Roof water from the development is to be piped to the street drainage system through any tanks that may be required by the regulating authorities.

11. Excavations

Apart from those for footings, no excavations are required.

12. Foundations

The proposed house can be supported on spread footings taken to a minimum depth of ~0.4m into the underlying Dense Sand.

A maximum allowable bearing pressure of 100kPa can be assumed for footings supported on Dense Sand.

The base of the footing excavations in sand should be compacted as the excavation will loosen the upper sands. This can be carried out with a hand-held plate compactor. Water may be used to assist in compaction in sand but footing materials should be kept damp but not saturated. As a guide to the level of compaction required a density index of >85% is to be achieved.

The geotechnical consultant is to inspect and test the compacted base of the footings to ensure the required density has been achieved during compaction.

NOTE: If the contractor is unsure of the footing material required, it is more cost-effective to get the geotechnical consultant on site at the start of the footing excavation to advise on footing depth and material. This mostly prevents unnecessary over-excavation in clay-like shaly-rock but can be valuable in all types of geology.

13. Geotechnical Review

The structural plans are to be checked and certified by the geotechnical engineer as being in accordance with the geotechnical recommendations. On completion, a Form 2B will be issued. This form is required for the Construction Certificate to proceed.

14. Inspections

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

- The geotechnical consultant is to inspect and test the compacted base of footing excavations while the compaction equipment is still on site and before steel reinforcing is placed or concrete is poured. This is to ensure the required density has been achieved during compaction.

White Geotechnical Group Pty Ltd.

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

Reviewed By:

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

Photo 1

Photo 2

Photo 3

Photo 4 - top to bottom

Important Information about Your Report

It should be noted that Geotechnical Reports are documents that build a picture of the subsurface conditions from the observation of surface features and testing carried out at specific points on the site. The spacing and location of the test points can be limited by the location of existing structures on the site or by budget and time constraints of the client. Additionally, the test themselves, although chosen for their suitability for the particular project, have their own limiting factors. The testing gives accurate information at the location of the test, within the confines of the test's capability. A geological interpretation or model is developed by joining these test points using all available data and drawing on previous experience of the geotechnical consultant. Even the most experienced practitioners cannot determine every possible feature or change that may lie below the earth. All of the subsurface features can only be known when they are revealed by excavation. As such, a Geotechnical report can be considered an interpretive document. It is based on factual data but also on opinion and judgement that comes with a level of uncertainty. This information is provided to help explain the nature and limitations of your report.

With this in mind, the following points are to be noted:

- If upon the commencement of the works the subsurface ground or ground water conditions prove different from those described in this report, it is advisable to contact White Geotechnical Group immediately, as problems relating to the ground works phase of construction are far easier and less costly to overcome if they are addressed early.

- If this report is used by other professionals during the design or construction process, any questions should be directed to White Geotechnical Group as only we understand the full methodology behind the report's conclusions.

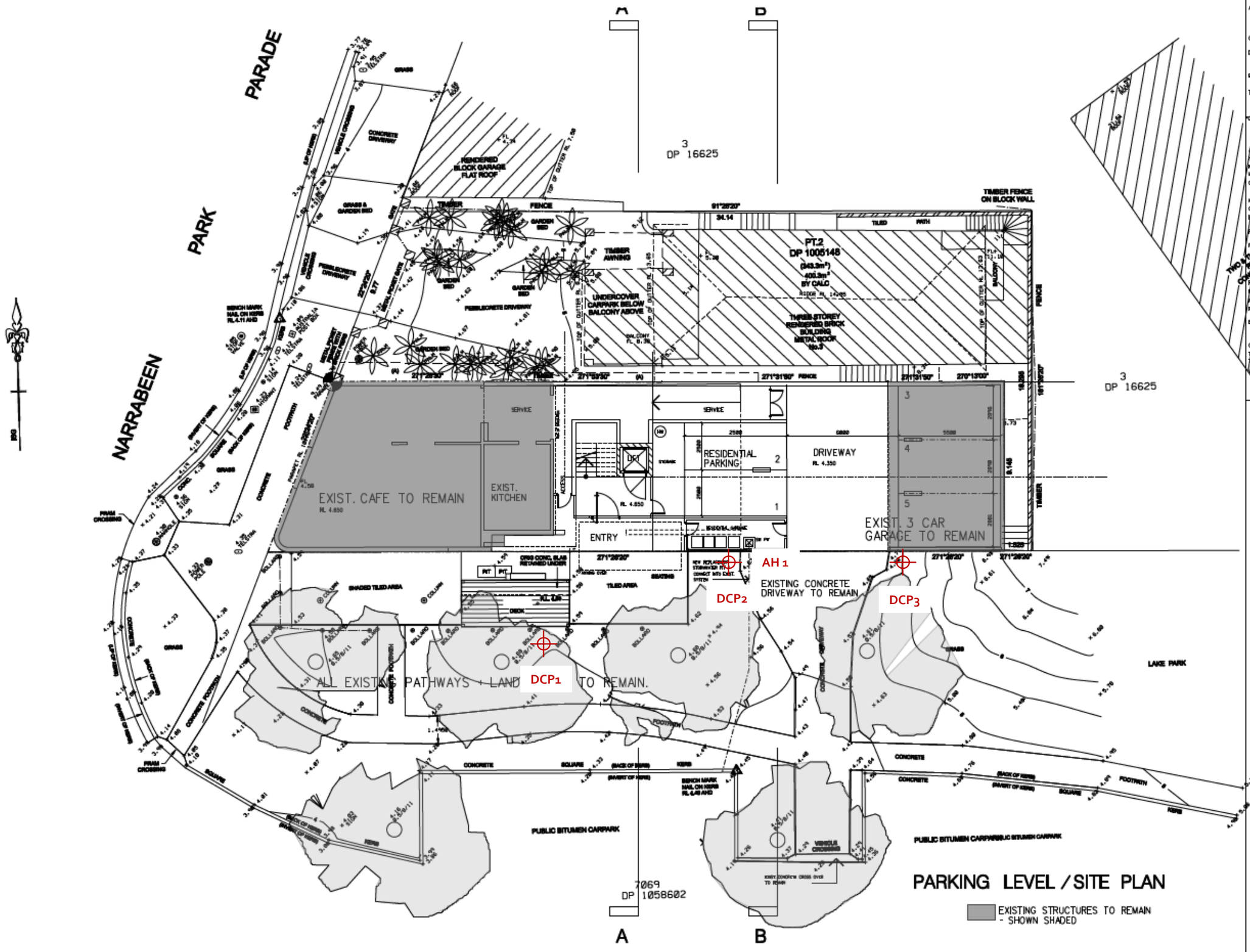
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

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

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

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

SITE PLAN – showing test locations



PARKING LEVEL / SITE PLAN

EXISTING STRUCTURES TO REMAIN - SHOWN SHADED

FINISHES KEY

- AW ALUMN. WINDOW/DOOR WITH BLACK POWDERCOTE FINISH- WEATHERSEALS TO ALL EXTERNAL WINDOWS AND DOORS GLAZED / COMPLIANCE WITH - NCC 1+ BASIX CERT.
- CR REINFORCED CONCRETE DRIVEWAY TO STR. ENGINEERS DETAIL
- DP COLORBOND DOWNPIPE , GUTTERS / RAINWATER HEAD , COLORBOND BASALT
- EB EXISTING PAINTED BRICKWORK / TO REMAIN.
- TF SELECTED ENGINEERED TIMBER FLOORING ON TIMBER JOISTS TO ENG.DETAIL/ FC SOFFIT OVER GARAGE
- FC BAY WINDOW UNITS/ CLADD IN HORIZ.COLOURBOND SEAMED CLADDING ON STEEL +TIMBER SUBFRAME TO DEATIL/ TO STR.ENGINEERS DETAIL - WITH SARKING AND INSUL. TO PROVIDE A TOTAL R2.80 MIN.
- AS STEEL + GLASS AWNING TO DETAIL.
- HW ELEC. OFF PEAK / HOT WATER SYSTEM
- VC CAFE EXHAUST
- MR EXIST. METAL ROOF TO REMAIN.
- CPT SELECTED CARPET
- NGL EXISTING NATURAL GROUND LEVEL
- CC OFF FORM CONCRETE/ TO ENG.DETAIL.
- PW PLASTERBOARD LINED INTERNAL WALL WITH SELECTED PAINT FINISH
- PC PLASTERBOARD SUSPENDED CEILING WITH SELECTED PAINT FINISH
- PG PLASTERBOARD -NUTO BLEDG/ VERT. TIMBER BATTENS OR SIMILAR SCREEN/BLADE
- TB SELECTED CERAMIC / STONE TILES
- BIR BUILT-IN WARDROBE
- RC REINFORCED CONCRETE SLAB TO STR.ENGINEERS DETAIL
- RF REINFORCED CONCRETE FOOTINGS TO STR.ENGINEERS DETAIL
- RM 10MM GRAY REINFORCED MASONRY WITH SELECTED PAINT FINISH
- BS ALUM. BALUSTRADE /VERT.TUBES WITH TOP RAIL, BLACK POWDERCOTE FINISH
- GB GRAVEL BALLAST OVER WATER PROOF MEMBRANE
- TF ENGINEERED TIMBER FLOOR BOARDS
- TR CONCRETE STAIR WITH TIMBER TREADS
- VS VERTICAL STAINED TIMBER BATTENS OR SIMILAR SCREEN / ON WELDED ALUM. BOX SECTION SUB FRAME TO DETAIL

No.	DATE	AMENDMENT
A	09.10.24	GEN. ISSUE
B	12.10.24	GEN. ISSUE

TRUE NORTH

ARCHITECTS & ASSOCIATES Pty. Ltd.
PO Box 485, AVALON BEACH. NSW 2107.
PHONE 0418 88 88 43
EMAIL bennettarchitects@ozemail.com.au
NSW ARCH. REG. No. 3999

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3. ALL DIMENSIONS TO BE CHECKED AND VERIFIED ON SITE BEFORE COMMENCING FABRICATION.
4. ALL CONSTRUCTION TO COMPLY WITH THE BUILDING CODE OF AUSTRALIA, RELEVANT SAA STANDARDS AND LOCAL AUTHORITY REQUIREMENTS.

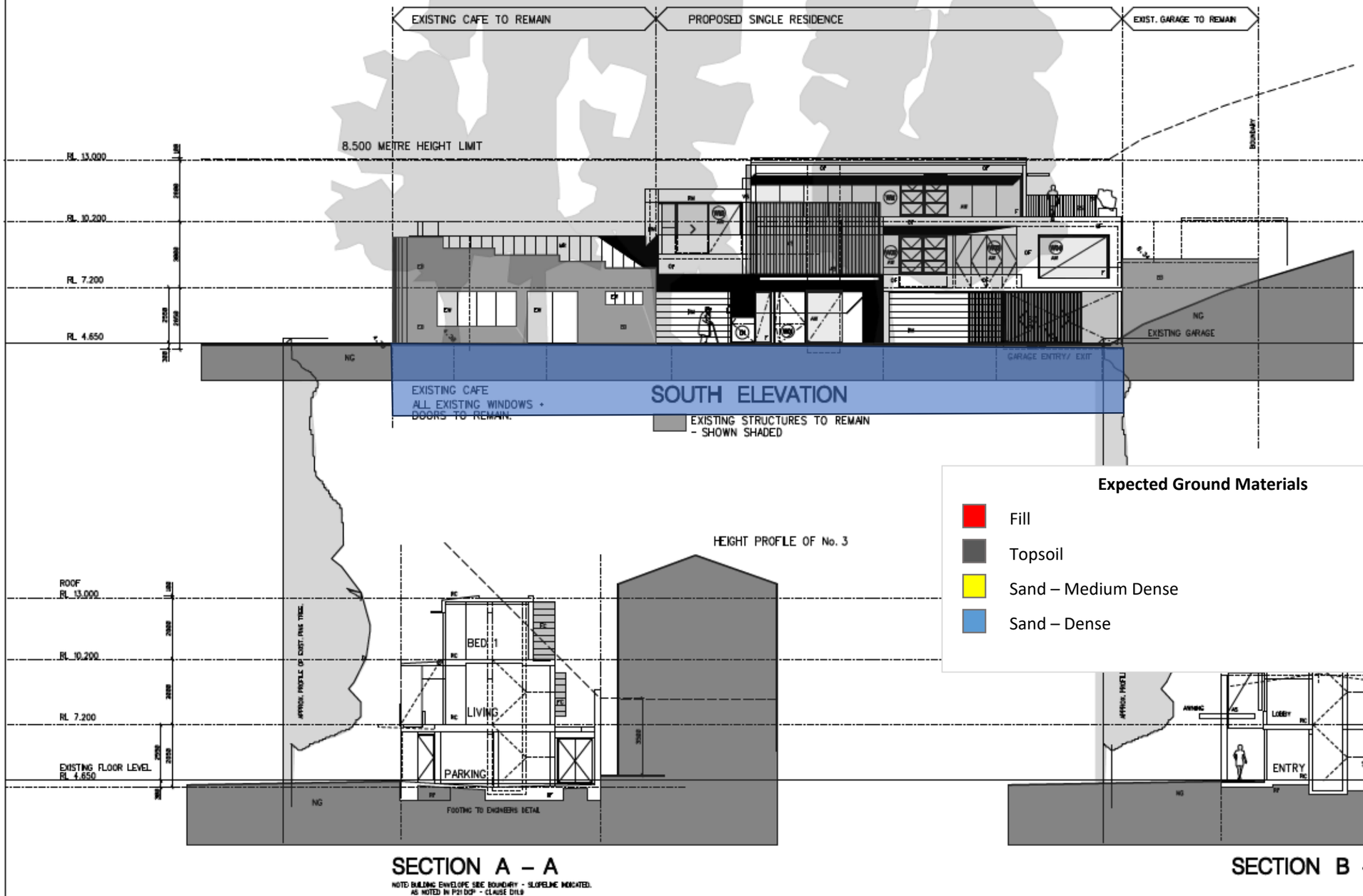
PROJECT
PROPOSED REDEVELOPMENT AT:
LOT 1 – D.P. 1005148
No. 1 NARRABEEN PARK PARADE
NORTH NARRABEEN.
FOR:
J. ASLAN

DRAWING TITLE
PARKING LEVEL / SITE PLAN.

JOB No.	2.3119
SCALE	1:100
DATE	09.24
DRAWN	MRB
CHECKED	MRB

DWG No. DA101 B

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



Expected Ground Materials

- Fill
- Topsoil
- Sand – Medium Dense
- Sand – Dense

FINISHES KEY

AW ALUMN. WINDOW/DOOR WITH BLACK POWDERCOTE FINISH - WEATHERSEALS TO ALL EXTERNAL WINDOWS AND DOORS GLAZED / COMPLIANCE WITH - NCC 1 + BASIX CERT.

CR REINFORCED CONCRETE DRIVEWAY TO STR. ENGINEERS DETAIL

DP COLORBOND DOWNPIPE , GUTTERS / RAINWATER HEAD , COLORBOND BASALT

EB EXISTING PAINTED BRICKWORK / TO REMAIN.

TF SELECTED ENGINEERED TIMBER FLOORING ON TIMBER JOISTS TO ENG.DETAIL/ FC SOFFIT OVER GARAGE

FC BAY WINDOW UNITS/ CLADD IN HORIZ.COLOURBOND SEAMED CLADDING ON STEEL +TIMBER SUBFRAME TO DEATIL/ TO STR. ENGINEERS DETAIL - WITH SARKING AND INSUL. TO PROVIDE A TOTAL R2.80 MIN.

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HW ELEC. OFF PEAK / HOT WATER SYSTEM

RE CAPE EXHAUST

MR EXIST. METAL ROOF TO REMAIN.

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NG EXISTING NATURAL GROUND LEVEL

CF OFF FORM CONCRETE/ TO ENG.DETAIL.

PB PLASTERBOARD LINED INTERNAL WALL WITH SELECTED PAINT FINISH

PC PLASTERBOARD SUSPENDED CEILING WITH SELECTED PAINT FINISH

PG GARAGE DOOR -AUTO SLIDING/ VERT. STAINED TIMBER BATTENS OR SIMILAR ON ALUMINIUM SUBFRAME/BLACK

CT SELECTED CERAMIC / STONE TILES

RB BUILT-IN WARDROBE

RC REINFORCED CONCRETE SLAB TO STR. ENGINEERS DETAIL

RF REINFORCED CONCRETE FOOTINGS TO STR. ENGINEERS DETAIL

RM SKIM COAT -RENDERED MASONRY WITH SELECTED PAINT FINISH

BS ALUM. BALUSTRADE /VERT. TUBES WITH TOP RAIL, BLACK POWDERCOTE FINISH

GB GRAVEL BALAST OVER WATER PROOF MEMBRANE

TF ENGINEERED TIMBER FLOOR BOARDS

TR CONCRETE STAIR, WITH TIMBER TREADS

VS VERTICAL STAINED TIMBER BATTENS OR SIMILAR SCREEN / ON WELDED ALUM. BOX SECTION SUB FRAME TO DETAIL.

No.	DATE	AMENDMENT
A	09.10.24	GEN. ISSUE
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TRUE NORTH

DENNETT ARCHITECTS & ASSOCIATES Pty. Ltd.
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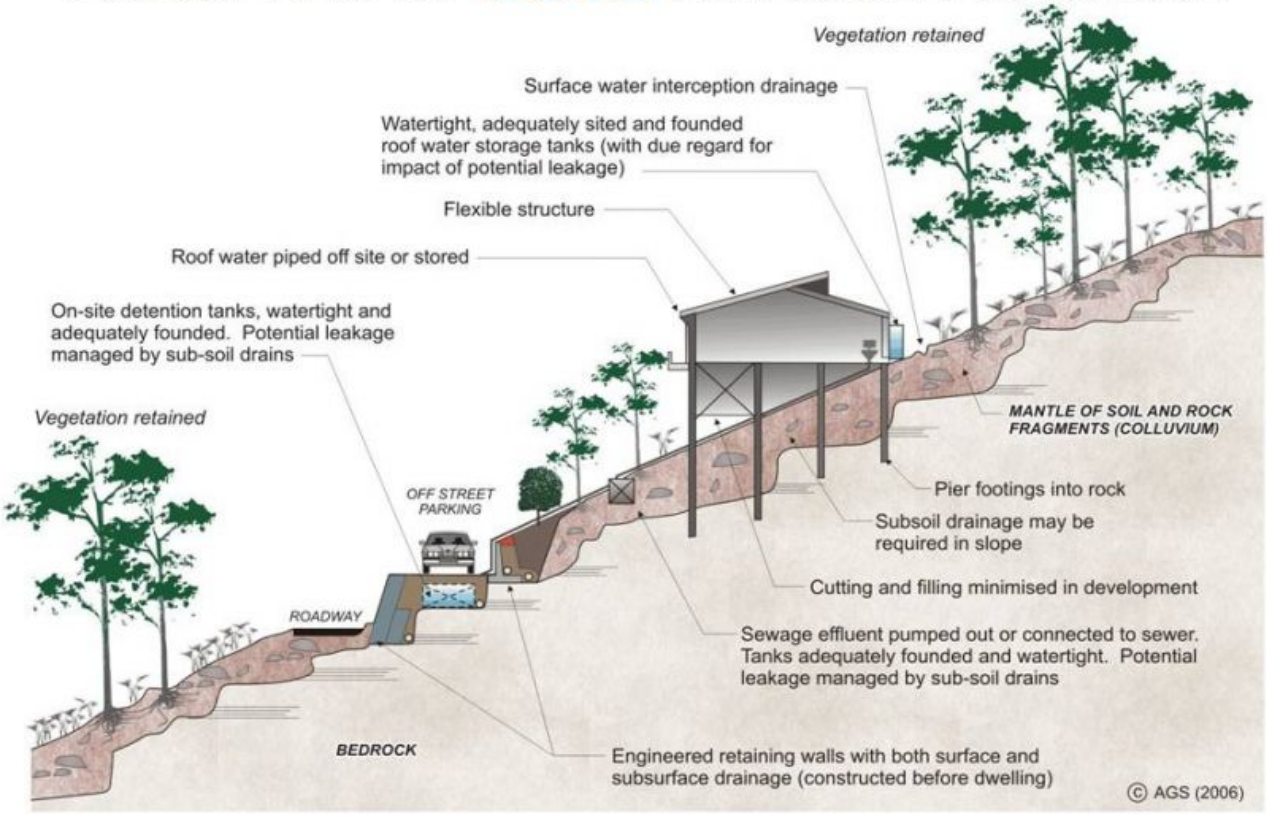
PROJECT
PROPOSED REDEVELOPMENT AT:
LOT 1 – D.P. 1005148
No. 1 NARRABEEN PARK PARADE
NORTH NARRABEEN.
FOR:
J. ASLAN

DRAWING TITLE
ELEVATIONS + SECTIONS

JOB No.	2.3119
SCALE	1:100
DATE	09.24
DRAWN	MRB
CHECKED	MRB

DWG No.
DA103 B

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE