From:	[redacted]
Sent:	3/11/2023 11:29:01 AM
To:	Council Northernbeaches Mailbox
Cc:	Ted Campbell
Subject:	TRIMMED: : DA 2023 1289 1112-1116 BARRENJOEY ROAD PALM BEACH WRITTEN SUBMISSION: LETTER OF OBJECTION SUBMISSION: TULLOCH ; re CROZIERS REPORT
Attachments:	1112 BR PB CROZIER WS pdf; 2023 204 Palm Bch, 1112 1116 Barrenjoey Rd - Geotechnical Assessment Report.pdf;

Kind regard ,

Bill Tulloch BSc[Arch]BArch[Hon 1]UNSW RIBA A oc RAIA
[redacted]

S U B M I S S I O N

a written submission by way of objection

BILL TULLOCH BSC [ARCH] BARCH [HONS1] UNSW RIBA Assoc RAIA

prepared for

TED CAMPBELL, 21A PALM BEACH ROAD PALM BEACH

3 NOVEMBER 2023

NORTHERN BEACHES COUNCIL
725 PITTWATER ROAD,
DEE WHY
NSW 2099

council@northernbeaches.nsw.gov.au

RE: DA 2023 1289
1112-1116 BARRENJOEY ROAD PALM BEACH
WRITTEN SUBMISSION: LETTER OF OBJECTION
SUBMISSION: TULLOCH

Dear Sir,

This document is a written submission by way of objection lodged under Section 4.15 of the EPAA 1979 [the EPA Act].

I have been instructed by my client to forward a Geotechnical Peer Review Report carried out by Troy Crozier dated 31 October 2023.

Council will note the geotechnical concerns I raised in my submission dated 18 October 2023, within Section C16. I ask Council to review those matters along with the matters raised by Troy Crozier.

I ask Council to obtain from the applicant a detailed method statement to define how 27m deep piles are to be positioned safely adjacent my client's property, on a significant existing slope. I contend there is considerable risks involved in this construction process that requires detailed consideration at the DA stage.

Troy Crozier Report dated 31 October 2023 concludes:

Conclusion:

The geotechnical report provided for DA submission does not meet the requirements of the Councils policy and is not even based on the submitted architectural design drawings.

The report is based on suitable geotechnical investigation techniques, and whilst limited investigation was completed for the scale of proposed development, it defines that further investigation is required.

However, it does not provide sufficient and project or site-specific recommendations suitable to ensure the stability of the adjacent properties or structures as part of the proposed development.

Based on the apparent potential for excavation of up to 16.80m depth within proximity of property boundaries, it is considered that the geotechnical report does not provide suitable assessment to meet the Council Geotechnical Risk Management Policy requirements.

I attach Troy Crozier's Report.

Unless the Applicant submits Amended Plans to resolve all of the adverse amenity impacts raised within this Submission, my client asks Council to REFUSE this DA.

Yours faithfully,

Bill Tulloch

Bill Tulloch BSc [Arch] BArch [Hons1] UNSW RIBA Assoc RAIA
PO Box 440 Mona Vale
NSW 1660

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Unit 12/ 42-46 Wattle Road Phone: (02) 9939 1882
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Crozier Geotechnical Consultants a division of PJC Geo - Engineering Pty Ltd

Date: 31 October 2023
No. Pages: 4
Project No.: 2023-204

Development Officer
Northern Beaches Council.

Assessment of geotechnical report for proposed development at 1112-1116 Barrenjoey Road, Palm Beach.

We have been requested by the adjacent property owners to assess a geotechnical report and its suitability to be submitted for Development Application assessment and to inform the design and construction of a proposed development in the neighbouring property, No. 1112-1116 Barrenjoey Road, Palm Beach (DA2023/1289).

As a result we have reviewed the following documents which have been downloaded from the Northern Beaches Council eplanning portal:

1. Report "Detailed Site Investigation" by EI Australia, Report No.: E25203.G03, Revision: 1, Dated: 30/06/2021
2. Report "Geotechnical Investigation" by EI Australia, Report No.: E25203.G03, Revision: 2, Dated: 7/12/2021
3. Architectural Design by Koichi Takada Architects, Drawing No.: A0000 to A0004, A0010 to A013, A019, A0099 to A0105, A200 to A203, A300 to A302, Revision: C, Dated: 24 August 2023.
4. Survey by Beveridge Williams, Project no.: 2101343, Version: D, Dated: 24/08/2023

The undersigned completed a brief inspection of neighbouring properties 21A and 23 Palm Beach Road and 1110B Barrenjoey Road on the 17 October, with limited inspection of 1112 – 1116 Barrenjoey Road as is visible from publicly assessable land, as part of this assessment.

It was noted that 1112-1116 is located to the west and down slope of 21A, 23 Palm Beach Road and north-west of 1110B Barrenjoey Road, which all contain residential dwellings within an area that is steeply west dipping. The property 1112 - 1116 Barrenjoey Road is similarly sloping across its eastern half but is near level across its western half, with previous excavation (<4.0m depth) and retention from previous development existing.

Architectural design review

A review of the submitted design plans indicates that it is proposed to demolish all existing structures on the site and construct a new multi-level (5 storey) residential and commercial development, comprising units.

The basement level proposed will have a staggered finished floor level carpark varying between RL -1.22, RL -1.49 and RL -2.40.

Based on the levels shown within the survey, the basement excavation will be required to approx. 3.80m depth below the road reserve level (RL 2.30) at the front, north-west corner to 4.70m depth at the south-west corner and will be to approximately 11.0m depth at the rear north-east corner and approximately 16.80m depth at the rear south-east corner of the basement.

Setbacks for the external basement walls are listed at 3.0m from the southern and northern sides and the rear eastern side whilst the setbacks to the front are between approximately 1.50m and 6.00m.

The design proposal includes a 5 to 6m vertically cut sandstone feature wall at eastern excavation face adjacent to the rear courtyard for Level 01 and Level 02.

Design to construction assessment

It is expected from experience with similar excavations that a Base Excavation Level (BEL) of approximately 0.40m depth below the FFL in all locations will be required, to allow for construction of perimeter footings and slab thickness. As such, a BEL of approximately RL -1.60 to RL-2.80 will be required for the Basement Level construction with some isolated deeper excavations for footings, lift pits and services.

Similarly, a lateral extension of the proposed structure of approximately 0.45 to 0.60m is expected to allow construction of the external walls of the building within the shored excavation. This appears indicated on the architectural drawings as a thickened wall extending to the previously described set-backs, though this is not confirmed and could allow further lateral extension towards the boundaries as part of the proposed design.

The proposed vertical, natural cut sandstone face to the rear of Level 01 and 02 will require a medium strength, massive to limited defect intersected rock face of 6.0m in height to ensure stability is maintained for the design life of the development, without implementing additional support.

Geotechnical Report review and assessment

The geotechnical report supplied to the Development Application submission references architectural design drawings that were Revision: A, Dated: 20 August 2021. As such, the geotechnical report (Dated: December 2021) requires updating to the actual submitted development design (August 2023), which clearly deviates from Revision: A based on the references to depths in the geotechnical report.

The investigation report involved the details of a previous environmental investigation and a geotechnical investigation which comprised several hand auger boreholes and Dynamic Penetrometer test methods along with 4 boreholes which in part involved core drilling across the southern half of the proposed development only and the placement of a single groundwater well in the lower south-western corner of the site.

At the rear eastern side of the site, rock was identified in BH103 from 1.0m depth (RL 11.0) and BH104 from 0.47m depth (RL 11.53). The inspection by the undersigned identified soil and boulders through the area between No. 21A/23 and 1112 – 1116, which is likely part of colluvial soils which are seen across adjacent properties. However, this material is not identified in the investigation report and is not listed within Table 3-1 Summary of Sub-surface Conditions.

The rock within BH103/104 was logged as XW (extremely weathered) and very low strength in both boreholes from initial intersection to approximately 4.60m depth (RL7.40) with the core photographs showing extensive clay seams and fracturing/defects in the rock mass. Both boreholes then identify low strength laminate bedrock to between 11.0m (RL 1.0) and 13.0m (RL -1.00), the base investigation levels.

From review of the core photographs this appears reasonable logging however BH 103 shows extensive clay seams of up to 400mm thickness and fracturing in the rock mass extending to 7.40m depth (RL 4.40), which are described in the Defects Description column only. These extremely weathered portions of the bedrock are also not referred to in Table 3-1 Summary of subsurface conditions, whilst it should be noted that extremely weathered material is defined in Australian Standard AS1726:2017 ‘Geotechnical Site Investigations’ as “Material is weathered to such an extent that it has soil properties”. As such, the XW material cannot be considered to be “Very Low” strength rock. Therefore geological/geotechnical conditions have been proven as of lower quality than that detailed in the geotechnical report.

At the lower western side of the site BH101 identified rock from 3.2m depth (RL -0.92), however BH102 did not hit any rock with only silty sand to 2.0m depth (RL 0.50) then very stiff silty clay to a maximum drilled depth of 9.87m (RL-7.37).

Groundwater was identified in BH102 at approximately 2.0m depth (RL0.50), where no bedrock was identified. However, groundwater monitoring was implemented in BH101, at the south-west corner, within the bedrock with the results identifying a standing groundwater table at between RL1.08 – 1.38m, over a 3 month period. As such, there is no indication of the groundwater variations which could be occurring in the soils across the north-west corner of the site.

Section 4 of the report details assessment and recommendations, however these appear generic and not project specific. They include that the "proposed development will require an excavation depth of about 3.0m BEGL", which is well short of the 16.8m depth required across the eastern side of the site and even less than that required across the western side of the site, highlighting the inconsistency between the design assessed by the geotechnical investigation and that submitted for the DA.

The basement level will intersect the free-standing groundwater table as identified in BH101 /BH102 in sandy and silty clay soils identified in BH102, with the base level of the excavation potentially up to 4.20m below the groundwater table surface. Where a traditional excavation support system, including that with contiguous pile walls is proposed, extensive groundwater inflow will occur making ongoing pumping necessary. To prevent this from occurring a secant pile wall and tanked basement structure is required. These are not mentioned in the geotechnical report. The lowering of groundwater levels external to the site as a result of insufficient excavation support systems where a groundwater table is encountered, will result in settlement especially in the sandy soils and as such impact to adjacent structures, which includes the nearby commercial and residential structures to the north and south which are expected to be founded at shallow depth.

The geotechnical report does not include risk analysis which is even identified in the report at Section 4.6.3 by "slope stability and risk assessment was not part of the agreed scope for this project". It then provides an excerpt of the risk analysis completed by Douglas Partners for a previous proposed development, which is therefore not valid for the submitted development, which clearly deviates for the previous design proposed.

The geotechnical report also does not include Forms 1 and 1a of the Councils Risk Management policy – and as such is not suitable for submission with a Development Application.

Table 4-2 Geotechnical Design Parameters provides the recommended design parameters for the design of excavation support systems by the structural engineers. The parameters proposed are identical for each of the upper three soil units defined (Fill, Alluvial Soils, Residual Soils) which must be considered as unusual and not representative of the actual conditions identified in the investigation. This table is also based on Table 3 -1 Summary of Subsurface Conditions and as such has no reference to the extremely weathered horizons/material identified in the drilling, which is a weaker rock mass than the described Unit 3 and as such will impact design.

The geological units identified do not allow for the formation of a 'natural cut sandstone wall' at Level 01 to 02, and actual conditions identified dictate that full height of support will be necessary to maintain stability of the slope above. Based on conditions detailed in the geotechnical report, lack of suitable support will be expected to result in large scale instability with probable impact to neighbouring structures in all upslope and adjacent properties.

Section 4.6.5 discusses the use of "Conventional free standing cantilever walls", however as walls to nearly 17.0m in height of retention would be required of cantilever systems, with additional anticipated 10m depth of wall below excavation base (i.e. 27m deep pile), to prevent instability in the east of the site, this method of support is not suitable and a braced or anchored retention system will be required.

Anchoring, which based on a 3.0m rear boundary set-back and the geological conditions identified, will likely need to extend at least 7.0m beyond the eastern property boundary. This would require approval from neighbouring property owners, which based on discussions with those owners will not be forthcoming. As such, only a braced methodology will be possible which also appears unachievable in the conditions identified for the proposed development.

Section 4.7 Foundations indicates that Unit 3 (Very Low top Low strength) will be exposed at the Base Excavation Level, however BH102 identified sand and silty clay only extending to well below the basement level listed in the report, which is shallower than that listed in the submitted architectural design drawings. Therefore, the geotechnical report recommendations do not match the ground conditions identified or the works proposed.

Section 5. Further Geotechnical Inputs outlines that "Additional Geotechnical Investigation in the form of 2 to 3 cored boreholes" is required however it only lists these for the northern side of the site. It also details that a "Landslide Risk Assessment after confirming the actual extent of the proposed development" is required, further highlighting that the report is not suitable (and potentially never was proposed by the authors) to be submitted with the DA.

Conclusion:

The geotechnical report provided for DA submission does not meet the requirements of the Councils policy and is not even based on the submitted architectural design drawings.

The report is based on suitable geotechnical investigation techniques, and whilst limited investigation was completed for the scale of proposed development, it defines that further investigation is required.

However, it does not provide sufficient and project or site specific recommendations suitable to ensure the stability of the adjacent properties or structures as part of the proposed development.

Based on the apparent potential for excavation of up to 16.80m depth within proximity of property boundaries, it is considered that the geotechnical report does not provide suitable assessment to meet the Council Geotechnical Risk Management Policy requirements.

We trust the above comments meet you current needs, if we can be of further assistance in regard to this matter please don't hesitate to contact the undersigned.

Yours faithfully,

Troy Crozier

Principal

MIE Aust. – Geotechnical Engineer

MAIG, RPGeo – Geotechnical and Engineering