GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

Job No: 14855/1
Our Ref: 14855/1-AA
3 March 2021

PVD No 21 Pty Ltd
c/-Craig & Rhodes Pty Ltd
P O Box 3220
RHODES NSW 2138
Email: KBanda@crhodes.com.au

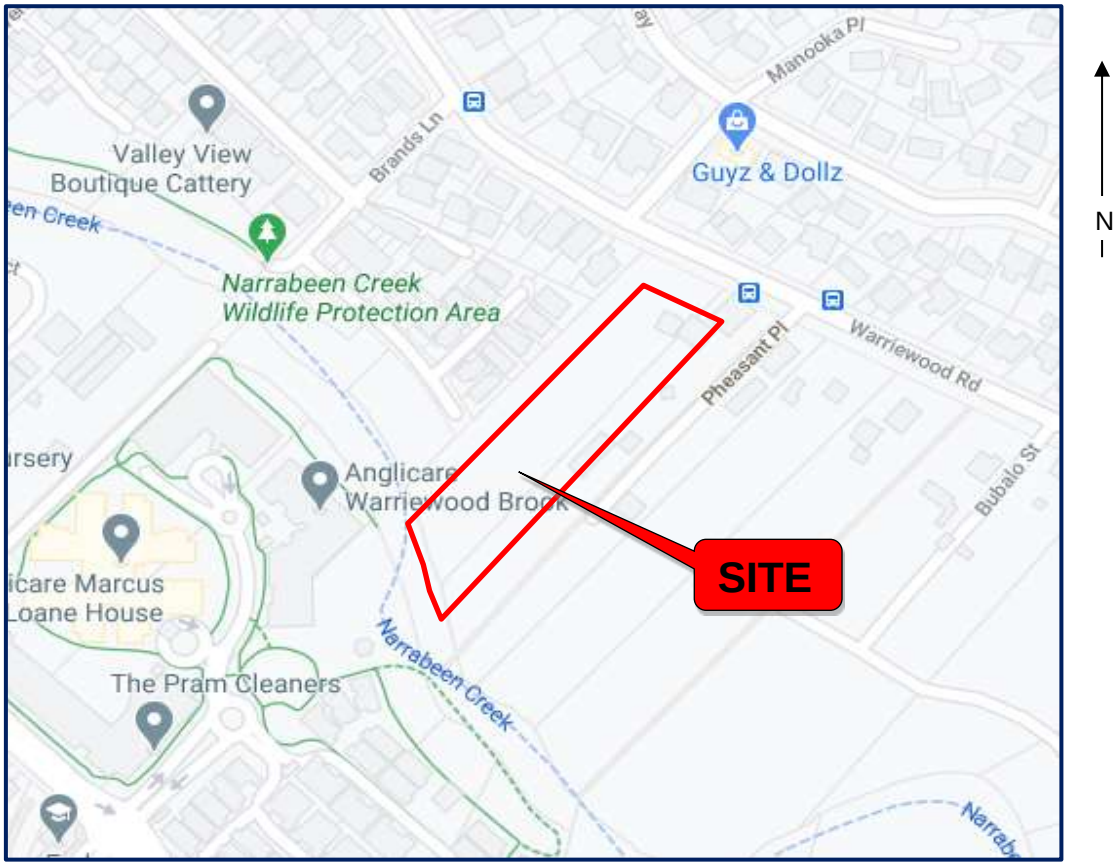
Attention: Ms K Banda

Dear Madam

re: **Proposed Residential Subdivision**
Lot 2 in DP1115877 - 53A Warriewood Road, Warriewood
Contamination Assessment Report Update

This letter report is a contamination assessment report update for a parcel of land currently registered Lot 2 in DP1115877, located at 53A Warriewood Road, Warriewood (hereafter referred as site), in the local government area of Northern Beaches, as indicated on Figure 1 below.

FIGURE 1



Map Data ©2021 Google

Geotechnique Pty Ltd (Geotechnique) prepared a phase 1 preliminary contamination assessment (PCA) report (Report No 13234/2-AA dated 25 August 2014), for the property registered as Lots 2 and 3 in DP1115877 and Part Lot 3 in DP942319, located at 53A, 53B and 53 Warriewood Road, Warriewood and a phase 2 contamination assessment (CA) report (Report No 13757/2-AA dated 27 June 2016) for a parcel of land currently registered as Lots 2 and 3 in DP1115877, located at 53A and 53B Warriewood Road, Warriewood.

The objectives of the Phase 1 PCA were to assess whether the site potentially presents a risk of harm to human health and/or the environment and to determine the suitability of the site for the proposed development. In order to achieve the objectives of the assessment the scope of work included a study of site history, geological and hydrogeological information and a site inspection.

As the site is proposed for residential development, a suitable sampling and testing plan, as a detailed contamination assessment (Phase 2 CA), was recommended in the Phase 1 PCA to address the potential for contamination listed in Section 7.0 of the Phase 1 PCA report.

The objective of the Phase 2 CA was to supplement the Phase 1 PCA Report 13234/2-AA with appropriate soil sampling and testing, in order to ascertain whether the site is likely to present a risk of harm to human health and/or the environment.

In order to achieve the objective of the assessment, the scope of work included review of the phase 1 preliminary contamination assessment report, site reconnaissance, test pit excavation, soil sampling and testing.

The findings of the Phase 2 CA are summarised as follows:

- The site comprised two individual rural residential properties facing Warriewood Road.
- The site is proposed for residential development involving construction of residential dwellings and townhouses/apartment buildings with three storeys above the ground and one level of basement car park.
- The entire site is underlain by imported and site originated fill overlying natural clayey silt, sandy silt and clayey soil. The test pits did not reveal any visual evidence of asbestos or other indicators of significant contamination, such as staining, odours or significant foreign matter, with the exception of the presence of fibro-cement pieces in the fill profile at test pit TP25. Moreover, one fibro-cement piece at the ground surface of each of two judgmental sampling locations (FCP1 and FCP2) was also observed. Both fibro-cement pieces were sent to laboratory for asbestos analysis. No other fibro-cement pieces were found on the ground surface at FCP1 and FCP2.
- All the laboratory test results satisfied the criteria for stating that the analytes selected are either not present i.e. concentrations less than laboratory limits of reporting, or present in the sampled soil at concentrations that do not pose a risk of hazard to human health or the environment under a “residential with access to soil” form of development, with the exception of elevated cadmium and PAH concentrations and detection of friable asbestos and bonded asbestos containing material (ACM) fragments, as indicated on Drawing No 13757/2-AA2. Elevated Benzo(a)Pyrene TEQ concentrations and friable asbestos presents a risk of harm to human health, whilst elevated Benzo(a)Pyrene (BaP) and cadmium concentrations might impact on terrestrial ecosystems or on the growth of certain plants. ACM fragments present a potential risk of harm to human health.

The site is considered suitable for the proposed residential development subject to implementation of the following recommendations prior to site preparation and earthworks:

- Detailed sampling and testing in the vicinity of locations of concern, as indicated on Drawing No 13757/2-AA2, to delineate the extent of contamination.
- Sampling and testing of soils in the footprints of site features such as the houses, building, sheds, carport, glasshouse, concrete, recycled asphalt, gravel and bitumen covered areas, after complete demolition and removal or clearing.
- Development of a remedial action plan (RAP) to remediate PAH and asbestos contaminated fill materials with elevated Metals concentrations plus any other contamination identified through the recommended additional sampling and testing, followed by appropriate validation. We consider that the site can be made suitable for the proposed development following appropriate remediation and validation.

At the time of inspection on 10 February 2021 by an Environmental Scientist from Geotechnique as a part of report updated, the site comprised one (1) individual property (53A Warriewood Road) facing Warriewood Road, as observed during Phase 1 PCA in July 2014 and during the Phase 2 CA in May 2016. The site condition remains almost unchanged with the exception of removal of a glasshouse, a galvanised iron (GI) chook shed and a GI shed from the site, as indicated on Drawing No 14855/1-AA1 in Attachment A. The former glass house and GI chook shed were located near the remnant of former shed and the former GI shed was located adjacent to GI and fibro shed.

NearMap images in May 2017, June 2018, June 2020 and January 2021 in Attachment B also show no significant change to the site over this time period.

As the site inspection and NearMap images raises no additional environmental concern, in our opinion we consider that the parcel of land currently registered Lot 2 in DP1115877, located at 53A Warriewood Road, Warriewood is suitable for the proposed residential development subject to implementation of the following recommendations prior to site preparation and earthworks:

- Detailed sampling and testing in the vicinity of location of concern FCP2, as indicated on Drawing No 13757/2-AA2, to delineate the extent of asbestos contamination, as other locations of concern (TP14, TP20 and TP25) are located outside the current site boundary.
- Sampling and testing of soils in the footprints of site features such as the house, sheds and recycled asphalt covered area, after complete demolition and removal or clearing and in the footprints of former glass house and two former GI sheds.
- Development of a remedial action plan (RAP) to remediate asbestos contaminated natural sandy silt plus any other contamination identified through the recommended additional sampling and testing, followed by appropriate validation. We consider that the site can be made suitable for the proposed development following appropriate remediation and validation.

It should be noted that since the site was used in the past for agricultural activities, there is potential for buried irrigation pipes to remain beneath the site surface. It is also possible that the pipes might be formed from bonded asbestos. If any asbestos pipes are uncovered, a suitably qualified asbestos removal contractor must be engaged to carry out removal.

If suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheets / pieces / pipes, ash material, etc.) are encountered during any stage of future demolition / site preparation, the Unexpected Finds Management Protocol (Attachment C) should be implemented. In the event of contamination, detailed assessment, remediation and validation will be necessary.

For any materials to be excavated and removed from the site, it is recommended that waste classification of the materials is undertaken, in accordance with the "Waste Classification Guidelines Part 1: Classifying Waste" NSW EPA 2014; NSW EPA resource recovery exemptions and orders under the Protection of the Environment Operations (Waste) Regulation 2014; or NSW EPA *Certification: Virgin excavated natural material* prior to disposal at a facility that can lawfully accept the materials.

Any imported soil (fill) must be assessed by a qualified environmental consultant, prior to importation, to ensure suitability for the proposed use. In addition, the imported fill must not contain asbestos and ash, be free of unusual odour, not be discoloured and not acid sulphate soil or potential acid sulphate soil. The imported fill should either be virgin excavated natural material (VENM) or excavated natural material (ENM).

If you have any questions, please do not hesitate to contact the undersigned.

Yours faithfully
GEOTECHNIQUE PTY LTD

ANWAR BARBHUYIA
Senior Associate
B.E (Civil), MEngSc (Enviro), MIEAust

Attachment A	Drawing No 14855/1-AA1 (Site Features)
Attachment B	NearMap Images
Attachment C	Unexpected Finds Management Protocol

ATTACHMENT A

DRAWING NO 14855/1-AA1
(SITE FEATURES)

Imagery ©2021 NearMap.com

0 12 24 36 48 60m

Scale 1:1200

PREPARED BY:

GEOTECHNIQUE® PTY LTD

PO Box 880
Penrith NSW 2750
Tel: 02 4722 2700
Fax: 02 4722 2777
e-mail:info@geotech.com.au
www.geotech.com.au

Proposed Residential Development
Lot 2 in DP1115877
53A Warriewood Road, Warriewood

Site Features

Drawing No: 14855/1-AA1
Job No: 14855/1
Drawn By: MH
Date: 2 March 2021
Checked By: AB

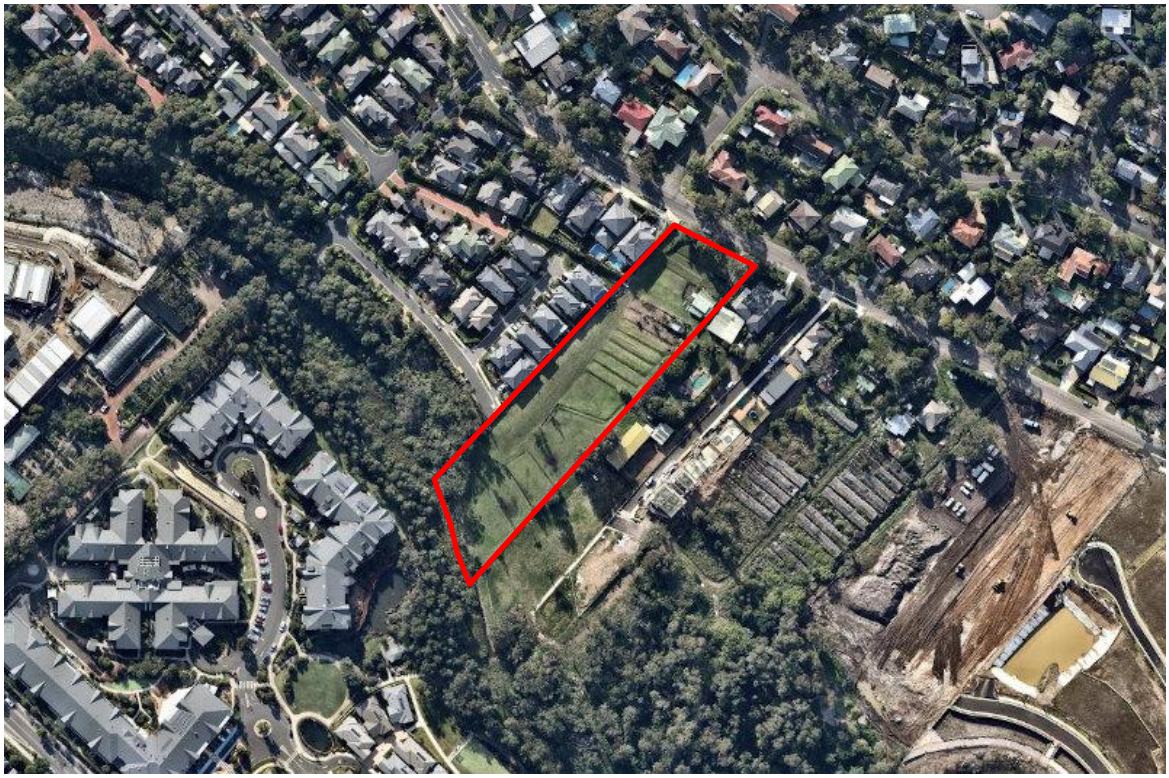
File No: 14855-1
Layers: 0, AA1

ATTACHMENT B

NEARMAP IMAGES

January 2021

June 2020



June 2018

May 2017

ATTACHMENT C

UNEXPECTED FINDS MANAGEMENT PROTOCOL

GEOTECHNIQUE® PTY LTD

ABN 64 002 841 063

UNEXPECTED FINDS MANAGEMENT PROTOCOL

LOT 2 IN DP1115877 – 53A WARRIEWOOD ROAD, WARRIEWOOD

In the event that unexpected finds and/or suspect materials (identified by unusual staining, odour, discolouration or inclusions such as building rubble, asbestos sheeting/pieces/pipes, ash material, imported fill, etc.) are encountered during any stage of future earthworks/site preparation/any demolition, the following actions are to be undertaken.

Management of unexpected finds and/or suspect materials
If unexpected finds and/or suspect materials are encountered:

- Works are to be ceased.
- An Environmental consultant is to be engaged to take appropriate sampling and testing of contaminants of potential concern at a nominated rate in accordance with current NSW EPA guidelines.
- If contamination is identified, the contaminated materials must be disposed of at an EPA licensed landfill facility with an appropriate waste classification.

Management of bonded asbestos containing material (ACM)
If ACM is encountered, the following measures are implemented:

- Engage a Class B Licence for bonded asbestos contractor.
- Removal of the asbestos waste must be carried out in accordance with the requirements of the regulators, such as SafeWork NSW and NSW EPA.
- Competent personnel or a SafeWork NSW Licensed Asbestos Assessor or a Professional Hygienist should be engaged to provide a clearance certificate.

Management of friable asbestos within the soil
It is recommended that the following measures are implemented if friable asbestos is encountered:

- Engage a Class A licensed contractor for friable asbestos
- Removal of the asbestos waste must be carried out in accordance with the requirements of the regulators, such as SafeWork NSW and NSW EPA
- A SafeWork NSW Licensed Asbestos Assessor or a Professional Hygienist must be engaged to provide a clearance certificate

Lemko Place, Penrith NSW 2750 PO Box 880, Penrith NSW 2751
Telephone (02) 4722 2700
e-mail: info@geotech.com.au www.geotech.com.au