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30 March 2021

Richard Cole Architecture Karla Wilford By email

Dear Karla,

# RE: 4.55 APPLICATION AMMENDMENT - GEOTECHNICAL ADVICE: ALTERATIONS AND ADDITIONS AT 13 BRUCE ST, MONA VALE, NSW

#### INTRODUCTION

This letter summarises the results of a review of previous geotechnical investigations at the site and a review of the 4.55 application plans by Richard Cole Architecture (Project No. 1803 dated March 2021) for the proposed alterations and additions to the existing dwelling at the site.

We understand that the proposed amended works include the extension of the lower ground floor level to the west. We note that there are no modifications to the existing footprint (i.e. roof area) of the dwelling.

The purpose of our review is to assess geotechnical constraints for the proposed lower ground floor extension and provide further geotechnical recommendations to Martens and Associates (MA) previous geotechnical reports.

#### **PREVIOUS WORKS**

A previous geotechnical investigation was conducted by MA (ref: P0601550JR01V01, 2008) as part of a previous development application for the proposed dwelling. The geotechnical assessment was undertaken in accordance with Pittwater Council's Interim Geotechnical Risk Management Policy (June 2003) to assess a range of issues most: notably site stability; the strength of soil materials; excavation requirements; footing and foundation design; site risk assessment; and construction management. The ground conditions were observed based on observations in two shallow test pits, the sub-floor area of the cottage and five Dynamic Cone Penetrometer (DCP) tests. Observations and testing indicate 0.5 m of fill overly stiff clay with bedrock depth at 1.8 to 2.0 m depth at the front and rear of the site, increasing to 2.8 – 3.0 m near the middle of the site.

The geotechnical recommendations within P061550JR01V01 were confirmed by MA (ref: P1404185JC01V01) in 2014 as part of a Section 96 application for the excavation of the lower ground level.

MA provided further geotechnical advice (P1907237JC02V01) in July 2019 in relation to an extension of the lower ground floor to the south and an additional level for a study.

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#### PROPOSED BUILDING ADDITIONS

The proposed building additions comprise demolition of the existing retaining wall along the western boundary of the lower ground floor, followed by excavation to achieve additional lower ground floor space. Refer the green shaded area in Attachment A drawings.

#### RECOMMENDATIONS

Excavation should be carried out in a manner that maintains stability of the excavated faces and integrity of the structure. Where shoring piles cannot be installed to provide temporary stability due to the existing structure, the following mitigation measures may be considered:

- Prior to any excavation, it is recommended that all existing building foundations within the zone of influence of the proposed excavation, be underpinned to rock due to limit the risk of displacement resulting from the proposed excavation.
- Following demolition of the existing retaining wall at the lower ground floor level, Initial excavation of the soil should be carried out to form a batter not exceeding 1 vertical (V):1 horizontal (H). The batter should be formed against the proposed western face and against the side walls (north and south faces).
- Excavate soil at side wall (north and south) in a suitable construction sequence that provides temporary support (e.g. internal bracing) as excavation proceeds or construct 1V:1H batter slopes of the back face where setback is available, providing structural support to existing foundations and structures can be fully maintained.
- Excavate to proposed rear wall in suitable construction sequence of alternating say 1 to 1.5m wide sections. Consideration may be given to forming a steep batter at the back face, to provide additional stability, where possible. The batter slope should not encroach within 0.5 m of the underpinned foundations.
- Each excavated section should be followed by construction of permanent wall and base.
- Consideration should be given to differential settlement between new and existing slab with suitable articulation / joints to allow any minor movements to take place.
- Suitable drainage should be provided to avoid accumulation of water near temporary slopes.

Due care is to be taken to ensure excavation works do not undermine or fall within the zone of influence of any existing footings, unless such footings can be underpinned.

#### 4.0 CONCLUSION

The above geotechnical advice is provided to mitigate against risk of excavation instability and limit any adverse impact on the existing building, resulting from the proposed extension to the lower ground floor. However, it is recommended that a geotechnical engineer inspect the ground conditions during excavation to identify any potential risks resulting from variable ground conditions.

If you require any further information, please do not hesitate to contact the undersigned.



# For and on behalf of MARTENS & ASSOCIATES PTY LTD

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Kenneth W Burgess Principal Geotechnical Engineer B.Eng (Civil) Pg. Dip (Geotechnical), MIEAust, CPEng, NER

Attachments:

A. 4.55 Amendment drawings



Attachment A – 4.55 Amendment Drawings



#### BASIX COMMITMENTS

#### Insulation Requirements:

The new or altered construction (floors, walls and ceilings/roofs) are to be constructed in accordance with the specification below: Floor - concrete slab on ground - nil

suspended floor with open subfloor - R0.8 (down) or R1.50 including construction above existing dwelling or building - nil

External Wall - (framed weatherboard, clad) - R1.3 (or R1.70 including construction)

Raked ceiling - , pitched/skillion roof: framed

Ceiling: R1.74 (up)

Roof: Foil backed blanket 75mm Medium colour (solar absorptance 0.475 - 0.70)

#### Windows and Glazed Doors:

All windows, glazed doors and shading devices, must be installed in accordance with the specifications listed in Basix Certificate No A331967

WG03, WG04, WG10, WLG04, WLG05, WLG06, WLG09 are to be pyrolytic low-e glass in timber frames (U-value:3.99, SHGC: 0.4).

The glazed roof is to be of pyrolytic low-e glass in an improved aluminium frame. (U-value: 4.48, SHGC: 0.46)

#### Lighting:

Minimum of 40% of new or altered light fixtures must be fitted with fluorescent, compact fluorescent, or light emitting diode (LED) lamps.

#### Fixtures:

Showerheads must have a flow rate no greater than 9 litres per minute or 3 star water rating

Toilets must have a flow rate no greater than 4 litres per average flush or a minimum 3 star water rating.

Taps must have a flow rate no greater than 9 litres per minute or a minimum 3 star water rating.

	4.55 Drawing List	
Sheet Number	Sheet Name	
-	•	

4.55 -01	4.55 Application
4.55 -02	4.55 - Site Plan
4.55 -03	4.55 - Lower Ground Floor Plan
4.55 -04	4.55 - Elevation - North
4.55 -05	4.55 - Section AA

# KENNETT RESIDENCE

## 4.55 APPLICATION Lot 10 DP15764 13 Bruce Street Mona Vale 2103

Jason Kennett & Mandy Eilbeck



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139 PALMGROVE ROAD

a c n : 093 598 415 ab n : 58 093 598 415 nominated architect : Richard Cole B.Sc (Arch) (Hons I) B.Arch. (Hons I) Reg. No: 6538



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acn:093 598 415 abn:58 093 598 415

nominated architect : Richard Cole B.Sc.(Arch) (Hons 1) B.Arch.(Hons1) Reg. No: 6538

No.	Revision Description	Date
KK	4.55 Application	22-03-21

#### **KENNETT RESIDENCE** 4.55 APPLICATION Lot 10 DP15764 13 Bruce Street Mona Vale 2103 Jason Kennett & Mandy Eilbeck

NOTE: Demolition of the existing structure shall be undertaken in accordance with AS2601.

**NOTE**: Per Development Consent 2019/0833 condition of consent 6 refer to Stormwater Plan dated 01-09-2020 by Martens Consulting Engineers for stormwater management and details.

**NOTE**: Per Development Consent 2019/0833 condition of consent 7 refer to Geotechnical Report dated 22-07-2019 by Martens Consulting Engineers for recommendations of risk assessment to manage identified hazards.

NOTE: fireplace & flue to be installed in strict accordance with AS 2918:2001, AS4013:2014 and to manufacturer's instructions. Refer Northern Beaches Council Approval LG2020/0015 for consent conditions.

absorption trenches to hydraulic engineers details

FL SK SR Steel Flue Skylight Steel Roofing

RESERVE

# 4.55 - Site Plan

Project number	1803	Checked by	RC
Date	MARCH 2021	Scale	1 : 200
Drawn by	PG		4.55 -02



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acn:093 598 415 abn:58 093 598 415 nominated architect : Richard Cole B.Sc.(Arch) (Hons 1) B.Arch.(Hons1) Reg. No: 6538

Jason Kennett & Mandy Eilbeck

Drawn by

Author

4.55 -03



### 1 <u>4.55 - Elevation North</u> 1 : 100

TFW Timber Framed Window

		No.	Revision Description	Date	
139 PAL	MGROVE ROAD, AVALON BEACH NSW 2107	KK	4.55 Application	22-03-21	KENINETT DEGIDENICE
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m	0418 627 024				4.55 APPLICATION
е	mailto:richard@richardcolearchitecture.com.au				Lot 10 DP15764
W	www.richardcolearchitecture.com.au				12 Drugo Street Mana Vala 2102
					for
<b>acn</b> :093 59	8 415 <b>abn</b> :58 093 598 415				Jason Kennett & Mandy Eilbeck
nominated	architect : Richard Cole B.Sc.(Arch) (Hons 1) B.Arch.(Hons1) Reg. No: 6538				· · · · · · · · · · · · · · · · · · ·

4.55 - Eleva	ation - Nc	orth	
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Date	MARCH 2021	Scale	1 : 100
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		No.	Revision Description	Date	
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W V	ww.richardcolearchitecture.com.au				13 Bruce Street Mona Vale 2103
acn:093 598 4	15 <b>abn</b> :58 093 598 415				for
nominated are	chitect : Richard Cole B.Sc.(Arch) (Hons 1) B.Arch.(Hons1) Reg. No: 6538				Jason Rennett & Manuy Enbeck